Controversy and Confrontation

Edited by Frans H. van Eemeren and Bart Garssen

CONTROVERSIES 6

John Benjamins Publishing Company

Controversy and Confrontation

Controversies (CVS)

Controversies includes studies in the theory of controversy or any of its salient aspects, studies of the history of controversy forms and their evolution, case-studies of particular historical or current controversies in any field or period, edited collections of documents of a given controversy or a family of related controversies, and other controversy-focused books. The series will also act as a forum for 'agenda-setting' debates, where prominent discussants of current controversial issues will take part. Since controversy involves necessarily dialogue, manuscripts focusing exclusively on one position will not be considered.

Editor

Marcelo Dascal
Tel Aviv University

Advisory Board

Harry Collins
University of Cardiff

Frans H. van Eemeren
University of Amsterdam

Gerd Fritz
University of Giessen

Fernando Gil †
Ecole des Hautes Etudes en Sciences Sociales, Paris

Thomas Gloning
University of Marburg

Alan G. Gross
University of Minnesota

Geoffrey Lloyd
Cambridge University

Kuno Lorenz
University of Saarbrücken

Everett Mendelssohn
Harvard University

Quintín Racionero
UNED, Madrid

Yaron Senderowicz
Tel Aviv University

Stephen Toulmin
University of Southern California

Ruth Wodak
University of Vienna

Volume 6

Controversy and Confrontation. Relating controversy analysis with argumentation theory
Edited by Frans H. van Eemeren and Bart Garssen

Controversy and Confrontation

Relating controversy analysis with argumentation theory

Edited by

Frans H. van Eemeren
Bart Garssen
University of Amsterdam

John Benjamins Publishing Company
Amsterdam / Philadelphia

The paper used in this publication meets the minimum requirements of American National Standard for Information Sciences – Permanence of Paper for Printed Library Materials, ANSI Z39.48-1984.

Library of Congress Cataloging-in-Publication Data

Controversy and confrontation : relating controversy analysis with argumentation theory / edited by Frans H. van Eemeren and Bart Garssen.
p. cm. (Controversies, ISSN 1574-1583 ; v. 6)
Includes bibliographical references and index.
1. Persuasion (Rhetoric) 2. Debates and debatiing. 3. Pragmatics. 4. Logic. 5. Reasoning. I. Eemeren, F. H. van. II. Garssen, Bart.
P301.5.P47C655 2008
808.53--dc22 2008035990
ISBN 978 90 272 1886 5 (Hb; alk. paper)

© 2008 – John Benjamins B.V.
No part of this book may be reproduced in any form, by print, photoprint, microfilm, or any other means, without written permission from the publisher.

John Benjamins Publishing Co. · P.O. Box 36224 · 1020 ME Amsterdam · The Netherlands
John Benjamins North America · P.O. Box 27519 · Philadelphia PA 19118-0519 · USA

Table of contents

Preface VII

List of contributors IX

Controversy and confrontation in argumentative discourse 1
Frans H. van Eemeren & Bart Garssen

Dichotomies and types of debate 27
Marcelo Dascal

Charles Darwin versus George Mivart: The role of polemics in science 51
Anna Carolina Regner

Scientific demarcation and metascience: The national academy of sciences on greenhouse warming and evolution 77
Thomas M. Lessl

Reforming the Jews, rejecting marginalization: The 1799 German debate on Jewish emancipation in its controversy context 93
Mirela Saim

Communication principles for controversies: A historical perspective 109
Gerd Fritz

On the role of pragmatics, rhetoric and dialectic in scientific controversies 125
Ademar Ferreira

A "dialectic ladder" of refutation and dissuasion 135
Cristina Marras & Enrico Euli

Responding to objections 149
Ralph H. Johnson

Pragmatic inconsistency and credibility 163
Jan Albert van Laar

Reasonableness in confrontation: Empirical evidence concerning the assessment of ad hominem fallacies 181
Frans van Eemeren, Bart Garssen & Bert Meuffels

Managing disagreement in multiparty deliberation 197
Mark Aakhus & Alena L. Vasilyeva

Predicaments of politicization in the debate over abstinence-only sex education 215
Sally Jackson

Rhetoric of science, pragma-dialectics, and science studies 231
Gábor Kutrovátz

Scientific controversies and the pragma-dialectical model: Analysing a case study from the 1670s, the published part of the Newton-Lucas correspondence 249
Gábor A. Zemplén

Index 275

Preface

Controversy and Confrontation is a collection of papers on argumentative discourse that centre round the notions of controversy and confrontation. Each paper illuminates certain theoretical or empirical aspects of argumentation in controversy or confrontation in argumentation. When taken together, the papers provide a closer insight into the relationship between controversy and confrontation that deepens our understanding of the functioning of argumentative discourse in managing differences of opinion. In our introductory chapter, 'Controversy and Confrontation in Argumentative Discourse,' we make use of theoretical concepts from both the study of controversy and the study of argumentation to explain what this relationship involves.

Basically, the contributors to this volume stem from two backgrounds, which partially overlap (and should, in our view, overlap even more): the International Association for the Study of Controversies (IASC) and the International Society for the Study of Argumentation (ISSA). On the one hand, Marcelo Dascal, Cristina Marras, Enrico Euli, Anna Carolina Regner, Ademar Ferreira and Thomas M. Lessl are involved in studying historical controversies, both from a theoretical and an empirical perspective. In a similar vein, Mirela Saim concentrates on a historical controversy concerning Jewish emancipation; Gerd Fritz provides a historical perspective on controversies by analyzing communication principles. On the other hand, Ralph Johnson, Jan Albert van Laar, Frans H. van Eemeren, Bart Garssen and Bert Meuffels address in their contributions in the first place theoretical or empirical aspects of argumentative confrontation. Mark Aakhus and Alena L. Vasilyeva too concentrate primarily on argumentative confrontation: they examine argumentative discourse from the perspective of conversation analysis. Sally Jackson analyzes argumentative confrontation in a recent debate between scientists and politicians. Among the contributors who make an attempt to bridge the study of historical controversy and the study of argumentation by utilizing conceptual instruments of the latter to serve the former are Gábor Kutrovátz and Gábor A. Zemplén.

In *Controversy and Confrontation* the contributing authors analyze a number of important historical and modern argumentative exchanges. In some cases, such an analysis is their main aim; in other cases, the analysis is instrumental in explaining their approach. Among the cases that are discussed are the Newton – Lucas debate, the debate between Darwin and Mivart on evolution in the late 19th century, the philosophical confrontation on historicism between Strauss and Stern, the debate

on Jewish emancipation between David Friedländer, Wilhelm Abraham Teller and Friedrich Schleiermacher that took place in Germany in 1799, the controversy on "action research" in the social sciences, Plato's Euthydemus dialogue, the technical controversy about the notion of "decoupling," Putnam's discussion of "inflated distinctions," the American National Academy of sciences' position on greenhouse warming and evolution, but also a debate about abstinence-only sex education and a discussion of leaders of a small community with representatives of a land development firm about a plan for housing development. Enough variety, we hope, to appeal to the interested reader.

Next to the anonymous reviewers, who scrutinized upon our request each paper very carefully and made a great number of constructive comments, we would like to thank Renske Wierda and Halvor Berggrav for their technical assistance.

Frans H. van Eemeren & Bart Garssen, Editors

List of contributors

Mark Aakhus

Mark Aakhus (Ph.D., University of Arizona) is Associate Professor in the Department of Communication at Rutgers, The State University of New Jersey. He investigates the emergence and management of conflicts that arise as people attempt to make decisions, solve problems, and learn. This research examines the practices and technologies people implement to regulate and shape their communication and the consequences for how people interact and reason with each other when facing complex situations. He is co-editor, along with James Katz, of *Perpetual contact: Mobile communication, private talk, public performance* (2002).

Marcelo Dascal

Marcelo Dascal is Professor of Philosophy and former Dean of Humanities at Tel Aviv University. His main research areas are the philosophy of language, pragmatics, the philosophy of mind, the history of modern philosophy, particularly Leibniz, and the study of controversies. His recent authored and edited books include *Negotiation and Power in Dialogic Interaction* (2001), *Interpretation and Understanding* (2003), *The Gust of the Wind: Humanities in a New-Old World* (2004) (in Hebrew), *Controversies and Subjectivity* (2005), *G.W. Leibniz. The Art of Controversies* (2006), *Leibniz: What Kind of Rationalist?* (2008), *Leibniz the Polemicist: The Practice of Reason* (to appear). He is the editor of the journal *Pragmatics & Cognition* and of the book series *Ma? Da!* (in Hebrew) and *Controversies*, and co-editor of the book series *Human Cognitive Processes*. Dascal is the current president of the International Association for the Study of Controversies (IASC). He has received many awards, including the Humboldt Prize and the ISSA Argumentation Award.

Frans H. van Eemeren

Frans H. van Eemeren is Professor of Speech Communication, Argumentation Theory and Rhetoric and director of the Research Master's programme Rhetoric, Argumentation theory and Philosophy (RAP) and the research program Argumentation and Discourse at the University of Amsterdam. Together with Rob Grootendorst, he developed the pragma-dialectical theory of argumentation, which he extended with Peter Houtlosser. He is editor-in-chief of the interdisciplinary journal *Argumentation* and the *Library of Argumentation*, chairman of the International Society for the Study of Argumentation (ISSA) and Distinguished Scholar of the American National Communication Association. Among his key publications are: (with Grootendorst) *Speech Acts in Argumentative Discussions* (1984), *Argumentation, Communication, and Fallacies*

(1992), *A Systematic Theory of Argumentation* (2004), (with Grootendorst, Jackson, and Jacobs) *Reconstructing Argumentative Discourse* (1993), (with Houtlosser) *Dialectic and Rhetoric* (2002), and (with Houtlosser and Snoeck Henkemans) *Argumentative Indicators in Discourse* (2007).

Enrico Euli

Enrico Euli is researcher and lecturer in Department of Philosophical and Pedagogical Studies at the University of Cagliari, currently teaching courses on play's methodology and pedagogy of communication processes. Apart from the topics of these courses his research interests include intercultural and conflict mediation, trainings to non-violence and ecology of mind. He has recently published *I dilemmi (diletti) del gioco* (2004), and *Casca il mondo!* (2007).

Ademar Ferreira

Ademar Ferreira is Associate Professor in the Department of Telecommunications and Control Engineering, Polytechnic School, University of São Paulo. His current research interests are computational intelligence, mobile robotics, cognitive science and the philosophy of science. His recent publications include *Encontro com as Ciências Cognitivas*, (Ed., 2004) and "Controversies and the logic of scientific discovery" (in P. Barrotta and M. Dascal (Eds), *Controversies and Subjectivity*, p. 115–125, 2005).

Gerd Fritz

Gerd Fritz is Professor of Linguistics at the University of Gießen, formerly at the University of Tübingen. His current research interests include the pragmatics of text and dialogue, especially the structure and dynamics of scientific controversies, text comprehensibility and usability of hypertexts, and historical semantics. Among his major publications are *Kohärenz. Grundfragen der linguistischen Kommunikationsanalyse* (1982), *Handbuch der Dialoganalyse* (co-edited, 1994); *Historical Dialogue Analysis* (co-edited, 1999), *Einführung in die historische Semantik* (2005).

Bart Garssen

Bart Garssen is an Assistant Professor in the Department for Speech Communication, Argumentation Theory and Rhetoric, University of Amsterdam. His specialisations are argument schems and empirical research into argumentation. Among his publications are *Argumentatieschema's in pragma-dialectisch perspectief. Een theoretisch en empirisch onderzoek* [Argument schemes from a prgma-dialectical perspective. A theoretical and empirical research] (Ph.D. dissertation, 1997). Currently he is completing the monograph *Judgments on Fallacies. Systematic Empirical Research on the Conventional Validity of the Pragma-Dialectical Discussion Rules* (with van Eemeren and Meuffels).

Sally Jackson

Sally Jackson is Professor of Communication; Associate Provost & Chief Information Officer at University of Illinois, Urbana-Champaign, Illinois. Her research interests

are argumentation in general, and more specifically design problems characteristic of certain domains of argumentative discourse; as well as communication research methods. Her main publications are *Reconstructing argumentative discourse* (co-authored with F.H. van Eemeren, R. Grootendorst & S. Jacobs 1993), *Random factors in ANOVA* (co-authored with D.E. Brashers 1994), and *Message effects research: Principles of design and analysis* (1992).

Ralph H. Johnson

Ralph Johnson is Professor Emeritus in the Department of Philosophy at University of Windsor, and Co-Director at Center for Research on Reasoning, Argumentation and Rhetoric. His main areas of research are informal logic, argumentation theory, and the theory of critical thinking. Currently he is working on a book about Dialectical Adequacy, which will act as a successor to his *Manifest Rationality* (2000). His main publications are *Logical self-defense* (co-authored with J.A. Blair, 1st ed. 1977), *The rise of informal logic* (1996), and *Manifest rationality: A pragmatic study of argument* (2000).

Gábor Kutrovátz

Gábor Kutrovátz is affiliated with the Loránd Eötvös University of Budapest, Department of History and Philosophy of Science. His research interests include the social and discursive dimensions of scientific practice and their implications in epistemology. Additionally, he carries out research concerning controversies and metascientific legitimisations in and around science, social studies of science versus anti-relativist philosophies and ideologies of science, and lessons from the Science Wars. His main publication is *A tudomany hatarai* [The Boundaries of Science] (co-authored with B. Láng & G.A. Zemplén 2008).

Jan Albert van Laar

Jan Albert van Laar obtained his Ph.D. in Philosophy in 2003 with his dissertation *The Dialectic of Ambiguity: A Contribution to the Study of Argumentation*. At the moment he is working as an assistant professor at the Department of Theoretical Philosophy, University of Groningen, and as a postdoc researcher in the Department of Speech Communication, Argumentation Theory and Rhetoric, University of Amsterdam. Current research concerns strategic manoeuvring in an attempt to exclude disagreeable opinions from discussion by pointing out an inconsistency in the arguer's position, by pointing out the harmful consequences of putting forward the opinion, by ridiculing a position and its defender or by acting as if a different opinion has been put forward by the arguer.

Thomas M. Lessl

Thomas Lessl teaches rhetoric at the University of Georgia. His scholarship is concerned with rhetoric in the public culture of modern science, especially as this pertains to the cultivation of its professional ethos. His forthcoming book from Michigan State University Press, *Rhetorical Darwinism* (2009), examines the historical evolution of this identity.

Cristina Marras

Cristina Marras is Ph.D. in philosophy (Tel Aviv University, 2004), "Laurea" in Philosophy and "Laurea" in Pedagogy (University of Cagliari, Italy). She is currently a researcher at the *Istituto per il Lessico Intellettuale Europeo e la Storia delle Idee* (ILIESI-CNR, Roma) for the project *Discovery, Digital Semantic Corpora for Virtual Research in Philosophy* and she teaches Theory of Communication at the Faculty of Philosophy, University of Roma La Sapienza. Her main research interests include early modern philosophy, history of linguistic ideas, pragmatics, theory of communication and controversies. She published several articles in journals and collective volumes. She is the secretary of the *International Association for the Study of Controversies* (IASC, read I ASK).

Bert Meuffels

Bert Meuffels is associate professor in the department of Speech Communication, Argumentation Theory and Rhetoric at the University of Amsterdam, specialized in methodological and statistical aspects of empirical research in speech communication. He published *Methods and Techniques of Empirical Research* (1992), *De verguisde beoordelaar* (1994, Essays on essay grading) and *Diagnostische schrijfvaardigheidstoetsen* (1996, diagnostic writing ability tests). The last ten years, together with Frans H. van Eemeren and Bart Garssen, he has been researching the conventional validity of the pragma-dialectical discussion rules with a focus on fallacies.

Anna Carolina Regner

Anna Carolina Regner is Professor in the Faculty of Philosophy at the Universidade do Vale do Rio dos Sinos (UNISINOS), in São Leopoldo. Her research and teaching interests have focused on the theory of argumentation and on the epistemological, metaphysical and methodological aspects of the Darwinian theory of Natural Selection. Her published work includes articles, book chapters, the book *Charles Darwin - Notas de Viagem: a tessitura social no pensamento de um naturalista,* (1988), and *A filosofia e a ciência redesenham horizontes* (co-edited with Luiz Rohden 2005). She is currently completing a book on the reconstruction of Darwin's arguments in the *Origin of Species*, with the aim of investigating the innovative argumentative strategies he employs, the role of controversies in his argumentation, and the novel view of rationality to be found in his approach.

Mirela Saim

Dr. Mirela Saim is a Canadian scholar who has trained in Romania, Canada, France and the USA, currently working and lecturing in Montreal, at McGill University. Her research interests include rhetoric and argumentation, paradigms of comparative epistemologies in religion, literature, philosophy and anthropology. She usually unwinds by translating and reviewing.

Alena L. Vasilyeva
Alena L. Vasilyeva is Senior Lecturer in the Department of Foreign Speech Communication, Minsk State Linguistic University, Belarus, and a Ph.D. student in the Department of Communication at Rutgers, The StateUniversity of New Jersey, USA. Her research focuses on conflictmanagement, deliberation, decision-making, and the coordination of actionsin personal and public contexts. She approaches these processes from theperspective of language and social interaction.

Gábor A. Zemplén, Ph.D.
Zemplén is teaching at the Budapest University of Technology and Economics (BME), and is Bolyai post-doctoral research fellow. He is exploring ways of using models of argumentation for the analysis of scientific controversies, and the ways argumentative practices changed in the natural sciences. He is a member of the Hungarian Academy of Sciences Complex Committee for the History of Science and Technology since 2003. He is editor of the book series "History and Philosophy of Science" published by L'Harmattan, Hungary, where he co-edited three volumes. His publications include *The History of Vision, Colour, & Light Theories – Introductions, Texts, Problems* (2005) and *A tudomany hatarai* [The boundaries of science] (co-authored with B. Láng & G. Kutrovátz 2008). His current project is a book on the 17th century optical controversies.

Controversy and confrontation in argumentative discourse

Frans H. van Eemeren & Bart Garssen

1. Controversies as argumentative confrontations

The study of controversy is flourishing. All over the world controversies are examined by controversy scholars who aim to make enlightening analyses of the way in which a certain controversy comes about, develops, and comes to an end or, not atypically, remains in place. A considerable amount of these analyses concentrate on cases of controversy in the history of science, but due attention has also been paid to other kinds of historic and present-day controversy. *Controversy and Confrontation* testifies to the breadth and richness of this strongly emerging field of study.

Controversy and Confrontation contains several contributions dealing with scientific controversies. In 'Dichotomies and types of debate,' for instance, Dascal (chapter 2) – who is to be considered as the grand man of the study of controversy – analyzes "nature, reasons, and theoretical and practical consequences" of the use of dichotomies in confrontational debates. Concentrating, for example, on the confrontation between Strauss and Stern about historicism, Dascal shows how both contenders employ the strategy of "dichotomization." Both protagonists define their positions as incompatible and antithetic, without ever mentioning the possibility of a third option. In 'Charles Darwin versus George Mivart,' Regner (chapter 3) examines the famous polemic between these two authors concerning the origin of species. Saim (chapter 5) looks in 'Reforming the Jews, rejecting marginalization' into the "argumentation articulation" of a remarkable controversy on civic Jewish rights and the integration of Jewish citizens in Germany at the end of the eighteenth century. She discusses the main elements of the triangular controversy in 1799 between Friedländer, Teller and Schleiermacher about the problem of baptism of convenience and tries to assess the validity of each participant's claim to "reasonability" in their attempts to reach an agreement and accommodation. Saim concludes that Friedländers' provocative proposal to accept baptism of convenience was a rhetorical way of exposing the sheer hopelessness of the Jewish condition.

Besides pursuing their aims of analysis, out of necessity, these controversy scholars also make theoretical points concerning the analysis of controversy.

In Ferreira's 'On the role of pragmatics, rhetoric and dialectics in scientific controversies' (chapter 7) making theoretical points even gets the upper hand, in spite of Ferreira's focus on an informal discussion between scientists that boils down to a controversy regarding the notion of "decoupling" between the input and output in implicit and generalized dynamic systems. Ferreira's first aim is to develop a model of scientific dialogical activity that incorporates the concept of controversy and does justice to the language aspects of such controversy. In his view, the activities of scientists have always been "immersed in controversies." The variety in their cognitive aims and individual background assumptions, he observers, "brings what should be a 'rational discussion' down (or up to!) a controversy." Lessl observes in 'Scientific demarcation and metascience' (chapter 4), an essay that cleverly combines case analysis with theoretical reflection, that in public controversies about evolution scientists are inclined to play down the speculative aspects of science in order to differentiate science from religion. When the outcomes of such rhetorical efforts carry over into other controversies, however, they may compromise public decision-making. This is a danger that Lessl lays bare in the controversy over global warming, where concerns of professional integrity frequently demand that scientists would acknowledge the speculative aspects of relevant research.

In 'Communication principles for controversies,' Fritz (chapter 6) concentrates fully on theoretical points. Communication principles, he contends, "guide the *practice* of controversies, but they also form an important part of historical *theories* of controversies." In the early modern period Fritz is dealing with, communication principles are generally described as "guiding rules for an orderly, efficient and socially acceptable conduct of controversies." Marras and Euli too emphasize in 'A "dialectical ladder" of refutation and dissuasion' (chapter 8) the theoretical aspects of the study of "conflict," as they choose to refer to their focus of interest. They discuss the role of the notions of refutation and dissuasion in managing conflicts over political and social issues and opt for a replacement of the traditional dissuasion model by a non-violent one. Their model allows for a taxonomy of six conflict "scenarios," which Marras and Euli present in an imaginary ladder that starts with similarity (easiest as far as resolution is concerned), and goes via convergence, analogy, compatibility, and keeping distance, to non-violent struggle (hardest to resolve).

In their various essays, the controversy scholars we just mentioned make clear that controversy always has to do with confrontation and with tenacious efforts to put an end to the confrontation by means of argumentation. In ordinary language the word "controversy" refers, rather than to a specific kind of exchange, to the state a particular difference of opinion is in: in our terminology, the word refers to a difference of opinion that is "mixed" and has become a *persistent conflict*. It seems to us intrinsic in a controversy that it concerns a difference of opinion that is perceived to have acquired a state of quasi-permanency – a state of "lingering on." It is at any rate evident that in the case of a controversy the difference of

opinion that is to be resolved is always hard to resolve, and that this predicament is duly recognized. The problem of apparent insolubility may even reach a point where it is generally acknowledged that it will be impossible to resolve the difference of opinion. Presumably, in classifying types of controversy a distinction can be made between different "degrees of being controversial," with at the highest point a mere squabble and at the lowest point "deep disagreements" comparable with what Woods (1992) calls "standoffs of force five" and Jackson (this volume, chapter 13) "argumentative predicaments." Another characteristic of controversies seems to us that you end up in a controversy rather than starting one. In this respect, "controversy," like "dispute," belongs to a somewhat different category of speech event denominators than, for instance, "prayer," "sermon," "debate," or "discussion." Nevertheless, like disputes, controversies are well-recognized speech events that represent a specific manifestation of argumentative discourse which has its own defining characteristics and conventions.

Moving from our own basic observations just reported to the insights provided by experts on controversy, we turn first to the British philosopher Crawshay-Williams, who published in 1957 his classical study *Methods and criteria of reasoning: An inquiry into the structure of controversy*. Crawshay-Williams holds that controversy arises when there is disagreement between the defender of a statement and an attacker of this statement concerning the criteria according to which the statement is to be tested. This idea is, as we will show, to a large extent in line with the conception of controversy developed by Dascal in his studies of controversy. According to Crawshay-Williams (1957, p. 10), there are three sorts of criteria that the parties can use in order to resolve their disagreements: logical criteria, conventional criteria, and empirical criteria. Logical criteria have to do with the rules for valid reasoning and good argument that are, explicitly or implicitly, accepted by the "company" of people the interlocutors are part of. When using conventional criteria, the interlocutors appeal to statements about which there exists agreement in the company through the acceptance of certain definitions, the establishment of certain procedures, or negotiation. Empirical criteria relate to empirical statements, so that they are not relevant to discussions about other kinds of statements. Empirical criteria always combine the "objective" criterion that a statement must be in accordance with the facts and the "contextual" criterion that the facts must be described in a way that is in accordance with the purpose of the statement (Crawshay-Williams 1957, pp. 34–36). According to Crawshay-Williams, every empirical statement has a purpose and this purpose constitutes the context of that statement. In his view, it is only possible to determine whether an empirical statement is true or false if the context of the statement is known. Controversies may be solvable if the parties reach agreement over the context of the statement at issue, but remain unsolvable when each of the parties assumes a different context or even declares his own context to be the "universal" context.

Thanks to Dascal, the study of controversy has been taken up by a growing group of controversy scholars. Their joint aim is to examine controversies in the history of philosophy and the sciences, not "by way of imposing pre-ordained normative schemata on the historical debates, but rather by trying to be as descriptive as possible" (Dascal 2001, p. 314). According to Dascal (2001, p. 314), "controversies are necessary for the formation, evolution and evaluation of philosophical theories, and thereby for the progress [...] of philosophical knowledge." The examination of the nature and the role of controversies in the history of philosophy is therefore relevant for scholars studying philosophical and scientific development. With Kant, Dascal (2001, p. 313) believes that a philosopher should not apply "pure reason to issues that lie beyond its capacity." In Dascal's view (2001, p. 313), they should not try to decide philosophical controversies, but try to learn something from controversies about "the limitation and powers of pure reason." A case in point is his analysis of the infamous Searle-Derrida polemic, which, at first glance, may look like an irrational dispute, but proves to be much more – in spite of the sarcastic and bitter tone of debate. In his analysis, Dascal (2001) shows exactly where Derrida and Searle diverge, but also points out shared assumptions and beliefs.

According to Dascal (1998, pp. 15–17), scientific controversies are "the *locus* where critical activity – essential for science – is exercised and its norms established, applied, and modified." Science manifests itself in its history as a sequence of controversies and therefore controversies are not anomalies but the "natural state" of science. Systematically investigating scientific controversies is a major task for the philosophy and history of science because they provide the "relevant dialogical context where the meaning of theories is shaped" (Dascal 1998, p. 17). In controversies, Dascal (1998, p. 17) continues, "entrenched beliefs, data, methods, interpretations, and procedures can be challenged – which paves the way for the possibility of radical innovation." It is by observing and analyzing scientific controversies that "the de facto nature of the workings of scientific rationality (or irrationality) can be determined" (Dascal 1998, p. 17). This does not mean, however, that controversy studies are limited to philosophical and scientific polemical exchanges: they should also deal with historical and contemporary social and political conflicts and conflict resolution.[1]

In order to facilitate the analysis of philosophical and scientific controversies, Dascal developed a threefold typology of debates consisting of "discussion," "dispute," and "controversy." In fact, he introduced the category of controversy as a

1. See, for instance, Dascal (2007) for the use of historical models in the analysis of controversies.

response to the existing dichotomy between discussion and dispute. Traditionally, Dascal (2001, p. 316) claims, discussion has been viewed as a rule-based rational procedure, while dispute has been characterized as governed by "extra-rational factors." He believes that for an analysis of philosophical and scientific polemical exchanges the third category of controversy is necessary because of the fact that there are so many philosophical and scientific debates that are rational but in which there is no general agreement on the rules for the rational procedure, so that they are neither discussions nor disputes.

The most important distinguishing factors underlying Dascal's three types are "their overall aims, general thematic and hierarchical structure, the way they are conceptualized by the contenders, and the corresponding assumptions about their rules (if any) and their mode or resolution" (2001, p. 314). According to Dascal (2001, p. 314), a discussion is a type of dialogue about a "well-circumscribed topic or problem." The desired end result of a discussion is a "solution which consists in *correcting* the mistake thanks to the application of procedures accepted in the field (e.g., proof, computation, repetition of experiments, etc.)" (Dascal 2001, p. 315). A dispute starts, just like a discussion, with a well-defined problem, but, according to Dascal (2001, p. 315), the contenders see the confrontation "as rooted in differences of attitudes, feelings, or preferences" rather than in some kind of mistake. Because there are no mutually accepted procedures for deciding the dispute, it has no solution and can, in Dascal's terminology, at best be "dissolved." This means that the dispute is terminated by an external arbitrary procedure, such as calling the police or throwing dice. In principle, ending, i.e., dissolving, a dispute by some kind of external intervention does not change the contenders' belief in the correctness and justification of their positions.

A controversy is a type of debate that occupies an intermediate position between a discussion and a dispute. According to Dascal (2001, p. 315), just like in discussions and disputes, in controversies the debate starts with a specific and well-defined problem "but it spreads quickly to other problems and reveals profound divergences." Controversies resemble disputes because the parties realize that a mistake is not at the root of the debate. Because the differences involve "opposed attitudes and preferences, as well as disagreements about the extant methods for problem-solving," the oppositions between the parties are not perceived simply as mistakes to be corrected, nor are there accepted procedures for *deciding* these matters – which causes the controversy to continue. However, controversies do not reduce to mere unsolvable conflicts of preferences. In Dascal's view, the contenders pile up arguments "they believe increase the *weight* of their positions in light of the adversaries' objections, thereby leading, if not to deciding the matter in question, at least to *tilting* the 'balance of reason' in their favor" (2001, p. 315). Controversies are neither solved nor dissolved; they are, in Dascal's terminology,

at the best "resolved." Resolution is reached when the contenders decide that one of the positions has been defended best, agree to a modification of the positions, or agree that the nature of the differences has been mutually clarified. Not victory is the objective of a controversy (as in a dispute), nor proof (as in a discussion), but rational persuasion.

The three types of debate can be further distinguished by specifying the differences between the nature of the opposition, the types of procedure that are to be followed, and the ends that are aimed for. Looking at their ends, "discussions are basically concerned with establishing *the truth*, disputes with *winning*, and controversies with *persuading* the adversary and/or competent audience to accept one's position" (Dascal 2001, p. 316). In discussions, the opposition between the conflicting theses is mostly perceived as purely logical, in disputes mostly as "ideological," i.e., attitudinal and evaluative, and in controversies as involving a broad range of divergences regarding the interpretation and relevance of facts, evaluations, attitudes, goals, and methods. Procedurally, Dascal (2001, p. 316) explains, discussions are related to a "problem-solving" model, disputes to a "contest" model, and controversies to a "deliberative" model. An actual confrontational exchange, by the way, will rarely be a "pure" example of one of these three types; for one reason, because the ways contenders perceive and conduct a given exchange need not be identical. Our conclusion therefore is that the models of the three types of debate are to be understood as empirically based prototypes.

Many scholars studying scientific and other kinds of controversy, like the one's represented in this volume, start from Dascal's typology of debates and from his definition of controversy. Regner, for one, makes use of Dascal's approach when analyzing the polemic between Darwin and Mivart concerning the origin of species. Her comparisons of the problems Darwin and Mivart intended to resolve, their answers, motivations, presuppositions, arguments, and argumentative strategies and her analyses of their procedures in raising and answering objections, led her to an understanding of this polemic as a controversy rather than a dispute, because there is a "zone of agreement" between the two parties, they have the scientific community as their common audience, and their argumentative strategies are "the key to their attempts to persuade." Like other controversy scholars, in explaining her approach Regner refers to Pera's (1994) dialectical view of science,[2] but her approach to argumentation is in the first place rhetorical. As Kutrovátz (this volume, chapter 14) observes, "typically, discourse-oriented analyses treat

2. An important characteristic of Pera's (1994) dialectical model of science, which has in our view significant consequences for the analysis of scientific controversies, is that it introduces the scientific community as a third party that has to agree with the scientific claims that are made.

scientific communication in rhetorical terms" under "the umbrella term 'rhetoric of science.'" He notices, however, that "'the term rhetoric' carries an undesirable connotation that rhetoricians of science have to confront: it is understood, in a majority of discursive situations, as an ornamental use of language that is able to persuade an audience in contrast to 'rational' means of convincing." "Taken in this sense," Kutrovátz rightly remarks, "what could be more orthogonal to rhetoric than science where claims are to be accepted according to the soundest reasons?" This is why most controversy scholars tend to agree with Pera's (1994, p. viii) general conception of rhetoric – fully in line with that of most argumentation theorists – as the practice – and theory, we would add – of persuasive argumentation. The distinction from the usual meaning is, according to Pera (1994, p. viii), "intensified by the term's intimate relation to another term, dialectics, presented here not as an alternative to rhetoric but as the '*logic* of such [persuasive] practice or act.'" This leads us straight to argumentation theory.

2. Argumentative confrontations in a dialectical perspective

As we have seen, the authors examining the exchanges ensuing from scientific and other kinds of controversy are interested in the way in which the parties involved in such a controversy are managing their difference of opinion argumentatively. This outspoken interest connects them closely with those scholars that make it their business to study argumentation theoretically. Broadly speaking, two main streams can be distinguished in the current theorizing of argumentation: there are dialectical approaches concentrating on the use of argumentation as an instrument for critically testing the tenability of the standpoints at issue in a difference of opinion, and there are rhetorical approaches concentrating on the ways in which argumentation can be used to persuade an audience.[3] Because controversy scholars are pre-eminently interested in coming to a deeper understanding of the argumentative proceedings by which the confrontation of views defining the difference of opinion is worked out interactively, in our view, their examinations could benefit in the first place from insights provided by dialectical theorizing. We therefore focus on the dialectical perspective on argumentation, albeit without abandoning the rhetorical perspective.

---

3. We realize, of course, that some authors define dialectic and rhetoric more broadly, but our conceptions of dialectic and rhetoric, which concentrate on the argumentative aspects, can usually be included in their definitions and do certainly not stand in the way of such broader definitions.

A prominent representative of the argumentation scholars who favour a dialectical perspective on argumentation is Johnson. The informal dialectical approach to argumentation Johnson (2000) unfolded in *Manifest Rationality*, which is to be distinguished from "formal dialectics" as propagated by Barth and Krabbe (1982), is one of the most discussed approaches in the field. In 'Responding to objections,' Johnson (this volume, chapter 9) investigates what options an arguer has in responding to objections to his argumentation. He makes an inventory of possible responses: the arguer can deny that the objection has any force and maintain his original argument, he can admit that the objection has some force but claim that it concerns a minor point, he can acknowledge that the objection is strong and revise his argument or admit that the objection is a defeater and that the argument cannot be revised satisfactory, or he can ask for a time out. In case the arguer admits that the objection has some force but at the same time claims that it only requires some minor changes to the argument, according to Johnson, the revised argument is not *identical* to the original one but has nevertheless preserved its "integrity" because the core content of the argument has not changed. Johnson considers an objection a weak one, if the arguer can obviate the objection while preserving the integrity of the argument. If the arguer must change the integrity of his argument to deal with the objection, the objection is a strong one. Considering such revised arguments the "dialectical successors" of the original arguments, we can trace the "dialectical history" of the argumentation. In our view, tracing the dialectical history of argumentation by describing its successive modifications can be very useful when studying the development of a certain controversy. Johnson expects that choosing such an approach may lead to an exploration of the "fertility" of arguments – their capacity to engender responses.

The dialectical approach to argumentation we ourselves are contributing to is usually referred to as "pragma-dialectics." Pragma-dialectics combines a dialectical view of argumentative reasonableness as subjecting all standpoints at issue in a difference of opinion systematically to a critical testing procedure with a pragmatic view of the verbal moves made in such argumentative discourse as speech acts creating certain commitments to the parties involved in the discussion context in which they are performed.[4] According to the pragma-dialectical testing procedure, the protagonist and the antagonist of a standpoint at issue in a difference of opinion conduct a "critical discussion" aimed at resolving their difference of opinion on the merits by having a critical argumentative exchange about the acceptability of this standpoint. Analytically, in a critical discussion four stages

4. It is the combination of dialectical and pragmatic insight that distinguishes pragma-dialectics most fundamentally from 'formal dialectics' as developed by Barth and Krabbe (1982).

can be distinguished that have to be completed in accordance with the rules for critical discussion in order to be able to resolve the difference of opinion on the merits. First, there is the "confrontation stage" in which the difference of opinion is externalized from the potential disagreement space. Next is the "opening stage" in which the protagonist and the antagonist of a standpoint at issue in the difference of opinion determine their zone of agreement as far as procedural and material starting points or concessions are concerned. In the "argumentation stage" both parties try to establish whether, given the point of departure acknowledged by the parties, the protagonist's standpoint is tenable in the light of the antagonist's critical responses.[5] Finally, in the "concluding stage," the result of the critical discussion is established.

The pragma-dialectical procedure for conducting a critical discussion covers all speech acts that may play a part in examining the acceptability of standpoints. The critical norms of reasonableness authorizing the speech acts performed in the various discussion stages are incorporated in a set of rules for critical discussion. In principle, each of the rules represents a distinct standard or norm for critical discussion, and any argumentative move constituting an infringement of any of the rules, whichever party performs it and at whatever stage in the discussion, must be regarded as fallacious in the sense that it is a possible threat to the resolution of the difference of opinion on the merits. This ideal model of a critical discussion is a valuable tool both in the analysis of argumentative discourse, which is aimed at reconstructing all those, and only those, speech acts that can play a constructive part in bringing a difference of opinion to a conclusion, and in the evaluation of argumentative discourse, which is aimed at detecting fallacious moves that hinder the resolution process.

Conceptions of Reasonableness is the name of a comprehensive research project started by van Eemeren, Garssen and Meuffels in 1995 to determine empirically to what extent the norms ordinary arguers use when evaluating argumentative discourse are in agreement with the theoretically motivated critical norms incorporated in the rules for critical discussion formulated in the pragma-dialectical theory of argumentation. By testing the intersubjective acceptability for ordinary arguers of these critical norms, they examined the (potential) "conventional validity" of the rules for critical discussion (van Eemeren, Garssen & Meuffels, in press). In 'Reasonableness in confrontation' (this volume, chapter 11),

5. Because pragma-dialecticians, in line with their critical rationalist philosophy of reasonableness, put strong emphasis on the consequence of the fact that a proposition and its negation cannot both be acceptable at the same time, the testing of standpoints boils in the firs place down to the detection of inconsistencies (Albert 1975: 44).

van Eemeren, Garssen and Meuffels concentrate on *ad hominem* fallacies in dealing with the question whether these fallacies are rejected because they are lacking in argumentative respects and violate the pragma-dialectical rule pertaining to the confrontation stage of a critical discussion ("Parties must not prevent each other from putting forward standpoints or casting doubt on standpoints"). To tackle the problem of the alternative explanation that the results gained from their research may be due to the impoliteness of the *ad hominem* moves rather than their lack of argumentative soundness, the authors rely on the methodological strategy of "convergent operationalism."

It is a well-known fact that usually in argumentative discourse a great many speech acts are performed implicitly or indirectly. The reconstruction of the discourse, however, should be faithful to the commitments that may be ascribed to the participants on the basis of their contributions to the discourse. In order not to "over-interpret" what seems implicit in the discourse, the analyst must be sensitive to the rules of language use,[6] the details of the presentation, and the contextual constraints inherent in the argumentative activity type concerned. Van Eemeren and Houtlosser (2002) have made clear that the reconstruction of argumentative discourse can be further refined and better accounted for if the pragma-dialectical theory is extended by including a rhetorical dimension that makes it possible to take the strategic design of the discourse into consideration in the analysis.

In the extended pragma-dialectical theory, the gap between dialectic and rhetoric is bridged by means of the theoretical notion of strategic maneuvering, which refers to the efforts inherent in every move made in argumentative discourse to reconcile aiming for rhetorical effectiveness with maintaining the appropriate dialectical standards of reasonableness. Because, as a matter of course, in principle, both parties aim to realize their dialectical objectives to the best advantage of the positions they have adopted, in every stage of the process of resolving a difference of opinion, every dialectical objective has its rhetorical analogue.[7] When taken together, the strategic moves made by a party in the discourse may only be considered to exhibit a fully-fledged argumentative strategy if they consistently converge with respect to all three aspects that can be analytically distinguished in every strategic move: choosing from the topical potential available at the point in the discussion when the move is made, adapting the framing of the move to audience

6. Van Eemeren and Grootendorst (1992: 49–55, 2004: ch.4) proposed an integration of Searlean speech act conditions and Gricean maxims in a set of "rules of language use."

7. Because our primary interest lies in argumentative exchanges as a critical testing procedure, rather than embedding dialectical insight in a rhetorical analysis, we start from a dialectical perspective and include rhetorical insight wherever this is helpful for a dialectical analysis.

demand, and exploiting the existing presentational devices for making the move. Next to general strategies pertaining to the discussion as a whole, there may be confrontation strategies, opening strategies, argumentation strategies and concluding strategies that pertain only to a specific discussion stage.

Although, according to van Eemeren and Houtlosser (2002), in strategic maneuvering the pursuit of dialectical objectives and the realization of rhetorical aims can go well together, this does not automatically mean that in practice there is always a perfect balance. If a party lets pursuing his rhetorical aim get the upper hand over maintaining his dialectical commitment, so that his moves are no longer in agreement with the critical norms of reasonableness, the strategic maneuvering has got "derailed," because a rule for critical discussion has been violated, so that a fallacy has been committed. In 'Pragmatic inconsistency and credibility', van Laar (chapter 10) starts from the observation that in the confrontation stage of a critical discussion a critic can attack an arguer personally by pointing out that advancing a certain standpoint has made the arguer's position pragmatically inconsistent – an argumentative move that may be or may not be an *argumentum ad hominem* of the *tu quoque* type. The questions van Laar attempts to answer are: what, if any, is the dialectical rationale for this type of criticism, and in what situations, if any, is such criticism dialectically legitimate. According to van Laar, charging an arguer with a pragmatic inconsistency is to express the expectation that his set of commitments will become logically inconsistent if the critic requests him to commit himself to the proposition implied or suggested by his action. In his view, in special circumstances, which need to be specified, making a personal attack by pointing out a pragmatic inconsistency in the other party's position can be a dialectically legitimate way of confrontational strategic manoeuvring.

In practice, according to van Eemeren and Houtlosser (2005), it may depend on the criteria pertaining to the argumentative activity type involved whether a certain move made at a certain point in the discussion is, or is not, to be regarded as a rule violation. Argumentative activity types are conventionalised communicative practices that have a vital argumentative aspect and manifest themselves in ways (sometimes characterized by a more or less fixed format) that are culturally established, so that – unlike theoretical constructs such as a critical discussion – they can be recognized empirically. The characteristics defining the argumentative activity types from the perspective of a critical discussion determine in the various discussion stages the conventional preconditions of argumentative discourse that have an impact on the possibilities for strategic maneuvering. For the purpose of illustration, for argumentative activity types belonging to the general clusters of communicative activity known as adjudication, mediation and negotiation, the conventional preconditions affecting the opportunities and constraints of strategic maneuvering are indicated in Figure 1.

Figure 1. Preconditions of strategic maneuvering in argumentative discourse in argumentative activity types belonging to the clusters of adjudication, mediation and negotiation.

Critical Discussion	Confrontation Stage	Opening Stage	Argumentation Stage	Concluding Stage
Clusters of Argumentative Activity Types	Confrontational Trigger	Starting Points (Material, Procedural)	Discursive Means Used	Possible Outcome
Informal Argumentative Exchange	explicit or implicit difference of opinion	explicit or implicitly presumed concessions; presumed inter-subjective norms or rules	argumentation countering critical doubt	resolution difference of opinion by the parties or maintenance difference of opinion
Adjudication	formalized dispute; 3rd party with jurisdiction to decide	largely explicit codified rules; explicitly established concessions	argumentation based on interpretation of facts and concessions in terms of evidence	settlement of dispute by sustained decision 3rd party (no return to initial situation)
Mediation	disagreement; 3rd party with no jurisdiction to decide	implicitly enforced regulative rules; no explicitly recognized concessions	argumentation conveyed in would-be spontaneous conversational exchanges	conclusion of disagreement by mediated arrangement parties or provisional return to initial situation
Negotiation	conflict of interests; decision up to the parties	semi-explicit constitutive rules of the game; changeable sets of explicit concessions	argumentation incorporated in exchanges of offers, counter-offers and other "commissives"	end of conflict by compromise parties, mutually accepted agreement or return to initial situation

In 'Managing disagreement space in multiparty de liberation,' Aakhus and Vasilyeva (this volume, chapter 12) examine the making, challenging and defending of a proposal in the argumentative activity type of multiparty deliberation, in their case carried out in a meeting among public officials in a North American community caught up in a conflict over development. Their analysis reveals certain patterns of disagreement management in this type of deliberation. The analysis

describes how the possibility for disagreement is expanded through the emergence of sub-dialogues about some aspect of the opening speech of the meeting. Managing the expansion of disagreement happens in three ways: "First, the participants' doubts and disagreements reflect standard lines of reasoning for evaluating a proposal and this appears to keep the argumentation focused on developing what is proposed in the opening speech. Second, the community members do not frame their interaction as entertaining and evaluating a proposal or the event as one where a proposal is being worked out. Third, the community members re-frame the opening speech as an incomplete proposal despite treating it as a proposal throughout the meeting by calling for further proposal development." Aakhus and Vasilyeva observe that, relative to the pragma-dialectical theory and the critical discussion model, the participants appear to be procedurally open to critique, since doubts and disagreement were raised repeatedly throughout. There seemed to be considerable resolution mindedness as the participants kept to the matters at hand and explored issues raised by the speech. However, in view of the broader conflict existing in the community, the topics discussed were rather narrow. There proved to be little resistance to the strategic maneuvering by the development team regarding the topical potential of the meeting: the agenda of the meeting was to a large part determined by the opening speech.

3. Connections between argumentation theory and the analysis of controversies

Just as argumentation theorists are by definition interested in controversy, the scholars who study controversies always pay a great deal of attention to argumentation. The introductory observations concerning the study of controversy and the study of argumentation we have made in the previous sections of this essay give substance to this general contention. Regner, for instance, points out emphatically that the polemical interactions taking place in the scientific controversy between Darwin and Mivart that she is examining are "cases of confrontation of ideas and positions" and assigns a crucial role to argumentation in the management of such confrontations because argumentation responds to doubt and criticism concerning the ideas and positions at issue in the confrontation. The ways in which argumentation responds to doubt and criticism are, in turn, the focal point of the theoretical reflections on argumentative exchanges by dialectical argumentation analysts such as Johnson and the pragma-dialecticians. We therefore think that there should be a close connection between the study of controversy and the study of argumentation.

Many controversy scholars seem to recognize that the importance of argumentation to their studies should lead to making a direct link to argumentation

theory. Regner, for one, acknowledges that studies such as her analysis of the Darwin–Mivart controversy "fall under a theory of argumentation." This does not mean, however, that these controversy scholars always draw the practical consequence from this acknowledgement and actively exploit the analytical and methodical insights argumentation theory has to offer in their examinations.

Conspicuous examples of controversy scholars who do make use of conceptual instruments from argumentation theory in their analysis are Kutrovátz (this volume, chapter 14) and Zemplén (this volume, chapter 15), who are both engaged in a project aimed at putting insights from argumentation theory to good use in examining cases of scientific controversy. Kutrovátz argues in 'Rhetoric of science, pragma-dialectics, and science studies' that the study of scientific communication could benefit from application of insights from the study of argumentation as can be found in the pragma-dialectical theory. Starting from the dialectical view of science promoted by Pera (1994), whose work he considers promising but incomplete, he proceeds to show that the core commitments of pragma-dialectics exemplified in the meta-theoretical starting points of "functionalization," "externalization," "socialization," and "dialectification" (van Eemeren & Grootendorst 2004, pp. 52–57) agree very well with recent trends in the study of science that he finds promising. According to Kutrovátz, analysts of controversy need a theory of argumentation, "because it would be useful to specify what exactly we mean by the term 'argument,' what methods we use to reconstruct arguments, and how we choose or identify those criteria by which we evaluate them."

In 'Scientific controversies and the pragma-dialectical model' (chapter 15), by making use of insights concerning the identification, structure, and strategic use of argumentative moves, Zemplén makes clear how the analysis of scientific debate can benefit from making use of dialectical insights from argumentation theory. According to Zemplén, the pragma-dialectical theory provides in principle the theoretical framework needed for analyzing in detail the argumentative moves that are made by the parties, "so that the respective moves or changes in argumentation in the opponent's arguments can be accounted for." He uses this theory for reconstructing the optical debate between Newton and Lucas in their controversial exchange of letters in the 1670s.

Some controversy scholars share an interest in the intersubjective dimension of the idea of reasonableness with argumentation theorists. Fritz's interest in "the implicit theory of controversy that people apply in their practice" is directed at a similar kind of basic principles of communication and argumentation as van Eemeren, Garssen and Meuffels are concentrating on in their project Conceptions of Reasonableness. At the present stage of research, Fritz (chapter 6) considers it useful to concentrate on the *empirical* study of communication principles "to get a more vivid picture of how rationality is put into practice." Sometimes, he

observes, such implicit principles are made explicit. This happens, for instance, in an illuminating way when one teaches, complains about or criticizes communication. According to Fritz, communication principles form a fairly heterogeneous set, including logical principles, dialectical principles, rhetorical principles, politeness principles, and principles of text production (e.g., topic management). By looking at their context of application and justification, one obtains a more detailed picture of the way in which they are embedded in a historical form of life. Empirical research shows that communication principles are often fine-grained, context-specific, and controversial. According to Fritz, these results contribute to our understanding of such principles as applications of a general principle of rationality.[8]

Van Eemeren *cum suis* generally conclude from their experimental research that ordinary arguers too consider the vast majority of the discussion moves to be unreasonable that are judged fallacious by pragma-dialectical standards. In the tests concerning *ad hominem* fallacies they report about in this volume (chapter 11), the results of five independent data sources all prove to point in the same direction: *ad hominem* fallacies are regarded as less reasonable moves than their non-fallacious counterparts, and they are rejected not because of their impoliteness but because they are argumentatively unsound.[9] The test results confirm the claim made by van Eemeren and Houtlosser (2002, p. 138) in explaining their concept of strategic maneuvering that maintaining the dialectical norms incorporated in the rules for critical discussion is by no means incompatible with gaining rhetorical persuasive success, and may even lead to support for the stronger claim that argumentative moves are generally only judged persuasive by ordinary arguers if they are reasonable from the perspective of a critical reasonableness conception largely in agreement with the pragma-dialectical one.

Most controversy scholars who would like to connect communication studies and argumentation theory with their studies refer to the rhetorical perspective, but several of them also mention dialectic and pragmatic angles. Ferreira (chapter 7) is one of the authors who want to utilize all three of them. In order to account

---

8. It seems worthwhile to consider the "deep disagreements" or "standoffs" that sometimes seem to prevent controversies from being open to constructive conflict management in relationship with the application of such basic principles of communication and argumentation and the "higher order" conditions (van Eemeren & Grootendorst 2004: 189–190) presumed to be fulfilled when they are applied.

9. For reasons of external validity, van Eemeren, Garssen and Meuffels replicated their Dutch experiment in several other countries. In all cases, ordinary arguers considered *ad hominem* fallacies unreasonable – the variant known as the "abusive" attack being regarded as the least reasonable move, followed by the "circumstantial" variant, and then the *tu quoque* variant.

for "the paramount importance of language in scientific controversies," he claims that "the toolbox for its analysis should contain several disciplines belonging to language studies, and mostly, pragmatics, rhetoric and dialectic." Ferreira indicates very roughly how rhetoric, dialectic and pragmatic features of language are used to convey persuasion and intentionality, "towards increasing the plausibility and rationality of scientific contentions." Echoing Dascal, Regner (chapter 3) states that studies of such polemics as between Darwin and Mivart "cannot avoid contextual (and thus pragmatic) considerations." In Kutrovátz's view, in analyzing scientific debates starting from a dialectical framework has several significant advantages over the purely rhetorical framework of analysis that is customary. Kutrovátz emphasizes that pragma-dialectics, which combines pragmatic, dialectical and rhetorical insights, endorses an interactive model of the social dimension. Such an approach is "more sensitive to the temporal dynamics of communicatory practice, i.e., to changes in scientific knowledge." It is the quality of the arguments that demarcates good science from bad science. When the quality of arguments needs to be taken into account, it is clear that a dialectical approach has considerable advantages over a rhetorical approach. In Kutrovátz's view (chapter 14), here pragma-dialectics comes in well, because "normativity as conceived by pragma-dialectic discourse analysis has several advantages over how traditional philosophers of science formulated normative claims."

According to Zemplén (chapter 15), the analytical tools of the pragma-dialectical argumentation theory allow historians of science "to move away from treating positions in an abstract space of ideas (like this is *the* relevance of the notion of crucial experiments for the 'Newtonian method'), and to locate them in the argumentative discourse." This "radical contextualisation" makes it possible to view methodological norms "as responding to their immediate argumentative context – especially if inconsistencies in the use of norms can be found, like in the case of Newton's use of his crucial experiment." Zemplén, by the way, is convinced of the "indispensability of rhetorical insights for a meaningful study of scientific controversies". In his view, the role of rhetoric even goes beyond the role it has in the pragma-dialectical concept of strategic maneuvering, because those elements are left out of the pragma-dialectical reconstruction of argumentative discourse that are not relevant to resolving a difference of opinion on the merits. In our view, however, this can only be true if the analyst's interest exceeds the study of rational persuasion by argument – which is, according to Dascal, a vital characteristic of controversy.

Not only controversy scholars such as Ferreira and Zemplén make clear that they think it necessary to involve both insights from dialectic and insights from rhetoric in their analysis, but also an argumentation theorist such as Jackson uses in 'Predicaments of politicization in the debate over abstinence-only sex education' (chapter 13)

both perspectives in reconstructing a current controversy about abstinence-only sex education in American politics. This controversy centres on government support for sex education programs that promote sexual abstinence as the only reliable means of preventing unwanted pregnancy and sexually transmitted diseases. Scientists have criticized the George W. Bush presidency for "politicizing" the science relevant to this controversy, pointing to instances of distortion or suppression of evidence that abstinence-only sex education is ineffective. Whether they are right in making these accusations, according to Jackson, scientists charging the administration with this politicization of science construct an argumentative predicament in which no useful result can be brought back to the controversy over how to provide sex education to young people. Jackson examines three related texts that show how predicaments arise from the conflicting pressures of rhetorical and dialectical goals. According to Jackson, the performance of any speech act opens a disagreement space consisting of a structured set of potential points of disagreement. Whether to expand around one of these potential points of disagreement is a matter of strategy, for not all disagreements need resolution, and of those that do, not all can actually be resolved in argument. An argumentative predicament is a situation in which all moves available to a participant seem to lead away from resolution of a disagreement. Argumentative predicaments are not simply rhetorical problems for individual advocates – problems of how to devise winning strategies. They are also dialectical problems affecting the value of the discourse itself for coming to any mutually acceptable resolution. The flow of move and countermove in the debate over the science of abstinence illustrates how strategic design, on either side, can exacerbate or ameliorate the predicaments of politicization, determining not who wins and loses but whether any progress at all is made toward resolution.

Although Jackson does not refer to this notion, in several respects, her approach comes close to the integrated dialectical-rhetorical approach pragma-dialecticians develop with regard to strategic maneuvering. To a certain extent, this also applies to the analyses of the strategic patterns of moves made in dealing with controversies by the controversy scholars Regner, Dascal, Saim, and Lessl. Regner (chapter 3) analyzes what she calls the "argumentative strategies" employed by Mivart and Darwin. Without referring to this pragma-dialectical notion, she provides, in fact, useful insights in both parties' ways of strategic maneuvering to influence the presumed audience of their debate. According to Regner, Mivart's basic strategy is "to rely on very general [...] religious and philosophical considerations" and his arguments frequently point to the undesirable consequences that would follow "if some ideas similar to the ones he defends are not accepted." More often than Darwin, he makes use of rhetorical devices based on *ethos* and *pathos*.

Dascal (chapter 2) distinguishes from a pragmatic viewpoint two strategic uses of dichotomies: dichotomization and de-dichotomization. Dichotomization

is "radicalizing a polarity by emphasizing the incompatibility of the poles and the inexistence of intermediate alternatives, by stressing the obvious character of the dichotomy as well as of the pole that ought to be preferred." De-dichotomization consists of showing that the opposition between the poles "can be constructed as less logically binding than a contradiction," so that "emphasis on possible alternatives is created." The two debate types "discussion" and "dispute," for instance, are traditionally viewed as dichotomously opposed to each other. Because Dascal regards the dichotomous models not sufficient for an account of all varieties of debate, he de-dichotomises the opposition by adding the non-dichotomous category of controversy.

Saim too (chapter 5) makes a series of interesting observations concerning strategic maneuvering. Her analysis reveals how the interaction between the parties in the debate she studies moves from discussion to controversy. She observes, for instance, that Friedländer, one of the main contenders, makes use of "we" all along to stress the collective interests of religious leaders but keeps at the same time the kind of distance that allows him to draw an "objective and quite ambivalent outline of Jewish religious education." Teller, on his part, lists points of agreement he shares with Friedländer, thus building up a base for further discussion. The movement in this debate towards deep controversy seems to be due to the choices made in selecting standpoints and sub-standpoints by the contenders in the confrontation stages of their exchanges.

In his analysis of the controversies concerning evolution and greenhouse warming, Lessl (chapter 4) also gives some interesting examples of strategic maneuvering, in particular of topical selection. When the scientist Tyndall tried to show in his boundary work the epistemic superiority of science over technology, he highlighted its purely theoretical powers, but when he was concerned with trying to show science's superiority to theology he played up its concrete character and applicability. The topical selection that was made in the "evolution versus creationism debate" focuses on the verifiability and non-speculative character of scientific theories while in the "greenhouse debate" this topical choice works against the aim of the scientists in the "greenhouse controversy." Greenhouse theory makes considerable conceptual sense as an explanation for global warming, Lessl observes, but if held up to the rigid standards of epistemic certification proposed to demarcate science in debates about evolution and religion, it will fail.

Closest to a fully-fledged analysis of strategic maneuvering in controversy in the pragma-dialectical sense comes Zemplén (chapter 15). By revealing the strategic maneuvering that takes place in the Newton – Lucas debate, he shows, for instance, that "Newton's shifting of the burden on the crucial experiment can be tracked and analysed easily in the dialectical model, and the functions of these shifts can also be connected to the specific situations." In this way, Zemplén claims,

the analysis "can yield novel insights into and better understanding of the historical controversy in question."

So far argumentation theorists familiar with the concept of strategic maneuvering have not yet ventured to start analyzing specific controversies.[10] Van Laar's essay on strategic maneuvering by pointing at a pragmatic inconsistency in the other party's positions (chapter 10) makes clear with what kind of problems such argumentation theorists are still trying to cope. In our opinion, van Laar's view of the acceptability of maintaining pragmatically inconsistent positions is pertinent to the analysis of controversy because pointing out such inconsistencies is one of the favourite ways of strategic maneuvering in these argumentative exchanges. Van Laar mentions three relevant reasons why a person taking on the role of a protagonist might worry about a charge of pragmatic inconsistency: he wants to be perceived as a credible arguer in order to be able to persuade the antagonist, he wants to remain consistent in his capacity as an antagonist of the other party's standpoint in a potentially mixed difference of opinion, or he wants to keep up the image of a sincere and capable arguer who has "protagonist credibility." By pointing out a pragmatic inconsistency, the critic discredits the other party as a protagonist because he is someone who can be expected to commit fallacies and make blunders. This is why, according to van Laar, "pointing out a pragmatic inconsistency is a device for excluding persons from defending particular standpoints or from defending particular formulations of them."

According to pragma-dialectics, in argumentative practice the possibilities for strategic maneuvering are often to some extent determined by the preconditions of the argumentative activity type is which this maneuvering takes place. This view has only recently been expounded and its precise consequences for the analysis of the various types of argumentative discourse are yet to be drawn. It is a view, however, that connects well with existing analytic practices of discourse analysts, so that the basic idea can be accommodated rather easily and a smooth link can be made with kindred attempts to deal with this "macro" level of contextualization. In the case of Aakhus and Vasilyeva's analysis (chapter 12) the connection between the pragma-dialectical view and other discourse analytic approaches is even made explicitly. The discussion issuing from a conflict over development that they analyze is an example of the argumentative activity type of public deliberation. Aakhus and Vasilyeva show how in the opening speech held at the meeting between the public officials involved the disagreement is managed and shapes the topical potential of the meeting and the events unfolding in the controversy.

---

10. A preliminary effort has been made in van Eemeren and Houtlosser's analyses of the strategic maneuvering taking place in William the Silent's late sixteenth century's *Apologie* against the Ban Edict issued by King Philip of Spain (van Eemeren & Houtlosser 1999, 2000).

The strategic maneuvering they point at does not only takes place in the confrontation stage, where the demarcation of the zone of conflict takes place, but expands to the opening stage. According to the analysts, the speech is "a bid on how the interaction should proceed in the way it projects roles, topics, a manner of discussion, and a place for argument."

The "scenarios" distinguished in Marras and Euli's non-violent dissuasion model (chapter 8) seem to us different articulations of the argumentative activity type of political deliberation. The conflict scenarios Marras and Euli discuss are characterized by both the type of confrontation that takes place (the positions taken by the parties in the confrontation stage) and the commitments (or lack thereof) undertaken in the opening stage of a discussion. Although in each of the six scenarios they mention there are varying degrees in the possibility for rational exchange, in all cases argumentation is a central means of reaching a solution. In the first scenario, the arguers have similar aims and also similar means to reach those aims, and they share enough common starting points to engage in a discussion that, in principle, can lead to a resolution of the difference of opinion. In the subsequent scenarios, at each step of the "ladder" that Marras and Euli introduce less common starting points can be identified and a resolution will be harder to reach. However, even at the final step, when the argumentative situation can be characterised as a "deep disagreement," argumentation is a central element in the exchange.

Some controversy scholars even seem to embrace the idea that is in pragma-dialectics associated with the distinction between argumentative activity types that the criteria for determining whether or not a certain argumentative move made in strategic maneuvering does or does not agree with a general norm for critical discussion may in some cases depend to some extent on the specific requirements of the activity type concerned. On a fundamental level, Fritz (chapter 6) observes that some of the general communication principles he is examining were only considered valid for certain domains of discourse and not for others – an observation that seems to relate with the pragma-dialectical observation that certain types of strategic moves are pertinent to particular argumentative activity types but not allowed in others. And when, for instance, Regner (chapter 3) observes that an argumentative move "will be good or bad in relation to a given context," she might be thinking along the same lines as the pragma-dialecticians who link the criteria for determining the legitimacy or fallaciousness of an argumentative move with the macro context of the activity type in which the move is made. It could also be, however, that she is only alluding to the rhetorical effectiveness of a move, without taking account of the dialectical dimension of strategic maneuvering.

This preliminary discussion of links between the pragma-dialectical notion of argumentative activity types and the way in which the macro context of argumentative discourse is conceived by analysts of controversy leads us to

considering the basic and intriguing question how the notion of controversy entertained by controversy scholars relates to the pragma-dialectical concept of an argumentative activity type. In pragma-dialectics, argumentative activity types are distinguished by reference to the specific ways in which they relate to the conditions defining the various discussion stages distinguished in the abstract normative ideal of argumentative discourse represented in the model of a critical discussion. Because Dascal's typology pertains to different realizations of argumentative confrontation, the critical discussion model should apply to each of the three types of argumentative interaction that are distinguished by Dasal. Figure 2 shows that this is indeed the case and that Dascal's three types of argumentative confrontation can be characterized as specific and prototypical cases of well-recognized argumentative activity types.

Viewed from the perspective of the model of a critical discussion, distinctive features of Dascal's "discussion" are that it starts in the confrontation stage from an explicit and well-delineated difference of opinion, that in the opening stage there is supposed to be general agreement on the material starting points that can serve as "concessions" in the discussion and that the discussants also fully agree on the procedural starting points, i.e., the norms and rules for rational decision making, so that, in principle, the difference of opinion can be resolved. Once the party that advanced a standpoint in the confrontation stage realizes in the argumentation stage that he has made a mistake when he is confronted with argumentative critique based on logical proof or empirical evidence that agrees with recognized starting points, he abandons this standpoint in the concluding stage. In Dascal's "disputes," however, the dispute is also well-defined, but there is certainly no agreement among the parties in the opening stage, neither about the procedures nor about the material starting points. In what can be reconstructed as the confrontation stage, there is, due to the fact that the parties adhere to different values or value hierarchies (which can be reconstructed as part of the opening stage), disagreement about sub-standpoints that involve a normative proposition. Their different starting points make it impossible for the parties to resolve the difference of opinion in the concluding stage. Although the parties may be fighting their stance by all possible means in the argumentation stage, if the dispute needs to be closed, in the concluding stage this can only be achieved by way of a settlement or by another outcome resulting from arbitration. In Dascal's "controversies" there is a well-defined mixed difference of opinion in the confrontation stage, but there seems not to be any agreement about the procedures and material starting points in the opening stage, albeit that in the end such agreement may be (partially) reached via sub-discussions. In a controversy, a resolution of the difference of opinion can be reached only if, due to an accumulation of argumentation in the opening stage, the scale tips in the concluding stage in favor of one of the parties.

Figure 2. Characterization of Dascal's three types of argumentative confrontation as specific and prototypical cases of well-recognized argumentative activity types.

Critical Discussion Argumentative Activity Types	*Confrontation Stage* *Confrontational Trigger*	*Opening Stage* *Starting Points (Material, Procedural)*	*Argumentation Stage* *Discursive Means Used*	*Concluding Stage* *Possible Outcome*
Informal Argumentative Exchange	explicit or implicit difference of opinion	explicit or implicitly presumed concessions; presumed inter-subjective norms or rules	argumentation countering critical doubt	resolution difference of opinion by the parties or maintenance difference of opinion
Dascal Discussion as *Scientific Discussion*	explicit and well-delineated difference of opinion involving an erroneous standpoint	explicit concessions; presumed inter-subjective norms and rules of the field	logical proof, computational conclusiveness, empirical evidence gained by experiments	resolution ("solution") difference of opinion by the parties (consensus) through establishment truth (correction mistaken standpoint) or maintenance clarified difference of opinion
Dascal Controversy as *Polemical Disputation*	specific, well-defined, and profoundly expanding disagreement	disagreement about crucial starting points; procedure allowing each supposition and procedure to be called into question	rational persuasion by means of (logical and rhetorical) argumentation	(partial) resolution of (modified) disagreement or reconciliation, closure by emergence of new ideas, or maintenance clarified disagreement
Dascal Dispute as *Eristic Debate*	well-defined dispute involving conflicting attitudes, feelings or preferences	radically different commitments; no mutually accepted procedures for deciding dispute	fighting one's stance by means that may be "extra-rational"	end dispute by victory one of the disputants, by "dissolution" through external arbitration, or maintenance dispute and hardening positions
Legal Dispute	formalized dispute	largely explicit codified rules; explicitly established concessions; 3rd party with jurisdiction to decide	argumentation based on interpretation of facts and concessions in terms of evidence	settlement of dispute by sustained decision 3rd party (no return to initial situation)

Figure 2 makes clear that there are certainly chances of characterizing the three types from the typology adopted by most controversy scholars as specific and prototypical cases ("variants") of certain (clusters of) well-recognized argumentative activity types. Although in ordinary usage the terms referring to the various activity types may sometimes be used interchangeably, these findings agree with the experience we all have with argumentative discourse, which has led us to recognize these activity types as distinct but related categories or (sub) genres. As controversy scholars rightly emphasize, in argumentative practice, the one argumentative activity type sometimes may change over to the other, or be interrupted by the other, but this is a complication our approach to argumentative activity types can easily deal with. It is, in fact, our considered opinion that the analysis of argumentative discourse in controversy will benefit considerably from a thorough and detailed examination of controversies as specific and prototypical cases of polemical disputation, because this will make it possible to make use of insights from argumentation theory to achieve a more precise and more systematic analysis of the argumentative proceedings involved. This concluding assessment calls for the establishment of a much closer relationship between the study of controversy and the theoretical study of argumentation.

4. Exploring the prospects of joint efforts

The proof of the pudding is, of course, in the eating. This also applies to argumentation theory, because it is closely associated with the practical ambition of being helpful to the analysis and evaluation of argumentative discourse. Most argumentation theorists develop their conceptual frameworks and theoretical models with a view to creating instruments for gaining a deeper insight in the various aspects and manifestations of argumentative reality. The frameworks and models developed by argumentation theorists are meant to provide a sound basis for designing methods of analysis and evaluation of argumentative discourse that enable a systematic reconstruction and critical evaluation. Both the goal of argumentation analysis and that of evaluating argumentation are most certainly of central importance to the dialectical argumentation theorists whose views we have discussed. What kind of prospects does a closer collaboration between controversy scholars and these argumentation theorists offer for the examination of controversies?

Kutrovátz (chapter 14) rightly observes that as far as argumentation theory goes – he is concentrating on pragma-dialectics – the full potential for different applications "still needs to be exploited." One obvious field of application is, in his view, the realm of scientific argumentation. With their reconstructions of some

vital elements of the "analytic overviews" of the argumentative discourses they examined, Zemplén's contribution to this volume (chapter 15) and Kutrovátz's study carried out together with Zemplén (in press), however preliminary they may be, are convincing cases in point. Other areas of application still need to be explored carefully. We fully agree with Kutrovátz's claim that analyzing scientific argumentative discourse can be of great help to understanding the "dynamics of knowledge production." We also think, however, that this particular choice of object does not really exhaust the possibilities for a fruitful application of insights from argumentation theory to the analysis and evaluation of actual cases of argumentative discourse.

In our view, the possibilities need to be explored of broadening the application scope of argumentation theory not only to the analysis of all kinds of cases of scientific and scholarly argumentative discourse from the past and the present, but also to the analysis of cases of argumentative confrontation in other domains, varying from the political to the cultural sphere, in controversies as well as in other types of argumentative encounters. As we have indicated, a cautious start has been made by utilizing insights from argumentation theory concerning the identification, structure, and strategic use of argumentative moves in a systematic reconstruction and critical evaluation of cases of confrontational argumentative exchanges. What more can be gained from such joint efforts still has to be established by further integrating argumentative insights in the prevailing methods for dealing with controversies and other specific types of argumentative activity and – this is the proof of the pudding – setting out to reconstruct precisely, and in all required detail, all elements and maneuvers pertinent to drawing up an analytic overview of the discourse that constitutes an appropriate point of departure for a critical assessment of a great many more cases of interesting argumentative exchanges.

References

Aakhus, M. & Vasilyeva, A.L. (this volume). Managing disagreement in multiparty deliberation. Ch. 12.

Albert, H. (1975). *Traktat über kritische Vernunft* [Treatise on critical reason] (3rd ed.). Tübingen: Mohr. (Original work published 1968)

Barth, E.M. & Krabbe, E.C.W. (1982). *From Axiom to Dialogue: A Philosophical Study of Logics and Argumentation*. Berlin/New York: Walter de Gruyter.

Crawshay-Williams, R. (1957). *Methods and Criteria of Reasoning: An Inquiry into the Structure of Controversy*. London: Routledge & Kegan Paul.

Dascal, M. (1998). Types of polemics and types of polemical moves. In S. Cmejrkova et al. (Eds) *Dialogue Analysis VI*, Vol. 1. Tübingen: Niemeyer, 1533.

Dascal, M. (2001). How rational can a polemic across the analytic-continental 'divide' be? *International Journal of Philosophical Studies* 9(3), 313–339.

Dascal, M. (2007). Traditions of controversy and conflict resolution. In M. Dascal & H.L. Chang (Eds). *Traditions of Controversy*. Amsterdam/Philadephia: John Benjamins.

Dascal, M. (this volume). Dichotomies and types of debate. Ch. 2.

Eemeren, F.H. van, Garssen, B. & Meuffels, B. (this volume). Reasonableness in confrontation: Empirical evidence concerning the assessment of *ad hominem* fallacies. Ch. 11.

Eemeren, F.H. van, Garssen, B. & Meuffels, B. (in press) *Judgments on Fallacies. Systematic Empirical Research of the Conventional Validity of the Pragma-dialectical Discussion Rules.*

Eemeren, F.H. van & Grootendorst, R. (1992). *Argumentation, Communication and Fallacies.* Hillsdale, NJ: Lawrence Erlbaum.

Eemeren, F.H. van & Grootendorst, R. (2004). *A Systematic Theory of Argumentation: The Pragma-Dialectical Approach*. Cambridge etc.: Cambridge University Press.

Eemeren, F.H. van & Houtlosser, P. (1999). William the Silent's argumentative discourse. In F.H. van Eemeren, R. Grootendorst, J.A. Blair & Ch.A. Willard (Eds), *Proceedings of the Fourth Conference of the International Society for the Study of Argumentation* (organized by ISSA at the Universiteit van Amsterdam, June 16–19, 1998). Amsterdam: Sic Sat, 168–171.

Eemeren, F.H. van & Houtlosser, P. (2000). The rhetoric of William the Silent's *Apologie*. A dialectical perspective. In T. Suzuki, Y. Yano & T. Kato (Eds), *Proceedings of the 1st Tokyo Conference on Argumentation*. Tokyo: Japan Debate Association, 37–40.

Eemeren, F.H. van & Houtlosser, P. (2002). Strategic maneuvering in argumentative discourse: Maintaining a delicate balance. In F.H. van Eemeren & P. Houtlosser, *Dialectic and Rhetoric: The Warp and Woof of Argumentation Analysis*. Dordrecht etc.: Kluwer Academic, 131–159.

Eemeren, F.H. van & Houtlosser, P. (2005). Theoretical construction and argumentative reality: An analytic model of critical discussion and conventionalised types of argumentative activity. In D. Hitchcock & D. Farr (Eds), *The Uses of Argument. Proceedings of a Conference at McMaster University,* 18–21 May 2005, 75–84.

Ferreira, A. (this volume). On the role of pragmatics, rhetoric and dialectics in scientific controversies. Ch. 7.

Fritz, G. (this volume). Communication principles for controversies: A historical perspective. Ch. 6.

Jackson, S. (this volume). Predicaments of politicization in the debate over abstinence-only sex education. Ch. 13.

Johnson, R.H. (2000). *Manifest Rationality: A Pragmatic Theory of Argument*. Mahwah, NJ: Lawrence Erlbaum.

Johnson, R.H. (this volume). Responding to objections. Ch. 9.

Kutrovátz, G. (this volume). Rhetoric of science, pragma-dialectics, and science studies. Ch. 14.

Kutrovátz, G. & Zemplén, G. (in press). A Bloor-Latour vita. Egy tudományos vita érveléselméleti vizsgálata. In J. Gervain & Cs. Pléh (Eds), *A láthatatlan nyelv.* Budapest: Osiris.

Laar, J.A. van (this volume). Pragmatic inconsistency and credibility. Ch. 10.

Lessl, T.M. (this volume). Scientific demarcation and metascience: The National Academy of Sciences on greenhouse warming and evolution. Ch. 4.

Marras, C. & Euli, E. (this volume). A 'Dialectic Ladder' of refutation and dissuasion. Ch. 8.

Pera, M. (1994). *The Discourses of Science*. Chicago: University of Chicago Press.

Regner, A.C. (this volume). The polemical interaction between Darwin and Mivart: A lesson on refuting objection. Ch. 3.

Saim, M. (this volume). Reforming the Jews, rejecting marginalization: The 1799 German debate on Jewish emancipation in its controversy context. Ch. 5.

Woods, J.H. (1992). Public policy and standoffs of force five. In E.M. Barth & E.C.W. Krabbe (Eds), *Logic and Political Culture* (pp. 9–108). Amsterdam: KNAW.

Zemplén, G. (this volume). Scientific controversies and the pragma-dialectical model: Analysing a case study from the 1670s, the published part of the Newton-Lucas correspondence. Ch. 15.

Dichotomies and types of debate

Marcelo Dascal

1. Introduction*

Dichotomies are ubiquitous in deliberative thinking, in decision-making and in arguing in all spheres of life. Sticking uncompromisingly to a dichotomy may lead to sharp disagreement and paradox, but it can also sharpen the issues at stake and help to find a solution. Dichotomies are particularly in evidence in debates, i.e., in argumentative dialogical exchanges characterized by their *agonistic* nature. The protagonists in a debate worth its name hold positions that are or that they take to be opposed; they argue against each other's positions; and they defend their positions from the adversary's attacks. In some cases, this may lead to a polarization of the debate through treating it as grounded on one or more dichotomies. In others, the contenders may construe the opposition as non-dichotomous and therefore less irreconcilable. Whereas the former attitude, which leads to 'dichotomization', is likely to radicalize a debate, rendering it difficult – sometimes impossible – to resolve, the latter, which leads to 'de-dichotomization', opens possibilities of solutions of the debate other than all out victory of one side and defeat of the other.

---

*The basis for this article is my keynote speech, "Dichotomy in Debate", at the Sixth Conference of the International Society for the Study of Argumentation (ISSA), held in Amsterdam, June 2006. I am grateful to Frans van Eemeren and the other members of the committee that granted me the Argumentation Award for 2004 and the opportunity to address the participants in the Conference and to benefit from their enlightening comments. I wish to thank also my colleagues of the International Association for the Study of Controversies (IASC) for their continuous support. To my students at the graduate seminar on "Dichotomies in Philosophy", held at Tel Aviv University in the fall of 2005–2006, I am grateful for the exciting materials they brought into focus and for the quality of the discussion. In this paper I have made use in particular of the presentations in the seminar by Erez Firt, Eli Amit, and Nitzan Meital. I extend my thanks also to Geoffrey Lloyd for making available to me his work on both Greek and Chinese modes of argumentation and for engaging with me in a fruitful, ongoing critical dialogue on the taxonomy of debates, dichotomies, and related topics. My thanks are also due to an anonymous referee, whose remarks and puzzles contributed much to the improvement of the text you are about to read. Last but not least, Varda as always was of great help in sharing with me her insights on this complex subject.

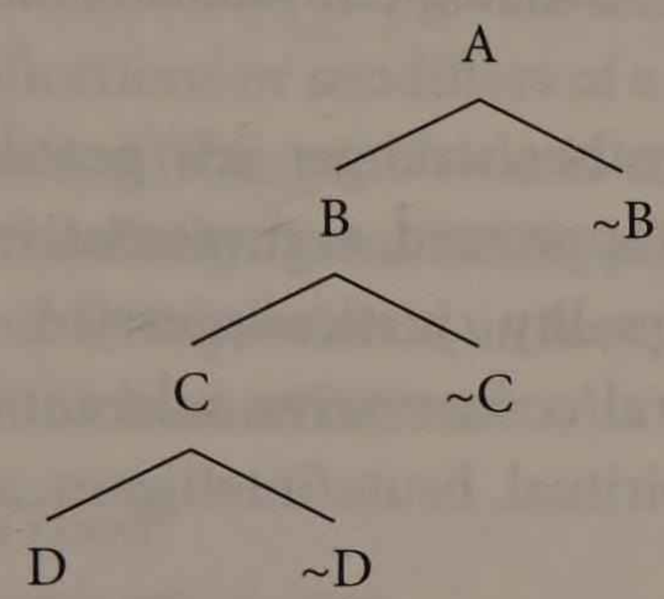
In addition to its effect on the outcome of a debate, the contenders' attitude(s) towards dichotomies in the debate's management has further, important implications. It is intrinsically connected with the typology of debates and their typical argumentative moves. For the appropriateness of one or the other of these attitudes for best capturing the nature of the antagonism that underlies a debate is in fact an indicator of the kind of debate it actually is or is perceived by the contenders to be. Furthermore, such 'attitudes' are expressed by the contenders' preferred choices of argumentative moves; and these, in turn, can be recognized, in a given debate context, as subservient either to a dichotomizing or to a de-dichotomizing strategy vis-à-vis a dichotomy (or 'family of dichotomies') taken to be at the root of the divergence. Consequently, the identification of the type to which a debate belongs, of its rules, assumptions, procedures, and supposedly successful moves seems to be tightly related to attitudes and argumentative strategies vis-à-vis dichotomies. Moreover, insofar as such a meta-level identification largely determines the contenders' conceptualization of the debate in which they are engaged, their attitude towards dichotomies has indeed a strategic role in their debating behavior.

It is this cluster of inter-relations, which reveals the intimate connections between using dichotomies in debates and the nature of the latter, as well as of the former, that this article seeks to explore. I begin with a logical definition of dichotomy, which the informal use of this notion not always respects (Section 2). Plato, the originator and great enthusiast of the method of dichotomous division is then considered, showing that he was aware of the problems raised by this method (Section 3). These problems, it is argued, may be circumvented by shifting from a semantic to a pragmatic approach; for this purpose working definitions of the strategies of 'dichotomization' and 'de-dichotomization' are proposed (Section 4) and their uses in contemporary debates are exemplified (Section 5). The last three sections consider the role of dichotomization and de-dichotomization at the theoretical meta-level, especially the typology of debates, and discuss its effects on debating behavior.

2. Dichotomy and division

Logically, a dichotomy can be defined as an operation whereby a concept, A, is divided into two others, B and C, which exclude each other, completely covering the domain of the original concept. That is, if $x \varepsilon A$, then either $x \varepsilon B$ or $x \varepsilon C$, and if $x \varepsilon B$ then $\sim(x \varepsilon C)$ and vice-versa – which implies that $C = \sim B$. The appeal of dichotomies lied, for Plato, in the fact that they provided a rigorous method of defining forms or ideas through a succession of dichotomous divisions of concepts. Plato attributed so much importance to this method that he makes Socrates

declare in the *Phaedrus* (see quote below) that he loves it because it is what makes him "able to think and to speak". Perhaps one of the reasons for Socrates-Plato's enthusiasm is that the 'method of division' (*diaeresis*) consists in a very simple logical procedure, which can be displayed by a diagram in the form of a tree that transparently and completely represents the conceptual composition of concepts subaltern to a higher genus:



The method of division in fact defines a concept only up to a point: D, for example, is defined in the above diagram as an A, which is a B, which is a C – three components it shares with ~D, of course. In order to distinguish D from ~D a further component is required, the so-called *differentia specifica*, which – of the two subdivisions of C – only D possesses. To be sure, the series of divisions can be pursued further: for instance, if the specific difference that singles out humans amongst all other animals is 'rationality', one can further dichotomize the concept "human" by distinguishing between 'practical' and 'theoretical' rationality. In principle, there is no end to this process of conceptual subdivision. But as a method of individuating entities, it comes to an end once one reaches the lowest (*infima*) species. At this level, additional *conceptual* divisions can no longer differentiate between the entities subsumed in the species, which not only share all the *infima species'* definitional traits but are also completely characterized by them. This implies that these species must contain either a single member or several undistinguishable ones – both unpalatable options for a proper account of individuality.[1] Reliance on *diaeresis*, therefore, rather than helping to advance the Platonic project of providing a purely ideational or conceptual account of reality, proves to be a serious obstacle to it.

This is not the only problem of the logical conception of dichotomy and its use in the Platonic method of division, as we shall see in the next section. Prior to that, however, it is important to recall that not every opposition usually regarded as a

1. For further details on the so called 'problem of individuation', see Gracia (1988).

dichotomy in fact possesses the corresponding logical traits. Consider the following groups of familiar 'dichotomies'.

- objective/subjective, observation/interpretation, justification/discovery, context-free/context-dependent, absolute/relative
- fact/value, is/ought, descriptive/normative, cognitive/emotive
- reason/faith, knowledge/belief, logic/mysticism, rational/superstitious, freedom/fatalism
- self/other, friend/foe, brother/stranger, jew/gentile, believer/atheist, in/out
- male/female, oppressor/oppressed, argumentative/associative
- left/right, equality/inequality, justice/injustice, collectivism/individualism, pacifist/belligerent, liberal/conservative, tolerant/intolerant
- body/mind, material/spiritual, brute/intelligent, animality/humanity, mechanical/creative
- theory/praxis, knowledge/power, pure science/applied science, science/technology, law/law enforcement

Notice, first, that the links connecting the members of each group are not strictly logical, and that the groups overlap. The 'dichotomy' body/mind does not entail nor is necessarily associated with brute/intelligent; and left/right may well be parallel, for some, with intolerant/tolerant rather than the other way around. Consequently, whether these oppositions are viewed as dichotomies or not by someone depends upon a variety of factors – e.g., socio-cultural framework (discipline, culture, hierarchy, age-group), basic beliefs (ideology, metaphysics, epistemology, religion), personal interests, argumentative needs and purposes, historical circumstances, etc. That is to say, a list containing only universally undisputed members of the extension of the logically defined concept "dichotomy" is likely to include very few items. Ultimately, the reason for this is that few – if any – candidates are unquestionably grounded on the logical relation of exclusion. Even the apparently unassailable true/false 'dichotomy', according to which p is true entails that not-p is false, turns out to be liable to dispute, which has yielded non-bivalent logics. This is not to deny that there is 'opposition' between the members of the pairs usually considered dichotomous; it is to reject the presumption that such an opposition is of the insurmountable, formal kind. And the conclusion is that to treat the usual concept of dichotomy formally is perhaps a serious mistake, for it is rather informal in nature, i.e., relative and open-ended. Alternatively, if one prefers to persist in conceiving dichotomy logically, one must admit that the mistake is to identify so many oppositions we make use of as dichotomies. That we persist in doing so, as we will see, is quite revealing about the aims and practices of various types of debate.

3. Plato's predicament

The difficulty of determining where to stop division (be it dichotomous or not) while at the same time ensuring it provides a full account of reality, though perhaps its main metaphysical problem, is not the only one plaguing *diaeresis*.[2] Plato himself was aware of other problems with his method. One of them, closely related to the difficulty just mentioned, is how to prevent the use of unrestricted generalizations that disregard qualifications or modifiers of a predicate, as a means to generate neat B vs. ~B dichotomies. This problematic move is beautifully illustrated in the following passage of the *Euthydemus* (293b–d), a dialogue where the sophist brothers Euthydemus and Dionysodorus undertake to teach Socrates, among other things, the wonders of dichotomization:[3]

> Is there anything you know?
> Yes, many things, though trivial ones.
> Do you suppose it possible for any existing thing not to be what it is?
> Heavens no, not I.
> And do you know something?
> Yes, I do.
> Then you are knowing, if you really know?
> Of course, as far as concerns that particular thing.
> That doesn't matter, because mustn't you necessarily know everything if you are knowing?
> How can that be, when there are many other things I don't know?
> Then if there is anything you don't know, you are not knowing.
> In just that matter.
> Are you any less not knowing for all that? And just now you said you were knowing, with the result that you are the man you are, and then again you are not, at the same time and in respect to the same things.

Socrates rightly stresses the internal unity of each of the predicates 'knows p' and 'knows q', which are not dichotomous (since they do not exclude each other), whereas the sophists dismember them in order to obtain the more general, dichotomous pair 'is knowing' vs. 'is not knowing'. Although the *non sequitur* of some of the latter's formulations are evident (e.g., "if you are knowing you must know everything"), the logic of the inferences here involved had not been developed

---

2. Although Leibniz claims that "everything can be discovered through divisions" and "by means of dichotomies" (Leibniz 2006, p. 100), he is also aware of several of the problems of this method.

3. Socrates is reporting his conversation with Euthydemus to Crito. I suppress the reported speech "he said", "I said", so as to make the clash more crispy.

by Plato's time,[4] so that they must have been at least puzzling for his readers and for the sophists' clientele. Hence their eventual persuasive power, which the two brothers exploited systematically as a general strategy of creating dichotomies and making at least rhetorical profit out of them: "All our questions are of this same inescapable sort, Socrates" (*Euthydemus* 273e). In spite of Socrates's commonsensical, justified and at times quite persuasive resistance to the brothers' inferences underlying these questions, Plato in fact did not have an "inescapable" strategy capable of getting rid of them once and for all.

Nor did he have a solution to another problem he raises concerning the criteria for cutting a concept in two. All he provides by way of solution is informal guidance in the form of an anatomical metaphor that speaks of 'natural joints' along which the appropriate cuts should be made:

> Socrates: [...] to cut up each kind according to its species along its natural joints, and to try not to splinter any part, as a bad butcher might do (*Phaedrus* 265e).

An instance of not following this guidance, recurrently given by Plato, divides the human race into Greeks and all the rest (sometimes called 'barbarians'); he suggests that the mistake lies in the blatant asymmetry of the two classes. This problem is overcome in the following instances:

> Visitor: the division would be done better, more by real classes and more into two, if one cut number by means of even and odd, and the human race in its turn by means of male and female, [...] (*Statesman* 262e).

A more elaborate analysis of the virtues of an instance of division of the kinds of madness discussed in the *Phaedrus*, immediately after the anatomical metaphor quoted above, gives further hints – though not definite criteria – concerning what makes a division good or bad:

> Socrates: In just this way our two speeches placed all mental derangements into one common kind. Then, just as each single body has parts that naturally come in pairs of the same name (one of them being called

4. Not even in Aristotle's syllogistic logic, which treats predicates as single units that cannot be partitioned. This disallows any inference from 'knows p' to 'knows' or 'is knowing', as well as from 'knows p' to 'knows t' (even when p entails t). Within such a framework, the relational inference "3 > 2, 2 > 1, therefore 3 > 1" cannot be proven, because it involves two different, unrelated predicates ('>2' and '>1'). Nor can the inference "Mary is Christ's mother, Christ had twelve disciples, therefore Mary is the mother of someone who had twelve disciples" be proven. Throughout the Middle Ages logicians discussed the problems such inferences – involving steps leading from the 'direct' to the 'oblique' or vice-versa – raised for Aristotelian logic. Seventeenth century logicians, such as Jungius and Leibniz, were still concerned with them (cf. Leibniz 2006: Chapter 31G).

the right-hand and the other the left-hand one), so the speeches, having considered unsoundness of mind to be by nature one single kind within us, proceeded to cut it up – the first speech cut its left-hand part, and continued to cut until it discovered among these parts a sort of love that can be called "left-handed", which it correctly denounced; the second speech, in turn, led us to the right-hand part of madness; discovered a love that shares its name with the other but is actually divine; set it out before us, and praised it as the cause of our greatest goods.

Phaedrus: You are absolutely right.

Socrates: Well, Phaedrus, I am myself a lover of these divisions and collections, so that I may be able to think and to speak. And if I believe that someone else is capable of discerning a single thing that is also by nature capable of encompassing many, I follow "straight behind, in his tracks, as if he were a god". God knows whether this is the right name for those who can do this correctly or not, but so far I have always called them "dialecticians" (*Phaedrus* 265e–266c).

Nevertheless, neither this enthusiastic mature Socrates, who enjoys the unrestricted support of Phaedrus, nor the Visitor in the *Statesman*, whom the young Socrates prompts to spell out the proposed criterion in more precise terms, seem to be able to deliver the goods:

Young Socrates: Quite right; but this very thing – how is one to see it more plainly [...]?

Visitor: An excellent response, Socrates, but what you demand is no light thing. We have already wandered far away from the discussion, and you are telling us to wander even more. Well, as for now, let's go back to where we were (*Statesman* 263a).

These and other problems detected and left unsolved by Plato himself show that the use of the notion of dichotomy as the flagship of his dialectical method is far from being able to provide this method with a rigorous formal foundation as that use was presumed to do. They reveal in fact loopholes in the method and its central tool, which its opponents will try, time and again, to exploit in their de-dichotomizing moves, and its practitioners will try to block by ever more stringent dichotomizing demands.

4. Dichotomies as strategic argumentative tools

Plato's approach to dichotomies is 'realist' and 'semantic', in the sense that they correspond to a conceptual reality that must be unveiled and properly described,

independently of the argumentative uses they can be put to. This approach might be adequate if the logical condition of exclusive disjunction were both sufficient and necessary for discovering, describing, and using dichotomies. Yet, we have seen that this is not the case. Plato's own condition of 'proportionality' between the two halves of a dichotomous division shows that exclusive disjunction is not sufficient for identifying a 'real' conceptual 'joint', not to mention a useful one; and the fact that the oppositions underlying generally accepted 'dichotomies' do not imply exclusive disjunction shows this is not a necessary condition either.

On the other hand, the phenomena par excellence in which dichotomies, whatever their conceptual underpinnings, are invoked and therefore play some observable role are argumentative episodes. This suggests that an empirically based approach to them should stem from the observation and analysis of that role, i.e., not on what dichotomies are assumed to be, but on how arguers construe and use them for their argumentative purposes; in other words, instead of a realist and semantic approach, what I am suggesting is a constructivist and pragmatic one.

On this approach, the question is not to determine what are 'true dichotomies' whose use is legitimized by their being true, but rather to investigate the argumentative aims and moves that either construct or deconstruct an opposition as a 'dichotomy'. Notice that, from this perspective, the deconstruction of any dichotomy is always possible. Socrates' technique of predicate qualification in his replies to Euthydemus illustrates nicely this possibility.

Since in the proposed approach priority is thus granted not to dichotomies qua entities, but to the strategies that create such entities and make use of them, let us conclude this section with a proposal of working definitions of these strategies, for which I have been using the general tags 'dichotomization' and 'de-dichotomization' – before we examine some recent debates where these strategies loom large:

Dichotomization:[5] radicalizing a polarity by emphasizing the incompatibility of the poles and the inexistence of intermediate alternatives, by stressing the obvious character of the dichotomy as well as of the pole that ought to be preferred.

---

5. The anonymous referee asks why not use, instead of the awkward 'dichotomization', the shorter and familiar 'polarization' (and its corresponding 'de-'), which is anyhow used in the *definiens*. And s/he suggests part of the answer: 'polarization' does not have "the heavy associations that dichotomies have in logic". Nor would it have, I would add, the impact of the neologism to achieve the desired effect of the strategy, namely, to make full use of these "heavy associations" so that the argument seems to be strictly logic.

De-dichotomization: showing that the opposition between the poles can be constructed as less logically binding than a contradiction, thus allowing for intermediate alternatives; actually developing or exemplifying such alternatives.

5. Dichotomization and de-dichotomization in debate

5.1 Natural right vs. historicism

In the first example here analyzed, dichotomization is the central move, but one of the contenders prepares the ground for avoiding its power through a well-known preliminary move: distinguishing between the position attacked by the adversary (the 'extreme' or 'strong' version) and his own position (the 'moderate' or 'weak' version). This preliminary move is designed to set the ground for de-dichotomizing the debate, as we shall see.

The Strauss-Stern confrontation that took place in mid-twentieth century concerns a basic issue in the philosophy of history. This debate is in fact a variant of the absolutism vs. relativism debate, which in this case deals with the alleged contradiction between the idea of a-historical natural right and the historicist critique of a-historical universalism. Leo Strauss defends the former and Alfred Stern the latter, in a series of texts addressed at each other. Here are two quotations that succinctly present the two poles of the dichotomy that, according to these authors, polarizes their positions:

> Historicism is an antithesis; in order to understand it, one has to know the thesis which it denies; namely, natural right, and its presupposition, the concept of a human nature or a human reason considered as unchangeable, eternal, identical throughout the ages, the nations, the civilizations, the social classes. (Stern 1962, p. 139)

> Natural right isn't possible if all that men can know about it is that the question about the principles of justice allows for a variety of answers none of which can be proved as better than the others. Natural right is not possible if human thought, though imperfect, is unable to solve the problem of the principles of justice in a true way, hence in a universally valid way. (Strauss 1953, p. 26)

In these statements, each of the protagonists defines his position as incompatible with and antithetic to that of his opponent. Furthermore, no mention of a third possibility is made by either. Therefore, both seem to unquestionably accept the dichotomous nature of the issue, as well as its consequence, namely, that one has no option but to adopt one position or the other. Under these conditions, none of the contenders needs to further dichotomize the debate. Both can rather try to exploit particularities of the dichotomous positions as arguments in their favor or against the adversary.

Strauss, for example, makes use of alleged self-defining features of historicism in order to show its absurd consequences – viz., its self-defeating character. This is apparent in the following *tu quoque* move:

> Historicism claims that all human thoughts or beliefs are historical and therefore bound to die; but historicism itself is a human thought; therefore historicism can only have limited validity, or else it cannot be true. To assert the historicist thesis means to doubt it and, thus, to transcend it. [...] Historicism thrives on the fact that it inconsistently exempts itself from its own verdict on all human thought. (Strauss 1953, p. 26)

The same is the case in the *slippery slope* move through which he claims that historicism leads to nihilism (ibid.). Both moves, in their eagerness to demonstrate the unworthiness of the opposite pole, in fact present it as not being a real, weighty contender; the dichotomy is thus tendentiously presented as unbalanced (like the Greeks vs. barbarians one); rather than a difficult problem to be solved, it is virtually pre-decided in favor of the arguer's party. In this context, the *tu quoque* and *slippery slope* are, nevertheless, dichotomization moves in so far as they exaggerate the polarity and take advantage of such an exaggeration for facilitating the arguer's argumentative task.

Stein, on the other hand, replies in a spirit of moderation, albeit without giving up the dichotomy, which is the axis of the debate. He begins by conceding Strauss' point that historicism's claim to validity cannot be universal:

> [...] let us rather admit that historicism cannot claim timeless validity without violating its very principle. [...] By virtue of the categories at our disposal at this moment of history, human thoughts, beliefs and values appear historically conditioned [...] Since, besides the categories of our epoch, we have no others at our disposal [...] we must say that, in our epoch, historicism appears to be a well established theory. The fact that we cannot affirm the eternal, timeless, trans-historical validity of historicism does not exclude the possibility of its being valid for the present historical epoch which gave birth to it. (Stern 1962, pp. 182–183)

He then re-describes the radicalized dichotomy as opposing 'extreme' relativism and absolutism, none of which corresponds to the version of 'moderate' historicism he actually defends. From this point of view, 'extreme historicism' is nothing but a figment of the imagination of opponents like Strauss, designed for simplistically dichotomizing the issue and winning the battle, rather than solving a thorny problem. Thus dichotomized, however, the polarity becomes in fact easier to de-dichotomize thanks to the existence of a reasonable intermediate alternative such as 'moderate historicism'.

5.2 Fact vs. value

As our second example, let us consider Putnam's (2002) head-on attack on an old and entrenched philosophical dichotomy. In addition to his critique of a specific

dichotomy, Putnam also criticizes the excesses of dichotomization as a strategy and suggests how to avoid them without falling in the opposite exaggeration of suppressing altogether distinctions.

Putnam's specific target encompasses Hume's famous is vs. ought dichotomy, as well as its 20th century counterparts, such as Stevenson's (1963) fact vs. value and the logical positivists' scientific vs. unscientific. Putnam prepares his onslaught by a critique of the analytic vs. synthetic dichotomy, which is essential to logical positivism.[6] Up to a point, he sides with Quine's (1961) argument, especially in that it shows that the positivist notion of 'analytic' is ill defined. Yet, he does not go all the way with Quine in denying any sense whatsoever to this notion and adopting the latter's holistic position.[7] This, according to Putnam, would amount to throwing out the baby with the bath water. The baby is, in Putnam's terminology, a useful *distinction*, which we understand and use, between two kinds of meaning. Although attempts to define precisely this distinction – employing, among other means, its polarization into a dichotomy – have failed, this is no justification for throwing it out.[8] What one must reject are not valuable distinctions (among which Putnam ranges also fact vs. value) but their transformation into strict dichotomies:

> This is undoubtedly the case, just as it is undoubtedly the case that there is a distinction to be drawn (and one that is useful in some contexts) between *chemical* judgments and judgments that do not belong to the field of chemistry. (Putnam 2002, p. 19)

---

6. It should be recalled that logical positivism had in fact re-dichotomized the opposition between 'analytic' and 'synthetic', which Kant had de-dichotomized through the introduction of the *tertium* 'synthetic a priori'.

7. Grice & Strawson (1956), in their reaction to Quine's article, adopt a similar strategy. They accept Quine's criticism of the definitions of analyticity proposed in the positivists' writings, but stress that, even though this notion resists formal definition, it corresponds to an intuition shared by speakers of natural languages, and hence is meaningful and ought to be preserved.

8. Another – not unrelated – example of a logical positivist concept that resisted attempts of formal definition is the concept "empirical significance". For an analysis of this failure, see Dascal (1971). The intuitive idea that a theoretical statement is about the world if there are observation statements that are "relevant" either to its justification or to its refutation, a basic intuition of empiricism, which logical positivism (also called 'logical empiricism') attempted to develop into a formal criterion of (empirical) meaningfulness or verifiability, proved to be resilient to these attempts – in part due to the logically 'soft' nature of the notion of relevance. However, this fact did not make this idea lose its meaning nor its usefulness, although it should certainly have made it lose its appeal as the basis for the rigid dichotomy between scientific and non-scientific statements.

What worries Putnam is that, when a distinction becomes a dichotomy it usually acquires, in addition to presumed logical precision, also a metaphysical import it does not have as a mere distinction.[9] Hence, the warning:

> *But nothing metaphysical follows from the existence of a fact/value distinction in this (modest) sense.* (ibid.)

It is the overlooking of such a warning by logical positivism, in spite of their apparently cautious formulations such as the one below, that particularly irritates Putnam:

> All statements belonging to metaphysics, regulative ethics, and (metaphysical epistemology) have this defect, are in fact unverifiable and therefore unscientific. In the Viennese Circle, we are accustomed to describe such statements as nonsense (after Wittgenstein). This terminology is to be understood as implying a logical, not say a psychological distinction; its use is intended to assert only that the statements in question do not possess a certain logical characteristic common to all proper scientific statements; we do not intend to assert the impossibility of associating any conceptions or images with these logically invalid statements. Conceptions can be associated with any arbitrarily compounded series of words; and metaphysical statements are richly evocative of associations and feelings both in authors and readers. (Carnap 1934, p. 22; quoted by Putnam 2002, p. 18).[10]

Formulations such as the above are typical examples of what Putnam calls 'inflated' distinctions. As opposed to this, he recommends 'disinflation':

> If we *disinflate* the fact/value dichotomy, what we get is this: there is a distinction to be drawn (one that is useful in some contexts) between ethical judgments and other sorts of judgments. (Putnam 2002, p. 19)

'Disinflation' is thus needed when a distinction is dichotomized to the point of becoming an absolute, uncritically applied dichotomy. Distinctions require, Putnam suggests, sensitiveness to the context where they are applied, whereas dichotomies' charm lies precisely in the fact that they are applicable without such a relativization. Combating this disinflation temptation is thus a typically

---

9. Of course one could be worried as well by other sorts of significance – e.g., political, ethical, religious, epistemological, etc. – a distinction might acquire when conceived as a dichotomy.

10. Notice the inclusion of 'regulative ethics' in the group of statements that are defective because they do not satisfy the criterion of verifiability. This position leads to the search of some other kind of meaning for ethical statements, e.g., 'emotive' meaning (Ayer 1967, Stevenson 1963), 'recommending' rather than 'stating' (Hare 1952).

de-dichotomizing strategy. It involves a number of moves, as Putnam's argumentation in this particular case illustrates, moves that can be easily emulated in analogous cases.

5.3 Combining dichotomization with de-dichotomization?

Our next example is peculiar in that one of the contenders – whose moves I will discuss in some detail – undertakes the critique of a dichotomy both 'from within' and 'from without', as it were; in this way, he places himself in a position to propose an alternative that 'transcends' the criticized dichotomy both through reforming and through side-stepping it – a quite original form of de-dichotomization or some strange form of combining it with dichotomization?

We are talking about a 'participatory' approach to social science that has provoked intense controversy. It has been dubbed in the 1940s 'action research', a term that designates the attempt to merge research and action in the study of social phenomena. Important projects following this approach have focused on work procedures, which aim to investigate systematically "the way in which the activity of the staff or workers in a given enterprise contributes, or fails to contribute, to its outcomes". One of its characteristic features is that it is 'participatory' in the sense that "the staff whose work is being studied themselves plays a part in the research" (Toulmin 1996a, p. 2). Action research is further described as a 'clinical art', whose objective is not just description but improvement – a parallel that "reminds us that the outcome of action research is *phronesis* not *episteme*: practical wisdom not theoretical grasp" (Toulmin 1996b, p. 210).

One of the critics of action research, Aage Bödger Sorensen, is reported to have said "It may be OK in its own way, but don't call it Research" (Toulmin 1996b, p. 203). This and, presumably, similar reactions provoked a fierce counterattack on 'mainstream social science and philosophy of science', which are charged with making the wrong choice on a series of grounding dichotomies – theory vs. practice, universal vs. particular, general vs. local, eternal vs. timely, abstract vs. concrete:

> More radically, we shall go on to counterattack the objections from mainstream social science and philosophy of science. As we shall argue, the subject matter of social research is not just practice rather than theory: its focus is also particular not universal, local not general, timely not eternal, and – above all – concrete not abstract. (Toulmin 1996a, p. 3)

The debate between the proponents of participatory action research and the representatives of mainstream social science, viewed as representatives of 'High or Pure Science' (Toulmin 1996b, p. 205) becomes, then, nothing less than a debate about the nature of science and scientific method. Toulmin's stand in this debate

is decidedly against the mainstream position on all counts, as he forcefully puts it: "The overall theories social scientists pursued for much of the 20th century turn out, indeed, to be dreams" (1996b, p. 215). As a defender of participatory action research, in particular, he stresses the priority of practice over theory, on the grounds that "appeals to theory are themselves just one practice among others" (1996a, p. 3).

Up to this point, the debate seems to take place *within* the space defined by a family of dichotomies, with each contender accusing the other of being wrong in their allegiance to one of the poles. Attacking the 'mainstream' position for adopting B, C, D, etc., whereas it should adopt, instead, ~B, ~C, ~D, etc., is not de-dichotomizing the debate, but rather at least preserving its dichotomous nature and perhaps even radicalizing it.

It is only when the "outcome of our reflexions" on the cluster of problems he identifies in the debate[11] is depicted by Toulmin as converging towards one particular issue that "underlies the whole methodological debate" that de-dichotomization emerges as his dominant strategy. For, the underlying question he raises is:

> [D]oes the phrase 'scientific method' cover a single universal set of procedures, applicable in investigations of all kinds, regardless of the subject matter or interests involved? Or can scientific inquiries with different subjects – human institutions (say) rather than subatomic particles – or with different interests at stake – clinical techniques rather than physiological theories – employ different sets of procedures, depending on the special nature of the particular inquiry? (Toulmin 1996b, p. 204)

Obviously, the mere act of 'asking' whether scientific method might not be plural rather than unitary amounts to suggesting an alternative to the poles of the dichotomies that remained unquestioned so far. As soon as this step is taken, the de-dichotomizing orientation of Toulmin's argument prevails and the debate's arena is not any more *within* the space of options defined by the dichotomies with which the 'mainstream' view operates, but rather questions this space and proposes to enrich it with alternatives it excludes. Elements for constructing one or more of such alternatives are successively presented and become the bulk of the argument: 'Methodological democracy' (pp. 207–208), 'participant observation' and 'thick descriptions' in anthropology (p. 209), the contextualizing of the choice

---

11. The list includes: "1. the claims of High Science, with its goal of abstract, universal theories; 2. the distinction between (abstract) Theory and (concrete) Practice; 3. the contrast between the general, timeless laws of (say) Physics, and the 'local' or 'timely' concerns of (say) Anthropology or History; 4. the varying demands of objectivity, in different research fields; and 5. the implications of participation in research projects by the very subjects of the research" (Toulmin 1996b, p. 204).

of methodology to concrete cases and particular circumstances (pp. 210–213), the variability of the notion of 'objectivity' (pp. 215–218), etc. Ultimately, through this concerted attack it is the idea of the unity of science[12] – again, a major tenet of logical positivism – that is called into question via the de-dichotomization of the fundamental dichotomous belief upon which it rests: either there is *one* method whereby the reliability of science can be recognized whatever the objects and circumstances of inquiry or there is no such a thing as 'science'.[13]

If I am not completely off the mark in identifying de-dichotomization as the basic strategic line of Toulmin's argumentation, it is quite puzzling why he should introduce the book through an argumentative move that is naturally understood as a dichotomizing one. Should we consider that, for Toulmin, these two directions can be somehow coherently combined, and that this was his intention? If this is the case, it is no doubt worth examining as a possibility, because it would demonstrate that dichotomization and de-dichotomization are not incompatible, i.e., they do not constitute a dichotomy in the strict logical sense and the opposition between them is rather of the informal kind.

This interpretation is supported by the use of the spatial metaphor 'Beyond X' in the book's title, where X = Theory.[14] A title such as this highlights the idea that X is an obstacle that blocks the way towards reaching some worthy aim, and as such must be overcome. A book bearing this kind of title, therefore, is expected to contain both, a critique of X and at least a sketch of what lies ahead, once X is removed. In our case, the obstacle to be criticized and overcome in order to unblock the way to a proper social science is the traditional view that science means theoretical science. The most direct way to achieve this seems to be a frontal attack on 'Theory'. But such an attack would be liable to present the book as accepting an extant dichotomy and adopting

---

12. See the section "The dream of a unitary theory" (Toulmin 1996b, pp. 213–215).

13. The development of the 'social sciences' has, since its inception by the end of the 18th century, posed a challenge to the notion of a unitary science: can Netwonianism, the paradigmatic method of the natural sciences, be simply applied to the social sciences, requiring only slight adaptations? The history of this debate, which continues to this day (as Toulmin himself points out), is a good example of the mutations dichotomies can undergo in evolving dialectical contexts. Recall, for instance, the following significant episodes in the debate in question: the controversy between Malthus and Ricardo that, beyond the foundations of political economy, has in view the very nature and method of a social science (see Cremaschi & Dascal 1996, 1998); the *erklären* vs. *verstehen* debate, initiated by Dilthey, and rekindled by von Wright and the positivists (see von Wright 1971); and the "two cultures" dispute (see Snow 1963). For a comprehensive discussion of the unity of science, see Pombo (2006).

14. I have analyzed this ubiquitous spatial metaphor, with special reference to titles of (mainly) philosophical works, in Dascal (1996), to which I refer the reader for the details.

its opposed pole – presumably 'Practice'. This would be, however, a rather meager 'beyond' achievement for a book that attempts to overcome the theory/practice and other dichotomies, creating instead hybrid concepts such as 'action research'. Since this is what the book actually tries to do, its main task is to remove not only one pole, but the whole dichotomy and its key strategy is de-dichotomization. But then, the title is misleading, from an argumentative viewpoint. It should contain, next to the X, a Y making thus clear – as in Nietzsche's *Beyond Good and Evil* – what is the dichotomy that must be de-dichotomized in order to open radically new horizons. Therefore, Toulmin's 'metaphorically and argumentatively correct' title should have been 'Beyond Theory and Practice'.[15]

6. Dichotomization at the meta-level

A theory of debates, i.e., the meta-level that deals with debates qua objects of investigation, is not free of debates, of course. As such, it should be expected to find at this level too dichotomies in the conceptualization and typology of debates and, consequently, dichotomizing and de-dichotomizing strategies in defending or attacking these theoretical proposals. In this and the following sections, we move to the meta-level, focusing in particular on the taxonomy of debates. However, as we have seen, a reasonable case can be made for de-dichotomizing the theory/practice opposition (see Section 5.3); therefore, it should be expected that the meta-level categorization of a debate will influence the actual conduct of that debate.

Such an influence can be observed with respect to the dichotomization of the types of debate and the application by the contenders of the resulting dichotomy in interpreting the adversary's moves and deciding about their own following steps. In the terminology I have adopted, the two ideal types of debate traditionally viewed as dichotomously related are 'discussion' and 'dispute'.[16]

---

15. "What I am suggesting is, simply, that we regard social science as a clinical science, and action research as one corresponding clinical practice" (Toulmin 1996b, p. 212). This statement comes close to my suggestion, but it is somewhat ambivalent: on the one hand, the modifier 'clinical' substantially changes both the concepts of science (notice that Toulmin does not employ 'theory' here) and of practice, and thus contributes to weakening the theory vs. practice dichotomy; on the other, the statement relies on this dichotomy as a means of explaining the proposed distinction. Perhaps this ambivalence is unavoidable when de-dichotomization operates by hybridization of the poles of the dichotomy it seeks to suppress.

16. For this terminology and the typology to which it belongs, see Dascal (1998a, 1998b).

A *discussion* is the idealized form of a scientific debate. Its aim is determining which of the positions in confrontation is true, the other being perforce mistaken; a procedure accepted by the (community of) discussants is assumed to be able to yield an unquestionable decision, to whose truth winner and looser, qua rational debaters, are committed in advance; and the privileged argumentative move in this procedure is logical, mathematical or experimental proof. A *dispute*, at the other pole of the dichotomy, is the idealized form of a battle of wits. Its aim is victory over the adversary; no procedure capable of deciding the issue so as to fully and decisively convince the (community of) disputants is available; and no constraints limit the kinds of argumentative stratagems designed to lead to the desired victory, however momentary it may be.

Several dichotomies underlie and yield support to the dichotomization of the pair *discussion/dispute*, both at the theoretical level and its use in actual debates:

Discussion	**Dispute**
The truth	*My* truth
Issue *can* be decided	Issue *cannot* be decided
Logical	Rhetorical
Rational	Irrational
Debate about contents	Debate about attitudes
Yields opinion change	Does not yield opinion change

Once contenders perceive the concepts of *discussion* and *dispute* as radically opposed on so many grounds, i.e., as mutually exclusive and exhaustively covering all possible debates, they are compelled to view the particular debate in which they are involved as *either a discussion or a dispute*; and this choice will determine their expectations, interpretations, and behavior in the debate. A contender may stick to his/her initial choice of category or, in the light of eventual violations by the adversary of his/her expectations or interpretations of the adversary's moves, shift to the other and react accordingly. This flip-flop effect that admits no intermediate alternative is not unusual.

A notorious example of this phenomenon is the clash between Isaac Newton and Robert Hooke. These renowned scientists, both members of the Royal Society, both mathematically oriented experimentalists, engage in a violent debate about the theoretical interpretation of Newton's prism experiment, which becomes a decade long all-out confrontation on many fronts. According to Newton, there can be no doubt that his observations demonstrate the truth of his theory of light's composition. But Hooke, who does not question Newton's observations, does question his claim that all theories other than his are ruled out by such results. Hooke argues that his own hypothesis is compatible with the results and criticizes Newton's notion of *experimentum crucis* as capable of providing decisive experimental proof of a theory. Newton, derisive of hypotheses, dismisses Hooke's

arguments as unscientific. If the debate begins as a civilized *discussion* between truth-searching scientists, it soon becomes a bitter *dispute*, where hidden motives and abuse are not rare.[17]

The lack of at least one theoretically justified and generally acknowledged intermediate category legitimizes a pattern of conceptualizing debates that induces a procrustean simplification of the alternatives in the debated issues, a reductionism that cuts down details, complexity and precision, and the illusion of easy understanding and equally easy choice between the dichotomous options. In public debates, especially under the additional constraint of time limitations in assemblies, professional congresses, or the media, this pattern is fully operative and recognizable. Yet, public debates also bear witness, occasionally, to the need to overcome the narrow, dichotomization-imposed pattern: for a while – typically in 'open discussion' time – yes/no questions are no longer heeded to, in spite of formal announcements, requests of previous preparation, and insistence by the chair or the interviewer; unforeseen alternatives are improvised on the spot and non-conventional answers become thus suddenly possible; it is as if complexity erupts from nowhere, revealing the ersatz character of ready-made simplified dichotomous options.

In a large professional congress, where I had the opportunity to speak and observe (as a controversies researcher), the First World Congress on Controversies in Neurology (Berlin, 6–9 September, 2007), the sessions dealing with the currently most controversial issues in the field – e.g., multiple sclerosis (MS) – were structured in a clear dichotomized form: a yes/no question and two speakers picked up as defenders of each of the possible answers. But the debaters not always complied with this format's constraints. For example, to the question "Clinically Isolated Syndromes (CIS): To treat or not to treat," one of them replied "Start early" and the other "Don't hurry". They thus employed a well-known pragmatic device to

17. Here are some excerpts of their correspondence (see Newton 1978, passim). Newton: "For this is to be decided not by discourse, but by new tryal of the Experiment"; "But this, I conceive, is enough to enforce it, and so to decide the controversy"; "There are yet other Circumstances [i.e., other experiments, M.D.], by which the Truth might have been decided". Hooke: "But, how certain soever I think myself of my hypothesis (which I did not take up without first trying some hundreds of experiments), yet I should be very glad to meet with one *experimentum crucis* from Mr. Newton, that should divorce me from it. But it is not that, which he so calls, will do the turn; for the same phaenomenon will be solved by my hypothesis, as well as by his, without any manner of difficulty or straining: nay, I will undertake to shew another hypothesis, differing from both his and mine, that shall do the same thing". I analyze another example of flip-flop between the poles of this dichotomy, the debate between the analytic philosopher John Searle and the post-modern philosopher Jacques Derrida, in Dascal (2001).

convey both their agreement (as a presupposition) and disagreement, thereby foregrounding the question of timing and circumstances of the treatment as the issue worth debating. In another case, a compound question, "Is MS a single nosologic entity due to an auto-immune mechanism?", became the occasion to focus the debate on one of its components: the causal claim. Again, neither the "Yes" nor the "No" answers denied the presence of inflammatory brain or spinal chord auto-immune responses in MS; but both shifted the issue to whether these processes can explain the clinical syndrome and the course of the disease, and therefore can be considered the main target of drug development and treatment. In both examples, the 'complexification' of the issue prevents the easy dichotomization of the debate.

7. De-dichotomization at the meta-level

The examples above clearly indicate the insufficiency of a dichotomous conception of debates for handling complex scientific – and certainly also practical – issues. That is, they show that the models of *discussion* and *dispute* alone are not sufficient for an account of all varieties of debates. Yet, although examples such as these are quite common in the history of debates, it is only recently that the de-dichotomization of the still dominant meta-level umbrella, the *discussion/dispute* dichotomy, has begun.

In my own case, besides the descriptive inadequacy of this dyadic scheme and the unnatural flip-flop effect it forces upon debaters, what prompted my search for at least one additional ideal type to add to the taxonomy was the encounter with a different approach to debate in the work of G.W. Leibniz – an approach virtually ignored by a tradition that highlighted, instead, his project of developing an algorithmic procedure for solving all controversies.[18] This hitherto overlooked approach suggested a type of debate where not the decision (be it the determination of the truth or of the winner) is the primary goal, but rather the construction or emergence of a solution through the dialectic cooperation of the debaters.

Retrospectively, I now see the move that resulted from these briefly described circumstances as a classical de-dichotomization move, which led to the elaboration and *mise en valeur* of the concept of a new type of debate and to the transformation

18. For details of Leibniz's hitherto overlooked approach, see the Introductory Essay and the Leibnizian texts translated and commented in Leibniz (2006).

of an earlier dyadic taxonomy into a triadic one. Though the new category, christened 'controversy', owes some of its features to Leibniz, neither it nor the taxonomy of which it is part and parcel, is to be found in his writings. What actually defines *controversy* is the set of substantial differences that distinguish it from both *discussion* and *dispute*. And its justification and value must be judged by its descriptive and explanatory power.

In a *controversy*, unlike in a *dispute*, the objective is not victory, but rational persuasion; each contender does not assume *a priori* that the adversary is entirely wrong while he is entirely right, thus abandoning from the outset any hope of rationally persuading the other to change his mind. External intervention (e.g., by a tribunal) can dissolve the *dispute*, but usually does not change the contenders' belief in the correctness and justice of their positions. On the other hand, *controversy* differs from *discussion* in that, while it is predicated upon the possibility of rational persuasion, it does not assume that this can only be achieved through the acceptance by the contenders of the unquestionable results of the application of a method they unconditionally accept. In *controversy*, the questioning of basic assumptions of all sorts is always possible. This leads to a wide span of disagreements that can be quite radical – including doubts about the alleged certainty of the decision procedures. Hence, rational persuasion in *controversy* has not the power of the dramatic revelation of the truth as it is supposed to have in *discussion*.

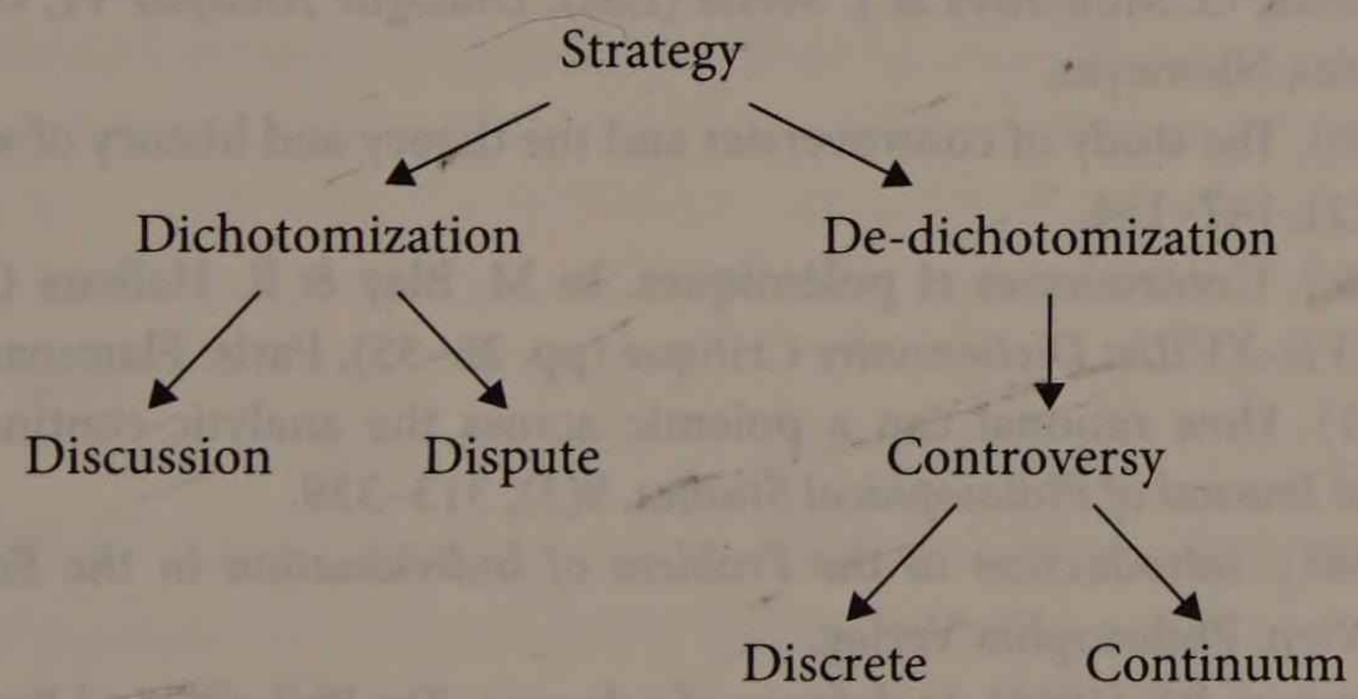
In sum, *controversy* differs from *dispute* and from *discussion* in its aim and in the details of each of its key parameters; but from the point of view of this paper, the fundamental difference to be stressed is the fact that its defining parameters, contrary to those of its partners in the triad, are all non-dichotomous in nature. This feature of *controversy* grants it a flexibility, an open-endedness, a challenging attitude vis-à-vis established beliefs and practices, a non-dogmatic rationality that account for its special contribution to the growth of knowledge and its explanation: the creation of a space where radical innovation within rational boundaries becomes possible.

8. Re-dichotomizing a de-dichotomized triad?

If the very distinction between the definitional properties of the pair *discussion/dispute* and of *controversy* turns out to be based on whether these properties are dichotomous or not, and if dichotomization and de-dichotomization play indeed a determinant role in the structure and conduct of debates at the theoretical, strategic, and tactical levels, it is natural to incorporate them in the triadic scheme, at least as an additional parameter for characterizing the types of debate (as in the table below):

	Discussion	Controversy	Dispute
Aim	*Truth*	*Persuasion*	*Victory*
Extension	*Localized*	*Generalized*	*Localized*
Procedure	*Decision method*	*Method questionable*	*No internal method*
Typical move	*Proof*	*Argument*	*Stratagem*
Strategy	***Dichotomize***	***De-dichotomize***	***Dichotomize***
Ending	*Solution*	*Resolution*	*Dissolution*

The addition of the "strategy" row is both suggestive and puzzling. On the suggestive side, it leads one to inquire whether there are not two kinds of controversy which employ different forms of de-dichotomization, just as there are two types of debate that employ different forms of dichotomization; in fact, a positive answer is not far fetched, for indeed de-dichotomization may lead to one or more discrete alternatives or to a continuum of possible alternatives between the poles of the criticized dichotomy. Furthermore, since – as we have seen – the choice of strategy naturally organizes the types of debates in a new dichotomy, whose criterion is a property underlying these types' features as described in the other rows, such a choice surely occupies a higher hierarchic position than the other rows. The graph below depicts these heuristic explorations:



But this graph also calls attention to the puzzling side of the exploration it helps to picture. Haven't we ended up re-dichotomizing what we undertook to de-dichotomize? On the face of it, yes, of course. But in the course of our investigation, we learned something about dichotomies in general and about the dichotomization/de-dichotomization one in particular, something that might help to overcome this apparent circularity. We learned that dichotomies are not absolute givens, but purpose-dependent constructs, i.e., pragmatic, not semantic entities. As such, they can always be de-dichotomized, provided someone finds such an undertaking of sufficient interest in order to spend in it the required energy. Even the apparently irreducible dichotomy dichotomization/de-dichotomization turns out to be de-dichotomizable (see Section 5.3). Suppose, however, the puzzle is pursued and it is further suggested that it is an inevitable feature of our thinking that we

cannot get rid altogether of dichotomies, especially at the higher (or deeper) levels of abstraction. To this I, for one, would reply that these levels are too far from my reach as yet, and I am perfectly happy with living in a pragmatic conceptual universe populated by dichotomies we are still able to de-dichotomize.

References

Ayer, A.J. (1967). *Language, Truth and Logic*. London: Victor Gollancz.

Carnap, R. (1934). *The Unity of Science*. London: Kegan Paul, Trench, Hubner.

Cremaschi, S. & Dascal, M. (1996). Malthus and Ricardo on Economic Methodology. *History of Political Economy*, 28(3), 475–511.

Cremaschi, S. & Dascal, M. (1998). Malthus and Ricardo: Two styles for economic theory. *Science in Context* 11(2), 229–254.

Dascal, M. (1971). Empirical significance and relevance. *Philosophia 1*, 81–106.

Dascal, M. (1996). The Beyond Enterprise. In J. Stewart (Ed.), *Beyond the Symbol Model: Reflections on the Representational Nature of Language* (pp. 303–334), Albany, NY: SUNY Press. [Repr. as Chap. 11 of Dascal, M. (2003). *Interpretation and Understanding*. Amsterdam: John Benjamins].

Dascal, M. (1998a). Types of polemics and types of polemical moves. In S. Cmejrkova, J. Hoffmannova, O. Mullerova & J. Svetla (Eds), *Dialogue Analysis VI*, vol. 1 (pp. 15–33), Tübingen: Max Niemeyer.

Dascal, M. (1998b). The study of controversies and the theory and history of science. *Science in Context*, 11(2), 147–154.

Dascal, M. (1998c). Controverses et polémiques. In M. Blay & R. Halleux (Eds.), *La Science Classique, XVIe-XVIIIe: Dictionnaire Critique* (pp. 26–35), Paris: Flammarion.

Dascal, M. (2001). How rational can a polemic across the analytic-continental 'divide' be? *International Journal of Philosophical Studies*, 9(3), 313–339.

Gracia, J.J.E. (1988). *Introduction to the Problem of Individuation in the Early Middle Ages*. München/Wien: Philosophia Verlag.

Grice, H.P. & Strawson, P.F. (1956). In defence of a dogma. *The Philosophical Review*, 65, 141–158.

Hare, R.M. (1952). *The Language of Morals*. Oxford: Oxford University Press.

Leibniz, G.W. (2006). *The Art of Controversies*. (M. Dascal, Ed.). Dordrecht: Springer.

Lloyd, G.E.R. (1992). *Polarity and Analogy: Two Types of Argumentation in Early Greek Thought*. Indianapolis: Hackett Publishing Company.

Newton, I. (1978) *Isaac Newton's Papers and Letters on Natural Philosophy* (B. Cohen, Ed.). Cambridge, MA: Harvard University Press.

Plato (1997). *Complete Works*. (J.M. Cooper, Ed.). Indianapolis: Hackett Publishing Company.

Pombo, O. (2006). *Unidade da Ciência: Programas, Figuras e Metáforas*. Charneca da Caparica, Portugal: Edições Duarte Reis.

Putnam, H. (2002). *The Collapse of the Fact/Value Dichotomy and Other Essays*. Cambridge, MA: Harvard University Press.

Quine, W.V.O. (1961). Two dogmas of empiricism. In *From a Logical Point of View* (2nd ed., pp. 20–46). Cambridge, MA: Harvard University Press.

Snow, C.P. (1963). *The Two Cultures and a Second Look*. Cambridge: Cambridge University Press.
Stern, A. (1962). *Philosophy of History and the Problem of Values*. The Hague: Mouton.
Stevenson, C.L. (1963). *Facts and Values: Studies in Ethical Analysis*. New Haven: Yale University Press.
Strauss, L. (1953). *Natural Right and History*. Chicago: The University of Chicago Press.
Toulmin, S. (1996a). Introduction. In S. Toulmin & B. Gustavsen (Eds), *Beyond Theory: Changing Organizations Through Participation* (pp. 1–4). Amsterdam: John Benjamins.
Toulmin, S. (1996b). Concluding methodological reflections: Élitism and democracy among the sciences. In S. Toulmin & B. Gustavsen (Eds.), *Beyond Theory: Changing Organizations Through Participation* (pp. 203–225). Amsterdam: John Benjamins.
Von Wright, G.H. (1971). *Explanation and Understanding*. London: Routledge & Kegan Paul.

Charles Darwin versus George Mivart

The role of polemics in science

Anna Carolina Regner

1. Introduction

Charles Darwin and George Mivart once engaged in a famous polemic on the origin of species. I will analyze this polemic in the light of the conceptual framework and argumentative strategies of Darwin's *The Origin of Species* (1872)[1] and Mivart's *On the Genesis of Species* (1871), the principal works of both naturalists. Polemical interactions are cases of confrontation of ideas and positions. Here I intend to examine in detail the structure of a particular type of polemical interaction, namely, the controversy and its role in the construction and defense of scientific theories. Controversies are not fixed events, nor are they models of argumentation that can be precisely framed without taking into account their empirical developments as argumentative realities.

2. Analytical tools

Polemic interactions can be studied using different approaches. Two important features of such studies are that they fall under a theory of argumentation, and that they cannot avoid contextual (and thus pragmatic) considerations. Different theories of argumentation offer us different models for capturing, structuring and evaluating the argumentative cases they aim to clarify or explain. A well-known systematic theory of argumentation is the pragma-dialectical theory (as expounded by van Eemeren & Grootendorst, 2004), whose richness and depth of analysis is also well-recognized. In particular, this theory provides a model of critical discussion whose main objective is to resolve a difference of opinion leading to the acceptability of *one* standpoint, by both parties involved in the polemic. For van

1. The edition to be examined here is the last one – revised by Darwin himself – the 6th English edition of 1872. In this edition, Darwin incorporated the objections made by George Mivart into the new Chapter VI.

Eemeren & Grootendorst, argumentation is a critical discussion carried out and analytically reconstructed via well-defined stages (confrontation, opening, argumentation, and concluding stage) and their correspondent rules.[2] The end of the discussion is achieved when the difference of opinion is solved, and this occurs only if all the components of the difference of opinion have been examined, and both parties have discussed them and agreed on which standpoint should be accepted (or discarded). There are implicit, indirect, and unexpressed arguments that must be brought to light in reconstructing the argumentative event by means of justified analytical transformations: the deletion of irrelevant parts, the addition of relevant parts which are implicit, the replacement of ambiguous formulations by unambiguous ones, and permutation of certain parts of the discussion in order to rearrange them in a way which best serves the resolution of the difference of opinion.

Van Eemeren & Grootendorst's requisites concerning the attempt to clarify the points at issue, and to evaluate the extent of the polemic (as well as to make explicit their implicit standpoints, and the range of commitments of each party) are important guidelines to take into account in an analysis of the Mivart *versus* Darwin polemic. Nevertheless, an initial glance at this polemic shows that two crucial points of van Eemeren & Grootendorst's model are missing in the Mivart/Darwin case: there is no orientation towards the resolution of a difference of opinion, and there are no efforts of the parties concerned to recognize a scope of agreement which is sufficient to accomplish this resolution. The parties involved cannot agree on the nature of the difference of opinion, whose complexity increases throughout the debate. There certainly is a minimum number of shared commitments which are implicitly assumed (such as the intention to meet the requirements of the scientific community), but these are so general that they cannot be taken as determining the concrete argumentation at issue. The evaluation and conclusion of the argumentation are not seen by the participants as following the same rules or criteria, and if they are, they are interpreted in different ways by the participants. Furthermore, the intended result is not for them to convince each other to accept or reject a given standpoint, but rather to influence the audience (the scientific community) in the background of the polemic.

Marcelo Dascal distinguishes three kinds of polemic, and analyzes their corresponding features (Dascal 2005, 2003/2006) – discussions and disputes at the

2. Unlike van Eemeren and Grootendorst's views, I understand argumentation in general in the broader sense of "giving reasons" which may also be used in the case of explanations, where justification or falsification of an explanatory argument is at issue. There must be no difference of opinion in the case, even though the general conjectural character of scientific premises leaves open the possibility of accepting explanation as a kind of argumentation with a possible (who may become real) antagonist.

extremes, and controversies as an alternative between discussions and disputes. In discussions, the shared commitments, propositions, rules, and criteria allow the participants to clearly state the problem or divergence, which is seen as an error which can be successfully corrected, and this seems to be the type of polemic that best fits van Eemeren and Grootendorst's model. In disputes, there is a well-defined divergence that cannot be solved in the light of the divergent standpoints concerning ideas, attitudes, sentiments, and preferences. The important thing is to win the polemic, regardless of how argumentatively persuasive the winner can be. In controversies, there are deep divergences on standpoints concerning ideas, attitudes, preferences, and methods. Unlike discussions and disputes, controversies do not exhibit a well–defined divergent point to concentrate on. Unlike discussions, controversies may raise doubts about rules or about how they should be interpreted. In short, what is at stake in a controversy is not just logical inconsistency, but disagreements concerning the levels of adequacy for the interpretation of rules, preferences, attitudes and ideas, their relevance to the argumentation, and the criteria for acceptable interpretation.

Controversies are, according to Dascal, "quasi-dialogical", in the sense that, over and above the participants there is a third party, the audience as final arbiter (the scientific community). As with disputes, winning a controversy becomes a necessary object of survival, because the public dimension of the arbitration of the controversy affects the reputation of the participants. However, as winning the controversy entails persuading the audience as arbiter (the scientific community), which is also sensitive to rational arguments, it is very important to select and make use of adequate argumentative strategies. In order to understand these strategies, it is not enough to follow the rules of formal logic, but to make use of other persuasive means for dealing with what is "possible", and not with what is just "necessary". Unlike disputes, the aim of controversies is not to win at any price, but by using rational persuasion, and this condition, as Dascal emphasizes, contingently shapes "reasonable" argumentative practices and abides by them.

The structure of a controversy is essentially pragmatic, and may be hierarchical, broader, or more specific. Standpoints are polarized, and can be extended to other points in such a way that, in order to understand them, one may need to make use of resources from co-text (texts by other authors which may help to clarify these standpoints) and from the non-discursive context. Dascal (2005) has provided a very helpful chart for mapping the structure of controversies:

Objective: persuasion;
Extent: starts with a well-defined question and rapidly expands both horizontally and vertically;

Procedures: each supposition and procedure may be called into question;
Preferential move: argumentation (formal logic and rhetoric);
Closure: resolution or conciliation of opposing positions (ideal and very infrequent closure); clarification of the divergence (very frequently the case); emergence of innovative ideas (one of the most interesting and distinctive features of controversies), which may not be accepted, at least not immediately, as consensual. Unlike discussions and disputes, controversies are not bound to end with the victory of one of the participants, or with a consensus.

At this point, the dialectical and rhetorical view of science of Marcello Pera (1991, 1994, chap. 3 and 4) has made a very important contribution to the understanding of the argumentative moves that take place in a controversy. For Dascal and Pera, controversies are not only at the very core of science, but are necessary for rationality, whose scope goes much further than the limits of deductive demonstration. Pera does not establish distinctions between discussions, disputes and controversies, and this may conceal important features typical of controversies which Dascal's approach allows us to perceive and evaluate. Nevertheless, Pera puts forward a view of science based on the role of argumentation, rather than on method as a rigid set of rules that stresses the central role of controversy in science. His view is inspired by Aristotle's dialectics (the art and logic of arguing in a debate concerned with a change of belief, and of providing a code for judging good and bad arguments) and rhetoric (the art of persuading, by means of which the dialectical debate is carried on).

According to the methodological view centered on strict deductive and inductive patterns – which Pera (1994) criticized step by step – in the scientific enterprise there are only two players: nature, which has to be mastered and provides the answers to the questions, and a universal and impersonal epistemic "I", who asks the questions and evaluates the answers. Instead of this view, in order to achieve the main goal of science (i.e., comprehending the facts of the world), Pera proposes a three-part game involving a proposer (who asks the questions), nature (which answers the questions), and a community of competent interlocutors (who debate all the factors involved and come to an agreement concerning nature's official answer). In examining the argumentation that takes place in this game, Pera analyses the role of dialectical rules and rhetorical arguments.

Like rules concerning arguments "in a (located) debate", the dialectic rules must take into account specific situations for specific audiences. An argument will be good or bad in relation to a given context. For instance, "p or q, and not-q: therefore p" is a logically valid argument, but, if another alternative "r" is not considered, the rule of the debate that says "never leave questions or objections unanswered" is violated; "p because p" is a bad move (even though "if p, then p"

is logically valid) because it violates the rule to always give grounds for answers. On the other hand, "p because p" may be accepted depending on contextual factors (like a child saying that it rains because water is falling from the heavens), or in cases where to make meaning explicit is informative in answering "why p". But dialectics may also be the *logic of the rhetorical use of formal logics.*[3]

The effectiveness of the rhetorical arguments will depend on certain contextual factors, such as the type of subject and audience. They take place at different moments of the debate: in choosing a style or line of inquiry, and defending methodological considerations by making use of arguments *ad hominem*, of analogy, and of retort; in interpreting an admitted rule like that of refutation, by bringing into discussion the meaning of "contradiction", and by making use of pragmatic arguments; in applying a rule to concrete cases, debating about its pertinence to the case, debating about the rule which says that restrictions should not be imposed on scientific hypotheses, and arguing on the basis of ignorance (requiring that something else has to be proved); in justifying a starting point (or premise) by positing a dilemma. Special attention should be paid to cases of rebutting rival hypotheses. The proponent may answer by attenuating the negative consequences of his own hypothesis in many ways (as Darwin, for example, does in masterly fashion), such as by alleging misinterpretation, the possible overcoming of the difficulties concerned, or the irrelevance of these difficulties in requiring the rebuttal of the hypothesis. The opponent may appeal to *ad hominem* arguments, by saying that the hypothesis does not have the advantages the proponent believes it to have, and even by trying to ridicule the proponent. Arguments of retort are also used in answering rebuttals, and attacks are also frequently made by means of counter-examples. Attributing plausibility to a hypothesis, showing that it follows from accepted or empirical premises, is a major tenet of traditional views of science. However, if P deductively follows from T and R, and T is accepted, the acceptance of P is a matter of persuasion, a resort to an argument from authority, unless R is also proved. Moreover, expressions like "is based on", "is consistent with" or "logically follows from" are very vague, so that to render compelling an argument where they occur requires highly persuasive devices.

---

3. Consider, for instance, the use Darwin makes of the proposition "either domestic pigeons have a common origin, or they have a multiple origin". In fact, these are the only possible options. Making use of a *reductio ad absurdum*, he starts by examining the second alternative, and finds no reasonable foundation for it. This fact reinforces the reasonableness of the first alternative, if some rational explanation for the origin of domestic pigeons can be found. In his *Topics*, Aristotle provides us with a series of *topoi* or commonplaces, some more general and some more specific, which may be taken as good rules on which to build pertinent, valid, strong, and efficient arguments. A scientific argument will be favorable to A, when A confutes B.

In addition to the arguments mentioned above, there are also arguments of hierarchy (if something applies to something less empowered by virtue of its power, it must also apply to something which is superior to it.), arguments concerned with parts and the whole (for instance, by emphasizing that what applies to parts does not therefore always apply to the whole, or by alleging that what is true of the parts is also true of the whole), and arguments based on the simplicity of the point to be defended as the easiest solution available in terms of values such as economy and clarity.

Controversies are not deprived of rules, but the dialectical rules they obey are like Aristotle's *topoi*. They permit discussions of the quality of the reasons put forward for accepting or refuting particular standpoints, and their scope and appropriate application to concrete cases. In fact, when we consider the strict rules of formal logic, we see that their role in scientific argumentation depends on other rules that guide decisions concerning the "pertinence" of their application to the case, as well as their interpretation. Premises containing "definitions" as well as their application to concrete cases may be questioned. The major premises may require justification. The just examination of empirical evidence may depend on the interplay of argumentation from divergent standpoints. The persuasive efforts of both proponents and opponents are therefore essential to the verdict on the acceptability of a particular scientific explanation.

At first glance, the Darwin *versus* Mivart polemic seems to belong to the category of *controversy*. Using the analytical tools mentioned above, I will first identify the *problems* the participants intend to deal with and their *answers* to these, in order to clarify what is at issue (what the controversy is about), and what its nature is, in order to determine its objective and extent. If we analyze the participants' *motivations* and *presuppositions*, we can acquire more background knowledge, thus deepening our understanding of the objective, nature and extent of the differences concerning their ideas and positions. As they do not take turns as protagonist and antagonist in a direct debate, I will focus on their *general arguments* and *argumentative strategies*, in order to evaluate how their argumentative behavior contributes to the nature of the polemic and the advancement of their own standpoints. In order to evaluate their procedures and types of moves, and to reach the heart of the controversy, I will focus on *Mivart's objections* and *Darwin's responses*. Finally, I will describe the type of closure that may be expected in this controversy.

3. The concrete case

In order to better understand the polemic, I will begin with some co-textual and contextual information. The controversy starts with Mivart attacking Darwin's

theory of natural selection as presented in *The Origin of Species*. In fact, these attacks started much earlier. According to Lynch (2004), St. George Mivart was a former member of the Darwinian circle, and was praised by Thomas Huxley, Darwin's great friend. However, he seems to have become disenchanted with natural selection, and in 1845 he converted to Catholicism. He saw evolution by natural selection as detrimental to the Catholic faith. *On the Genesis of Species* was, in fact, a collection of criticisms of Darwinian theory published in the Catholic journal *The Month*, to which Mivart was a regular contributor. Mivart tried to reconcile his religious and scientific views. Later, his relationship with Huxley deteriorated (due in part to Huxley's views on Catholicism), and Mivart was excluded from the inner scientific circle. He then started to write more about Catholicism.[4]

Mivart's *On the Genesis of Species* had a significant impact on the public, and Darwin could not ignore it. His responses to Mivart concentrate on the specific difficulties raised by the latter, but his answers also shed light on more general ones. Darwin claims that all of Mivart's objections are answered in the 6th edition of the *Origin of Species*, published at the beginning of 1872. His responses to Mivart form most of an entirely new chapter (chap. VII) of the 6th edition of the *Origin*, the preparation of which began in June, 1871. From July to September Darwin was dealing with Mivart's objections, his "cleverest and less fair enemy" (Peckham 1959, p. 22). The Mivart/Darwin episode showed Darwin's ability to deal not only with the *logos*, but also with the *ethos* and the *pathos* present in rhetorical discourse. Mivart's book was reviewed by Chauncey Wright (*North American Review*, July, 1871). Together with his letter of June 21, 1871 (Darwin 1888, vol. III, p. 143), Wright sent Darwin the revised proofs of his review, suggesting that Mivart's book could be taken as a basis on which to illustrate and philosophically defend the Theory of Natural Selection. Darwin took Mivart's book as a personal and unfair attack, and took advantage of Wright's suggestion to have his review published as a shilling pamphlet, together with additions for which there was no room at the end of the review. Darwin consulted Alfred R. Wallace about Wright's review, and pondered about treating the subject much more concretely, while Wright would treat it more philosophically, in such a way that they would not overlap in their comments. Darwin added that studying Mivart definitively convinced him of the general truth of the views expressed in the *Origin*. He was

4. Initially, he was accepted into the Church, and received an honorary doctorate from Pope Pius IX in 1876. By 1900, his views on the Bible, liturgical reform, education, and hell had become more critical and less orthodox. He was excommunicated, and two months later he died from a series of heart attacks. It was only in 1904 that a group of friends, alleging Mivart was insane as a result of diabetes, petitioned for his readmission to the Church, and he was re-interred in the cemetery of St. Mary's, Kensal Green.

pained to see the omission by Mivart of certain words and phrases from the *Origin* detected by Wright, and complained about Mivart misquoting him and distorting his meaning on at least two occasions. "I conclude with sorrow that though he means to be honorable, he is so bigoted that he cannot act fairly." (Darwin 1888, vol. III, pp. 144–145)

3.1 The problems

3.1.1 *Darwin's problem*

What is the *Origin of Species* about? If we look at the table of contents, we can see that the *Origin* covers all the branches of Natural History in order to answer the central question: how are species produced in Nature? The *Origin* is a narrative which, by pulling together a great variety of threads, weaves a web whose theme is clearly expressed in the Introduction: in dealing with the "origin of species", it is not enough to conclude that the species were not created independently. It must be shown how different species originated from one another. This question appears in several forms (Darwin 1875, chap. III, pp. 48–9): How are species produced in Nature? How do the co-adaptations take place? How do varieties become good species? How are the genera and the groups under groups formed?

3.1.2 *Mivart's problem*

On the Genesis of Species intends to tread a conciliatory path between apparently contrary scientific, philosophical, and religious views. Mivart's explicit main concern is: How can we reconcile evolution and theology? In order to answer this question, he has to remove what he sees as "a few misconceptions and mutual misunderstandings which oppose harmonious action" (1871, p. 15), and attack an evolutionary view which clashes with his own religious views. The Darwinian theory of Natural Selection is his main target, but he also attacks Herbert Spencer and Alfred R. Wallace on ethical or moral questions, in particular (Darwin's *Descent of Man* and *Expressions and Emotions in Man and Animals* had not yet been published).

In spite of the similarity between the titles of their works, both of which relate to the subject of the origin of species, the formulation of their problems suggests very different questions or approaches to what is apparently the "same" subject. While Darwin's problem is set entirely in the "naturalistic", and scientific, realm, Mivart moves between different realms, attempting to reconcile science, philosophy and religion, and what is "natural" with what is "supernatural". The very fact that Darwin's title concerns the *origin*, while Mivart's title concerns the *genesis* of species, is a clue to the more theological approach of the latter, which is based on a belief in the creation of species *ex nihilo*.

3.2 Answers

3.2.1 *Darwin's answer*

From the very beginning of his long narrative, Darwin's guiding answer is: "…I am convinced that Natural Selection has been the most important, but not the exclusive, means of modification." (1875, Introduction, p. 2). The central role played by the Principle of Natural Selection in Darwin's theory can be seen through two dimensions of its "definition", as a mechanism and as an agent, both of which are related to an explanation of physical phenomena in "naturalistic" terms:

> I have called this principle, by which each slight variation, if useful, is preserved, by the term Natural Selection, in order to mark its relation to man's power of selection. But the expression often used by Mr. Herbert Spencer of the Survival of the Fittest is more accurate, and is sometimes equally convenient. (1875, p. 49)

This principle functions as a mechanism: "This preservation of favorable individual differences and variations, and the destruction of those which are injurious, I have called Natural Selection, or the Survival of the Fittest" (1875, p. 63). However, this mechanism is also a 'power': "… Natural Selection, as we shall hereafter see, is a power incessantly ready for action, and is immeasurably superior to man's feeble efforts, as the works of Nature are to those of Art" (1875, p. 49). As a power, it is also an agent identified with Nature:

> Nature, if I may be allowed to personify the natural preservation or the survival of the fittest, cares nothing for appearances, except in so far as they are useful to any being. She can act on every internal organ, on every shade of constitutional difference, on the whole machinery of life. Man selects for his own good: Nature only for that of the being which she tends. (1875, p. 65)

3.2.2 *Mivart's answer*

Mivart's seeks a *tertium quid* to provide a comprehensive and conciliatory view of the genesis of species which will "completely harmonize with the teachings of science, philosophy, and religion" (Mivart, 1871, p. 15). In relation to science, Mivart's contribution aims at proving scientifically that the Darwinian theory is not the only view of evolution (indeed that it is not scientific at all), and proposing an alternative view of evolution. His open attacks on Darwin's theory are meant to show its internal inconsistencies, and the inability of Natural Selection to explain the phenomena it has to deal with. In relation to religion and philosophy, in chapter IX, "Evolution and Ethics", Mivart examines the fact of morality to prove the dual origin of Man, and thus the existence of God. Human beings, according to Mivart, have a dual origin: the dust of the earth and God's breath of life (1871, p. 269). "Grace" and "Nature" combine to create something unique (1871, p. 305). "The double nature of Man explains that irreducibility of the belief in God to pure

reason or to mysticism" (1871, p. 305). In his concluding chapter, "Theology and Evolution", Mivart initially dismisses those who identify religious orthodoxy with the narrow-minded opinions with which they were brought up, as well as those who are hostile to religion.

The action of God in the physical world takes place through what Mivart calls "derivative creation" as the "natural" action of God by means of "secondary laws", and presupposes God's direct and supernatural action (1871, p. 269). "Evolution" (which cannot be completely explained) is defined as the manifestation to the intellect, by means of impressions of the senses, of some ideal entity (power, principle, nature, or activity) which was previously in a merely "potential" state, but is capable of becoming present, or manifest, under the requisite conditions. Species are "peculiar congeries of characters or attributes, innate powers and qualities, and a certain nature realized in individuals (...) which before were latent" (1871, p. 288).

Their general answers confirm the tendency indicated in the formulation of their respective problems. Darwin proposes a specific "naturalistic" answer to a specific "naturalistic" problem, and by this means establishes a clear line of investigation. Mivart seeks an answer that may provide a *tertium quid* for the investigation of the genesis of species based on the reconciliation between science and theology, between what is natural and what is supernatural, between Man and God. However, he does not have an answer to this question. He relies on general principles that do not point to a particular line of investigation, and makes use of a strategy for discrediting his opponent's standpoint that does not contemplate the reconciliation he seeks. In consequence, the divergence of opinion goes beyond the specific point of the origin/genesis of species, to the way of viewing science and its goals and practices, together with personal divergences and religious beliefs.

3.3 Motivations

3.3.1 *Darwin's motivations*

From the time of his *Notebooks* (1836 and 1837), or even earlier during his voyage on the Beagle, Darwin was moved by what he called the "mystery of mysteries", i.e., the origin of species. The questions he raises reveal his search for explanations based on "natural" causes that do not depend on "supernatural" ones. From early on, he dreamt of the idea of making a contribution to science, and of being recognized for this by his fellow scientists.

3.3.2 *Mivart's motivations*

Mivart says that his work endeavors "to add one stone to this temple of concord, to try to remove a few of the misconceptions and mutual misunderstandings which

oppose harmonious action" (1871, p. 15). As he undertakes the task of reconciling science, philosophy and religion, his "adding a stone" indicates that he is also concerned with being recognized by his fellow scientists. His reflections suggest an almost desperate physical, epistemological, and ontological search for harmony, in spite of the dualisms on which many of his beliefs are based, and which he tries to overcome. Although Mivart tries to refute Darwin's theory scientifically, he does not attempt to hide his religious motivations.

Their declared motivations are in accordance with the problems they try to solve, and the direction of the answers they pursue. The fact that both are concerned about the contribution they can make to science, together with the different standpoints they take on the subject of the origin of species, gives a clue as to why they address the exposition and defense of their ideas to the approval of the scientific community rather than to persuading each other.

3.4 Presuppositions

3.4.1 *Darwin's presuppositions*

Darwin's approach to the problem of the origin of species presupposes gradualism and naturalism as epistemological and ontological tenets, and evolution as a "natural" process of formation of new organic forms which is to be explained by "natural" means, together with a non-essentialist view of species (he compares species with individuals). In his approach there is a view of Nature as a system, and, in accordance with this view, one of his strongest methodological tenets is the interdisciplinary support that evidence from different fields can provide.

3.4.2 *Mivart's presuppositions*

Mivart has a scientific background as an accomplished anatomist. He advocates a rational theism, and believes the general theory of evolution to be "perfectly consistent with the strictest and most orthodox Christian theology" (1871, p. 16). Physical science, philosophy, and theology belong to different domains. Physical science and "evolution" have nothing to do with absolute or derivative creation, inasmuch as the latter is simply the working of divine action through natural laws. Mivart holds an essentialist view of "evolution" and "species". Although we cannot explain "evolution" completely, it may be enough to define it as the manifestation to the intellect, by means of sensible impressions, of some ideal entity (power, principle, nature, or activity) which, before that manifestation, was in a latent, unrealized, and merely "potential" state – a state that is capable of becoming realized, actual, or manifest, the requisite conditions being supplied. This view encompasses an essentialist view of species as "specific forms" constituted by "peculiar congeries of characters or attributes, innate powers and qualities, and a certain

nature realized in individuals (...) which before were latent, in such a successive manner that there is in some way a genetic relation between posterior manifestations and those which preceded them" (1871, p. 288). In other words, he admits a "plan of creation".

Mivart and Darwin's presuppositions are on common points, such as a view of nature and its knowledge, evolution and species, and they share a strong scientific background. However, their views on other points are in opposition to each other. Darwin's Nature, contrary to Mivart's view, does not depend on a view of God. "Evolution" is seen as a "natural" (not an intellectual) process, and "species" are not "natures" or powers to be actualized in individuals. For both parties, "species" can be described as "peculiar congeries of characters or attributes", but for different reasons: for Darwin, they are not essential entities but the dynamic expression of populations whose members share characteristics (although not in the sense of necessary conditions to be shared by all members), and for Mivart they are the expression of natures common to individuals. As to their view about knowledge, although both of them separate physical science from philosophy and theology, Darwin does so by keeping knowledge of physical science and philosophy independent from theology, and by maintaining knowledge within the human (natural) scope and power, while Mivart advocates the separation of realms in order to preserve theological and philosophical propositions (beliefs) from attacks related to lack of physical evidence.

3.5 General argument

3.5.1 *Darwin's general argument*

The structure of *The Origin of Species* follows five main argumentative steps:

I. Historical Sketch – added from the third edition on, and placing Darwin's theory in line with evolutionary thinking concerning the origin of species;
II. Introduction – setting out Darwin's objectives, the "wonderful" facts to be explained, the new demands of investigation made by the problem of the origin of species, and the need to show how evolution takes place in order to differentiate an evolutionist from a creationist standpoint;
III. The logical-conceptual framework of the theory (chapters I–V) – establishing the conceptual and methodological foundations of Darwin's theory of Natural Selection;
IV. The explanatory power of Natural Selection:
IV.I The treatment of difficulties the theory has to face (chapters VI–IX) – difficulties raised by Mivart, miscellaneous objections, instinct, and hybridism;
IV.II The transformation of key unfavorable evidence into favorable evidence (chapter X) – the imperfection of geological records;

IV.II. Cases clearly favorable to the explanatory superiority of the Darwinian theory over the Creationist view (chapters XI–XIV) – the geological succession of organic beings, geographical distribution, morphology, embryology, rudimentary organs, and classification;
V. Recapitulation and Conclusion – the "one long argument" worked out in the book is presented at one fell swoop.

3.5.2 *Mivart's argument*

Mivart's general argument consists of several intertwined arguments which can be reconstructed through three main steps in order to show that the Darwinian theory of evolution is not the only one (indeed that it is not a scientific theory at all), and to open the way for a theory designed to reconcile evolution and theology:

I. Introduction – Mivart attempts to establish the legitimacy of a *tertium quid* by criticizing Darwin's general argument and its general acceptance by "non-learned" people;
II. The scientific reasons for not accepting the Darwinian theory, and for the plausibility of an alternative evolutionary view (chapters I–XI) – Mivart criticizes Darwin's basic concepts, such as "species" and "natural selection", and attributes the wide acceptance of Darwin's theory to half-educated people. He attempts to show the inability of Natural Selection to explain certain natural phenomena and morality, by drawing up a list of general objections, and carefully examining particular cases.
III. The main points of Mivart's attempt to reconcile evolution and theology are discussed (chapters IX and XII). Mivart's main arguments are: God exists and our belief in God's existence is not based on physical phenomena (1871, p. 272), but justified by our primary intuitions, such as the uncontroversial intuitions of free will and causation, and morality and responsibility. As regards evolution, Mivart says that if causes other than Natural Selection can be proved to have been involved – for instance, variation – then Natural Selection is not the sole cause of evolution, but depends on these other causes, and only supplements them (1871, p. 32).

The structure of Darwin's general argument exhibits more internal consistency, and has a clearly established plan of investigation through which to conceptually and empirically support his theory. This is not the case with Mivart. However, considering that the main point of Mivart's argument is to expose Darwin's difficulties, and to set the stage for a theory capable of reconciling evolution and theology, we may be more tolerant of the fact that he does not posit a structured general theory. In this case, we must evaluate his arguments separately: his objections to Darwin, and the arguments he advances for the reconciliation between evolution and theology, as can be shown in the analysis of his argumentative strategies.

3.6 Argumentative strategies

3.6.1 *Darwin's argumentative strategies*

In addition to the use of commonly accepted scientific procedures and patterns of argument, throughout his explanatory task Darwin is clearly aware of the fact that explanation always depends on a given theoretical view or assumption and, in particular, on the comparison of different views. Facts can be seen from these different viewpoints, as Darwin put it in his Introduction: "[…] scarcely a single point is discussed in this volume for which facts cannot be adduced, often apparently leading to conclusions directly opposite to mine" (1875, p. 2).

The choice between different views will be, above all, a matter of argumentation and persuasion. The Darwinian argumentative strategies operate on different levels. Some of them are central to the general structure of his "one long argument", such as the whole ("one general argument"/the entire narrative)-part (particular arguments/chapters) movement designed to assemble Darwin's argument; his appeal to the explanatory power of his theory as a whole; the comparison of his view with those of his opponents in order to emphasize its superior explanatory power; the balance of reasons for and against any issue; the interplay of the "real" and the "possible" by focusing on what is actually given, on the existence or non-existence of contrary evidence, and on what is logically and/or factually possible; and the treatment of difficulties/objections/exceptions. Darwin considers the latter strategy so important that, when defending the explanatory power of his theory, he begins by presenting and refuting difficulties and objections. By anticipating and discussing them, Darwin is able to make even the weakest points of his theory plausible.

The explanation of difficulties/objections/exceptions consists in: confronting them directly; accounting for their nature and source as the result of our ignorance of the relevant factors; clarifying their objective content, "dissolving" the "apparent" difficulties, or "solving" the "real" ones, and weakening their impact; showing the reasonableness/unreasonableness of objections in the light of the appropriate approach to the subject; filling gaps through pertinent assumptions; confronting the presuppositions and/or procedures of the objector by showing that they are objections which have to be confronted by all theories, and by progressively rendering the objections more and more relative, until they are neutralized, or converted into mere "appearance", or by changing them into evidence favorable to the explanatory power of the Darwinian theory. The treatment of the exceptions not only sets limits on the validity of the explanations to be given, but discussing them extends the scope of Darwin's explanatory efforts in such a way that the surprising may be converted into the expected.

In addition, Darwin appeals to our ignorance, to the authority of the scientific community and its values and ideals, to the psychological conditions of scientific

investigation, to mental habits, to the progressive minds of those from whom Darwin expects support for his theory, and to its revolutionary nature, by demanding the re-structuring of existing disciplinary fields and the creation of new ones.

3.6.2 *Mivart's argumentative strategies*

From the very beginning Mivart puts himself in a conflicting situation. On the one hand, the central ideas he defends, like the reconciliation between evolution and theology, are not (and should not be) supported by physical evidence. On the other hand, such a defense depends on his attacking the Darwinian theory of Natural Selection on a scientific basis, and this means being in the realm of physical evidence. Thus his argumentative abilities become decisive for making his case persuasive in the religious or theological realm, and also in the scientific one, in an attempt to ensure their reconciliation.

In general, Mivart's own ideas can be seen as a complement to his critique of the Darwinian view. His basic strategy is to rely on very general (and several times repeated) religious and philosophical considerations. In this case, his arguments frequently follow a pattern of justification based on pointing to the undesirable consequences that would follow if ideas similar to the ones he defends were not accepted. For instance: the skepticism we would feel if basic intuitions like those of free will and causality, morality and responsibility were denied; the belief in God is in turn justified by comparing it with these basic intuitions. Mivart appeals to the (semantic) contradiction we would be in if, as mysticism proclaims, God were "the unknowable", since then God would not be able to manifest "Godself". As regards the means of evolution, Mivart says that if causes other than Natural Selection can be proved to have acted – for instance, variation as independent from Natural Selection – then Natural Selection is not the sole cause of evolution, and depends on these other causes and only supplements them (1871, p. 32). Intentionally or not, Mivart omits that Darwin clearly says that variation must be given by Nature in order for Natural Selection to act upon it.

Mivart's more specific strategies consist in: separating the domains of physical science, philosophy, and theology in such a way that the "facts" belonging to the first domain cannot prove or disprove the beliefs and knowledge belonging to the other two; establishing careful semantic distinctions, such as between the meanings of "creation" (absolute and derivative), "evolution" and "specific forms", as he conceives them; on the basis of these distinctions, guaranteeing the absence of incompatibility among those separate realms and, by this means, guaranteeing their compatibility and reconciliation; and discussing the positions of well-known scientists, philosophers and theologians, whose prestige conveys a certain scientific legitimacy to his speculations.

Additional strategies used by Mivart include the exploitation of emotional resources inasmuch as he takes advantage of the emotional tone with which some of Darwin's supporters attack theology to emphasize their intolerance and narrow-mindedness. Also, he mixes candor and irony, recognition and reprobation as, for example, when he recognizes the positive scope of Darwin's efforts, and then indicates certain "absolutely insuperable" difficulties (1871, pp. 16–17). Mivart says that the great problem of the origin "of different kinds of animals and plants seems at last to be fairly on the road to receive – perhaps at no very distant future – as satisfactory a solution as it can well have" (1871, p. 13). Thus, all the efforts made before Mivart – including Darwin's long work – have only amounted to an effort to put things "fairly on the road" to receive a satisfactory solution in the future! Having ruled out the Darwinian approach, Mivart then politely says that we are indebted to the "invaluable labors and active brains" of Darwin and Wallace, which have helped us to come closer to the solution of the problem. Even short comments within brackets are used to this end, such as the remark that "on account of the noble self-abnegation of Mr. Wallace" (1871, p. 22), the theory of Natural Selection is in general exclusively associated with Darwin's name.

Comparing Darwin and Mivart's use of argumentative strategies, we see that in both cases rhetorical strategies and arguments play a decisive role not only in attacking and defending standpoints, but also in generating explanatory arguments. In the case of Darwin, rhetoric appeals more to the *logos,* to arguments that serve to structure and tighten his general argument and that can be found in the list Pera (and Aristotle) provided. Darwin is constantly looking for empirical support, although he is plainly aware that it will not be accomplished by any particular empirical proof, and constantly appeals to the explanatory power of his theory as a whole. Even the appeal Darwin makes to our ignorance is a rational one, since it is not arbitrarily made, but comes after long discussion to show the complexity of what is at issue. In the case of Mivart, he makes very detailed use of counter-examples, and of attributing to his opponents his own beliefs, in order to discredit them as falling into "contradiction" and not meeting the "proper" empirical evidence. Although both Darwin and Mivart make use of rhetorical devices based on the *ethos* and the *pathos* rather than on the *logos*, Mivart does this much more often. Discrediting Darwin's theory (even by appealing to emotional overtones) would be a condition for Mivart to expose it, and defend the possibility of an alternative evolutionary view. Darwin already had a solid scientific reputation and tried to persuade the audience (the Arbiter) by rational means, whilst Mivart was putting at risk his recognition as a respectable anatomist. However, he could not do less in terms of his complex (and still underdeveloped) standpoint.

3.7 Objections and responses

In order to be fair to the extent of the controversy, some answers not directly given by Darwin himself, but implicitly or explicitly present in his texts, will be added to the presentation of the general objections raised by Mivart. The specific objections, which Darwin answered individually, will be given separate treatment.

3.7.1 *Mivart's objections*

3.7.1.1 Mivart criticizes Darwin for not admitting that the absence of reconciliation between his theory and theism is unfounded. If Darwin has not studied Christian philosophy well enough, Mivart argues, he should not accept the antagonism between "creation" and "evolution" as an unchallengeable fact. Darwin has nothing to offer in relation to the dilemma of an Omnipotent God who would either render "Natural Selection" a superfluous law of Nature, or would be responsible for preordering so many deviations (1871, p. 272). Having made all due restrictions, Mivart can then admit the usefulness of Darwin's theory for explaining certain facts, but adds that "the utility of a theory by no means implies its truth" (1871, p. 22).

Mivart makes use of *ad hominem* arguments and tries to discredit Darwin's knowledge and attitude. In defense of Darwin's knowledge, one could say that Mivart's objection ignores two facts. When attacking Creationism, Darwin is attacking it in technical terms, that is, as an explanation of the production of each particular species as a particular act of creation; he is not challenging the idea of the existence of the Creator (look at the concluding paragraph of the *Origin*), nor does his theory depend on assuming this. Darwin had decided never to write about or discuss religious matters publicly. Mivart assumes without prior discussion that his own position is the standpoint that has to be accepted, takes the initiative in challenging Darwin's standpoints, and tries to impose the line of inquiry that best suits his own purposes. Mivart is not trying to find a third alternative, nor is he trying to persuade Darwin, but rather the audience.

3.7.1.2 Mivart criticizes the ready acceptance or rejection of Darwin's theory. The ease with which Darwin's theory coincides with facts can only be appreciated by physiologists, zoologists, and botanists (1871, p. 23). One reason for this ready (and non-scientific) acceptance is the "remarkable simplicity" of Darwin's theory in explaining all complex phenomena "by the simple phrase 'survival of the fittest'" (1871, p. 23). This "simplicity" makes Darwinism a subject for general conversation, in the same way as hydropathy and phrenology, "in the eyes of the unlearned or half-educated public".

Mivart is interested in being accepted by the "learned" public (the scientific community). He again makes use of *ad hominem* arguments, and tries to disqualify Darwin's theory as scientifically unacceptable.

3.7.1.3 Some difficulties are raised in relation to two of the basic tenets of Darwin's theory, i.e., the concept of species and Darwin's general argument. Countering Darwin's position, Mivart says that the birth of species cannot be compared to the birth of individuals, thus placing it "out of the road" from the start. Mivart's argument is determined by the concept of species he assumes, i.e., "species" as "common natures". He argues as follows: the origin of any individual is shrouded in obscurity, and the same would hold with the origin of a "species"; "individual" means a concrete whole with a real, separate, and distinct existence, and "species" denotes a peculiar congeries of powers, innate powers and a certain nature, but having no separate existence; "individuals" give birth to individuals, but no "common nature" brings forth another "common nature". The point, however, is how one conceives "species". It appears that the main premise is the defining one. One might in turn ask why Mivart's concept of species as a congeries of "powers" (and, moreover, of "innate powers") should be accepted. The argument against Darwin is therefore only a semantic one.

Mivart does not try to clarify what he is talking about when saying that "the origin of any individual is shrouded in obscurity". Is he saying that the knowledge of reproduction or heredity is obscure? Or is he referring to the creation of the first individual of any species? In Darwin's age, the theory of the inheritance of acquired modifications was commonly accepted, and this view of inheritance was not seen as a major problem. In fact, the major problem might concern the mechanism of transmission of inheritable characters. In any case, the lack of a "clear" theory concerning this mechanism does not affect Darwin's standpoint in the *Origin*, although he deals with this question (unsatisfactorily, he believes) in other works. As regards the problem in *The Origin*, his comparison between individuals and species is based on this: both are born, grow, and die.

Mivart reconstructed (and misinterpreted) Darwin's argument as follows:[5]

1. Every kind of animal and plant tends to increase in number in a geometrical progression.
2. Every kind of animal and plant transmits a general likeness, with individual differences, to its offspring.

---

5. Mivart did not number the premises, nor did he signal the "Conclusion." The numbering of the premises and the indication of the conclusion are here included in order to facilitate the discussion of the reconstruction.

3. Every individual may present minute variations of any kind and in any direction.
4. Past time has been practically infinite.
5. Every individual has to endure a severe struggle for existence, owing to the tendency to geometrical increase of all kinds of animals and plants, while the total animal and vegetable population (man and his actions excepted) remains almost stationary.

(Conclusion) Thus, every variation of a kind tending to save the life of the individual possessing it, or to enable it to propagate its kind, will in the long run be preserved, and will transmit this favorable characteristic to at least some of its offspring, which peculiarity will become intensified until it reaches its maximum degree of utility. On the other hand, individuals presenting unfavorable peculiarities will be ruthlessly destroyed. The action of this law of 'Natural Selection' may thus be well represented by the convenient expression 'survival of the fittest'. (1871, pp. 17–18)

Premises 1 and 2 were broadly accepted at the time, and thus were not at issue. In relation to premise 3, Mivart seems to confuse "kind" and "direction" of variations (he will later make use of the possibility of dealing with variations "in any direction" to argue against the power of Natural Selection in the formation of new species). The "kind" of variation, according to Darwin, depends on laws of variation that are for the most part unknown to us. Once they arise (and they do "in any direction"), they may be useful, injurious or neutral. Natural selection preserves and accumulates the "useful" and eliminates the "injurious" ones. Once variability starts, Darwin believes there is a tendency to continue in "that direction", so that the accumulation of useful variations through Natural Selection in the right direction will lead to the production of new species. Instead of emphasizing variation in "any direction", Darwin emphasizes variation "in the right direction".

In relation to premise 4, it must be remembered that Darwin does not focus on the infinity of time, but on the limits of our imagination to perceive geological time.

In relation to premise 5, this may be a useful premise to ensure control over individuals and populations in order to preserve harmony, which is what Mivart is looking for. However, what Darwin says about this control is that if there were no checks to the balance of nature, the natural tendency of populations to increase their numbers to the maximum level would not be controlled, and he does not exclude man from this balance.

Lastly, the phrase in the conclusion "till it reaches the maximum degree of utility" may be in accordance with Mivart's own ideas, but it is at least a distortion of Darwin's conceptions.

3.7.1.4 On page 34, Mivart (1871) listed his objections to general issues:

1. "That 'Natural Selection' is unable to account for the incipient stages of useful structures."
2. "That it does not harmonize with the coexistence of closely-similar structures of diverse origin."
3. "That there are grounds for thinking that specific differences may be developed suddenly instead of gradually." (Mivart admits that both are possible, but thinks the first is more likely)
4. "That the opinion that species have definite though very different limits to their variability is still tenable."
5. "That certain fossil transitional forms are absent, when they might have been expected to be present."
6. "That some facts of geographical distribution complement other difficulties." (Mivart attributes a lesser grade of difficulty to the phenomena of geographical distribution)
7. "That the objection based on the physiological difference between 'species' and 'races' is still unrefuted."
8. "That there are many remarkable phenomena in organic forms upon which 'Natural Selection' throws no light whatever, but the explanations of which, if they could be attained, might throw light upon specific origination."

Several of these difficulties are discussed by Darwin in chapter VII of the 6th edition, when responding to Mivart's specific objections, although many of these had already been discussed in the other chapters of the *Origin*. Mivart's disagreement with Darwin cannot be based on Darwin's "obscurity", but on the fact that they are committed to different standpoints. In fact, objections 2, 4 and 8 are based on irreconcilable differences. Darwin deals with Difficulties 2 and 8 in Chapter XIV of the *Origin*, and Difficulty 4 is examined in chapter I (according to Darwin, the more uniform the conditions of life, the less variation occurs, and he returns to his objector the *onus probandi* for the existence of limits to variability once it has begun).

Difficulties 1 and 3 are closely related to each other, and have to do with Darwin's basic presuppositions of gradualism. Difficulty 1 is dealt with in Chapter VI, Difficulty 5 in chapter X, Difficulty 6 in chapters XI and XII, and Difficulty 7 is extensively examined in Chapter IX.

3.7.1.5 Specific difficulties are carefully examined by Mivart from chapters II to VIII.[6] Among these are: the formation of the giraffe's neck; cases of mimicry; the

6. As the focus of this paper is on *The Origin of Species*, questions about pangenesis (chapter X) will not be referred to.

eyes of flat-fish; the formation of the whalebone; the physiology of the young kangaroo; the utility of sea-urchins' pedicellaria; the co-adaptation of orchids and visiting insects; the case of sterile insects; the formation of the mammary gland; the formation of organs of senses; homologies. Mivart dedicates a very detailed analysis to each of these cases. All of them involve the issue of gradualism, which was the first of the general difficulties raised by Mivart: "That 'Natural Selection' is unable to account for the incipient stages of useful structures." At first glance, all of them concern entirely empirical questions. However, there can be no empirical questions without theoretical frameworks, and it is they who are at issue here.

3.7.2 *Darwin's responses*

In dealing with Mivart's objections, Darwin puts all his argumentative strategies to work. I will not be able to examine all of the objections/answers within the limits of this paper, but I will select those which seem to be the more difficult ones.

3.7.2.1 Regarding Darwin's strategic moves, the first, as we have seen, was to rally the philosophical and scientific community in support of his cause against Mivart (Wright's pamphlet was published on October 23, 1871). By publicly accepting a minor objection from Mivart to certain laws of correlation stated in Chapter V, Darwin showed a reasonable attitude towards his opponent (1875, p. 115), and thus enhanced the impact of chapter VII. He begins his answers to Mivart by discrediting him before the reader. He claims Mivart does not intend to set out the various facts and considerations opposed to his conclusions, nor does he leave any space for the reader's use of reason or memory (1875, p. 177). These strategies are clearly rhetorical in the realm of *ethos* and *pathos*. However, in dealing with the specific cases raised by Mivart, they are rhetorical in the argumentative sense of *logos*.

3.7.2.2 In the case of the whalebone (or baleen), Darwin begins with a very careful description of its appearance. He then examines in detail the possible gradations that range from the beak of a member of the duck family to that of a shoveller, by way of the beak of the Egyptian goose and of the common duck. Returning to whales, and considering that the Hyperoodon Bidens has a roughened palate with small, unequal, hard points of horn, there is, claims Darwin, nothing unusual in supposing that some early cetacean form had similar but more regularly placed points of horn on the palate, and that these were converted through variation and Natural Selection into well-developed lamellae. Subsequent gradations, which may be observed in existing cetaceans, would lead to the enormous plates of baleen in the Greenland whale.

The case of the whalebone belongs to a pattern of explanation of difficulties already mastered in chapter VI. In this chapter, Darwin offers a detailed argument for

the formation of "organs of extreme perfection and complication" which spring from minute variations, and gives the case of human eyes as an example. In this kind of argument, the strategies of the interplay of the "real" and the "possible", the explanatory power as a whole, the balance of reasons, the comparison between the explanatory power of Darwin's theory and that of his opponents, and the careful descriptions of the organs of the different groups to be compared, all of them are integrated into the whole of the argument. The treatment of this objection also serves as an answer to the objections concerning the co-existence of closely similar structures.

3.7.2.3 In answering the objection about the formation of the giraffe's neck, Darwin points out that the acquisition of certain organic structures depends on the fact that some species are much more variable than others, and that a set of conditions depending on contextual factors must exist: the co-adaptation of several other parts of the organism; the variability of the necessary parts in the right direction and to the right degree; external and continuing conditions favorable to the action of Natural Selection; the concurrence of the laws of growth; and living habits. In addition, the treatment of this case serves to emphasize that certain explanatory aims must be general and vague (as against *one* standard pattern of "giving reasons").

3.7.2.4 The case of the mammary gland seems to raise a major difficulty: could the young be saved from destruction by sucking a drop of a barely nutritious fluid from the accidentally hypertrophied cutaneous gland of its mother? And even if this was so, what chance was there of the perpetuation of such a variation?

Initially, Darwin replies by attacking the basis for this objection (this is one of the strongest Aristotelian recommendations in his *Rhetoric*), but the case is not put fairly. Most evolutionists (such as the experts Aristotle takes as the authority for reliable starting points in his *Topics* and *Rhetoric*) admit that mammals are descended from a marsupial form; if so, the mammary glands would have first developed within the marsupial sack. "Now with the early progenitors of mammals (…), is it not at least possible that the young might have been similarly nourished?" (1875, p. 189), argues Darwin. In this case, the individuals who secreted the most nutritious liquid (similar to milk) would in the long run have reared a larger number of well-nourished offspring. Thus the cutaneous glands, homologues of the mammary glands, would be rendered more effective and more highly developed than the remaining part of the sack due to whatever cause. In consequence, they would have initially formed a breast without a nipple, as can be empirically observed in the Ornithorhynchus.

But the development of the mammary glands would have been of no use, unless the young at the same time were able to partake of the secretion. Making use

of an argument by comparison and hierarchy, Darwin continues thus: there is no greater difficulty in understanding how young mammals have instinctively learnt to suck the breast, than in understanding how unhatched chickens have learnt to break the egg-shell, or how a few hours after leaving the shell they have learnt to pick up grains of food.

3.7.2.5 Related to the above difficulty is the case of the young kangaroo: the young kangaroo clings to the nipple of its mother, who has the power of injecting milk into the mouth of her offspring. Mivart remarks that some special provision exists to avoid the young being choked by the intrusion of the milk into the windpipe. Darwin responds to this objection directly: there is indeed a special provision. The larynx is so elongated that it rises up into the posterior end of the nasal passage, and is thus enabled to give free entrance to the air for the lungs, while the milk passes harmlessly on each side of this elongated larynx, and so safely attains the gullet behind it. But if this is so, Mivart continues, how would Natural Selection remove this perfectly innocent and harmless structure in the adult kangaroo (and in most other mammals, provided they are descended from a marsupial form)? Darwin makes use of an argument of authority in his answer that the voice, which is certainly of great importance to many animals, could hardly have been used with full force, as Professor Flower suggests, when the larynx entered the nasal passage.

3.7.2.6 After responding to Mivart's main objections against Natural Selection, Darwin attacks the inconsistencies of their fragile bases. They do not have the character of demonstration that Mivart requires for the explanatory power of Natural Selection. Mivart invokes an unknown "internal force or tendency" instead of the well-known tendency to ordinary variability, which through the aid of selection by man has clearly given rise to many well-adapted domestic races, and which through the aid of Natural Selection would give rise by graduated steps to natural races or species.

Furthermore, Darwin claims that there are reasons for disbelieving in great and abrupt modifications on the basis of what we know about the rarity of occasional specific and abrupt changes in domestication. On the one hand, as species are more variable under domestication than in Nature, the frequent occurrence of such great and abrupt variations in Nature is not probable. To believe in the sudden appearance of a new species, one would also have to believe that several miraculously changed individuals could appear simultaneously within the same geographical area!

On the other hand, many large groups of geographical distribution, geological succession of forms, classification, and embryology are intelligible only on the

principle that different species have evolved by very small steps. The only evidence that seems to support a belief in abrupt development, i.e., the sudden appearance of new and distinct forms of life in our geological formations, depends entirely on the unproven belief in the precision of geological records.

In short, Darwin skillfully combines the requirements of empirical evidence and rhetorical wisdom or use of logical rules to defend and clarify his standpoint.

4. Conclusion

Can the Darwin *versus* Mivart polemic be considered as a case of *controversy*? Since they are not trying to persuade each other, and their problems, answers, standpoints, implicit assumptions, research interests and values are so different (and, in many cases, so strongly opposed to each other) it may seem that the case is one of dispute rather than controversy.

It is clear that besides factual polemics, there is a theoretical polemic involving a different kind of "conviction" and personal attacks. From the very start there is not only a difference between the theoretical frameworks of each of the contenders, but also a difference in the way each one views the purposes of science. Mivart aims to harmonize philosophy, science, religion, evolution and theology. Darwin is opposed to any public discussion of religion, and ends his answer to Mivart by saying that to enter the realms of religion is to leave the realms of Science. The objections and responses made by the contenders widened the gap between their positions. It was not just a rational debate, but also an emotional one.

Nevertheless, there is a "zone of agreement", in the sense that both of them were well-reputed scientists, and Mivart was initially a member of the Darwinian elite. It is also clear that they do have a common audience, the scientific community, whom they both respect, and by whom they want to be respected and approved for persuasive "reasons". This is a distinctive characteristic of controversies. The arguments and strategies of which both make use are, in most cases, those of rhetorical arguments that have been recognized since the time of Aristotle as belonging to the realm of "rationality". It is true that they also become over-emotional at times. However, their argumentative strategies are the key to their attempts to persuade (the audience). Mivart makes skilful use of counter-examples, and this is balanced by Darwin's marshalling of an array of facts carefully examined by the scientific community, and by his command of argumentative strategies.

The number and complexity of the differences that preclude one being persuaded by the other create a rift that makes it impossible to achieve the ideal resolution or a reconciliation of their opposing standpoints. However, it is also typical of controversies, as Dascal points out, that they are extended horizontally

and vertically, and we may thus have a better idea of that complexity. The arguments fit into the logical use of rhetoric, as is to be expected in a controversy. In line with what can be expected in controversies, Mivart and Darwin have clarified their positions and their increasing points of disagreement. As for the "audience", Mivart's proposed reconciliation between science, philosophy and theology on the basis of the discussion of the origin of species did not occur, and Darwin won the debate, not because the theory of natural selection was no longer disputed by his audience, but because of his attitude towards science and man. The door was open for rethinking part of what was perhaps the greatest difference of opinion between Darwin and Mivart: how to understand naturalistic rationality. This question brought forth innovative ideas, and the emergence of innovative ideas is one of the most fruitful closures typical of controversies.

References

Aristoteles. (1967). *Retorica*. In *Aristoteles: Obras* (2nd ed.) (F. de P. S. Samaranch-Kirner, Trans.) (pp. 116–213). Madrid: Aguilar.

Aristoteles. (1967). *Topicos*. In *Aristoteles: Obras*. (2nd ed.) (F. de P. S. Samaranch-Kirner, Trans.) (pp. 418–526). Madrid: Aguilar.

Barrota, P. & Dascal, M. (Eds) (2005). *Controversies and Subjectivity*. Amsterdam: John Benjamins.

Darwin, C. (1875). *The Origin of Species by Means of Natural Selection or the Preservation of Favored Races in the Struggle for Life* (6th ed.). New York: Appleton.

Darwin, F. (Ed.) (1888). *The Life and Letters of Charles Darwin*, 3 vols. London: John Murray.

Dascal, M. (2005). A dialética na construção coletiva do saber científico. In A.C. Regner & L. Rohden (Eds), *A filosofia e a ciência redesenham horizontes*. São Leopoldo: Editora da UNISINOS.

Dascal, M. (2006) *Interpretação e compreensão* (M.H.L. da Rocha, Trans.). São Leopoldo: Editora da UNISINOS. (Original work: *Interpreting and Understanding*, published 2003)

Eemeren, F.H. van & Grootendorst, R. (2004). *A Systematic Theory of Argumentation: The Pragma-Dialectical Approach*. Cambridge: Cambridge University Press.

Lynch, J.M. (2004). Mivart, St. George Jackson. In B. Lightman (Ed.), *The Dictionary of Nineteenth Century British Scientists*. Bristol: Thoemmes Press.

Mivart, St. G. (1871). *On the Genesis of Species*. New York: D. Appelton and Co.

Peckam, M. (Ed.)(1959). *The Origin of Species by Charles Darwin, a Variorum Text*. Philadelphia: University of Pennsylvania Press.

Pera, M. The role and value of rhetoric in science. In M. Pera & W. Shea (Eds), *Persuading Science: The Art of Scientific Rhetoric*. USA: Science History Publications.

Pera, M. (1994). *The Discourse of Science*. Chicago: The University of Chicago Press.

Scientific demarcation and metascience

The national academy of sciences on greenhouse warming and evolution

Thomas M. Lessl

In Gieryn's work (1983) on scientific boundary-work, rhetorical behavior of this kind is seen as an informal alternative to the kind of demarcation undertaken by philosophers of science. The functionality of informal demarcation was fleshed out in Taylor's (1996) application of this model to various controversies in American science. Like Gieryn, Taylor (pp. 88–92) regards boundary-work as a positive alternative to formal philosophizing on the nature of science. I do agree that the articulation of such dividing lines as arise from institutional challenges to science may achieve practical resolutions to problems that philosophers of science have never been able to resolve, but this exclusive focus overlooks some of the complexities arising from demarcation of this kind.

Certainly it is as important for scientists as it is for philosophers to develop what I will here call "metascience," and to provide general answers to the question: what is science? And so the informal argumentative work that achieves this may be as vital as Gieryn and Taylor suggest – especially if it succeeds where more academic exercises of scientific demarcation do not. But in this essay I will consider the complicating fact that the motives that inspire boundary-work are not necessarily subservient to the intellectual concerns of science. Because of this, informal demarcation could easily misfire, causing even scientists to define such inquiries in ways that could weaken or perhaps even undermine public deliberations that bear upon scientific questions. Although it would be impossible to give any kind of adequate summary of the most authoritative contemporary opinions of what science is, I will tackle this problem on a point-by-point basis simply by taking note of some of the particulars of such scholarly opinion as I move through my analysis.

The dangers of informal demarcation are suggested by Gieryn's own analysis of the three ideological pressures that inspire boundary-work (pp. 785–791):

1. outside encroachments upon science such as might come from religious interests,
2. challenges to the ethicality of science, and
3. the need to protect scientific patronage by excluding pseudo-science.

Of course boundary-work undertaken in response to such pressures might clarify the character of scientific practice in some meaningful way, but such problems could just as easily invite rhetoric that demarcates science by distorting these practices. The second case is shown in one of Gieryn's own illustrations, the informal demarcation undertaken in the energetic public campaign for science that was advanced in Victorian England by such figures as Thomas Huxley, and John Tyndall. Focusing specifically on Tyndall, Gieryn (pp. 785–786) observed that the Irish physicist constructed these boundaries differently when he was working two different fronts of this campaign. The emerging scientific professions at this time felt threatened by the deeply entrenched power of the Anglican Church, which continued to wield considerable influence over faculty positions and curricular decision-making in English universities. But on another front (pp. 786–787) scientists like Tyndall were also wary of the growing power of the technical professions, since these competed with science for patronage and for a hold on the public imagination.

Gieryn observes that Tyndall would demarcate science differently, depending upon which of these fronts he happened to be working in a given message. When he was trying to show science's epistemic superiority over technology, the physicist highlighted its purely theoretical powers. But when he was concerned with trying to show science's superiority to theology he was disposed to play up its concrete character and applicability. Science was superior to theology because it solved real problems, but it was superior to engineering because it did not. While the pragmatic reasons why this influential scientist would have taken these contradictory stances are evident, Gieryn does not consider the rhetorical costs that demarcation of this kind might have accrued. In fact he does not regard this inconsistency as a problem at all. Tyndall, Gieryn tells us, was not "disingenuous" when he described science differently in various contexts. "It would be reductionistic," he insists, "to explain these inconsistent parts of a professional ideology merely as fictions conjured up to serve scientists' interests" (p. 787). This was a "genuine ambivalence" reflecting "an unyielding tension between basic and applied research, and between the empirical and theoretical aspects of inquiry" (p. 787). Of course Gieryn is right about this, but this explanation overlooks the obvious fact that Tyndall seems to have communicated these half-truths with the intention of deceiving his listeners by masking this very ambivalence. Had the physicist explained this as forthrightly as Gieryn does, he would not have been able to achieve these boundary-work effects, for to acknowledge that science is both theoretical and applied would be to admit that it cannot be utterly demarcated either from theology or engineering. In wanting to forgive Tyndall's equivocation, in other words, Gieryn seems to suggest that it is okay to mislead the public, provided that one remains true to science.

While this work of informal demarcation may have helped to achieve some of the immediate institutional goals of science in the Victorian period, there is some danger that other demarcations of this kind could be harmful both to science and the publics it serves. The same positivist demarcation that enforced a separation between science and theology by insisting that science is based in fact and theology in mere speculation has sometimes blinded scientists, for instance, by making them unable to recognize the speculative aspects of their own thinking. A famous instance hinting at such a barrier was the general reluctance of physicists to embrace big bang cosmology in the last century. Having convinced themselves that scientific thinking was not guided by speculative concerns, they were disinclined to recognize the assumptive basis of their faith in the steady state view. Without this critical reflexivity, many leading physicists failed to see that this was one of the implications of the expanding universe already suggested by Albert Einstein's general theory of relativity and Edwin Hubble's discovery of a pervasive red-shift (Farrell 2005, pp. 73–120).

It is perhaps revealing that the scientist who ultimately did recognize the larger implications of general relativity and red shift, the Belgian physicist Georges Lemaître, also happened to be a Catholic priest. It was undoubtedly the theological perspective that he brought to his science that exempted him from the positivistic preconceptions that had prevented such eminent contemporaries as Eddington, Hoyle and Einstein from seeing this solution (Jastrow 1978). Although Lemaître had deduced his theory of the "primeval atom" from general relativity, even the typically fair-minded Einstein had initially ridiculed his proposal and suggested, as did Eddington, that the priest's judgment was clouded by his religious convictions (Farrell 2005, p. 100).

My point here is not to say that theology actively assisted scientific discovery in this instance – something Lemaître certainly would have denied (Farrell 2005, pp. 192–198). Religious metaphysics, even within a relatively homogeneous faith such as Catholicism, are quite diverse and could just as easily be a deterrent. My point is only that, contrary to what Tyndall and countless of his successors have argued, speculative thinking such as is found in theology also figures in science. Both fields are concerned, for better or for worse, with basic metaphysical questions – in this particular instance the age-old question of whether the universe is eternal or temporal.

My concern here is with another side of this problem, the extent to which the incomplete picture of science sustained by such boundary-work may interfere with scientists' responsibilities as public actors. In exploring this suggestion I would like to show how some of the boundary-work occurring in scientific responses to religious anti-evolutionism may affect public thinking about another controversial subject, the environmental effects of greenhouse gas emissions. My argument will

be that the boundaries set up by the first debate are potentially deleterious to the scientific interests at stake in the second one. To put this simply: in the boundary-work transpiring in official efforts to combat religious anti-evolutionism, experts appeal to the traditional positivist *topos* of verifiability. This both affirms the certitude of evolutionary constructs for the scientific community and also contrasts the empirical bases of the science that upholds it against the faith-based criteria of religionists who question evolution. But the certitude that seems to come from assuming that scientific claims are always verifiable is counterproductive in the clearly probabilistic arena of atmospheric science. Greenhouse theory makes considerable conceptual sense as an explanation for global warming, but if held up to the rigid standards of epistemic certification proposed to demarcate science in debates about evolution and religion it will fail.

If the demarcation achieved by contrasting science against religion persists in public thinking about global warming, we should not be surprised to find that many policy makers regard the greenhouse gas theory as an insufficient warrant for the decisive regulation of CO_2 emissions. This danger arises from a feature of public science that Gieryn did not consider. His analysis seems to assume that the rhetorical effects arising from informal demarcation are contained within their immediate rhetorical situations. When Thomas Huxley made applicability a defining feature of science in the popular "working men's" lectures he gave to London's cloth caps, Gieryn seems to suppose that he did not need to worry that, overhearing these popular messages, Parliament would take them to heart and cut off funding for theoretical research that seemed to lack this promise. But is this a safe assumption? It is customary for rhetorical scholars to emphasize the situated character of such public acts, simply because the work of invention that gives rise to them may be bounded by the immediacy of pressing issues and available audiences. But this cannot preclude a broader scope of influence.

My reason for supposing that certain definitions of science may be generalized for all contexts comes from what Chaim Perelman (1982, pp. 35–36) called *effective presence*. This is the recognition that arguments intended to achieve immediate persuasive goals may also have presence in other contexts which their authors cannot foresee. Thus while the boundary-work that is executed to demarcate science from theology may find the premise of verifiability appealing as it strives to silence religious criticism of the evolutionary doctrine, the constitutive implications of this approach may carry over into other situations where a scientific standard based on probability would better serve the public interest.

In consideration of this interpretation, I will examine how the constitutive effects of boundary-work detected in one scientific publication intended for broad distribution might affect public judgment of another message that demands greater discernment. This publication is a small book issued by the National Academy of

Sciences entitled "Teaching about Evolution and the Nature of Science" ([NAS], 1998). The professed purpose of this publication (p. viii) is to remedy the fact that many American "students receive little or no exposure to the most important concept in modern biology, a concept essential to understanding key aspects of all living things – biological evolution." But since the authors attribute this deficit to religious belief, they actively undertake boundary-work as a pedagogical measure that may help to counteract its influence. Two factors are likely to give the arguments advanced in this book effective presence in other contexts. First, the NAS which has sponsored it is the most elite scientific association in the U.S., and thus the voice of scientific opinion leadership in this country. Second, as a publication specifically designed to guide educators in secondary schools, its advice is likely to shape how most Americans come to understand the nature of science.

The last part of this analysis will consider what would result if the understanding of science developed in the first publication were to have effective presence for those reading a second NAS publication on global warming. This report, "Climate Change Science: An Analysis of Some Key Questions" (2001), was requested by the Bush administration. Unlike the evolution publication, the concerns represented in this report do not invite boundary-work nor any other kind of discourse designed to be intentionally metascientific. It is merely a report on the current state of climate science as it pertains to global warming, but one written to brief government officials who are likely to have variant opinions about the seriousness of this problem. I have chosen it for these explorations precisely for this reason: because most professional reports of this kind do not bother with questions about the nature of science, the explicit standards of judgment that nonscientific readers apply to them are likely to come from elsewhere – and perhaps from scientific discourses where boundary-work is demanded. Although I will not pretend to suppose that its readers in fact have taken their understanding of science specifically from the NAS book on evolution, it is plausible to suppose that similar summations of the essence of science inform such judgments.

1. The NAS and the Nature of Science

In the preface to the evolution publication, the authors (a committee of thirteen scientists) indicate that demarcation is one of their chief purposes and that it occurs here as an effort to combat religious skepticism. They acknowledge that "most religious communities do not hold that the concept of evolution is at odds with their descriptions of creation and human origins" (NAS 1998, pp. viii–ix), but they then go on to add that because religious faith and scientific knowledge are "different," this publication "is designed to help ensure that students receive an education in

the sciences that reflects this distinction." The writers reiterate their intention of demarcating these two realms a few pages later (p. 4) by adding that because "some people see evolution as conflicting with widely held beliefs, the teaching of evolution offers educators a superb opportunity to illuminate the nature of science and to differentiate science from other forms of human endeavor."

It is in the context of this discussion that the authors treat what they regard as an attendant subject, the religious skepticism that is expressed in the popular notion that a theory such as evolution is merely a "guess or hunch." The authors counter this by insisting that in science theory "refers to an overarching explanation that has been well substantiated":

> Science has many other powerful theories besides evolution. Cell theory says that all living things are composed of cells. The heliocentric theory says that the earth revolves around the sun rather than vice versa. Such concepts are supported by such abundant observational and experimental evidence that they are no longer questioned in science. (pp. 4–5)

This explanation has evident persuasive value for those trying to demarcate popular notions of theory from technical ones. In trying to help teachers combat religious skepticism about evolution, it makes *prima facie* rhetorical sense to assert that some higher degree of certitude sets scientific theories apart from other categories of speculation that might also be called "theories." Once it is supposed that scientific theories are constructs that have been so thoroughly substantiated as to be "no longer questioned," resistance of this kind would seem silly or irrational at best. But the price that these authors pay to execute this rhetorical demarcation is infidelity not only to the history of science but also to the very notion of theory itself.

Even a moment's reflection will show that a method of demarcation that would make the near certitude of some scientific constructs the standard for all, also excludes all manner of theoretical constructs that practitioners now regard or once regarded as scientific. First, it excludes important theoretical concerns even within evolutionary biology that are seriously discussed and researched but which remain controversial and often speculative – such as the Gould-Eldredge theory of punctuated equilibrium, theories of abiogenesis or the theory that birds evolved from dinosaurs. Second, this definition would exclude even well substantiated theories, were we to consider their scientific status at some earlier point of development. Scientific theories are never "well substantiated" positions in their inception, and they achieve such standing typically only after decades or even centuries of study. The constructs making up cell theory and heliocentrism once *were* more like hunches or guesses, and only found extensive support after a long and arduous examination. Were we to take the above definition at face value, it would mean that they only *became* "scientific" when they had reached an advanced level

of maturity. String theory by this standard would be excluded, even though it is currently at the forefront of theoretical physics, and so would Ludwig Boltzmann's pioneering work on atomic theory, at least during his lifetime when it was generally dismissed. Third, this description fails to recognize that even theories supported by an abundance of evidence may subsequently fail. A theory can be compelling in its power to "save the phenomena" and still turn out to be wrong once additional data is taken into consideration. In every instance theories of this kind, (e.g., geocentrism, ether theory, phlogiston theory, and steady state cosmology), could at one time have been said to be "no longer questioned."

A characterization of scientific theory as unrealistic as this would be difficult to sustain without selectively omitting or distorting vital elements of scientific history. This perhaps explains why this book's effort to illustrate how theories achieve this certainty, its discussion of the Copernican revolution in a chapter called "Evolution and the Nature of Science," relies on a traditional or "folk" narrative that shapes this historical episode to fit prearranged didactic purposes (Lessl 1999). Desiring to certify that scientific theories are cognitive frameworks that are "no longer questioned," the authors fail to mention that the Copernican view was more hotly contested by the scientific community than by religionists (Santillana 1955, pp. 197–238; Finocchiaro 1980, pp. 10–15). Wanting to make straight the path that leads from heliocentrism's modern inception in Copernicus' mind to its supposed certification by Galileo and to depict this road as one paved entirely with fact, they give no role to the kind of intellectual discord that Thomas Kuhn (1962) recognized as an inevitable attendant of scientific revolutions. Instead it was merely an accumulation of data that "complicated the hypotheses formerly used to account for planetary movements," that led astronomers to make

> even more precise observations of the movements of the heavenly bodies. Astronomers used these measurements to demonstrate that the age-old human explanations of the heavens were incomplete. In the process they replaced a complex and confusing explanation with a simple one: the sun, rather than the earth, is at the center of a "solar system," and the earth revolves around it. That simple step – a bold departure from past thinking due mainly to the insights of Copernicus (1473–1543) – dramatically changed the picture of the then known universe. (NAS 1998, p. 29)

This dramatization of how theories develop might accord with the inductivist description of science popularly associated with Francis Bacon and seriously advanced by John Stuart Mill, but the supposition that the evaluation of theories is effectively and unproblematically determined by relevant data has been effectively dead for a half century (Pera 1994). Thus it is not surprising that we would find here a picture of the Copernican revolution quite unlike what has been given by such philosophers and historians of science as Kuhn (1962), Koyré (1978),

Finocchiaro (1980) and Pera (1994). For Koyré, Galileo's contribution to this revolution came from daring rationalism, a kind of applied Platonism, mixed with dogged empiricism. The Italian astronomer's great innovation was to construct through thought experiments, abstract mathematical idealizations of physical laws and then to deduce from them explanations that could account for the phenomena at issue.

The simpler empiricist conception of science that the NAS authors project onto this episode is, ironically enough, more similar to the Aristotelian view of science that Galileo was trying to reform. The Platonic corrective to scholasticism that Koyré discerned in Galileo's philosophy of science was needed to overcome the limits of commonsense empiricism that sustained the Ptolemaic view. But this battle of scientific philosophies has no place in the NAS account. To recognize that the Copernican revolution was the outcome of competition between two grand metascientific perspectives would be to acknowledge a speculative and subjective side to science that would undermine the narrative's powers of demarcation. Wanting to keep speculation and subjectivity out of science so as not to give any foothold to religious objections to evolution, the NAS authors have smoothed over not only important complexities of scientific history, but much of its conceptual richness as well.

The NAS authors would have needed to acknowledge a similar subjectivity had they mentioned anywhere in this account that the struggle leading toward the triumph of the Copernican view pitted scientists against scientists. Indeed, the uninformed reader would scarcely understand that there even was a scientific alternative to what Copernicus proposed – so thoroughly have the authors expunged from history the scholarly defenders of Ptolemaic cosmology that Galileo debated in his *Dialogue* and replaced them with theological opponents. There are only two vague references in these pages to the geocentric model. The authors mention "ancient observers" of the heavens and the "theories of the cosmos then prevailing" (NAS 1998, p. 29), but Aristotle and Ptolemy are never named nor is the complex architecture of scholastic philosophy in which the old cosmology was embedded. As they approach the denouement of their story the reason for these omissions becomes evident. They have wished to construct this episode of scientific history as a debate between religion and science rather than as a contest between two scientific paradigms.

> As a result of the steady accumulation of evidence, the theological interpretation of celestial movements gave way to the naturalistic explanation, and it is now accepted that night and day are the consequences of the rotation of the earth on its axis. Today, we can see for ourselves the rotation of the earth from satellites orbiting the planet. (p. 29)

It seems that Aristotle's science has been left out so that the authors could more closely identify the old cosmology with the Catholic Church as a "theological

interpretation." Since Aristotle's cosmology predates the Catholic Church by several centuries, this is obviously false, but it enables this episode to better serve as a warning for religionists who are resistant to naturalistic explanations in biology. The implicit message seems to be that creationist objections are likewise merely theological interpretations and therefore doomed to suffer that same fate as geocentrism. Science is ultimately about what "we can see for ourselves," and since the old cosmology was ultimately not able to stand up to this standard, this must have been because it was compromised by religious influences.

Certainly there is much to be said for the role that the constant accumulation of evidence plays in the development of mature scientific theories, and certainly no one would take issue with the NAS' argument that careful respect for evidence is all-important. But their determination to enlarge this side of science so as to demarcate it from those speculations of faith thought to pollute creationist interpretations of this data, obscures the important fact that theories have an important conceptual substance that we most certainly cannot "see for ourselves." Since the NAS authors so badly want to maintain such a purely empiricist view of science, it is not surprising that they would largely pass over the culminating work of Isaac Newton in this episode of history. In a summation of the Copernican revolution that runs for twelve paragraphs, Newton's contributions are summed up in a single sentence, and like those of Galileo his conceptual contributions are so played down as to make him seem hardly a theorist at all. The authors follow their treatment of Galileo by saying that

> [c]ontinued study and ever more careful measurements of the movements of the planets and sun continued to support the heliocentric hypothesis. Then, in the latter half of the 17th century, Isaac Newton (1642–1727) showed that the force of gravity – as measured on earth–could account for the movements of the planets given the laws of motion that Newton derived (NAS 1998, p. 29).

Having invoked the notion of measurement (and thus by implication induction) as the driving force leading to an understanding of gravity, the writers continue to sustain a view of the origins of theories that obscures their synthetic character. Even those Newtonian contributions that were unmistakably idea-driven are nuanced to sound like mere products of observation. We are told only that Newton "measured" the force of gravity on earth but nothing about where the idea of gravity came from, and when the authors say that Newton's laws were "derived," as if spontaneously from observation, they suggest something that is not a logical possibility. The "inertia" of his first law describes a kind of motion that, by definition, could never occur in the natural universe (Losee 1972, pp. 74–77), and the second law is not subject to empirical refutation, as Kuhn notes (p. 78), because it "behaves for those committed to Newton's theory very much like a purely logical statement that no amount of observation could refute."

An explanation of the Copernican revolution that centered on the generative aspects of Newton's genius might have been attractive to the NAS in a different rhetorical situation, but as Gieryn's theory of informal demarcation would predict, the situated needs of boundary-work determine what science will be for certain audiences. To focus on the rationalistic side of science, no matter how powerful or vital it may have been, would draw attention to the vulnerability of Newton's work to correction by relativity and quantum theories. If classical mechanics could be corrected in such a major way as this, the reader might also think that evolutionary theories might be capable of similarly dramatic revisions. The authors of the NAS book do acknowledge that scientific theories are subject to such change (p. 42), but it is the half-full glass of scientific certitude that contributes the most to their immediate rhetorical purposes. Skepticism about evolutionary theory might grow even larger if the American public was taught that theoretical constructs, no matter how powerful, always retain a precarious subjectivity as abstract mental representations of physical realities. A simplistic Baconian model which views theories as springing up spontaneously from data is preferred, in spite of its clear inability to genuinely "save the phenomena" of scientific history.

The interpretation of the Copernican revolution given by both Finocchiaro (1980) and Pera (1994) and based on their close readings of Galileo's *Dialogue Concerning the Two World Systems*, would do even more damage to the NAS narrative. Although they assign less weight than Koyré to the influence of Renaissance neo-Platonism upon thinkers like Galileo and Newton, both agree that the Copernican theory did not win out on the basis of an inductive proof. Galileo surpassed his scholastic competitors not by showing that the evidence pointed irrefutably to a sun-centered cosmology but only by marshaling better arguments. But even then, the case was not compelling. Galileo's case for heliocentrism, Pera shows (pp. 2–28), did not derive exclusively from something like "scientific method." It was an argument that marshaled all the available means of persuasion, hard evidence as well as soft speculation. Even the experimental tests described by Galileo served as illustrations rather than demonstrations. They were thought models designed to clarify mechanistic principles rather than to prove physical laws. Galileo himself (Pera, p. 28) rejected the notion that any *experimentum crucis* should be allowed to settle the debate.

2. Climate change science in a metascientific vacuum: A hermeneutical thought experiment

I have chosen the NAS treatment of evolution because its explicit purpose was to shape how the nature of science is understood in science classrooms and in the process to combat widespread popular resistance to evolutionary science. Because

schools are the main source of public information about the nature of science, we may also assume that the metascientific thinking of both American citizens and the policy makers who represent them is born there. Outside the educational contexts for which the arguments of the NAS publication were intended, the scientific culture has few other opportunities to construct such general conceptions of the nature of science. Even in the basic science education that most Americans get, very little discourse of this kind will be found. Such abstract considerations of the nature of science are typically only the stuff of the introductory sections of the introductory textbooks used in introductory courses.

But what happens when the public must judge political controversies that involve scientific questions? Will an understanding of the nature of science developed under the pressures of ideological demarcation serve the public interest in such circumstances? In considering these questions I will undertake a kind of hermeneutical thought experiment in the closing pages of this essay by considering how these questions might apply in the case of climate science and the controversy surrounding global warming. In doing this I would first like to assume that the scientific consensus is basically right which holds that human pollutants have made a serious contribution to the pattern of global warming currently being detected. I will also assume that public debates about this question occur in what I will call a metascientific vacuum – that unlike scientific-public dialogues about evolution, which invite demarcation and thus thinking about the nature of science, similar considerations are unlikely to emerge around the issue of global warming. Since the greenhouse gas debate does not invite such considerations, public participants will be inclined to fill this vacuum with conceptions of science that they have appropriated elsewhere. In such rhetorical situations metascientific work such as we have seen in the NAS book on evolution will be drawn into this vacuum – thus having effective presence.

In consideration of this hypothetical scenario, let us then consider how the average nonscientist might read the second NAS publication mentioned earlier in this essay, "Climate Change Science: An Analysis of Some Key Questions" (2001). Since its readers are not provided with any explicit criteria for assessing the scientific status of the climate theories it discusses, they are left to bring to their judgment of this discourse whatever metascientific criteria they will have absorbed from other sources. In this regard my interest in this message has as much to do with what it does not say as with its material arguments. In spite of this silence, the debate about the degree of certainty that applies to the role of pollutants in global warming raises questions about how scientific knowledge is certified. The reader trying to judge the case for global warming must have some metascientific criteria that tell him or her when a claim such as this has achieved sufficient warrant to justify action. Since such answers seem to be absent from

global warming discourses, such readers will look elsewhere, perhaps recalling other debates, such as those on evolution where such criteria are in fact outlined. Had those considering this question read the NAS book on evolution, they would have likely concluded that the sole basis of such certification is evidentiary. Theories are conclusions that arise from data, and when indubitable data is wholly consistent with a theory, as the NAS has told us is the case for evolution, then a theory is indubitable as well.

Once such a view of science's constitutive features is brought to the climate publication, the reader would then have to decide what to make of its notably more prudent tone, a tone suggesting that no consistent lines of inference can be drawn between data and theory. The climate science publication, as a briefing prepared for policy makers in the executive branch of the U.S. government, is a study in epistemic modesty. From an institutional standpoint, it is easy to see why this would be the case. The authors are in some sense writing for their employers, the government that is the main source of scientific funding in the U.S. Reputations and public support are at stake, and so professional caution is in order.

This prudent tone is set in the book's foreword by NAS president Bruce Alberts, (also one of the authors of the NAS book on evolution), who (p. viii) seems to go out of his way to emphasize the tentative character of its findings. He opens by acknowledging the report's many limitations, that "tradeoffs were made in order to accommodate the rapid schedule," that various "references to the scientific literature" are not provided, and that "detailed evidence" was not offered for the answers it gives to the questions the Bush administration asked it to address. The conclusions of the report Alberts calls "answers", using scare quotes as if to highlight their uncertainty.

Certainly these are all good reasons for caution, but a moment's reflection will confirm that at least two of these reasons also apply to the NAS publication on evolution. That book also lacks "detailed evidence," and it makes only sparse reference to the scientific literature that supports its claims, at least if we mean by this primary scientific literature. But its authors never miss an opportunity to underline the certainty of evolutionary theory. Evolution is supported by an "enormous body of data," and is a "central concept in understanding our planet" (1998, viii). Scientists "continue to debate only the particular mechanisms that result in evolution, not the overall accuracy of evolution as the explanation of life's history" (4), and thus it is "no longer questioned in science" (5), but is "held with a very high degree of confidence" (5), as "one of the strongest and most useful scientific theories we have" (6). Indeed, evolution is the "only plausible scientific explanation that accounts for the extensive array of observations" (16). For this reason "it is no longer possible to sustain scientifically the view that the living things we see today did not evolve from earlier forms" (16). The evolution

publication may acknowledge that "the statements of science should never be accepted as 'final truth,'" but in the same breath it then cautions that nevertheless in the case of evolution the data are so convincing that the accuracy of the theory "is no longer questioned in science" (30, 42).

Readers who have been exposed to the kind of language found in the evolution book are likely to think that it is a high degree of certainty that demarcates scientific theories from other similar constructs. Finding no similarly bold or emphatic language in the climate science report, they will have some justification for supposing that the greenhouse gas theory has not yet risen to the level of science. Like its introduction, the body of the climate science report is sprinkled with qualifiers and disclaimers. The conclusion of these writers is that "the observed warming of the last 50 years is likely to have been due to the increase in greenhouse gas concentrations," and that this judgment "accurately reflects the current thinking of the scientific community on this issue" (NAS 2001, p. 3). In this instance it is the collective judgment of a community of scientists rather than indubitable fact upon which the theory's truth-value stands. Moreover, the reader will soon learn that this judgment is open to all manner of acknowledged doubts:

> The stated degree of confidence in the IPCC assessment is higher today than it was 10, or even 5 years ago, but uncertainty remains because of (1) the level of natural variability inherent in the climate system on time scales of decades to centuries, (2) the questionable ability of models to accurately simulate natural variability on those long time scales, and (3) the degree of confidence that can be placed on reconstructions of global mean temperature over the past millennium based on proxy evidence. Despite the uncertainties, there is general agreement that the observed warming is real and particularly strong within the past 20 years. Whether it is consistent with the change that would be expected in response to human activities is dependent upon what assumptions one makes about the time history of atmospheric concentrations of the various forcing agents, particularly aerosols. (p. 3)

There is nothing particularly surprising about this summation. Its nuanced language is characteristic of the professional communication of scientists. But the fact that this was written for lay representatives of the American public creates a complication. These are readers who must decide to what extent the language of scientific uncertainty reflected in this technical report should affect policy making on this issue. Is the scientific consensus on the causes and future of global warming strong enough to warrant decisive action? The authors of this book say that it is, but they do not explain how that determination takes into account the pervasive hedging that manifests in its pages.

In this regard readers of this report find themselves looking into the metascientific vacuum I described earlier. Without having any immediately available

criteria by which to directly answer this question, these non-specialists are likely to fall back upon more conventional modes of judgment – their own sense of the coherence and evidentiary merits of arguments for greenhouse global warming, their take on the ethos of these scientific messengers, or perhaps their sense of how their own constituents might wish them to judge this matter. But they would be just as likely to fill this empty conceptual space by bringing to this message conceptions of the nature of scientific knowledge that come from sources like the NAS book on evolution. Were they to do so, they would likely judge as weak a case for greenhouse gas emissions as the factor responsible for rising global temperatures.

Skepticism of this kind is typically put down to political prejudice, and certainly the ideological leanings of the public actors who must interpret such findings may dispose some to have greater doubts than others. But this does not change the fact that it is scientists who have had the responsibility of teaching the rest of us how to best judge their findings. If scientists engage in such instruction under the pressures of informal demarcation, we should likewise expect that the metascientific tools with which they equip the American public will not be up to the task of discerning complex issues like global warming. Preoccupied as it is by the ongoing challenges of creationism and intelligent design, the scientific culture is unwilling to pull back from an informal demarcation strategy that has served this purpose. But in the complex world of the present, in which the worth of various scientific theories must be weighed in public deliberation, this approach to shaping public conceptions of science poses new dangers.

For some time the issue of scientific literacy has occupied the attention of science educators in the U.S., and for good reason. Those living in a world increasingly shaped by science must also find their way by science. Usually these concerns center on literacy as it pertains to the content of science rather than the ways of science, but in reality it may be the latter concern that has the greater importance. Even the highly educated and interested lay person could never hope to attain more than a superficial command of what scientists know – even in several life times. Some parts of scientific learning need to be generally understood, such as those having bearing upon issues of health and nutrition, but most do not. For lay persons who must deliberate on scientific questions, a realistic knowledge of what I have here called metascience would be more useful, a general set of criteria by which to judge scientific arguments.

In this brief reflection I have made no effort to spell out what such a general understanding of science might look like. I have only tried to point out some important inconsistencies in the manner in which this is currently performed under the pressures of demarcation. A survey of the work of those philosophers and historians of science who have made metascience a professional avocation would be the avenue to building such a public resource. Even here one will not find

even anything like a consensus about what science is, but one at least would get a more robust and more complete sense of its patterns and complexities.

References

De Santillana, G. (1955). *The Crime of Galileo*. New York: Time Incorporated.

Farrell, J. (2005). *The Day Without Yesterday: Lemaître, Einstein, and the Birth of Modern Cosmology*. New York: Thunder's Mouth Press.

Finocchiaro, M.A. (1980). *Galileo and the Art of Reasoning: Rhetorical Foundations of Logic and Scientific Method*. Dordrecht: Reidel.

Gieryn, T. (1983). Boundary work and the demarcation of science from non-science: Strains and interests in professional ideologies of scientists. *American Sociological Review, 48*, 781–95.

Jastrow, R. (1978). *God and the Astronomers*. New York: Norton.

Koyré, A. (1978). *Galileo Studies* (J. Mepham, trans.). New Jersey: Humanities Press.

Kuhn, T.S. (1962). *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press.

Lessl, T.M. (1999). The Galileo legend as scientific folklore. *Quarterly Journal of Speech, 85*, 146–168.

Losee, J. (1972). *A Historical Introduction to the Philosophy of Science*. Oxford: University of Oxford Press.

National Academy of Sciences. (1998). *Teaching about Evolution and the Nature of Science*. Washington, D.C.: NAS Press.

National Academy of Sciences. (2001). *Climate Change Science: An Analysis of Some Key Questions*. Washington, D.C.: NAS Press.

Pera, M. (1994). *The Discourses of Science* (Clarissa Botsford, trans.). Chicago: University of Chicago Press.

Perelman, C. (1982). *The Realm of Rhetoric* (W. Kluback, trans.). Notre Dame, IN: University of Notre Dame Press.

Taylor, C.A. (1996). *Defining Science: A Rhetoric of Demarcation*. Madison, WI: University of Wisconsin Press.

Reforming the Jews, rejecting marginalization

The 1799 German debate on Jewish emancipation in its controversy context

Mirela Saim

1. Introduction

1799 proved to be an extremely important year in the European history of the controversial issue of Jewish rights. During 1799, in Germany, the issue of the Jewish civic order came to the fore of the public discourse and was strongly articulated in all its confusing complexity as a core dimension of the Enlightenment culture of reason. It is in 1799, in Berlin that, through public debate, it has been proven that constitutional and genuinely practical issues related to Jewish emancipation were closely associated with the broader issue of the cultural self-definition of the European subject. As I will show, this discourse – shaped as a "triangular" controversy between contemporary opinion leaders, David Friedländer (1750–1834), Wilhelm Abraham Teller (1734–1804) and Friedrich Schleiermacher (1768–1834) – reveals an argumentative pattern that remains as fascinating and as interesting today as it has been misunderstood or misconstrued since first being articulated.[1] Between Heinrich Graetz who dismissed the whole affair as embarrassing and Michael Meyer's more nuanced, yet still negative, assessment, the polemic that brought together Friedländer and Schleiermacher within a unique historical frame, does, in fact, center a rich constellation of topics, representative for the Enlightenment culture. As a case study in the history of controversies, the 1799 debate does signal a crucial stage in the long tradition of interfaith Jewish-Christian debates and for this reason alone it deserves an argumentation scrutiny, concerning both its topical design and its procedures of assessment and validation.

By its very focus, the problem of baptism of convenience, the debate defined a space of controversy that was clearly of interfaith extension, yet engaging at its

---

1. In this chapter I will use the recent English edition of the documents of this controversy: *A Debate on Jewish Emancipation and Christian Theology in Old Berlin*, edited and translated by Richard Crouter and Julie Klassen, hereafter DJE. Consequently, Friedländer's text will be cited abbreviated as Open Letter and Schleiermacher's answer as Letters.

very core the topic of religious and community commitment: moreover, it also presented itself as a controversy in the Jewish-Christian stream that was "meant to end all such controversies" and thus aimed at ending a long tradition of hostility, fight, rejection and repudiation. As we shall see, while it displayed a great deal of formal civility in interaction, it nevertheless managed to further the cause of oppositional confrontations. While on the surface debating the issue of convenience conversion as a device of social integration, the controversy does, in reality, encompass a large number of issues of historical and philosophical extension: within its frame, deist formulations of universal religion lead, in turn, to weakened confessional distinctions and question the potential preservation of a (vague and, arguably, limited) Judaism in this context; the goals of an even more obscure Christian theology are thus revealed, while the validity and effectiveness of opportunistic religious practices are also discussed.

It is the object of this chapter to discuss the main elements of this controversy within the broader context of the argumentative history of the Jewish-Christian debates, signaling some of their procedures of refutation, rejection and critique. I will first consider the main lines of this controversy of emancipation in 1799, providing an outline of its arguments, after which I will focus on the contradictory and dissuasive stratagems displayed by the three participants. My aim is to establish a determinate meaning to this debate and, particularly, to Friedländer's position; I thus hope to throw a new light on the status of the argument in the controversial structure considered and to review the failure in persuasive effectiveness usually associated with this particular debate. Another interest of my further analysis is the expression of commitment in the argumentative construct of the topics.

2. The debate

The most important discourse inscribed in this confrontation was articulated by David Friedländer,[2] a pupil and a former protégé of Moses Mendelssohn, at the time leader of the Jewish community and a representative of the Jewish mercantile elite of Berlin: *Open Letter to His Most Worthy, Supreme Consistorial Counselor and Provost Teller at Berlin, from some Householders of the Jewish Religion (Sendschreiben an seine Hochwürden Herrn Oberconsistorialrath und Probst Teller*

2. The whole decade is full of pamphlets and publications debating the opportunity and the modalities of "Jewish improvement" or "betterment", raising issues of education, acculturation and status. Furthermore, a growing number of Prussian Jews were also choosing conversion to Christianity for reasons made quite clear, significantly, by Friedländer's text. (Mosse 1995, Sorkin 2000).

zu Berlin, von einigen Hausvätern Jüdischer Religion). In this "letter" Friedländer made the proposal of having Jews convert collectively to Christianity, yet without fully endorsing the dogmatic content of the Christian (Protestant) religion: the baptismal ceremony would only carry a formal meaning. This sort of "baptism light", clearly opportunistic, would impose only limited doctrinal restrictions while offering full civic integration into the mainstream Berlin society.

Astonishing as the proposal sounds, its text is made even more unsettling by the astute usage of the Mendelssohnian idiom of enlightened reasonability: published anonymously in April 1799, the "open letter" recovers arguments well defined previously in Mendelssohn's *Jerusalem*,[3] using frequently its distinctions, metaphors and analogies and making a similar use of the reasonable language of the religious and the political. But the disciple goes far beyond the boundaries retained by the master. He radically alters Mendelssohn's integrative project when, in his desire to conform to the perceived expectations in the Berlin Protestant environment, he shows himself eager to consent to concessions that practically jettison the foundational elements of his own tradition, so that the conversion of convenience becomes the extreme, yet logical end to his radical critique of Rabbinic Judaism.

Nobody was satisfied with the proposal drafted by Friedländer, certainly not his partners in this debate: neither Teller, the addressee of the letter in the first place, nor Schleiermacher. Most probably, neither was Friedländer himself, since to this day his true intentions and the meaning of his provocative text are still objects of puzzlement.

At the time, the reaction to his "letter" was quite intense and the answers came from many sides, but among all the opinions expressed then two are central to the development of the ideas and practices discussed: Teller's, the recognized leader of the Prussian Protestant church, and Schleiermacher's, the most innovative and profound Protestant theologian of the period.

3. Friedländer's arguments

Friedländer's *Open Letter* has two parts: in the first part he executes a critique of the Jewish religion by examining the principles of Judaism "within the limits of reason alone", while in the second part he proceeds to design a strategy for a growing Jewish integration into modern society. The second part projects an

3. *Jerusalem or on Religious Power and Judaism* (Berlin 1783); cited here in the translation of Allan Arkush; referred hereafter as *Jerusalem*.

"optimistic" future through assimilation is predicated on the critique conducted in the first part, so that there is a link of reasonability between the past and the future. Moreover, the conventions of the epistolary genre are framing assumptions of cultural communication.

As an anonymous representative of the Jewish mercantile elite, the author of the letter positions himself as an eager pupil that seeks instruction from the Protestant pastor in "the greatest and most holy affair of man, which is religion" (*DJE*, p. 41); in this particular situation, using a collective "us" all along, Friedländer is nevertheless keeping a meaningful distance, which allows him to draw an "objective" and quite ambivalent outline of Jewish religious education. His critique of Judaism is thus mainly constituted as a critique of the religious education imparted to the male Jewish subject.

3.1 The critique

In this respect, his main objects of criticism are three: the ceremonial law, deemed divisive ("empty customs" that "alienated us in the circle of everyday life"), the irrationality of the mystical education engaged by the prevalence of the Talmudic teachings and the incapacity of (classical) Hebrew to communicate modern meanings (*DJE*, pp. 41–45). Acknowledging, like Kant and Mendelssohn, the arrival of the age of reason as an age of maturity, Friedländer pleads for a Jewish "ascent into culture", open to all by inclusion in the mainstream society. David Friedländer's discussion of Judaism and its principles is, like Moses Mendelssohn's, articulated as an apologetic history of an old yet inevitably corrupted tradition and shaped by a deistic reduction to universal religious principles, principles to be *also* grasped within Judaism. His argumentation is thus paradigmatically articulated as a reevaluation of the historicity of the *Halachah*,[4] examining its practical suitability to modern life and inquiring persistently into its continued validity.

He thus constitutes his argument as a dialectic of inquiry into legitimacy and seeks to go beyond legitimation by tradition in order to impose another criterion, reason: "it is reasonable to infer which of other commandments are likely to appear to us as purposeless, petty, or even entirely ridiculous" (p. 54).

In principle, the counter-halachic argument is supported by the idea that the original unity between state and religion, characteristic to scriptural - "Mosaic" – times, has been lost through a long and troubled history of dispersion. This anti-halachic stance is consequently taken as basis for the display of radical anti-rabbinic assertions; in Friedländer's review, Judaism's history becomes a journey into corruption

4. The aspects of Judaism concerned with its laws, usually referring to the normative side of the tradition.

and delusion, mostly to be blamed on the rabbinic establishment. Accordingly, the loss of meaning associated with the ceremonial law is only matched by the delusional messianic expectations of return to Zion. Both are explained by Friedländer as degradations in meaning and concept, deteriorations typical to popular religion and leading to further division and isolation. In turn, it is this very isolation that further explains the sorry state of the Jewish masses. Appropriately then, he ends his brief historical sketch of Judaism by blaming a degraded liturgy, mystical Kabala and a language that "ridicules all logic and grammar."

3.2 The project

The second part of the letter proceeds to draw a sketch of the moral progress achieved by the Christian society since the Reformation, in the same time comparing all along the cultural tasks to be accomplished by the enlightened ones in both cultures. At this point, Friedländer explicitly refers to the general topic of human betterment (*Verbesserung*) and engages in a critique of *equal* improvement: quite insightfully, he argues that "If the better Jew merely needs to shed the husk of his ceremonial law in order to purify religion, the better Christian must subject his basic truth to a new examination" (p. 62). Noting that the great number of Jews still remains painlessly in a backward state, Friedländer raises the question of their progress. Moreover, he argues that social integration is the very condition of their expected moral betterment and thus can not be deemed only its just "reward": "Generally the morality is far less the result of instruction than the fruit of social intercourse, than the example of a parental home, of affiliations, and, in later years, of one's business dealings" (*DJE*, p. 65). In this reformulation, the issue becomes one of rightful expectations of civic equality for an unjustly discriminated minority and as such it will be reinforced all along.

It is by challenging his addressee, the Provost Teller, to confront the conditions of these bettered human beings, that Friedländer arrives at the conclusion that a confessional change *pro forma* would be a speedier and more practical solution for the integration of the Jews. Conversion to Christianity would, in his opinion, accomplish a broader access to the goods of Enlightenment. In his vision, this would be an adherence of the Jews – striped by their observance of an outmoded *Halachah* and deprived of their messianic "prejudice" – to a Christian religion equally "cleansed" of meaningless ceremonies, and "unreasonable" beliefs, like the humanity of Christ, "son of God".[5]

David Friedländer's *Open Letter* retains a dialogical relationship with Mendelssohn's *Jerusalem*, reproducing many formulations, paraphrasing others

5. DJE, 68–71.

and finally pushing to extreme its general drive to modernize Judaism and to make the Jewish minority a full partner into the *Aufklärung* great project of criticism, accommodation and adjustment. There is no doubt that Friedländer does, in his *Open Letter*, act as if he continues Mendelssohn's ideas; but once this relationship is recognized, it is also striking how far he goes beyond his master's critique of religious conventions in Judaism. Where Mendelssohn was moderate and cautious, his pupil seems eager to go to the extremes. And, of course, the most striking displacement of argument is in the rejection of his Jewish affiliation, if not commitment, by developing a type of reasonability that – to cite Mendelssohn's own expression – is of the order of "sophistry", *Vernünftelei*.

Like Mendelssohn's *Jerusalem*, the *Open Letter* positions itself as a strong argumentative structure that explains Judaism as a religion of reason and submits its traditions and practices to the criterion of reasonability. Like Mendelssohn, again, Friedländer distinguishes between truths of reason and truth of history, after which he applies this distinction in order to justify a judgment of obsolescence directed to the ceremonial law. Mendelssohn, however, used the same examination in order to advance the case for the universal validity of the religious principles of Judaism. For this reason, in his assessment, there is a strong necessity for the Jews to stick to their religious obligations, seen as an essential dimension of the Jewish identity. He considers this a "double burden", because it is the Jewish lot in the modern world to both keep the traditional law and to adjust it to the current social and political requirements: "today, no wiser advice than this can be given to the House of Jacob. Adapt yourself to the moral and the constitution of the land to which you have been removed; but hold fast to the religion of your fathers too. Bear both burdens as well as you can!" – adamantly and emphatically concluding "I can not see how those born into the House of Jacob can in any conscientious manner disencumber themselves of the law".[6] In any event, warns Mendelssohn, "no sophistry of ours can free us from the strict obedience we owe to the law" (*Jerusalem*, p. 133).

Yet, Friedländer's *open letter* to Teller professes to give words to these arguments of "sophistry" in order to justify, on social and political grounds, the fake mass conversion of the Prussian Jews. Let us try to look briefly into this order of argumentation and consider how this argumentative gimmickry was achieved.

3.3 *Vernünftelei*: Conversion and the "sophistic" rejection of religious ceremonies

The obsolescence of the ceremonial law, first predicated by Spinoza on the destruction of the Jewish state in the first century A.D. and given as a logical consequence of

6. i.e., the Halacha.

the diasporic (stateless) condition, was retrieved and reinterpreted by Mendelssohn as an argument for the careful scrutiny in the reasonability of the Halachic codes, thus engaging a "project" of moderate reform within the frame already set by a long tradition. But Friedländer, in his haste to adjust to a new and already more complex social and political environment, does radically alter the issue when he proposes a "simplified" and "purified" Judaism that would place the "House of Jacob" within the "compound of the Christian state" and inside its hegemonic culture.

The clear split between state and church aimed at by Modernity is thus seen as the fundamental issue that has to be the basis of a new order of reason, both politically and socially. In this context, where the religious and the political are clearly differentiated, the nature of legality requires a justification that implies a reassessment of authority. But Mendelssohn does not see a serious opposition between the two frames of authority (state and religious institution) because he thinks that they do indeed operate in two different spheres, the spiritual and the political. Friedländer, on the other hand, considers that this separation of the political and the religious is already being instrumental in excluding the Jews from the benefits of civil participation in a society that is fast becoming modern. Giving priority to the political, he thinks that he too can redefine a weakened religious discourse in such a way as to allow the excluded members of his own marginalized community to fully share into the life of the Berlin society. For him, mere toleration is not enough because he seeks to become a full member of the social order. Or, in his view, this aim can only be reached by a formal concession in the religious domain leading to the general homogenization of faith. Yet, his proposal of conventional conversion is ambiguous because it also comprises a veiled critique of the Christianity he would consider joining. As has been noticed, what Friedländer really envisions is in fact a sort of "Christianity without Christ", a religious ceremonial (liturgical practice) stripped of its Christological meaning (Tomasoni 102, citing Schleiermacher's expression *Christentum ohne Christus*) and preserved only as a mere shell of conventions. Hence he explains that "if the Protestant religion does indeed prescribe certain ceremonies, we can certainly resign ourselves to these as mere necessary forms that are required for acceptance as a member into a society" (*Open Letter*, p. 78) and shows that, in his mind, the Jewish question and the emotional dimension of the religious question have already been reinterpreted according to a double standard, one public and civil, the other private and individual.

Thus the political and the religious are aligned differently: religion is public and therefore its institutions belong to the political sphere, while religious beliefs (faith, ultimately) are personal and private.

In Friedländer's analysis, the issue is reconsidered and suffers a dissociation that, in turn, allows for its subsequent manipulation. This, of course, was only possible because the important distinction between state and church was still

debatable – so that its juridical and social realization were still far away. Moreover, by considering religion as simply an index of public expression, showing political affiliation and social assignations, in clear opposition and distinct existence from a personal and private "inner" religious belief, Friedländer undermines confessional and congregational differentiations, at the same time creating a space of *indifference* towards the authenticity of religious commitment.

As the history of the Nineteenth century will show, indifference (i.e., rejection of commitment) in the realm of religion will become a growing concern, embracing a diverse game of attitudes (agnosticism, atheism, secular religions); but at the time, in the Jewish context, this was indeed a radical and extreme solution – casting a shadow of doubt as to the real meaning of the whole *Open Letter* and foregrounding its oddity.

4. Teller's answer: A polite rebuttal

That the formal conversion proposed by Friedländer was also raising broader theological issues was noticed by Wilhelm Abraham Teller, a liberal Protestant thinker,[7] leader of the Prussian church. He took the anonymous "open letter" seriously and answered its author with moderation, in a tone that is balanced and quite careful in its civil approach. Not surprisingly, he agrees with Friedländer when he criticizes the Jewish tradition, even employing the same rhetorical "idiolect" in construing his own reading of the Jewish discourse in terms of natural religion. He also considers with great sympathy the plight of the Jews through their history of dispersion and oppression, submitted to persecution and systematic injustice; furthermore, he agrees with Friedländer in his analysis of the "corruption" of the tradition through Talmudic influences and rabbinic misinterpretations. In addition, as a learned theologian, he is also able to agree with the author of the proposal when he argues that a big hindrance is represented by the use of (Biblical) Hebrew, considered a "dead language", unable to express the complex meanings required by the new Age of Reason.

Listing these points of agreement, Teller thus builds a base for further discussion, showing that he is able to share a common critical ground with his opponent! Next, he furthers his own interpretation of Jewish history and gives his reasons for rejecting Friedländer's proposal.

---

7. It was due to Teller's support that Dohm's seminal work raising the question of Jewish emancipation was published in 1871.

Citing the great steps already achieved in social integration by some Jewish personalities (like Mendelssohn, Wessely, Euchel, Bloch, Bendavid, etc.), Teller rejects the proposal of collective formal conversion exposed in the *Open Letter* by formulating two main objections. First, he argues that, based on the universality of religion, there is no need for joining a particular "ecclesiastical" organization in order to be integrated socially; in support of this claim he brings the example of the American states (*DJE*, p. 141). Accordingly, this example proves that in the fully executed separation of church from state there is no precedence of one particular ("established") religion over another and thus conversion to a "mainstream" confession in order to gain civic rights becomes pointless.

Secondly, argues Teller, if the issue of Jewish moral progress and reform is to be successfully determined, this should be dealt with within the Jewish community and not within a newly created Christian sect.

In rejecting formal conversion as an unnecessary and actually inauthentic solution for the social integration of the Jews, Teller uses a series of procedures and stratagems of argumentation that subtly suggest not only the enormity of the proposal but ultimately its "perplexing" and *unreasonable* nature. Appropriately, he shows that Friedländer's proposal, in its extreme reasonability, is in fact failing its own standards of reason: if ceremonial performances are historically compromised in Judaism and if the Christian ceremonial requirements are no more valid than the Jewish ones, then it makes no sense to shift ritual allegiance and change one's religious commitment.

At this point, one can note that Teller's refutation follows a classical strategy, well polished since Aristotle first explained it in the *Sophistical Refutations*: to show that the premises of the opponent, while apparently probable, are in fact invalid. This strategy is reinforced here because Teller not only shows that the premise (the universal corruption of religious ceremonies) is, within the *doxic*[8] frame recognized, invalid, he is also able to show that many of the inferential arguments construed by Friedländer are also invalid; after all everybody included in the debate has faith!

In the postscript to his letter of answer, remarking that discussing differences of opinion "is always a gain for truth, as long as stormy passions do not interfere with it" (*DJE* 143), Teller welcomes the extension of the debate by inviting other contributions. Without any doubt, the most interesting and highly controversial

8. I use this term in the sense of "accepted opinion" supporting persuasive arguments.

contribution to this debate remains that of Friedrich Schleiermacher, expressed in a series of six short letters composed soon after his classic, *On Religion*.[9]

5. Schleiermacher's refutation

If Teller's rejection was composed in moderate and carefully balanced terms, it is, however, Schleiermacher's repudiation of Friedländer's "modest proposal" that does bring forth a structure of argumentation that dismisses many assumptions in the text and, as it is, also displays the conflict between a rationalist theological approach such as Teller's and, finally, Friedländer's, and his own, more emotional and intense, already announcing a romantic viewpoint in religious philosophy. Furthermore, the whole idea of a radical split between the public and the private is shown by the Prussian theologian to be impossible in moral and practical terms.

While directly focusing the topic on an answer to th*e Open Lett*er, Schleiermacher's contribution efficiently moves the whole debate to a different level, making its topic an issue of existential anxiety and personal inquiry.

Schleiermacher identifies his debating *persona* as a simple "preacher outside Berlin" and confesses his perplexity at being granted civic rights that "can't be granted to the Jews" (*DJE*, p. 81). For this reason, in the first of the six letters, Schleiermacher sets forth a very good question: is the proposal real or just a rhetorical scheme devised to attract attention to the plight of the Jews?[10]

He recognizes that a fictive character of the letter could only express a loud cry of despair and deceived hopes. In any event, Schleiermacher states clearly the basic principle of his thought on the issue: "Reason demands that all should be citizens, but it does not require that all must be Christians, and thus it must be possible in many ways to be a citizen and a non-Christian" (*DJE*, p. 85).

This affirmation constitutes an important shift in argument, because by fully endorsing the separation of church and state and by representing it as already achieved and conferring the freedom of religious option on the civic subject, Schleiermacher radically changes the terms of the debate. He follows up where Teller has left, but he also effectively voids the issue of Jewish discontent, by representing it in a different pragmatic frame: the whole problem, from Friedländer's

---

9. *Letters on the Occasion of the Political Theological Task and the Open Letters of Jewish Householders*. (Berlin 1799).

10. He was probably aware that the real author was a leader of the Jewish community.

point of view, was indeed that equality of rights and Jewish social integration were not yet achieved in Prussia.[11]

Furthermore, Schleiermacher proceeds to a more extensive and incisive critique of the *Open Letter*, regarding what he perceives to be its anti-Christian bias. The full extent of Schleiermacher's apologetic reasoning in these *Letters* is beyond the scope of this short intervention, remaining to be further explored in a different study; but since Schleiermacher's position has been often misunderstood, I will continue this analysis by discussing only one of his claims during this debate, that of the death of Judaism.

5.1 The death of judaism

Probably the best-known statement uttered by Schleiermacher is his proclamation that "Judaism is long since a dead religion" (*On Religion*, 211). It is this radical claim that, in his Fifth Speech of *On Religion* opens the discussion of Judaism in what have been considered very unflattering terms. Analogic formulations reappear in the *Letters* written shortly afterwards in his controversy with Friedländer. The statement dramatizes the critique of Judaism on historical grounds, a critique already present in Mendelssohn and radicalized by Friedländer and his deist Jewish friends; as J. Pickle has shown, the whole formulation of the issues is consistent with Schleiermacher's frequent contacts with the members of the Berlin Haskalah and is based on their development of a discourse of historical critique of Judaism (1980, 115–117). Mendelssohn himself, in his *Jerusalem*, identified the moment of stagnation and sclerosis in the moment of the destruction of the Temple: the writing down of the Oral Law – necessary for survival and dissemination in diasporic conditions – caused the lack of adaptation of the ceremonial law to the ever changing realities of communal life. On the other hand, by expressing his thought in that particular formulation, Schleiermacher did also echo a long tradition of church authors who, from Luther to Michaelis and Herder, identified the death of Judaism with the successful arrival of Christianity on the scene of history (Newman 1993).

The historical critique of Judaism leads to different attitudes and supports different opinions. As M. Pelli (2006) has shown in his studies of the first *maskilim* the range of attitudes regarding the place of the *halachic* codes in Judaism is fairly large and so is the range of reasoning procedures in the validation of the legal

11. Also implies that the closeness between state and church (justifying the moral power of religion as a political force, as assumed by Mendelssohn), can not be a valid argument for social and religious integration, thus introducing a note of ambiguity in the whole argumentation structure.

codes. Among these, the exercise of the controversial and dialogical genres, illustrated by Isaac Satanow in Hebrew and by David Friedländer in German, introduces fundamental differentiations, many of which are related to the definition of the audience through language and through the rhetoric of address.

6. The freedom of religious choice

Both Teller and Schleiermacher support their rejection of Friedländer's proposal of opportunistic conversion by developing the argument of free religious choice: according to this argument, religious freedom is a distinct expression of the freedom of choice: religious affiliation and therefore conversion (i.e., change of affiliation) could only be conceived as free choice. But in the case of faith, commitment to a religious ideology is also thought to be a purely existential option, an expression of subjective identity and authenticity of commitment. Both theologians thus deny that in a tolerant society baptism – in any form – could be used as a modality of access into civil society. Their refusal of a convenience conversion is motivated by their symptomatic assessment of the new social reality that, in their experience, already grants tacitly to the "Enlightened Jews" the enjoyment of equal civic rights. As a result, Schleiermacher opposed the bluntness of the *Open Letter*'s author, perceiving in its project a "desperate means to gain equality" (*Letters*, p. 84). For him the idea of abandoning one's religious commitment in exchange of social gains is utterly dishonest. And he goes on to depict the Jewish convert to Christianity as an unworthy human being, since he accepts to submit to an opportunistic practice and thus knowingly agrees to a lie in the hope of a benefit.

It is, however, useful to bear in mind that the type of compromise envisioned by David Friedländer was not as unusual as it might seem; almost a century earlier, in England, "*occasional conformity*" became an accepted practice of conventionally integrating dissenters into institutions and communities that were otherwise only accepting Anglican congregants. The arguments opposing the adepts and the adversaries of this practice – also considered at that time utterly dishonest by many – found their way into Locke's *Letters concerning Toleration* (1689–93) and were articulated into a big number of contemporary documents, configuring a landmark controversy in the British history of religion. They were certainly known to Mendelssohn, who refers to them in his essay on the Anglican Church, citing the "*non-jurancy controversies*",[12] as were also known to Kant and to Friedländer himself.

12. The essay, "Thirty Nine articles of the English church and their adjuration", was published in 1784 in *Berlinische Monatsschrift*, 2, 24–43 (Bourel 2004, 339).

In his recent analysis of the German Haskalah, *The Berlin Haskalah and German Religious Thought*, that approaches comparatively the religious Enlightenment(s) in central Europe, David Sorkin identifies a generational shift between the older group of Jewish reformers (*maskilim*), like Mendelssohn and Wessely, and the younger generation, born after 1750: the first tended to be "more moderate", being "primarily concerned with the religious and intellectual renewing of Judaism" (Sorkin 9), while the later, the younger generation, "were more in the nature of lay Enlighteners who functioned in the penumbra of the state" (*idem*). Within this general frame, the Friedländer proposal can be seen as a radicalization of an extreme Jewish political shift in the fight for social and cultural integration. That it met a definite and diversified rejection suggests that its real purpose might have been sheer provocation!

This, in turn, raises the question of the degree of reasonability of the controversy itself: couched as a debate on the limits of religious reason as defining the extent of the freedom of religious choice, the controversy between Friedländer and Schleiermacher ends in a powerful reassertion of the subjective endorsement of religious affiliation, and, as such, it is situated *beyond* the limits of "reason alone", in the validating realm of social practices.

Despite Schleiermacher's incisive style of crisp reasoning, the 1799 controversy engaged less theological principles and more practical considerations, being steeped as much in ideology as it was in history.[13] It accurately represents a critical moment in the history of Prussian Jews, the "crisis of baptism" (Lowenstein, p. 18) and its challenges. On the more comprehensive level of historical assessment, the 1799 controversy is also a very public display of an age of dramatic Jewish searches for a solution that will lead to a middle way between assimilation and orthodoxy, between utter disappearance and utter isolation. From this particular point of view, it can be said to announce the birth of Reform Judaism.

Despite its ultimately utopian projections, Friedländer's *Open Letter* was inspired by the search for a fast practical solution to a degrading reality and by a great desire to explore all the possibilities, no matter how extreme or unlikely.[14] It is this very extension of the topics that ultimately gives it ambivalence and ambiguity, lending the actual wording to imply opposed meanings. As such, it carries all the signs of *a discussion and a debate,* at the same time, thus qualifying as a

---

13. I am currently working on an expanded analysis of the fallacies in this controversy, to be correlated and compared with the theological reasoning in Locke, Lessing, Kant, and Schleiermacher.

14. Significantly, Friedländer's proposal coincides with the "epidemic of conversion" (*Taufelepidemie*) that swept the German lands in the beginning of the XIXth century.

controversy: it started as a specific discussion on the topic of a virtual convenience conversion by a particular religious minority, but it quickly revealed that the disagreements were deeper and larger and needed to be considered in a broader context (Dascal 6).[15]

7. Controversy and debate in the age of reason: Strategies and realities

As I have signaled in my outline of the controversial moves, the main procedures were often constituted by moves of resemantization and resignification, so that the oppositional strikes could easily be listed as reformulations of the same arguments: Teller did manipulate the elements of the critique of Judaism acknowledged by Friedländer and extended its validity well beyond a virtual sharing of critical reasons. Schleiermacher, on the other hand, chose to entirely change the description of reality and to impose an idealized vision of social life. In my reading of this controversy, I find that both Teller and Schleiermacher are still inhibited by the long tradition of Jewish-Christian controversies, a tradition that flourished in scholastic times and used a (Scholastic) "dialectic" of casuistry that embedded the theological issues in the pragmatics of strongly disqualifying the opponent by every means possible.

The only difference, and a huge one, is the fact that the goal is no longer the forced conversion of the Jewish civil subject. But, in 1799, how voluntary could the Jewish conversion be? Is Friedländer, who started this exchange, just using a rhetorical gimmick to expose the sheer hopelessness of the Jewish condition?

As all of the participants in this debate have recognized, the main difficulty was in distinguishing between reality and illusion, between expectation and possibilities. However, in view of the parallel texts coming from the French revolutionaries (Abbé Grégoire, among others) and from various other Jewish thinkers I tend to believe that Friedländer was only examining Jewish options … rhetorically!

In the end, the resolution of this controversy, steeped in ideology and rhetoric, was fittingly given by history: the acquisition of the Prussian Jewish civic rights received its proper answer from history with the Imperial Citizenship Law of 1812 granting citizenship rights and status to the Jews of Germany. The moment of exasperate frustration and profound despair marked by the 1799 Berlin debate

15. I am using here the typology proposed by Marcelo Dascal in his "Theological Controversies" included in the series "*Controversies in the Republic of Letters*" (2001), further developed in "On the Uses of Argumentative Reason in Religious Polemics".

started by Friedländer was certainly an influencing factor in this history, providing a powerful link between thought and action, between words and deeds, between issues of faith and issues of reason.

References

Aristotle (1992). *On Sophistical Refutations* (E.S. Forster, Trans.). Cambridge, MA: Harvard University Press.

Arkush, A. (1994). *Moses Mendelssohn and the Enlightenment*. Albany: SUNY Press.

Bourel, D. (2004). *Moses Mendelssohn. La Naissance du judaïsme moderne*. Paris: Gallimard.

Carlebach, E. (2001). *Divided Souls: Converts from Judaism in Germany, 1500–1750*. New Haven: Yale University Press.

Crouter, R. & Klassen, J. (Eds & Trans.) (2004). *A Debate on Jewish Emancipation and Christian Theology in Old Berlin*. Indianapolis, Cambridge: Hackett Publishing Company.

Dascal, M. (2004). On the Uses of Argumentative Reason in Religious Polemics. In T.L. Hettema & A. van der Kooij (Eds), *Religious Polemics in Context* (pp. 3–20). Assen: Royal Van Gorcum.

Eemeren, F.H. van (Ed.) (2001). *Crucial Concepts in Argumentation Theory*. Amsterdam: Amsterdam University Press.

Eemeren, F.H. van & Houtlosser, P. (Eds) (2002). *Dialectic and Rhetoric. The Warp and Woof of Argumentation Analysis*. Dordrecht: Kluwer Academic Publishers.

Henriques, U.R.Q. (1968). The Jewish Emancipation Debate in Nineteenth-Century Britain. *Past and Present, 40*, 126–146.

Lowenstein, S.M. (1992). *The Mechanics of Change. Essays in the Social History of German Jewry*. Atlanta, Georgia: The Scholar's Press.

Lowenstein, S.M. (1994). *The Jewishness of David Friedländer and the Crisis of Berlin Jewry*. Ramat-Gan, Israel: Bar Ilan University.

Mendelssohn, M. (1983). *Jerusalem or on Religious Power and Judaism* (A. Arkush, Trans., A. Altmann, Introduction and commentary). Hanover, N.E.: University Press of New England.

Meyer, M.A. (2001). *Judaism Within Modernity. Essays on Jewish History and Religion*. Detroit: Wayne state University Press.

Meyer, M.A. (1988). *Response to Modernity. A History of Reform Movement in Judaism*. Oxford: Oxford University Press.

Mosse, W. (1995). Jewish Emancipation in Germany. In P. Birnbaum & I. Katznelson (Eds), *Paths of Emancipation. Jews, States and Citizenship* (pp. 59–93). Princeton, NJ: Princeton University Press.

Newman, A. (1993). The Death of Judaism in German Protestant Thought from Luther to Hegel. *Journal of American Academy of Religion, 61*, 455–484.

Pelli, M. (2006). *The Age of Haskalah. Studies in Hebrew Literature of Enlightenment in Germany*. New York, Toronto: University Press of America.

Pickle, J.W. (1980). Schleiermacher on Judaism. *The Journal of Religion, 60*, 115–137.

Rotenstreich, N. (1984). *Jews and German Philosophy. The Polemics of Emancipation*. New York: Shocken Books.

Schleiermacher, F. (1988). *On Religion: Speeches to its Cultured Despisers* (R. Crouter, Trans.). Cambridge: Cambridge University Press.

Schleiermacher, F. (1996). *Dialectic or The Art of Doing Philosophy* (T.N. Tite, Trans, introduction and notes). The American Academy of Religion.

Sorkin, D. (2000). *The Berlin Haskalah and German Religious Thought: Orphans of Knowledge.* London, Portland: Vallentine Mitchell.

Stillschweig, K. (1946). Jewish Assimilation as an Object of Legislation. *Historia Judaica, VIII* (1), 1–18.

Tomasoni, F. (2003). *Modernity and the Final Aim of History. The Debate over Judaism from Kant to the Young Hegelians.* Dordrecht: Kluwer.

Vital, D. (1999). A *People Apart. The Jews in Europe 1789–1939.* Oxford: Oxford University Press.

Communication principles for controversies

A historical perspective

Gerd Fritz

1. Introduction

For centuries people have complained about their opponents in controversies who tend to make chaos of rational argumentation by evading arguments, by writing incomprehensibly, by intentionally misunderstanding their opponent, by insulting them, and by committing all kinds of fallacies. Similar lists of complaints were frequently drawn up in the history of controversies, for instance by Leibniz (cf. Leibniz, trans. 2006, p. 5, pp. 205f). These complaints presuppose ideal forms of controversy and the validity of relevant principles that should guide the actions of the participants. They form an important part of what one could call the implicit theory of controversy that people apply in their practice. Most of the time speakers and writers follow these principles as a matter of routine without having to formulate them explicitly. Sometimes, however, occasion arises to make such principles explicit. This is the case when one *teaches* or when one *complains* and *criticizes*. Teachers of argumentation skills have always formulated rules or principles for good argumentation, from Aristotle's "Sophistical Refutations" and the traditional rules of disputation (cf. Jakob Thomasius 1670) to the ten pragma-dialectical rules for critical discussion (cf. van Eemeren, Grootendorst & Snoeck Henkemans 2002, pp. 182f.). It was held that students of disputation should be led from that senseless type of dispute in which everything is confused without order and formal presentation to a more useful kind of reasoning which aims at discovering the truth ("ab insano illo conflictu, qvo sine ordine, sine formali discursu miscentur vulgo ac turbantur omnia … ad magis proficuam veritatis eruendae rationem" (Thomasius 1670, p. 140)). The importance of the participants' critical remarks on ongoing discussions for a theory of dialectics was emphasized by Hamblin in his book on fallacies: " … the development of a theory of charges, objections or points of order is a first essential" (Hamblin 1970, p. 303). It is therefore not surprising that for an historical analysis of communication principles the complaints and accusations concerning dialectical malpractice uttered in the course of historical controversies should form a prime source of data (cf. Fritz 2005).

Before embarking on a survey of such principles I should like to clarify what I mean by *communication principles*. The simplest way to do this is to say communication principles are basically what Grice called *maxims of conversation* (cf. Grice 1989, pp. 26ff.). In saying this, I am not subscribing to the Gricean theory in general, including the cooperative principle etc. As far as the assumption of basic principles is concerned, my sympathies lie with theories like Hintikka's (1986) and Kasher's (1976) who emphasize the foundational role of some kind of rationality principle – which of course was also mentioned by Grice (1989, pp. 29f.). However, I feel that at the present stage of research it may be useful to concentrate on the *empirical* study of communication principles in order to get a more vivid picture of how rationality is put into practice. And maybe this empirical approach will also show that there are principles which are *not* in any simple way related to standard assumptions of rationality, e.g., principles which people inherited from earlier periods without adapting them to new communicative demands.

Taken at a certain level, such principles seem to be fairly simple and universal, like for example the principle of relevance, but as soon as we go into empirical detail we realize that the principles people mention (and follow) are often much more fine-grained and that they form highly complex families which are differentiated according to social groups (e.g., scholars vs. courtiers) and types of text (pamphlets vs. reviews) etc., and which, for good reasons – this is a basic assumption of this paper – are historically variable. If such principles are indeed derived from a general principle of rationality, then what counts as an *application* of this general principle is a rather complicated matter and can be assumed to be subject to historical changes. On the one hand, there are long-lasting traditions of certain principles, e.g., in the Aristotelian tradition of criticizing certain types of fallacies, on the other hand there are obvious changes over time which are linked to social developments, e.g., the development of social groups, the development of a culture of conversation, or the developments of media. A few examples may be in order: In 17th century polite conversation, contradicting an equal was a highly problematic move, which had to be accompanied with face-saving utterances (cf. Shapin 1994, pp. 114ff.). When 17th century scholars became advisers at court, they had to give up their academic bickering. And when the new scientific journals were created by the end of the 17th century, academic discussions had to conform to new principles of text production, which differed from traditional pamphlet writing.

The following observations are based on case studies within the framework of Historical Pragmatics, mainly from the 16th to the 18th century.[1] In this framework, the history of communication principles is part of the study of the

1. cf. Fritz (1995, 2003), Gloning (1999).

conditions of continuity and change in forms of communication. Controversies are a particularly rewarding object of study for Historical Pragmatics, as they show fairly clear basic structures, as there is a large amount of interesting data available, and as many of the writers of polemical texts tended to reflect on their own polemical practice and that of their opponents.

2. Types of communication principles

In order to illustrate the range of principles we are dealing with, I shall now present a selection of principles that are regularly mentioned in early modern controversies. This is an open list and a rather mixed collection, partially ordered, which could be analysed into different groups, e.g., logical principles, dialectical principles, rhetorical principles, hermeneutical principles, principles of text production, linguistic principles, and politeness principles.[2] Of course, these labels only give a vague indication of the type and background of the respective principles, quite apart from the fact that, for example, rhetorical principles shade into dialectical ones (cf. van Eemeren & Houtlosser 2002) and both types of principles determine principles of text production. I shall give the whole list first, then comment on a few of them, and finally deal with two types of principle in more detail. Of course, each one of them would deserve a detailed study, which indeed some of them have received, e.g., principles banning *ad hominem* moves or certain types of arguments from authority (cf. van Eemeren & Grootendorst 1993; Walton 1997, and others).

1. Statements should be truthful.
2. Claims should be given adequate backing.
   (One should not make *nudae assertiones*, "naked assertions".)
3. The critic carries the burden of proof (*principle of onus probandi*).
4. Claims should be refuted completely point by point (*principles of completeness and thoroughness*).
5. One should state the main question (the *status controversiae*) clearly and correctly.
6. One should relate one's arguments to the main question.
7. One should avoid irrelevant topics.
8. One should avoid unnecessary repetition of arguments.

---

2. Lists of communication principles for 18th and 19th century controversies in Germany can be found in Goldenbaum (2004, pp. 111f.) and Dieckmann (2005, pp. 118ff.).

9. One should be brief (*the principle of brevity, amabilis brevitas*).
10. One should write clearly and comprehensibly (*the principle of perspicuity*).
11. One should not use meaningless jargon (e.g., scholastic terminology).
12. One should avoid formal fallacies (e.g., *a particulari ad universale*).
13. If considered necessary, one should set out the arguments "in form" (i.e., in the explicit form of a syllogism).
14. One should not rely (exclusively) on arguments from authority.
15. One should avoid personal attacks (against *ad hominem* moves, *personalia non tractare*)
16. One should not (or: one may) retort in kind (*retorsio*).
17. One should give a reasonable interpretation to the utterances of the opponent (*principle of charity*).
18. One should take the perspective of the other party (*la place d'autruy*, cf. Leibniz, "Art of Controversies", pp. 164f.).
19. One should not make fun of the opponent, and take his arguments seriously (*principle of seriousness*).
20. One should not use rhetorical devices like irony or sarcasm.
21. One should be polite towards the opponent (*politeness principles*).
22. One should approach the opponent in a spirit of Christian meekness (cf. Matthew 5, 5).
23. One should apply an attitude of moderation (cf. Leibniz, "Art of controversies", p. 404).
24. One should be tolerant towards one's opponents.

A first group of principles, which includes, amongst others, the backing of assertions, the burden of proof, the point-by-point principle, the principles concerning fallacies, and various relevance principles, belongs to the hard core of principles taught within the tradition of academic disputation, which were part of the curriculum in all European universities during the Early Modern age. As can be seen from the form of traditional pamphlets and from frequent remarks of their authors, these principles were transferred also into controversies outside university life. So they form the backbone of the common-sense theory of controversy. A good example is the principle requiring the correct statement of the question under debate (*formare statum controversiae*), which is the duty of both participants in a disputation at the beginning of each round. This principle explains why participants often complain that the opponent has not properly or correctly stated the main question. The burden-of-proof principle can be traced back to both the disputation rules and to basic rules of legal procedure. As it lowered the requirements of proof for the proponent (the *respondens*), it could be exploited strategically to uphold a thesis not by proving it, but by only refuting

the objections of the opponent (cf. Leibniz trans. 2006, pp. 419f.). One could also decline to prove a thesis considered to be generally accepted by claiming that in defending this thesis one had the role of respondent. This move was made as late as 1778 by Melchior Goeze in his famous controversy with Lessing (Goeze 1893, p. 170). The example shows that this principle tends to favour traditional standpoints as opposed to new standpoints. In view of the strategic importance of the burden of proof, it is not surprising that trying to shift the burden of proof was a frequent type of move in traditional controversies. Another principle that is often mentioned in early modern controversies is the point-by-point principle, according to which you had to answer every single argument given by your opponent. This principle determines the characteristic form of pamphlets in the 16th to 18th centuries. I shall have more to say about this principle in paragraph 4.

Among the principles directed against the committing of fallacies, the one forbidding arguments from authority is of particular historical interest. In the well-known disputes between the "ancients" and the "moderns" throughout the 17th century, denouncing the reliance on classical authorities like Aristotle for physics, Pliny for natural history, and Galenus for medicine was a frequent move on the side of the "modernists". However, interestingly enough, the modernists themselves also frequently referred to expert opinion, but naturally they preferred modern authorities, whom they explicitly introduced using epitheta like "the famous X" and similar laudatory expressions. In his polemic against traditional medicine, Janus Abrahamus à Gehema introduced the "unwavering reformer Bontekoe" (Gehema 1688, p. 4, my trans.) and referred to "the excellent Englishmen Boyle, Entius and Charlton" of which the last (Charlton) had provided "wonderful proofs" (Gehema 1688, p. 9, my trans.).

A number of principles could be subsumed under the heading of efficiency principles, e.g., the principle of brevity, the principle of non-repetition, various principles of relevance, and principles of comprehensibility and perspicuity. Many of these were traditional rhetorical principles, of which some, however, had a particular historical flavour, e.g., the principle of comprehensibility presupposed in anti-traditionalist accusations against Aristotelian school philosophers by authors like Hobbes, Locke and many others. In his controversy with Bishop Bramhall, Hobbes frequently accused his opponent of incomprehensible jargon:

> This term of *insufficient* cause, which also the Schools call *deficient*, that they may rhyme to *efficient*, is not intelligible, but a word devised like *hocus pocus*, to juggle a difficulty out of sight. [...] I can make no answer; because I understand no more what he means by sufficiency in a divided sense, and sufficiency in a compounded sense, than if he had said sufficiency in a divided nonsense, and sufficiency in a compounded nonsense. (Hobbes 1656/1841, p. 384)

This is one of Hobbes's favourite ploys, and Bramhall was thoroughly annoyed with him for using it. In a similar vein, Locke wrote in his *Essay*: "(The schoolmen) procure to themselves the admiration of others, by unintelligible Terms" (Locke 1689/1975, p. 494).[3]

Another group of principles concerns the relationship between the two antagonists. These are partly politeness principles forbidding face-threatening acts, partly principles advocating a serious and charitable attitude towards the opponent and his standpoint. Of these, the principle of taking the perspective of the other, which was discussed by Leibniz, is particularly interesting. I shall make a few remarks on this principle in the following paragraph. A noteworthy anti-rhetorical principle is the one banning irony and sarcasm. This principle marks a boundary between dialectics and rhetoric, where scientific discourse was not supposed to trespass. Retorsion (*retorsio*), e.g., answering an insult with an insult, was legally permitted (*ius talionis*), but it stood in conflict with Christian ethics. A Christian should not reply in kind and answer an insult with an insult. He should, on the contrary, "turn to (his opponent) the other cheek also" (Matthew 5: 39). In this respect, early modern theologians did often not behave like Christians at all. But sometimes they had a good excuse not to do so: In dealing with heretics one was allowed to use sharp weapons. A last principle to be mentioned here is the principle of tolerance, which becomes increasingly important from the late 17th century onwards (Locke, Leibniz) and which is frequently mentioned in later 18th century controversies as a characteristic Enlightenment principle (cf. also the discussion of tolerance and moderation in Leibniz, trans. 2006, pp. 400ff.).

3. Properties of communication principles and their contexts of application

To understand the role of communication principles in the history of forms of communication, one has to take into account some of their properties and contexts of application:

i. A first fact is that *principles are* just as often *violated* as they are followed and mentioned. The same person will claim that one should not insult one's opponent and start insulting him in the worst fashion a few pages later. This has to do with the pragmatic structure of controversies, including different

3. Similar examples from Galileo and other philosophers and scientists are mentioned in Biagioli (1993, pp. 211f.).

aims of the opponents, different styles of argumentation, the presence of an audience etc.

ii. A second point is that we often find a *conflict of principles*. It is, for example, often impossible to give a complete survey of a problem and to be brief at the same time. In such cases, the principles of completeness and of brevity are in conflict. So speakers have to balance the advantages and disadvantages of following one principle or the other, and they have to find some kind of compromise. In some cases both a principle and its counter-principle are invoked, as in the case of retorsion.

iii. The third point is that *certain principles hold for some types of communication or text types and not for others*. Seriousness, for example, is strictly demanded in some parts of a controversy and less so in others. As Nicholas Jardine remarked in his book on the controversy of the astronomer Kepler with Ursus: "Whereas in a *refutatio* aggressive irony, *ad hominem* appeals, and even jocular facetiousness are quite proper, the tone of a *confirmatio* (i.e., a statement of one's own position, e.g., Kepler's *Apologia pro Tychone*, G.F.) is supposed to be modest, confident and fully serious" (Jardine 1984, 78). Another example, also from the astronomer Kepler, shows that some principles were only considered valid for certain domains of discourse and not for others. When, in the years 1609 and 1610, Kepler conducted a controversy about astrology with an old acquaintance (Helisaeus Röslin), the latter insisted that Kepler should be more polite and friendly. Kepler, however, replied that in *scientific* discourse – as opposed to *political* discourse – politeness and friendliness had to come second to clarity (cf. Kepler 1610, 111, 21ff.). A similar claim was made some 150 years later by the German author Lessing in his controversy with Klotz (cf. Dieckmann 2005, 222). This distinction is closely related to the contrast of quarrelsome scholar vs. civil gentleman, which was a stereotype in the discourse about politeness in the second half of the 17th century.

iv. The application of principles is to a certain extent *negotiable*. This can be shown for politeness principles or the friendliness principle mentioned in (iii). In some cases, what is at stake here is the question what counts as an application of a certain principle.

v. To understand the status of certain principles, one has to know their *context of justification*. Some politeness principles can be justified on the basis of Christian ethics (e.g., the principle of meekness), others on the rules of courtly conduct. Very often, of course, there is a convergence of Christian and courtly principles. In some cases principles seem to be rooted (and justifiable) either in the context of argumentative *strategy* or in the context of an *ethics* of controversy – or both. A case in point is the principle that one should take the perspective of the other, *la place d'autruy*, as Marcelo Dascal showed for Leibniz

(Dascal 1995). Leibniz considered following this principle both strategically useful and morally advisable. These contexts of justification can also change over time, as in the case of politeness principles.

vi. To understand the status of communication principles one also has to know the *consequences of their application*. I shall exemplify this point in paragraph 4 by showing some of the consequences of the point-by-point principle.

vii. In some cases groups of communication principles form a whole system, an historical ethics of communication or an ideal of conversational conduct, which forms part of a general system of values like Christian ethics, the ideal of courtier or gentleman, or Enlightenment values.

viii. My final point is a consequence of the others: Communicative principles and their ranges and modes of application are *historically variable*. A simple example is the principle of brevity, which is often mentioned but rarely applied in 17th century pamphlets, which tend to be notoriously long. This principle gained a much higher degree of practical relevance when controversies started to be conducted in journals that provided less space to the opponents and were therefore *forced* to be brief. This generated new genres of text like short critical notices and reviews. Principles of politeness also form a highly interesting case in point, to which I shall return in paragraph 5.

4. The principle of point-by-point refutation

To demonstrate the consequences of the application of a certain principle, I shall now turn to the principle of point-to-point refutation, a principle that plays a major role in many controversies from the 16th to the 18th century. This principle determines to a large extent the textual structure of traditional pamphlets and it also contributes to the dialogical coherence between successive contributions in a controversy. As mentioned before, it derives from the rules of disputation, which were taught in all the universities in Europe during the early modern age. And from there it was taken over into the practice of controversies outside the university. In its strict version the principle requires that a participant in a controversy should answer (i) all the points raised by his opponent, and (ii) only those points raised by his opponent, and (iii) answer them in the given order.

This principle has a number of interesting properties and consequences. Point-by-point refutation is both a logical strategy and a strategy of topic management. From the point of view of logic it is a safety strategy. If one wants to make sure that all the opponent's theses have been refuted, one has to refute each one individually. (Of course, there are also master arguments, with which one can refute whole sets of theses, and in some cases the refutation of each individual

argument does not do justice to the weight of the whole structure of arguments.) From the point of view of topic management, the principle is meant to avoid topical chaos, as 17th century authors writing on the rules of disputation explicitly stated. Point-by-point follows quite naturally from the principles of relevance and completeness, and it therefore corresponds to a sound strategy of everyday conversation. If a speaker wants to be cooperative, he will deal with all the relevant aspects of a topic that his partner introduced. And one of the possible sequencing strategies in this situation is to actually follow the order in which the other person introduced certain aspects of the topic in hand. So this principle seems to be quite well founded and natural. However, in controversies based on this model, the strategy governed by this principle had both advantages and disadvantages for the players. An advantage of this model consisted in the fact that the principle clearly indicated what was expected of the refuting party and thus provided a standard of quality. Lack of completeness and lack of orderliness could both be used as criteria for criticizing the quality of the opponent's contribution. The principle could even be used as a kind of decision procedure: If the opponent failed to refute the claims of the proponent point by point, he could be declared the loser of the contest.

But there are also grave *dis*advantages. Once an author had introduced a number of points in a certain order, this determined the structure of the controversy for his opponent and, later on, for himself, which could have far-reaching consequences. Commitment to the principle of completeness forced an author to deal with points that he really considered irrelevant. For example, in the last few pages of a pamphlet directed against two Jesuits in 1586, the Protestant theologian Osiander stated that a number of points raised by his opponents were totally irrelevant, but that he would answer them nevertheless, so that his opponents could not say he had not read them or had not been able to refute them (Osiander 1586, p. 95). Therefore, commitment to this principle had an inflationary effect and often led to the production of very long and boring pamphlets. Furthermore, contemporaries remarked on the fact that having to treat all this rubbish made a writer frustrated and aggressive.

Secondly, in those cases where the original order of points was not convenient for the opponent he would have to give extra arguments why he wanted to change the given order, and he would still be suspected of dodging the issue.

Thirdly, if an opponent wanted to introduce extra information or new claims, he had to arrange them within the existing framework of topics, which was often rather awkward and led to badly structured texts. So the principle favoured a conservative treatment of topics. One can often notice the authors struggling with this principle by explicitly announcing digressions and by introducing additional statements of their own position on top of the point-by-point refutation. Examples of these textual strategies could be supplied from various authors, e.g., from Kepler or Hobbes.

Finally, it was very difficult for the readers to get the drift of the argument if they did not actually have the original text available at which the refutation was aimed. So the authors had to present the opponent's position before they could start their refutation, which was, of course, also a requirement of disputation rules. This was often not attractive for the writer of a refutation, and it made classical pamphlets rather difficult reading.

So, generally speaking, the disadvantages of the point-by-point procedure, rigidly applied, seem to outweigh the advantages. This example shows how a basically sound principle may be self-defeating in the long run if it is applied too restrictively.

One way out for a writer was to use a different genre of text altogether, where he could free himself of the requirements of the point-by-point procedure, e.g., in an open letter where he could address exactly those points which he considered relevant for his cause (e.g., Francke 1706; cf. Fritz & Glüer 2001). This is also – at least partly – true of the shorter forms of critical text that became characteristic of the new journals by the end of the 17th century.

Still, pamphlets of the traditional type continued to be written by the end of the 18th century, although they must have looked somewhat old-fashioned to the contemporaries (cf. the lengthy works of the theologian Semler, e.g., Semler 1772), and the principle was also still mentioned as a standard of quality for academic polemics during this period. Up to the present day we find examples and traces of the traditional point-by-point procedure in academic writings, even in new media like internet discussion groups, where authors can be found complaining that their respective opponent in a controversy did not take up all the important arguments in their favour.

5. Politeness principles

The second kind of principle I want to discuss in some more detail is principles of politeness. Now the history of politeness in the Early Modern Age is a large topic in its own right, and I cannot go into it here in any detail. For a general outline of relevant developments in this period cf. Beetz (1990, 1999), and Gierl (1997). Useful information on the relationship between civility and science can be found in Shapin (1994).

In this paragraph I shall restrict myself to presenting a few observations on politeness in 16th and 17th century controversies. In this period, all over Europe, Christian ideals formed an important source of principles forbidding face-threatening acts. In 1586, the Jesuit Rosenbusch accused his opponent Osiander of making fun of his opponents: "This secular and mocking manner

of speech does ill behove a theologian, whoever he may be". (Rosenbusch 1586, p. 6, my trans.). Earlier on in my paper I mentioned the debate between Kepler and his friend Röslin, where Röslin explicitly stated that one should

> defend one's position and refute one's opponent and criticize him not with insults and accusations/[as is nowadays the habit with wrong-headed scholars] but the way it behoves Christians to do, with friendliness and instruction/and I shall be and remain his friend/even though we disagree on various points. (Röslin 1609, C ij b/C iij)

80 years later, we find a similar statement in the medical controversy between Gehema and Geuder (1688/89): "[A participant in a controversy] should treat his fellow-man in a friendly manner/and present his errors to him with proper modesty and meekness. [...] It befits all reasonable people, especially Christians, to practice meekness in all their *conversation* as well as their lives in general" (Geuder 1689, A4, my trans.). And this should apply especially to educated people, as he adds later on. The repeated use of the word *meekness* ("Sanfftmut" in the German text) is of course an allusion to one of the seven Beatitudes which Christ taught in the Sermon on the Mount: "Blessed are the meek, for they shall inherit the earth" (Matthew 5: 5).

What we have here is a family of principles which is definitely accepted in theory. In practice, however, religious principles did not prevent priests and other Christians in the 16th century from hurling most atrocious insults at their opponents. They called one another *calumniators*, *bloodthirsty criminals*, *poisonous spiders* and similar things. Although this kind of behaviour was frequently criticized, as my examples show, it still seemed to be accepted as a fact of life. Generally speaking, in the 16th and early 17th century people seem to have tolerated much more verbal aggression in controversies than we are used to in present-day controversies among academics.

By the middle of the 17th century, questions of polite conduct became an important issue in all European societies (cf. Beetz 1990), so it is not surprising that this question should also arise in the context of scholarly disputes. This new trend of politeness seems to have had two sources. On the one hand, there was the Christian tradition, which we already mentioned and which was partly strengthened, at least in Germany, by new religious movements like the Pietist movement. On the other hand there was a trend towards the cultivation of politeness that was founded on courtly traditions.

One representative of the Pietist movement who showed this heightened awareness of the defects of traditional polemical writing quite strongly was August Hermann Francke. A striking aspect of his controversy theory is his view that pamphlets should primarily serve to edify, from which it follows that the worldly

aggressiveness of traditional pamphlet writing had no place in religious argumentation. This view is expressed quite explicitly in one of his own pamphlets, which formed the end point of a long controversy with an orthodox antagonist, Johann Friedrich Mayer:

> Should anyone believe that I find pleasure in such [i.e., polemical] writings, he errs greatly; for my soul is disgusted by them: since I know and recognise in truth that railing, satirising and suchlike things which entice the worldly sense, whether they happen by mouth or in written form, in no way encourage true edification, which should be the only purpose even in pamphlets, by contrast they impede much good even in an otherwise just thing, equally, among other things, an attitude of derision is aroused and much unchristian gossip and godless ways are notably increased by it. (Francke 1707, p. 378, my trans.)

It is not surprising that in Francke's writings the principle of meekness ("Sanfftmut") is also frequently alluded to.

By 1670, the question of scholarly conduct in controversies became a serious topic in its own right – in some cases a controversial topic – which was intimately connected to questions concerning the status and function of scholarly work in general (cf. Gierl 1997, pp. 543ff.). According to Christian Thomasius and other contemporaries, educated persons should be fit to act in public office and at court. And in these surroundings cavilling and pedantic scholars were not acceptable. This kind of attitude was also present in contemporary books of manners in France, Germany and England (cf. Hunold 1716, pp. 50ff.; Shapin 1994, pp. 114ff.). Another factor discouraging traditional forms of controversy may have been the trend towards eclecticism as an epistemological attitude. Against this background, traditional procedures of disputation were now increasingly denounced as mere word battles ("logomachia") and sectarian bickering, and many authors developed a negative attitude towards this type of scholarly exchange and the aggressiveness that they considered inherent in this type of controversy. In the course of the 18th century, awareness of the inherent problems of the traditional point-by-point principle and the new discussion of politeness principles seem to have conspired to weaken the position of the disputation pattern as a scholarly form of communication and the pamphlet as its prototypical textual form. So we have here an example of a remarkable change in forms of communication that is closely linked to changes in communication principles.

6. Conclusion

To sum up the results of this study: Communication principles guide the *practice* of controversies, but they also form an important part of historical *theories*

of controversy, both of the generally accepted common-sense theories and of the systematic and sophisticated theories of authors like Jakob Thomasius or Leibniz. In the early modern period, with which I dealt in this paper, communication principles are generally described as guiding rules for an orderly, efficient and socially acceptable conduct of controversies. In some cases they can be shown to be part of a general ethics of communication or, as in the case of Leibniz, part of an author's epistemology (cf. Dascal 2006). Empirical research shows communication principles to be often quite fine-grained, context-specific, and themselves controversial, aspects that are sometimes overlooked in philosophical discussions of this topic. There are basically four types of data for an empirical analysis, (i) the actual practice of the opponents in controversies, which may indicate the adherence to certain principles, (ii) complaints and reactions to complaints which implicitly presuppose acceptance of certain principles and which are made in the course of controversies, (iii) explicit mentions and discussions of principles in the context of ongoing controversies, and (iv) general reflections on certain principles outside the context of particular controversies. By looking at their context of application and justification, one obtains a more detailed picture of the way communication principles are embedded in an historical form of life, e.g., the life of early modern scientists or theologians, and this also contributes to our understanding of the way in which they can be seen as applications of a general principle of rationality. Looking at these principles from an evolutionary perspective we find both remarkable continuity, like in the case of the long-lasting Christian or Aristotelian traditions, and striking changes of various types. One type of change consists in a process whereby certain principles become increasingly relevant, like for instance the principle of tolerance, the principle restricting the use of arguments from authority, or certain politeness principles – all in the course of the 17th century. In another type of change, certain principles may lose some of their bindingness, which seems to be the case with the point-by-point-principle in the course of the 18th century. In some cases it is the mode of application of a principle that seems to change, i.e., what *counts* as thoroughness or politeness. Then again, during a certain period, there may be debates concerning the scope and validity of given principles, e.g., politeness in scientific discourse. And finally, the acceptance of certain principles may spread from one community to the other, e.g., from the courtly community to the community of scholars. Historical changes in the acceptance and application of communication principles for controversies are often related to more general changes in the use of media and text-types, to changes in the ethics of communication, or to changes in other aspects of the forms of life with which they may be associated. To produce reliable results, the kind of analysis of which I gave some examples in my paper requires detailed study of a large corpus of historical texts covering different fields of controversy and especially longitudinal studies tracing

developments in the communication form of controversy. So, although there has been a considerable amount of relevant research in the last 20 years, there is still a lot of work to do for the Historical Pragmatics of controversies.

References

Biagioli, M. (1993). *Galileo courtier. The practice of science in the culture of absolutism*. Chicago: University of Chicago Press.

Beetz, M. (1990). *Frühmoderne Höflichkeit. Komplimentierkunst und Gesellschaftsrituale im altdeutschen Sprachraum*. Stuttgart: Metzler.

Beetz, M. (1999). The polite answer in pre-modern German conversation culture. In A.H. Jucker, G. Fritz & F. Lebsanft (Eds), *Historical dialogue analysis* (pp. 111–166). Amsterdam: John Benjamins.

Dascal, M. (1995). Strategies of dispute and ethics: *Du tort* and *La place d'autruy*. In *Akten des VI. Internationalen Leibniz-Kongresses*, vol. 2 (pp. 108–116). Hannover: Gottfried-Wilhelm-Leibniz-Gesellschaft.

Dascal, M. (2006). Introductory essay. In G.W. Leibniz, *The Art of controversies* (Marcelo Dascal with Quintin Racionero and Adelino Cardoso, Trans. & Ed., with an introductory essay and notes) (pp. xix–lxxii). Dordrecht: Springer.

Dieckmann, W. (2005). *Streiten über das Streiten. Normative Grundlagen polemischer Metakommunikation*. Tübingen: Niemeyer.

Eemeren, F.H. van, & Grootendorst, R. (1993). The history of the *argumentum ad hominem* since the seventeenth century. In E.C.W. Krabbe, R.J. Dalitz & P.A. Smit (Eds), *Empirical Logic and Public Debate. Essays in Honour of Else M. Barth* (pp. 49–68, Ch. 4). Amsterdam: Rodopi.

Eemeren, F.H. van, Grootendorst, R. & Snoeck Henkemans, A.F. (2002). *Argumentation: Analysis. Evaluation. Presentation*. Mahwah, NJ: Lawrence Erlbaum.

Eemeren, F.H. van, & Houtlosser, P. (Eds) (2002). *Dialectic and rhetoric. The warp and woof of argumentation analysis*. Dordrecht: Kluwer.

Francke, A.W. (1981). Aufrichtige und gründliche Beantwortung Eines an ihn abgelassenen und hiebey abgedruckten Send-Schreibens [...]. In E. Peschke (Ed.), *A.W. Francke: Schriften und Predigten. Bd. I: Streitschriften* (pp. 231–263). Berlin: de Gruyter. (Original work published 1706, Halle: Gedruckt im Waysenhause)

Francke, A.W. (1981). Gründliche und Gewissenhaffte Verantwortung gegen Hn. D. Johann Friedrich Mayers [...] harte und unwahrhaffte Beschuldigungen [...]. In E. Peschke (Ed.), *A.W. Francke: Schriften und Predigten. Bd. I: Streitschriften* (pp. 265–381). Berlin: de Gruyter. (Original work published 1707)

Fritz, G. (1995). Topics in the history of dialogue forms. In A.H. Jucker (Ed.), *Historical Pragmatics* (pp. 469–498). Amsterdam: John Benjamins.

Fritz, G. (2001). Remarks on the pragmatic form of the Hobbes-Bramhall controversy. In M. Dascal, G. Fritz, Th. Gloning & Y. Senderowicz (Eds), *Controversies in the République des Lettres. Technical Report 1 : The Hobbes-Bramhall Controversy* (pp. 5–24). Tel Aviv: Tel Aviv University.

Fritz, G. (2003). Dialogical structures in 17th century controversies. In M. Bondi & S. Stati (Eds), *Dialogue Analysis 2000* (pp. 199–208). Tübingen: Niemeyer.

Fritz, G. (2005). On answering accusations in controversies. *Studies in Communication Sciences. Special Issue: Argumentation in Dialogic Interaction*, 151–162.

Fritz, G. & Glüer, J. (2001). The pamphlet and its alternatives c. 1700: A historical-pragmatic study of the final phase of the controversy between Johann Friedrich Mayer and August Hermann Francke (1706/1707). In M. Dascal, G. Fritz, Th. Gloning & Y. Senderowicz (Eds), *Controversies in the République des Lettres. Technical Report 4: Theological Controversies* (pp. 42–79). Gießen: Gießen University.

Gehema, J.A. à. (1980). *Grausame Medicinische Mord=Mittel/Aderlasse* [...]. Lindau: Antiqua-Verlag. (Original work published 1688, Brehmen)

Geuder, M.F. (1980). *Heilsame Medicinische Lebens=Mittel/Denen grausamen Medicinischen Mord=Mitteln* [...] *Entgegen gesetzt* [...].Lindau: Antiqua-Verlag.(Original work published 1689; Ulm: Georg Wilhelm Kühn)

Gierl, M. (1997). *Pietismus und Aufklärung. Theologische Polemik und die Kommunikationsreform der Wissenschaft am Ende des 17. Jahrhunderts*. Göttingen: Vandenhoeck & Rupprecht.

Gloning, Th. (1999). The pragmatic form of religious controversies around 1600. A case study in the Osiander vs. Scherer & Rosenbusch controversy. In A.H. Jucker, G. Fritz & F. Lebsanft (Eds), *Historical dialogue analysis* (pp. 81–110). Amsterdam: John Benjamins.

Goeze, J.M. (1893). Etwas Vorläufiges gegen des Herrn Hofraths Leßings mittelbare und unmittelbare feindselige Angriffe [...]. In E. Schmidt (Ed.), *Goezes Streitschriften gegen Lessing* (pp. 1–72). Stuttgart: Göschen. (Original work published 1778)

Goldenbaum, U. (2004). Die öffentliche Debatte in der deutschen Aufklärung 1697–1796. In U. Goldenbaum (Ed.), *Appell an das Publikum. Die öffentliche Debatte in der deutschen Aufklärung 1697–1796* (pp. 1–118). Berlin: Akademie Verlag.

Grice, H.P. (1989). *Studies in the way of words*. Cambridge, MA: Harvard University Press.

Hamblin, C.L. (1970). *Fallacies*. London: Methuen.

Hobbes, Th. (1962). The questions concerning liberty, necessity, and chance, clearly stated and debated between Dr. Bramhall, Bishop of Derry, and Thomas Hobbes of Malmesbury. London. In Sir William Molesworth (Ed.), *The English works of Thomas Hobbes of Malmesbury*, Vol. V (pp. 1–455). Aalen, Germany: Scientia Verlag. (Original work published 1656/1841; London)

Hunold, C.F. (1716). *Die Beste Manier in Honnêter Conversation* [...] verfertiget von Menantes. Hamburg: Fickweiler.

Hintikka, J. (1986). Logic of conversation as a logic of dialogue. In R.E. Grandy & R. Warner (Eds), *Philosophical grounds of rationality* (pp. 259–276). Oxford: Clarendon Press.

Jardine, N. (1984). *The birth of history and philosophy of science. Kepler's A defense of Tycho against Ursus. With essays on its provenance and significance*. Cambridge: Cambridge University Press.

Kasher, A. (1976). Conversational maxims and rationality. In A. Kasher (Ed.), *Language in focus: Foundations, methods and systems* (pp. 197–216). Dordrecht: Reidel.

Kepler, J. (1941). Tertivs interveniens. Das ist/Warnung an etliche Theologos, Medicos vnd Philosophos [...]. In M. Caspar & F. Hammer (Eds), *Kepler, J.: Gesammelte Werke*, Band 4 (pp. 147–258). München: Beck. (Original work published 1610; Frankfurt a. M.: G. Tampach)

Leibniz, G.W. (2006). *The Art of controversies* (M. Dascal with Q. Racionero & A. Cardoso, Trans. and Ed., with an introductory essay and notes). Dordrecht: Springer.

Locke, J. (1975). An essay concerning human understanding. In P.H. Nidditch (Ed.), *John Locke. An essay concerning human understanding*. Oxford: Clarendon Press. (Original work published 1689; London: Awnsham & Churchil)

Osiander, L. (1586). *Verantwortung/Wider die zwo Gifftspinnen/Georgen Scherern/vnd Christophorum Rosenbusch* [...]. Tübingen: Gruppenbach.

Röslin, H. (1609). *Historischer/Politischer vnd Astronomischer naturlicher Discurs von heutiger zeit Beschaffenheit* [...] Straßburg: Conrad Scher & Paul Ledertz.

Rosenbusch, Ch. (1586). *Antwort vnd Ehrerrettung auff die Ehrnrürig im Rechten vnnd Römischen Reich verbottne Schmachschrifft Lucae Osiandri* [...] Ingolstadt: Sartorius.

Semler, J.S. (1772). *Abhandlung von freier Untersuchung des Canon. Zweiter Theil. Nebst Beantwortung einiger Recensionen des ersten Theils.* Halle: Hemmerde.

Shapin, St. (1994). *A social history of truth. Civility and science in seventeenth-century England.* Chicago: University of Chicago Press.

Thomasius, Jakob (1670). *Erotemata Logica pro incipientibus. Acceßit pro adultis Processus disputandi.* Lipsiae: Frommanni.

Walton, D. (1997). *Appeal to expert opinion. Arguments from authority.* University Park, PA: Pennsylvania State University Press.

On the role of pragmatics, rhetoric and dialectic in scientific controversies

Ademar Ferreira

1. Introduction

Scientists use natural language with a formal orientation to report the results of their scientific work. This formalism may include logic and mathematics. Even when this is the case, however, extensive use is made of natural language. Other than in communicating their findings, language is used by scientists in the building of science. In other words, language is *constitutive* of science, as it is of all other social human activities. In this paper I study aspects of the use of language in the actual production of science. Specifically, I have in mind that activity by scientists that consists of informal discussions with colleagues, as might start in coffee breaks, or as happens in more regular meetings. These discussions, sometimes contentious, are often responsible for new ideas, which can solve scientific problems.

As Laudan rightly asserts, the fundamental aim of science is the solution of problems, and scientific theories may be considered usually as "attempts to solve specific empirical problems about the natural world" (Laudan 1977, p. 11). Epistemology, dealing with questions concerning knowledge, tries to explain how such solutions and theories are created and critically evaluated, thus accounting for the growth of knowledge.

Up to the first half of last century, the scientific endeavors and the resulting theories have been considered as epistemically certain and undisputable. Yet, in practice, the activity of scientists has always been immersed in controversies. Reflecting this contradiction, epistemology in the last decades has been troubled by a dichotomy: either to consider science from a normative viewpoint or from a descriptive one.

Recently, I had the opportunity to elaborate a model of the practice of science for epistemic use (Ferreira 2005), which aims at solving the impasse of this dichotomy in favor of an intermediate acceptable position. In this paper I will deal with some language aspects of that model, wherever it applies to polemic discussions that so often happen in the practice of science. In what follows I will present an outline of the model, to subsequently briefly discuss the incidence of rhetoric, dialectic and pragmatics in relation to the epistemological features of the model.

Then I will revisit a related case of controversy in the practice of science, pointing to instances of dialogical language uses as pertaining to those disciplines, and elaborating on the link between the example and the theory.

2. The model

The production of scientific theories is described by this model as a unified and interactive process of *generation* (discovery, invention) and *justification*. The implicit feedback mechanism between justification and discovery consists in advancing or justifying a hypothesis from the evidence of data or from established results, a process called generative justification (Nickles 1985). More explicitly: starting with a problem, a scientist tries to find a solution to it by using heuristics, in order to reduce the search space of data and previous knowledge. The assessment of the hypothesis' plausibility, or some assurance of its correctness, comes from the context of justification, for it grants the hypothesis generative support by reducing its conjectural status. Let us remark that this is quite different from justifying a claim indirectly by testable consequences, as in Popper's model, where discovery is considered only a psychological process, devoid of epistemic value. It is appropriate to stress that the model here presented is a unified model of scientific problem solving and theory production, and that it recovers an epistemic role for the discovery/generation context.

In the derivation of the above model, use is made of the consideration for the need for efficiency of research activities, which imposes a connection between generation and justification. This allowance for efficiency of means to ends adds to the epistemic *rationality* of the process, contributing to enlarge the amplitude of this concept. The remarkable consequence of this feature, however, is that it connects the epistemic appraisal of science to the work of practical scientists. This amounts to saying that rationality becomes agent-dependent (Laudan 1996, p. 128): When deciding on how to use experimental evidence to better support a hypothesis, or, on employing less rigorous heuristic procedures, the strategies of different researchers will usually vary. Different individual background assumptions and cognitive aims may bring what should be a "rational discussion" down to (or up to!) a controversy. This points to the controversial character of science in practice, as corroborated by its history, but generally not acknowledged at all.

Regarding our modeling task, this characteristic of science indicates that the above model is not yet fully equipped to represent the activity of real scientists. However, it suggests that, in order to represent science properly, the model should incorporate that controversial aspect! And that is what I have proposed: to embed the concept of controversy in the model.

In proceeding to this intent, use is made of the concept of controversy, as formulated by Marcelo Dascal (1995, 2003, p. 280). Very briefly, controversies are a type of dialogical polemical exchange between at least two persons, who confront each other in oral or written debates. In the case of scientists, the unpredictable reactions of the opponents, as characteristic of these polemics, and the protagonist's responses, guarantee the necessary criticism for assuring the rationality of the process of searching for solutions to scientific problems and thereby for developing theories. In Ferreira 2005, I have argued that (1) The incorporation of the concept of *controversy* gives my previous model the ability to account for the activity of scientists in a way closer to reality than the other available models (of Popperian or Kuhnian extraction), and (2) Scientific controversies form a privileged, if not the most appropriate, argumentative environment, that renders possible the invention and justification of new scientific theories. The acceptance of these claims can be verified by anticipating, or rather observing, the process of development of scientific controversies in practice, and identifying the moves from discovery/generation to justification, and vice-versa. The model, in brief, recovers an epistemic role for discovery and it allows analyzing science closer to the reality of the work of scientists than other available models – descriptively as well as normatively. As all models, however, it may not represent well all epistemic aspects of the activity of scientists.

3. The pragmatic, rhetorical and dialectical uses of natural language in the practice of science

The practice of science is actually organized to be controversial, considering its procedures of daily discussions with colleagues, scientific conferences, the refereeing of papers, proposals for research funding, public debates, etc. In all these activities, the use of natural language is ubiquitous. The role played by language in our model, however, is very different from the one in the positivists' and neo-positivists' models. In the latter, language is used to examine logically, in the form of statements or propositions, the ideas coming from the context of discovery, and to passively register the accumulation of scientifically justified results, as Meyer (1980) argues. This author correctly maintains that scientificity cannot be disclosed by the language used in science in the form of scientific statements. In the proposed model, on the other hand, language has a very important active role, being constitutive of the whole process of the practice of science as a controversy-based activity carried out by scientists. This scientific endeavor, similarly to artistic creation, demands human cognitive capacity at its maximum, where language plays the roles of "environment, resource and tool of cognition" (Dascal 2004, p. 44), in intimate interaction with thought.

Accounting for the paramount importance of language in scientific controversies, the toolbox to use for its analysis should contain several disciplines belonging to language studies, and mostly, pragmatics, rhetoric and dialectic, considering that controversies are instances of language use – in the specific case here considered, of spoken language use.

The importance of dialectic and rhetoric to describe and promote dialogical understanding and interpretation in the context of science was first recognized and theorized by Aristotle. Only recently, however, have these arts been considered as possible cognitive tools useful for obtaining and criticizing the solutions to scientific problems. According to Dascal (1995), pragmatics, introduced by and after Grice (1989) for elucidating aspects of the communicative function of language, is the appropriate instrument to study controversies.

Popper (1979, p. 74), on discussing human knowledge, has called the physical world 'world 1', the world of our consciousness, 'world 2', and the world of theoretical or logical contents, 'world 3'. For him, science can only exist in world 3. While rhetoric, dialectic and pragmatics are certainly not applicable to the study of propositional established science of world 3, instead, they are fundamental in the study of the epistemic scaffold of science in-the-making by real scientists in world 2. This will be illustrated and further explored when presenting a case of scientific controversy bellow.

4. An example of scientific controversy

To illustrate the use of language in controversies, I will employ an example of a real scientific controversy, described in Ferreira 2005, reconstructed through interviews with the participants. They are researchers whom I know,[1] and who allowed me to report and comment on their accounts of a polemical discussion experienced by them.[1] To facilitate the exposition, I will call them *A*, *B* and *C*, without regard to the order of the names in my note. I interviewed them separately, and at different times, because of logistic conditions. At the time of the interviews they were not informed of the technical concept of controversy, and as far as I know, they did not know it then.

The thematic subject of this controversy belongs to systems theory, a part of applied mathematics and engineering. This might be considered surprising,

1. One is my colleague, Paulo Sérgio Pereira da Silva, from the University of São Paulo. The other two are Emmanuel Delaleau, from École Nationale d'Ingénieurs de Brest, and Michel Fliess, from École Polytechnique, in Paris. I am grateful to them for the interviews.

because it shows that controversies can happen even within the mathematical sciences. In spite of the mathematics, however, the case will be described here without any formulas or equations. The understanding of few technical terms used is not essential for the comprehension of the problem at issue. A more complete analysis of the controversy, including some mathematical expressions, will be made available on another occasion.

The controversy deals with the notion of 'decoupling' between an input and the output for implicit and generalized systems. These are special types of dynamic systems in which the state equations depend on the input derivatives. The polemic started when analyzing a simple example of such systems, classified previously by one of the researchers, *A*, as decoupled, by using the standard definition of decoupling. However, as it was verified right at the beginning, this categorization was, inadvertently, incorrect. In fact, *A* had noticed that a disturbance input is eliminated from the derivative of the output, meaning that the time variation of the output is independent of the input disturbance, which then does not influence the output. However, he had not paid attention to the fact that the initial condition of the output is influenced by the initial condition of the disturbance – which is incompatible with the standard notion of decoupling. In spite of this fact, another participant, *B*, the originator of the controversy, was willing to accept the decoupling condition of the system, contrary to the usual notion of decoupling. The third researcher, *C*, expressed the opinion that the positions of *A* and *B* were wrong, and believed that the system of the example should be considered as not decoupled, based on the usual definition. In short, as a result, at the beginning of the controversy, *A* is not convinced the system should be considered not decoupled, while *B*, based more on intuitive considerations, defends the decoupling thesis, and *C*, the opposite view, that is, that the perturbation influences the output.

I proceed now to describing some of the polemical moves of the controversy, as recovered from the recording of the interviews, and concomitantly, to analyzing aspects of the corresponding language that might have been used in the real controversy. This is, of course, a virtual language, that might be mentally reconstructed by extrapolating from the recorded material, plus adding experience from other scientific debates I have eventually attended to, or participated in, as a researcher. However, the fact that we do not have a recording of the actual utterances that were exchanged limits drastically the possibilities of analysis. It is, however, the closest to the real situation that I was able to resort to.

In the beginning of the polemics, participant *B* had much trouble in convincing the other two of the scientific interest of the problem under debate. In fact, the confrontation started as a dispute, where opinion and emotion largely prevailed over arguments. *B* describes the moves as 'totally irrational'. Each participant complained that he could not understand the point of the others, and

also of being misunderstood by them. The controversy model predicts this initial apparent confusion. The starting part of the controversy pertains to the question of acknowledging what is at stake, with very polemic corresponding moves, as is typical of these practices. The nature and relevance of the problem were disputed. The controversy spreads rapidly favoring the focus on new topics relevant to the initial contention. As a consequence, the scope of the problem is enlarged and finally becomes more clearly delineated. The lack of mutual understanding in the beginning may be due to unshared undisclosed interpretative assumptions, having to do with different backgrounds. Our epistemic model, however, allowing controversial generative-justifying criticism, has the feature of rendering the hypotheses less biased by background beliefs, increasing the possibility of justifying a hypothesis within common grounds. The mechanisms involved, however, are not straightforward.

In fact, from the initial irrational dispute up to a rational appraisal for decision on a hypothesis, a tortuous path through language and thought must be traversed back and forth. Because a logical framework is clearly lacking in such an emotional and tense practical situation, a rhetorical, and not a dialectical, perspective is the appropriate one to model the initial dialogical moves involved.[2] The participants not only try to persuade the opponents, but rather look for means for better persuading, as already in Aristotle's definition of rhetoric (Aristotle, trans. 1952, para. 1.2 [1356^{a}]).[3] In our example of a scientific controversy, subject *B*, on favoring the decoupling hypothesis, as already said, was moved by an intuitive idea: that an influence of the disturbance input on the evolution of the output should be considered as much more important than a mere influence on the initial condition of the output. Instead, *C* was firm on defending the straight application of the standard definition, which ruled out the decoupling condition. *A*, after recognizing his inattention when applying the usual notion of decoupling, was now in doubt which position to choose, but somewhat more inclined to *C*'s position. From persuasion to counter-persuasion to persuasion again,[4] the controversy evolved toward increasing reasonableness of arguments, typifying a framework of *weak* or *soft rationality* (Dascal & Cremaschi 1999). The *pragmatics* of the discourse is of paramount importance for understanding controversies, and mostly at

2. A pure dialectical conception of dialogical confrontation "lacks situational ballast", according to Leff (2002).

3. Here I am considering, however, the 'new dialectic and rhetoric', of contemporary attention. See Leff (2002).

4. This divergence of perspectives that opens the scope of the controversy, and forces debating on the whole theoretical paradigm, was intensively considered in Dascal & Cremaschi (1999).

the stage of evolving rationality. Communicating ones intentions and understanding others' is most relevant to decreasing the polemic content of the interchanges. Pragmatics affords a cognitive gain over the mere expression of the utterances, because it allows understanding the opponent's intentions, otherwise hidden from a semantic interpretation.[5] Using these considerations, one could say, in short, that from the viewpoint of the language used in the argumentative polemics' moves by its participants, two perspectives are devised, a rhetorical one, and a dialectical one, better considered as a hybrid rhetoric-dialectical framework (Leff 2002), and moreover, immersed in a pragmatics contextual perspective. In the following, I will point briefly to some language aspects in the controversy moves, regarding these perspectives, as applicable to the proposed epistemic model.

The sequel of the confrontations, in the example, shows how participant *B*, still with arguments more philosophical than mathematical, and dialectically adopting the point of view of *C*, by accepting *C*'s contention for applying the standard definition of decoupling, concedes, tactically, that the system of the example discussed should be declared as not decoupled from the disturbance. "However – he points to – the consequences of this result would not be so interesting from a theoretical perspective, since then it would be very difficult to find examples of decoupled systems at all". Since at this stage the mutual understanding is better established, the prevailing intention is to rationally persuade the opponents. Appeals to *logos* are present, but also to *order* and *pathos*. One could talk of dialectical techniques, to represent the interplay between logic and rhetoric (Dascal 2004, p. 54). *Style* of reasoning starts to appear, as the controversy tends to a discussion. However, pragmatics is always important in controversies and we should also consider the 'marriage of pragmatics and rhetoric', as attempted in (Dascal 2003, p. 600).

In continuation, after much discussion, *C* and *A*, now willing to accept the decoupling hypothesis (which, in terms of the model, means 'reasoning to the item being justified'), began to agree that it might be interesting to consider a weaker definition of decoupling, as suggested by *B*. In fact, *B* was here using a definition already proposed in *C*'s previous theoretical treatment of the subject, but now not taken into account by him for the particular system of the example. From this moment on, in reality, the participants found themselves contending about which concept of decoupling was significant for the problem discussed. With a weaker definition of decoupling the exemplified system could be, after all, considered decoupled.

5. See Dascal (2003, p. 280) for a comprehensive study.

The evolution of this controversy, from the initial dispute to the final resolution, through the criticism of the confrontation process, led to the disclosure of the interpretative background assumptions underlying the definition of decoupling. The whole process extended along one month, with almost daily meetings. The expectation of the participants as regards the possibility of a solution often changed from optimism to pessimism and vice-versa. On the other hand, once the controversy ended, with its resolution, the time needed to formulate precise mathematical definitions and to elaborate the necessary proofs was much shorter than the controversy duration.

The whole process of epistemic assessment of the practice of science in terms of controversies is not all transparent, however, as can be inferred from the above study. If one thinks of the individual researcher as a member of a research team, it is fair to accept that he would build for himself a controversy-oriented attitude, in order to anticipate the polemical confrontations he might face in his daily practice. To take account of that, I have suggested that scientific controversies unfold in a dual space of inter- or external, and intra- or inner controversies (Ferreira 2005). In other words, scientific controversies comprise a dual dialogical argumentative space, internal and external to the knowing subjects. This certainly has occurred in the controversy here narrated.

The external space is considered the domain of language, while the internal, that of thought. It is more appropriate, however, to consider complementary roles for language and thought, in the framework of cognitive technology (Dascal 2004). This complementarity allows to consider the external space of controversies as a communicative-cognitive space, representing an amplification of the inner individual mental spaces, with high cognitive gains, as illustrated by our example.

5. Concluding remarks

In this chapter I have discussed the role of language in regard to a previously proposed model for the practice of science. Language is considered in the cognitive double-sided controversial process between discovery and justification of scientific problem solving. It is shown, by means of the model and an interpreted example of a real-life scientific controversy that language participates actively in the cognitive process of the increasing of scientific knowledge.[6]

---

6. I would like to thank the anonymous reviewer for helpful comments.

References

Aristotle (1952). *Rhetoric* (W.D. Ross, Ed., W. Rhys Roberts, Trans.). Oxford: Oxford University Press.

Dascal, M. (1995). Epistemología, controversias y pragmática. *Isegoría, 12*, 8–43.

Dascal, M. & Cremaschi, S. (1999). The Malthus-Ricardo correspondence: Sequential structure, argumentative patterns, and rationality. *Journal of Pragmatics, 31*, 1129–1172.

Dascal, M. (2003). *Interpretation and Understanding*. Amsterdam: John Benjamins.

Dascal, M. (2004). Language as a cognitive technology. In B. Gorayska & J.L. Mey (Eds), *Cognition and Technology* (pp. 37–62), Amsterdam: John Benjamins.

Eemeren, F.H. van & Houtlosser, P. (Eds). (2002). *Dialectic and Rhetoric. The Warp and Woof of Argumentation Analysis*. Dordrecht: Kluwer.

Ferreira, A. (2005). Controversies and the logic of scientific discovery. In P. Barrotta & M. Dascal (Eds), *Controversies and Subjectivity* (pp. 115–125, Ch. 4). Amsterdam: John Benjamins.

Grice, H.P. (1989). *Studies in the Ways of Words*. Cambridge, MA: Harvard University Press.

Laudan, L. (1977). *Progress and its Problems. Towards a Theory of Scientific Growth*. Berkeley: University of California Press.

Laudan, L. (1996). *Beyond Positivism and Relativism*. Boulder, CO: Westview Press.

Leff, M. (2002). The relation between dialectic and rhetoric in a classical and modern perspective. In F.H. van Eemeren & P. Houtlosser (Eds), *Dialectic and Rhetoric. The Warp and Woof of Argumentation Analysis* (pp. 53–63). Dordrecht: Kluwer.

Meyer, M. (1980). Science as a questioning-process: A prospect for a new type of rationality. *Revue Internationale de Philosophie, 34*, 49–89.

Nickles, T. (1985). Beyond divorce: Current status of the discovery debate. *Philosophy of Science, 52*, 177–206.

Popper, K.R. (1979). *Objective Knowledge – An Evolutionary Approach*. Oxford: Clarendon Press.

A "dialectic ladder" of refutation and dissuasion

Cristina Marras & Enrico Euli
ILIESI-CNR and University of Cagliari

1. Introduction*

In this paper we shall discuss the notions of refutation and dissuasion, considering their significance in the context of conflict management. We begin by outlining the common usage of the two notions by a number of definitions (§2). We then note that, in situations of conflict, these two notions usually imply the impossibility of mutual concession and creative compromise, in the cases of refutation and dissuasion respectively. In addition, the notion of refutation implies a clear and assertive opposition to the conduct and argumentation of "the other", whereas dissuasion involves a non-oppositional aspect, which reduces the risk of pervasive animosity.

We thus present what we call the "Dissuasion Model" (§3) and we explain the culmination and crisis (§4) of this model, and contrast it with a "Nonviolent Dissuasion Model". The conflict-type addressed by this alternative model is marked by gradual exacerbation. We therefore delineate (§5) an "imaginary ladder" in which, from initial conditions of agreement in aims and methods, a conflict emerges progressively and reduces the scope of possible negotiation. However, unlike the Dissuasion Model, such a process does not entail a total denial of "the other", and, consequently, a violent outcome can be avoided. Even in the advanced stages of such an escalating conflict it remains possible to employ extreme methods of nonviolent creative intervention. These allow not only for an eventual resolution, but also offer a way of facing incompatibilities between opposing sides and, moreover, of provoking change in contrariant relationships.

---

*We wish to thank Einam Livnat for his comments and for correcting the English version.

In conclusion (§6), we stress that both refutation and dissuasion are dialectically present throughout the various phases (steps) of the ladder up to the climax of the process, where the two notions seem to become mutually exclusive. Furthermore, in the context of argumentation theory[1] (as applied to conflict-resolution), the alternative nonviolent approach could offer interesting and innovative tools in order to avoid, on the one hand, the "victory" of the "war-paradigm", and, on the other hand, the risk of falling into ethical relativism. This is especially relevant in the case of complex argumentation structure, in which several arguments are put forward for or against the same standpoint.[2]

2. Refutation and dissuasion in conflict situations

First, we would like to cite a few dictionary definitions of the terms "refutation" and "dissuasion", in order to get an idea of the common meaning of these words.

> Refutation: "1. The speech act of answering an attack on your assertions. 2. Any evidence that helps to establish the falsity of something. 3. The act of determining that something is false". (http://www.websters-online-dictionary.org/definition/refutation, Retrieved September 10, 2006)

> Dissuasion: "Noun 1. dissuasion -a communication that dissuades you (...). 2. dissuasion – persuading not to do or believe something; talking someone out of a belief or an intended course of action; communication intended to induce belief or action; influencing someone to desist by argument or reasoning or entreaty" (http://www.thefreedictionary.com/dissuasion, Retrieved September 10, 2006).

We quote also the more extended definition of "dissuasion" given in the *Websters Online Dictionary*:

> 1. Dissuasion – a communication that dissuades you. Discouragement – the expression of opposition and disapproval. 2. Dissuasion – persuasion not to do something; the act of talking someone out of an intended course of action. (...) Expostulation, objection, remonstrance – the act of expressing earnest opposition

---

1. The definition of "argumentation" here assumed is : "a verbal, social, and rational activity aimed at convincing a reasonable critic of the acceptability of a standpoint by putting forward a constellation of propositions justifying or refuting the proposition expressed in the standpoint" (van Eemeren & Grootendorst 2004, p. 1).

2. For an elucidation of argumentation with a complex structure, as well as the different components of an argumentation theory, see van Eemeren and Grootendorst (2004). The metaphor of balance as model for weighing argumentations between opponents is discussed in Marras (2005).

> or protest. 3. Dissuasion – influencing someone to desist by argument or reasoning or entreaty. Influence – causing something without any direct or apparent effort. Persuasion – inducement to act by argument or reasoning or entreaty. (http://www.websters-online-dictionary.org/definition/dissuasion, Retrieved September 10, 2006)

Generally, refutation has to do with truth and falsity, and thus pertains to content, whereas dissuasion is more connected to the art of persuasion and so directly involves emotions and beliefs. Dissuasion simply has to do with affecting a hearer's future actions and beliefs whereas refutation regards affecting in particular the contents.

The two notions are deeply intertwined in conflict situations. We shall discuss the aspects of refutation and dissuasion, which relate to shaping the characteristic model of action and behaviour in contemporary conflict management attitudes. Since we intend to extend our discussion also to military conflicts, we quote a relevant passage from the definition of "dissuasion" in the French *Wikipedia*:

> Dans le domaine de la défense, au sens militaire du terme, la dissuasion consiste à forcer la paix en rendant la guerre trop coûteuse pour un attaquant. L'idée comme l'application sont anciennes (Cf. la maxime romaine "*si vis pacem, para bellum*" ou encore le principe des représailles), mais elles ont trouvé leur achèvement ultime avec les armes de destruction massive. Durant la guerre froide, on parlait de l'équilibre de la terreur (http://fr.wikipedia.org/wiki/Dissuasion, Retrieved September 9, 2006).

The application of our analysis to conflict situations is demanded by the strong tendency of conflicts in general to evoke violence. Violence, of course, is not a unitary concept; the word is applied in varying contexts: from brutal, declared violence and other evident forms (segregations, massacre, genocide, etc.) to more sophisticated methods (such as psychological violence, economic violence, etc.), and from political and collective violence to individual violence (Héritier 1997, p. 12).

The liberal tradition attempts to canalise and moderate conflict in order to prevent violence by methods and conventions such as treatises, rules, arbitrations, negotiations, and diplomacy. Today, the role of *moderators* in pursuit of these aims has become central.[3] In fact, the practice of regulating state policy, as well

---

3. We quote a few definitions of "moderation" that may illustrate the use of this concept in our discussion: "Moderation is the process of eliminating or lessening extremes. It is used to ensure normality throughout the medium on which it is being conducted" (www.en.wikipedia.org/wiki/Moderation, Retrieved August 28, 2007); "moderation, moderateness (quality of being moderate and avoiding extremes); easing, moderation, relief (a change for the better); temperance, moderation (the trait of avoiding excesses); moderation, mitigation (the action of lessening in severity or intensity) "the object being control or moderation of economic depressions" (http://wordnet.princeton.edu/perl/webwn?s=moderation, Retrieved August 28, 2007).

as the ideology it reflects, are essentially modern phenomena – introducing new concepts such as "equilibrium" and "preventive war".[4] The objective is basically to prevent conflict and, ultimately, war. In particular, these methods are meant to channel the development of discussions, debates and disputes[5] away from otherwise-inevitable conflicts. In cases of initial open conflict, the aim is to urge dialogical strategies that may pave the way for negotiation. We call this approach the "Dissuasion Model".

3. The Dissuasion Model

The Dissuasion Model is characterised by a clear, though not always effective and transparent, openness to compromise regarding the contents of disputed claims. However, this approach often induces a threat by reintroducing disequilibrium into the power relations. Furthermore, this model is often characterized by what nonviolence trainer Pat Patfoort (1988) called a "major/minor relation". By accentuating the gap between opposing sides, and stressing the differences between "us" and "them" or "me" and "you", (i.e., between the first and the third person perspective), this relation often assumes the form of emotional manipulation.

In conflict-resolution contexts, the common component of the Dissuasion Model is tolerance. As a method employed in order to compensate for otherness, it is very often under discussion since it generally retains differences and does not directly encourage give-and-take interactions (cf. Dascal 2005). Within the liberal tradition, tolerance is regarded merely as a moral duty, which does not require

4. This point is stressed by M. Scattola in the introduction of his book dedicated to the concepts of peace, conflict and justice from Middle Ages to the Modern Age: "L'insieme delle pratiche che regolano i rapporti tra stati e la disciplina che riflette su di esse sistematizzandole e fondandole, è un fenomeno specificamente moderno, proprio di quei nuovi e peculiari soggetti della politica che sono gli stati e possibile solo con concetti recenti quali quelli di "equilibrio", "sistema degli stati", "guerra preventiva" (Scattola 2003, p. 29).

5. Of particular interest is the division proposed by M. Dascal within the family of polemical exchanges. He distinguishes between three ideal types: discussion, dispute, and controversy. Polemical exchanges are generally divided into "discussions" and "disputes". Dascal, however, introduces a third type – that of controversy as an alternative "between the strict rule-based notion of rationality that characterizes "discussion" and the conception of "dispute" as governed by extra-rational factors" (Dascal 1998, p. 24). This distinction allows for a more exact study of the levels of analysis of polemical categories, through which the distinctive properties of different moves, strategies and tactics may be taken into account.

authentic interaction or exchange between sides. Indeed, the concept of tolerance itself does not entail genuine equality (cf. Forst 2003).

Mutual concessions, if they eventually occur, are settled according to the ethical frame of reference of the "major" side, which is deemed unquestionable. Furthermore, tolerance is based on the notion of trust as merely an *implicit* pact between sides. Very often, in fact, the resulting agreement is only apparent, quietly allowing for disequilibrium to persist. Colonialism and marriage, although radically different in context, can both be quoted as examples of this model. Additionally, they may serve to illustrate the crisis of the model itself. Generally speaking, the tolerance model fails when differences between opposing sides are too great, and the convictions or requests of one side become unacceptable for the other.[6]

Typically, when conflicts emerge, cooperation is suspended and aggression increases. The Dissuasion Model may be employed pre-emptively in order to deal with such cases. By drawing upon cooperation, this model attempts to avoid actual conflict. However, the Dissuasion Model, even when ostensibly successful, allows violence to subsist in two forms:

A. *Hiding conflict* by manipulating behaviour, and, in effect, the relationship. This is essentially *structural violence*, generally defined as systematic methods employed by a regime in order to prevent individuals from realizing their potential.[7] Institutionalized racism and sexism are examples of this mode of violence. Another case is that of cultural violence, which covers a wide range of power abuse in society. Here, the emphasis is on violence that occurs through the acts of an organisation and its agents (schools, institutions, media, etc.). This, of course, gives rise to open violations of civil, political and social rights, such as physical and psychological violence.

B. *Exposing conflict* by open aggression, when manipulation is deemed impractical. This is the case of all forms of direct violence.

The Dissuasion Model is certainly rooted in Enlightenment values such as freedom and equality, as well as tolerance, which we have discussed. However, when coping with especially tense conditions, where an open conflict is imminent, intolerance unhappily prevails, eventually resulting in war. Differences are thus settled not by reason, but by power, since, in most cases, the apparent equality between sides is merely *assumed* and not *genuine*.

---

6. For a discussion of this point and a confrontation of different approaches concerning the relation (cooperation/competition) towards "the other" see Marras (2004, pp. 47–49).

7. For a discussion of structural violence, see Galtung (1996).

We believe that most differences are ultimately reconcilable. However, tolerance is insufficient in dealing with present day crises. Therefore, the crucial question, in our opinion, is: How to deal with differences, when they are rendered irreducible by conflict?

4. Culmination and crisis of the Dissuasion Model

The current world situation represents the culmination, as well as the crisis, of the Dissuasion Model. Preventive War and Terrorism, for example, are dissuasion tactics that ultimately backfire; they aim at discouraging the aggressive policy of the enemy, and, in exchange, offer a new "balance of terror". Due to the globally disproportionate balance of power (especially evident in conflicts involving guerrilla warfare and wars), we are now confronted with a so-called "globalised terror".

Alternative methods of dealing with such conflicts have been attempted. In South Africa, for example, the "Truth and Reconciliation Commission" was a crucial component in the transition to full democracy, and has been central in public and politic life since 1995. In this specific case, the aim of establishing the truth was strictly related to reconciliation, in that the process of reconciliation was initiated by openly acknowledging the conflict and its history of violence. This was achieved by a direct confrontation of victims with persecutors, while avoiding mystification and "moderation".[8]

Another example of the crisis of the Dissuasion Model is evident in the residual conflicts since the end of the cold war. Evidently, dissuasion methods have not gained significant progress towards real pacification. In this respect, the contradictory attempts at maintaining peace in Western countries, as well the ex-Yugoslavian and Gulf wars, exemplify the inadequacy of this model.

Hence, violence is implicitly accommodated within the Dissuasion Model. If we do not change our conflict-resolution paradigm, efforts of juridical pacification (such as that of ONU) will remain inapplicable to military operations such as those carried out by the United States, and, by the same token, by terrorist organizations.

---

8. The example of South Africa is certainly a distinctive case; the commission documents can be found in http://www.doj.gov.za/trc/. We would also like to quote a few other attempts, which are interesting in regards to their aims and presuppositions: *the Comisiòn National para la Desapariciòn de Personas* instituted in Argentina in 1983 leaded by Ernesto Sàbato who published in 1986 *Nunca Màs*; the commission for the investigation into the case of *desparecidos* created in Uruguay in 1985; *the Comisiòn National para la Verdad y la Reconciliaciòn* created in Argentina in 1990; as well as many others in Uganda, Philippines, Ciad, and El Salvador. See Flores (1999).

Examples of this impasse are the NATO intervention in Yugoslavia, the so-called "willing coalition" lead by the U.S. Army in the second Gulf War, the terrorist actions of Al-Qaeda in Afghanistan and Iraq, and those of Hezbollah in Lebanon and Israel.[9] It may seem that the only way left open is the power struggle, where the stronger prevails. However, as we have seen, there are other possibilities, which are not limited exclusively to tolerance. We believe it possible to effectively apply a modified version of the Dissuasion Model, in which relapse towards violence is forestalled.

Therefore, we would like to propose a "Nonviolent Dissuasion Model". However, it should be noted that nonviolence is an approach that, despite its generally positive connotations, could well be harmfully applied if it is not framed within an adequately circumspect theory taking into account the complexity of power relations.

Since the end of 20th century, a nonviolent approach has been increasingly incorporated in ecological theory, while accounting for the complexity of power relations in this struggle. Another well-known example, in which the premises of the Dissuasion Model were effectively altered, is Gandhi's strategy in the struggle for decolonisation. The radical novelty of his approach was the idea of proposing a change in the "government model" without replacing the "governors".[10]

However, this kind of struggle seems difficult, if not impossible, to follow in the case of inter-state political and military conflicts, especially when based on straightforward assumptions regarding relevant power relations.

5. A reforming ladder

The Nonviolent Dissuasion Model confronts conflicts by focusing on the contents of disputed contentions, while attempting to modify the actual relations between sides. In its content-oriented basis, this model clearly originates in refutation. However, it equally draws upon the notion of cooperation insofar as it suggests additional *cooperational* channels in conflict scenarios. The important ingredient

---

9. For a comment regarding the role of the UN especially in the Lebanon war 2006 see Falk 2006.

10. To quote a few additional cases: The conflict between Gandhi and Nehru in India, G. Garibaldi and the Savoia in Italy. The story of Václav Havel in Czechoslovakia is of particular interest for our discussion: before he became president in 1989 (he was re-elected president in 1990, presiding over the new Czechoslovakian parliament) he advanced nonviolent methods and upheld the *power of the powerless,* a term used to describe the modern social and political order that enabled people to "live within a lie" (and also the title of his book published in 1985). However, once he came to power, he reverted to the traditional Dissuasion Model.

here is the following presupposition. Whereas, ostensibly, a disputing side normally acts by recognizing itself as a side in conflict, it has undisclosed interest to negotiate with the opponent.[11]

This model may be characterized in three points:

(1) The model focuses both on the actual content of the conflict and on redefining the relations between sides, thus clarifying their differences and power imbalance. (2) It involves a reviewed concept of refutation, and thereby approaches content somewhat differently from the Dissuasion Model. (3) It allows for a more effective approach in conflict-resolution.

We will further delineate the Nonviolent Dissuasion Model by setting down a ladder of six scenarios (steps), and a model application outline for each case.

1: *Similarity. In the case of conflicting sides exhibiting different behaviour in order to achieve analogous aims.*

Due to the similarity in objectives, the task of analysis is limited to investigating the conflict-inducing motivations of each side. It is then possible to devise an outline of agreement, allowing for constructive and collaborative ways to establish coexistence.

2: *Convergence. In the case of conflicting sides exhibiting different behaviour in order to achieve partially analogous aims.*

Here, the ability to perceive behavioural differences is crucial. It is necessary to elucidate the areas of congruence and divergence, so as to be able to redefine both the individual positions and the relationship it-self. Differences, in these cases, do not exclude the possibility for agreement. Basically, agreement is obtained by

11. "Principled negotiation" is the name given to an approach set out in the well-know conflict-resolution book *Getting to Yes*, first published in 1981, by Roger Fisher and William Ury. We would like to quote some of the comments made on this approach by the Conflict Research Consortium of the University of Colorado, in the USA "Negotiating about interests means negotiating about things that people really want and need, not what they say that they want or need. Often, these are not the same. People tend to take extreme positions that are designed to counter their opponents' positions. If asked why they are taking that position, it often turns out that the underlying reasons – their true interests and needs – are actually compatible, not mutually exclusive. (…) Negotiators should look for new solutions to the problem that will allow both sides to win, not just fight over the original positions, which assume that for one side to win, the other side must lose. (…) Principled negotiation" is a tool meant to be applied in many forms of dispute, but we have found that it needs to be supplemented with other approaches in the case of intractable conflicts. Moreover, it is more attuned to U.S. and Western European cultures, which emphasize rational cost-benefit analysis, and de-emphasize relationships and emotions. (http://www.colorado.edu/conflict/peace/treatment/pricneg.htm, Rertrieved August 28, 2007)

recognizing differences and non-congruent aspects. We may call this a "disagreement in agreement".

3: *Analogy. In the case of conflicting sides exhibiting completely opposite behaviour, whereas specific actions on both sides have similar functions or analogous significance.*

In this case it is important to individuate corresponding functions and their significance, as well as differentiate between divergent decisions and policies. Here the focus is not on the value of each decision, but rather on the similarity between the needs satisfied by corresponding decisions on each side.

4: *Compatibility. In the case of conflicting sides exhibiting different behaviour as well as having different objectives.*

In confronting a scenario of this sort, the central concept is that of "agreement in disagreement" (cf. Tecchio 2001). The analysis stage would have to include an assessment of whether, within the spectrum of possibilities allowed by the situation, the conflicting sides may coexist, and whether the sides would be able to share the weight of the consequences (as highlighted by the Latin verb *cum-patire*, "to suffer with ..."). This emotional affinity, in having to pay a shared price, increases the degree of convergence between sides. Moreover, such acknowledged symmetry enables each side to regard the decisions of the other as legitimate. In general, conflicting sides can be made to coexist only through mutual recognition of the legitimacy of actions on the opposite side.

5: *Keeping Distance. In the case of conflicting sides exhibiting different behaviour in order to achieve divergent as well as incompatible aims.*

In this step, analysis is directed at the source of incompatibility between aims, and the impossibility of coexistence. The ensuing procedure involves reaching a consensual decision to keep distance, thus preserving the relationship in order to re-evaluate the conflict. The keeping of distance must be considered not as an irreversible separation, but as a method of halting the escalation of mutual dissent, and irreducible dichotomization and polarization of the positions of conflicting sides.[12]

6: *Nonviolent struggle. In the case of conflicting sides exhibiting different behaviour in order to achieve opposite aims.*

This step addresses the situation in which consensual decision is impossible, and an active struggle seems imminent. In contrast to the Dissuasion Model, here the

12. The positive role of distance is defined by P. Aldo Rovatti as "abitare la distanza", which can be translated as "to live the distance" (Rovatti 1994).

opposite side is not to be regarded as an "enemy", but as an "adversary".[13] Nonviolent actions, such as civil disobedience and active non-collaboration, are required in order to cope with such situations. The cost of such internal dissent is usually very high, as dissenters tend to adopt radical courses of action, sometimes disrupting the negotiation progress, and should therefore be practiced responsibly. The redefinition dictated by Nonviolent Dissuasion Model in these scenarios essentially involves *struggle* and not regards conflict as a *fight*.

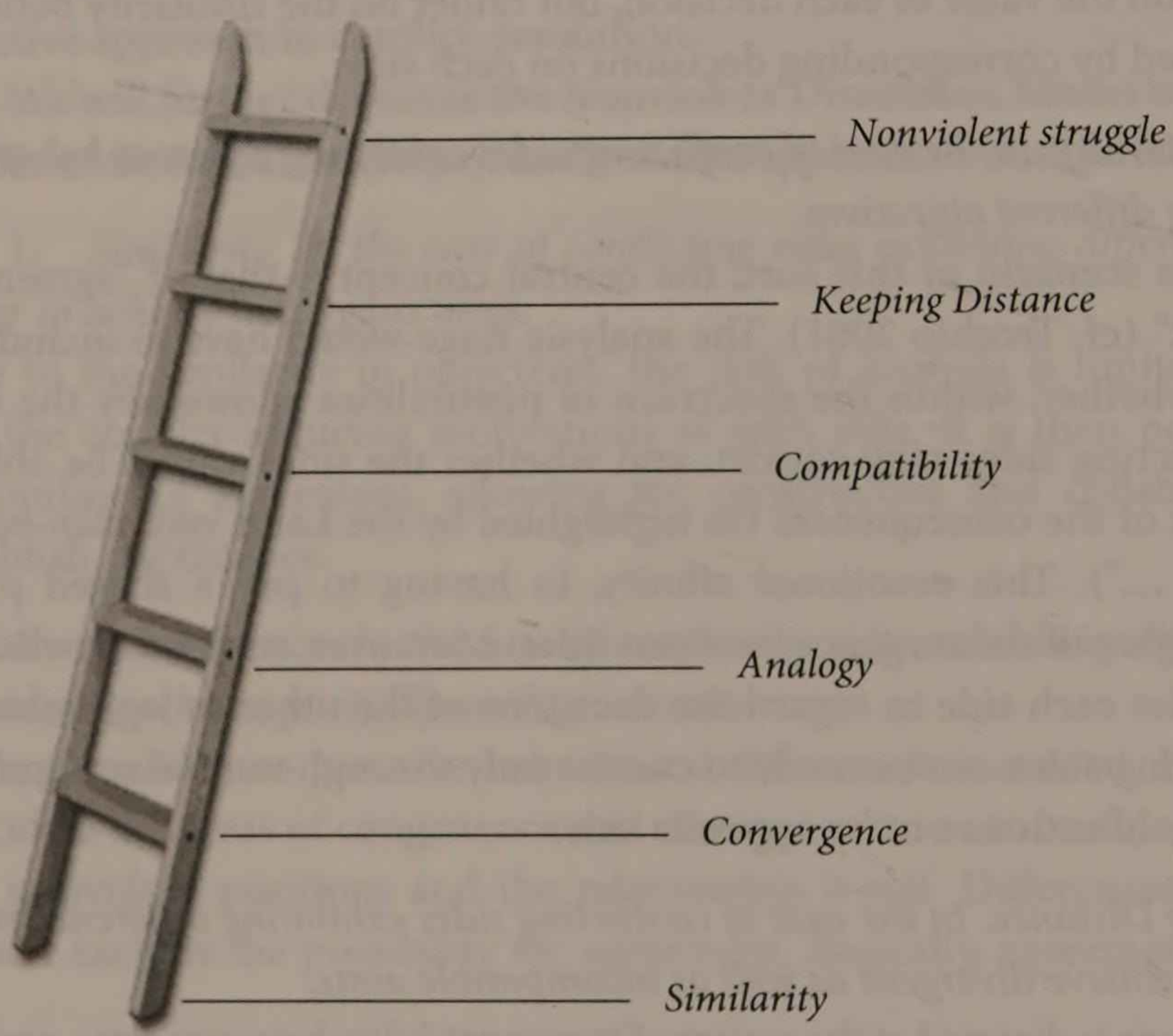


Figure 1. A reforming ladder: Nonviolent Dissuasion Model.

13. The meaning of the two terms are very similar, but with some differences in the context of our discussion. In Peace Studies an "enemy" is someone preventing the achievement of a goal, he may not even know that he is regarded as such, since the concept is one-sided. Generally, it is a strong term evoking violence, hate, battle and war, an armed adversary, or someone hostile to another (http://en.wikipedia.org/wiki/Enemy). The term indicates a hostile force or power, as a nation, a group of foe or hostile forces. The term "adversary" generally indicates an opponent, not necessarily armed, and not necessarily has to due with hate, it is an antagonist and in extreme cases it became an enemy. An adversary is an opponent who is ranged against another (perhaps passively) on the opposing side; as a political opponent or an opponent in a debate. "An adversary is an antagonist, who struggles against another, with active efforts" (http://dict.die.net, Retrieved September 10, 2007).

6. Conclusion

In this paper, nonviolence is presented not as an ideology but as a set of practices, attitudes and approaches. It should be noted that the Nonviolent Dissuasion Model incorporates the concept of nonviolence in its practices, and not in stressing an ideal of becoming "nonviolent" in an overall, "utopic" sense (Euli & Forlani 2004, p. 216). Additionally, according to this model, dissuasion is contained within the frame of refutation and not vice versa, as history seems to exemplify. The traditional model, which we have called the Dissuasion Model, tolerates fighting behind a curtain of tolerance and equilibrium. In contrast, the proffered Nonviolent Dissuasion Model addresses conflicts through a process of re-evaluation, and so the notions of refutation and dissuasion are dialectically present in all phases of the procedure.

The present global situation requires that we begin a process of "learning to learn". As is well known, but strangely overlooked in practice, significant changes can occur only when there is a change in behaviour, mutual relations, and the paradigm of communication.

In the Nonviolent Dissuasion Model, contention is channelled into cooperation and not vice versa, as in the currently widespread traditional model. This model can be instilled through ludic, metaphorical and creative forms of education, mediation training, peace education, conflict-management and even in everyday behaviour and practice.[14]

To sum up, we compare the traditional and proposed models:

1. The Dissuasion Model results in a mode of conflict which is antithetic to cooperation, especially towards the last step of the scale;
2. The Nonviolent Dissuasion Model, even at the end of the scale, enables extreme creative intervention (cooperation within the conflict). It allows not only for an eventual solution, but also helps face the dilemma by galvanizing the afflicted relationship towards change.

Since a fully-developed proposal of a conflict-resolution model is beyond the scope of this paper, we conclude with a few questions, dedicated especially to those involved in argumentation studies.

---

14. There are many projects and initiatives that experiment the model in educational and political contexts. An original and interesting case is that of the Transcend Peace University (http://www.transcend.org). This university proposes advanced training programmes on Peaceful Conflict Transformation (i.e., among other courses on conflict care and reconciliation, negotiation and mediation, peacebuilding, and peacemaking). The approach of the project is based on the *Trainers' Manual* written by J. Galtung for the United Nation Disaster Management Training Programme (Galtung 2000).

- *Since the failure of the Dissuasion Model is evident, why do we continue to apply it?*
- *Since, in terms of scientific progress (à la Popper), the utility of the traditional model has been decidedly neglected, why does the traditional model still function as a prototype in most of the present day conflict-management research?*
- *What preconditions must be met in order to revert to nonviolent methods, or at least to experiment in such a reform?*

References

Dascal, M. (1991). The ecology of cultural space. In M. Dascal (Ed.), *Cultural Relativism and Philosophy. North American and Latin American Perspectives* (pp. 279–295). Leiden: Brill.

Dascal, M. (1998). Types of polemics and types of polemical moves. In S. Cmejrková, J. Hoffmannová, O. Müllerová & J. Svetlá (Eds) *Dialoganalyse VI Proceedings of the 6th Conference Prague 1996* (pp. 15–33). Tübingen: Max Niemeyer Verlag.

Dascal, M. (2001). Reputation and refutation. Negotiating merit. In E. Weigand & M. Dascal (Eds) *Negotiation and Power in Dialogic Interaction* (pp. 3–17). Amsterdam: John Benjamins.

Dascal, M. (2005). The challenge of human difference and the ethics of communication. In I. Menuhin & Y. Yovel (Eds), *Can Tolerance Prevail? Moral Education in a Diverse World* (pp. 94–102). Jerusalem: The Hebrew University Magnes Press. [Hebrew]. (An English version of the paper is available on http://www.tau.ac.il/humanities/philos/dascal/papers/challenge.html)

Eemeren, F.H. van & Grootendorst, R. (2004). *A Systematic Theory of Argumentation*. Cambridge: Cambridge University Press.

Euli, E. (2004). *I Dilemmi (diletti) del Gioco*. Molfetta: Lameridiana.

Euli, E. & Forlani, M. (2004). Una nonviolenza in discussione. Riflessioni sull'Azione Diretta Nonviolenta. In *Agire la Nonviolenza* (pp. 215–223). Milano: Edizioni Punto Rosso.

Euli, E. & Forlani, M. (2002). *Guida all'Azione Diretta Nonviolenta*. Milano: Editrice Berti, AltrEconomia.

Flores, M. (Ed.). (1999). *Verità senza Vendetta*. Roma: Manifestolibri.

Falk, R. (2006). Assessing the United Nations after the Lebanon War 2006. In *TFF PressInfo, 241*, August 15, 2006. (Available online http://www.transnational.org/SAJT/pressinf/2006/pi241_Falk_AssessUNLeb.html

Forst, R. (2003). *Toleranz im Konflikt*. Frankfurt: Suhrkamp.

Galtung, J. (1996). *Peace by Peaceful Means: Peace and Conflict, Development and Civilization*. London: Sage.

Galtung, J. (2000). *Conflict Transformation by Peaceful Means (the Transcend Method). Trainers' Manual*. United Nation Disaster Management Training Programme. (Available online http://www.transcend.org/manuals.htm)

Gandhi, M.K. (2002). *The Essential Gandhi: An Anthology of His Writings on His Life, Work, and Ideas* (L. Fischer, Ed.). New York: Vintage.

Héritier, F. (1997). Riflessioni per nutrire la riflessione. In F. Héritier (Ed.), *Sulla Violenza* (pp. 12–43). Roma: Meltemi.

Marras, C. (2004). Dialogo-Cooperazione e/o Conflitto-Competizione. Spunti di riflessione sulle forme di mediazione linguistica. In P. Barrotta (Ed.), *Pluralismo e Società Multietniche* (pp. 39–62), Pisa: ETS.

Marras, C. (2004a). Percorsi di riflessione tra lingue e culture. *Portales, 3*(4), 223–228. Cagliari: AIPSA.

Marras, C. (2005). Dalla scienza come dimostrazione alla scienza come persuasione: quale linguaggio?. In C. Marmo & S. Bonfiglioli (Eds), *Retorica e Scienze del Linguaggio. Teorie e Pratiche dell'Argomentazione e della Persuasione. Proceedings of the X Conference of the Società di Filosofia del Linguaggio, Rimini 2003* (pp. 103–117). Bologna: Aracne.

Patfoort, P. (1988). Un'introduzione alla nonviolenza. *Quaderni di Azione Nonviolenta, 13*, 1–31.

Rovatti, P.A. (1994). *Abitare la Distanza*. Milano: Feltrinelli.

Scattola, M. (Ed.). (2003). *Figure della Guerra*. Milano: Franco Angeli.

Sharp, G. (1973). *The Politics of Nonviolent Action*. Boston: Porter Sargent Publisher.

Tecchio, R. (2001). Il metodo del consenso: un metodo decisionale morbido per gruppi forti. In *La Rete di Lilliput* (pp. 149–158). Bologna: EMI.

Weeks, D. (1972). *The Eight Essential Steps to Conflict Resolution: Preserving Relationships at Work at Home, and in the Community*. Los Angeles: J.P. Tarcher.

Responding to objections

Ralph H. Johnson

1. Background: The Intuition*

One important aspect of our argumentative practice is responding to objections. There is a commonly expressed intuition about arguments to the effect that part of what makes for a good argument is that the argument can withstand strong objections. The idea can be found in such theorists as Johnstone Jr. (1978) and Perelman who puts it this way:

> The strength of an argument depends upon the adherence of the listeners to the premises of the argument; upon the pertinence of the premises; upon the close or distant relationship they may have with the defended thesis; upon the objections; and upon the manner in which they can be refuted. (Perelman 1982, p. 140)

I would state the intuition about objections this way: one key indicator that an argument is a good argument is that it can withstand strong objections. A series of comments follows.

First, this intuition makes it clear that an argument is something that wants a response; it is out there in what Govier and I call *argumentative space* (Johnson 1997; Govier 1999) competing with others for attention. An argument may thus be viewed as an invitation … not just to draw an inference (Pinto 2001), but perhaps equally as an invitation to respond with appropriate reasons that indicate why one will not accept the invitation. The arguer hopes for such responses. Why? Because any response may help further clarify some aspect of the argument, and because these responses provide the arguer with a test of that argument (Johnson 2000, p. 161).

Second, if it is correct to say that the arguer has indeed invited responses, then it seems the arguer has thereby incurred some sort of *obligation* to respond to those responses. We need to clarify the nature and the source of the arguer's (and respondent's) obligations which I call *dialectical obligations*.

---

*Thanks to Trudy Govier, David Godden, Christian Kock, Bill Rehg and an anonymous referee who read earlier versions and provided helpful comments. Thanks also to my Outstanding Scholar Student, Michael Baumtrog, for his invaluable assistance.

Third, this intuition implicitly invokes a distinction between a strong and a weak objection. One test of the argument is a strong objection; and the stronger the objection, the better the test. *But exactly what makes for a strong objection?* Govier (1999) takes up this question which has been largely left unaddressed in the scholarly literature. I don't entirely agree with her position there, for reasons I take up in the next comment. The point to be made here is that Govier deserves credit for having raised this important question.

Fourth, though the intuition has been phrased in terms of an objection, its sense would be preserved if instead we were to substitute the word "criticism": an argument is a good one if it can withstand strong criticism. But this leads directly to a question suggested by the previous comment: *Is there is a difference between an objection and a criticism?* My research indicates that theorists – Govier among them – tend to use these terms interchangeably. I believe that there is a distinction that can usefully be drawn, but will not take up that issue here.[1]

Fifth, it is obvious that the way the above intuition is phrased is a *façon de parler.* An argument cannot "respond" to an objection. Only an arguer can respond to an objection. But behind this intuition is the idea that if the arguer can respond to an objection without having to change the argument in *any essential respect*, then the objection was weak and there is reason to think that the original argument was in itself a strong one. *But what are the possible ways of responding to an objection, and what constraints govern them?* I shall say more about this shortly.

Thus, reflection on this intuition has brought to the fore the following series of important questions:

> *What exactly is an objection?*
> *What makes for a strong objection?*
> *What are the possible responses to an objection, and what factors determine the strength of a response to an objection?*
> *Is there is a difference between a criticism and an objection?*
> *What is the nature and the source of our dialectical obligations?*

In this paper, I will focus on the second and third questions from the above list. I introduce some new concepts that may help us to understand better this fundamental aspect of our argumentative practice.

---

1. I made this distinction in (2003) and plan to develop it and present a fuller discussion of these matters in *Dialectical Adequacy*, forthcoming.

2. Possible ways of responding to an objection

The issue I address in this paper concerns how an arguer deals with an important dimension of his dialectical obligations (Johnson 2003, pp. 41–54). The situation I have in mind is this. The arguer has put forth an argument to what Govier (1999, p. 183) calls the non-interactive audience (an editorial in the local paper, an article in a scholarly journal), and someone has responded by raising an objection. In mapping out the possible responses an arguer may make to this objection, I abstract from the question exactly what counts as an objection. I shall also assume that the arguer believes (whether rightly or wrongly is not relevant here) that the objection is on target; the arguer does not think the objection involves a misreading of the argument; i.e., the arguer is not inclined to file a charge of *straw person.*

Suppose then that A (the arguer) has put forth an argument, Arg1 = {P1, P2, P3 – C}[2] and that B responds by stating an objection, O. There appear to be five possible responses for the arguer.

Response 1: Arguer denies that O has force, and consequently dismisses O and maintains the original argument.

The arguer will have to say something along these lines: O does not pose a problem because R. (Here we expect the arguer's reason(s) to be stated).

Schematically: Arg1 → O → Response(O is not a good objection because R1, R2, R3) → Maintain(Arg1)

To explain the schema, the arrow here signifies the temporal sequence: Arg1 is put forward and is met with an objection O, which occasions a response R–that the objection is not a good one. The arguer has incurred a dialectical obligation to provide the reasons {R1, R2, R3} that support the response (R). Having done so, the arguer maintains the original argument.

Let me cite an example where I think it is clear that the arguer failed to satisfy his dialectical obligation. Searle is a well-known advocate of Speech Act Theory–an approach to the analysis of language that stems from Austin. One of the basic doctrines of that theory is that there are "illocutionary forces." Saying "I do" in certain circumstances brings it about that I become a married person – it has that illocutionary force. In "Do Illocutionary Forces Exist?" (1964), Cohen attacked this doctrine in great detail. He raised a series of objections, which collected around

2. This is my way of referring to a basic argument structure in which three premises (P1, P2, P3) are offered to support the conclusion – C. I abstract here from the question of what type of argument: convergent or linked, or some other type.

one fundamental objection – that the doctrine of illocutionary force is indefensible. He argued that with the notions of meaning and implication on board, the idea of illocutionary force becomes unnecessary and was indeed problematic in a host of ways.

This objection – which I have only barely summed up here – certainly seems to warrant attention. It is carefully reasoned. Cohen supports his point with careful attention to Austin's position, which Searle is taking up. And it seems to be a strong objection, for it goes to the very heart of the viability of Speech Act Theory. Hence, it would seem to be reasonable to expect Searle to respond to it. But he did not. And when asked why he had not responded, this is what Searle said: "I did not think that Cohen's article was worth answering directly. I answered it indirectly in an article you have obviously not read called 'Austin on Locutionary and Illocutionary Acts.'"[3] Searle's indirect response occurs in a footnote on page 408 of that 1968 article, which reads as follows: "Cohen unfortunately seems to conclude that there are no such things as illocutionary forces. This conclusion seems unwarranted." Full-stop; that's it. Searle has perhaps started the task of meeting his dialectical obligations here, but it seems clear that his response falls short of being adequate. We want to know what reasons Searle has for his claim that the conclusion is unwarranted.[4]

It is important to note that there are *constraints* on what material the arguer may use in making her response to the objection. That is, suppose the arguer responds as follows: "O is no good because (R1, R2, R3). Consequently I will maintain Arg1." In developing R, the arguer is not free to use any material whatsoever. Thus, if R*i* (i.e., some reason) is offered as a reason to support R, R*i* may not contradict or be inconsistent with any proposition in Arg1. That is one obvious constraint. I suspect there are others, but it is an open question what these other constraints are.

Response 2: Arguer admits O has some force but claims that it is a minor point.

Schematically: Arg1 → O → ConcedeO → Rev(Arg1) → Arg1*

The arguer puts forth the argument, an objection is then raised, the arguer concedes the objection has some merit, and proposes a revised argument that the

---

3. Thanks to my former student, Costa Kalfas, for obtaining this information. He contacted Searle via his web-site, and asked Searle whether he had responded to Cohen's objections (which at that time we were taking up in our Philosophy of Language class) and got the response printed here.

4. I have no idea how typical this sort of situation is: i.e., the arguer responds by simply asserting that the objection is not a good one, without providing reasons for the assertion.

arguer believes obviates the objection, while preserving what I will call the *integrity of* the argument. In other words, the arguer believes that he can accommodate the objection with no more than minor modifications in the argument.

Response 3: Arguer admits O is a strong objection and that the argument requires revision.

Schematically: Arg1 → O → Concede O → Rev (Arg1) → Arg2

Here the arguer admits that the objection is strong enough to force a substantive revision yielding a new argument, Arg2. When there exists such a sequence ⟨Arg1→ O → Arg2⟩, I will say Arg2 is *the dialectical successor* to Arg1, and that the above formula schematizes the *dialectical history* of Arg1.[5]

Response 4: Arguer admits that O is a defeater and that the argument cannot be revised.

Schematically: Arg1 → O → Concede [O is a defeater] → Abandon(Arg1).

Here we imagine the situation where the objection is so strong that the arguer abandons the argument. One might be inclined to call this a lethal, or fatal, objection and view it as having refuted the argument.[6]

Response 5: Arguer asks for Time out!

This response will ultimately reduce to one of the other four.

Under the press of an objection, then, the arguer has five options. At one end of the spectrum is the situation where the arguer claims that the objection has no force; hence, no change to the argument is required. At the other end of the spectrum is the situation where the arguer finds the objection insurmountable, as for example apparently occurred when Russell (1960) says that he found Wittgenstein's objection to his theory of judgment paralyzing – and abandoned the theory.

The more typical cases occur in the middle of the spectrum. In one case, Response 2, the arguer admits that the objection has some force but claims that it does not require anything more than minor changes (cosmetic changes) to the argument. Suppose that Arg1 is "cosmetically" altered in response to O1 to yield

---

5. This is diagrammatically crude. Much more sophisticated is the approach developed by Yoshimi (2004). I think his approach could be used to diagram the situations discussed in this paper. And there is no denying the attractiveness of having a diagrammatic way of representing such complex interactions as I am envisaging here.

6. I am not an advocate of the language of proof and refutation when it to comes to the sorts of controversies – both in philosophy and in the public sphere – for which, in my view, the practice of argumentation was devised.

Arg1*. Here I want to say that although Arg1* is not *identical* to Arg1 (because the argument has been changed, even if slightly), still the "essence" of Arg1 has been preserved in Arg1*. I shall refer to this "essence" as the *integrity* of the argument (as distinguished from the *identity* of the argument). Shortly, I shall present a preliminary account of this notion of argument integrity.

Another typical situation occurs when the arguer concedes the force of the objection and seeks to revise the argument accordingly – Response 3. If the arguer chooses this option, the arguer has in effect conceded that the original argument cannot be preserved as it stands. The arguer must modify that original argument so that it is no longer vulnerable to that objection. In this case, neither the identity nor the integrity of the original argument will be preserved, yet the revised argument will bear some (more or less obvious) relationship to the original argument. It may then be referred to as its *dialectical successor.*

Thus if we are to have an adequate global account of the options available when an arguer responds to an objection, it will be helpful to have on hand these three related notions: the *identity* of the argument; the *integrity* of the argument; a *dialectical successor* to the argument.[7]

There is a literature on the issue of argument identity. In one setting, the issue of individuation concerns how we count arguments: Does the text in question contain one argument, or two? Wreen (1999) deals with this issue. The second setting – the one I am interested in – concerns the question: When does a change made to an argument result in its becoming a different argument? None of the three positions Wreen discusses in his 1999 paper (Copi's, Beardsley's, his own) regarding argument identity strikes me as helpful with respect to the issue I am dealing with here. However, I do agree in part with Wreen when he states:

> The essence of an argument is neither the premises nor the conclusion … It's an inference that makes a proposition a premise and this makes a batch of propositions an argument – and an argument as defined by both Copi and Beardsley: premises related to a conclusion in a certain way. I am thus led to individuate arguments by inferences. (p. 887)

The idea that the essence of the argument consists (at least in part) in the inferences seems headed in the right direction. In the next section, I offer an account of *argument identity* that is in line with what Wreen says, and then move on to discuss the concept of the *integrity* of the argument.

---

7. In am using "dialectical" here in the sense developed in *Manifest Rationality* (2000, 161) to describe the situation in which feedback from the other has the potential of causing a change in the argument.

3. The identity of an argument

In this paper, as will be evident shortly, I am focusing on what might be called "simple" arguments. They fall at one range of the spectrum. At the other end of which would be "the argument" Kant makes in the *Critique of Pure Reason*, or Mill's argument for freedom of expression in Chapter 2 of *On Liberty*. These latter are much more complex, often extending over chapters of text from which one must reconstruct "the argument." There is a third sort of identity: when we refer to "the ontological argument." Here what we have in mind might be said to be an argument type, which can be individuated in various ways: i.e., there is Anselm's version of the ontological argument, Descartes' version etc.

Suppose the arguer changes his argument in response to an objection: how much of a change can be tolerated before we want to say that, as a result of the revision, the argument now on offer is *different* from the one with which the arguer began?

The view I favour is that the *identity* of an argument is a function of two components: One is its propositional content, the propositions expressed in its premises and its conclusion.[8] Two arguments, Arg1 and Arg2, are identical when they have the same propositional content: the same propositions supporting the same conclusion in the same way. The second component of argument identity is the so-called the inferential connection.[9] Two arguments might have the same propositional content but have a different inferential connection: {P1, P2; therefore, it follows *probabilistically that* C} is different from {P1, P2; therefore, it follows *necessarily that* C}. These are clearly not the same argument, though their propositional content is the same.

The notion of proposition invoked here is well-known in the logical literature: two different statements (or assertions) may express the same proposition. For example, "John loves Mary" and "Mary is loved by John" may be two different statements that express the same proposition. To be clear, it is not my view that arguments consist of *propositions*. In my view, an argument consists of *assertions* (2000, p. 149). However, in sorting out the issues here, I find it useful to draw

---

8. There is this complication that there is always more to any argument than its explicitly stated premises and conclusion: I refer here to all the tacit material: the missing premises, presuppositions, and implications.

9. In *Manifest Rationality*, I referred to this as the (P+I) conception (75) and argued for a different approach – one which, not unlike Toulmin's approach (1958), does not rely on the idea of an *inferential link*. Nevertheless, this view of argument structure is so widespread that I have adopted it here for ease of exposition.

on the traditional distinction between a proposition, a sentence, and a statement (or assertion).[10] The proposition *that John loves Mary* is expressed in both of the above sentences, either of which may be used to make an assertion (or statement, or claim).

Consider the propositional content of an argument: If one takes an argument {P1, P2, P3 – C} and changes the order of the premises {P2, P3, P1 – C}, it remains the same argument. Its identity has not changed – only its manner of presentation. Or, take that argument and change one of the premises, P2, from active to passive voice – P2i. One will not, it seems to me, have altered the identity of the argument. Or, suppose that P1 is a compound statement – a conjunction – which is broken up into P1i and P1ii. My sense is that the resulting argument {P1i & P1ii, P2, P3 – C} is still the same argument.

The argument's *identity* is thus a function of the propositions expressed in the premises and conclusion, *and* their inferential relationships. As long as these features are preserved, the argument has not changed. Schematically, then, {P1, P2, P3 – C1} (Arg1) is the same as {P4, P5, P6 – C2} (Arg2) just so long as the inferential relationships (however these are to be identified) are the same in both, and as long as the propositional content of {P1, P2, P3} is the same as that of {P4, P5, P6} and C1 expresses the same proposition as C2.

Let's look now at some examples to flesh out these conjectures.

4. Some examples

To begin, consider this argument (Johnson & Blair 2006):

Background: On this occasion, Senator Martin rose to defend Windsor against a perceived slur contained in Arthur Hailey's novel about the U.S. auto industry, *Wheels*. Hailey wrote of "grimy Windsor" across the border from Detroit, "matching in ugliness the worst of its U.S. senior partner." According to press reports, then-Senator Martin responded:

> When I read this I was incensed … Those of us who live there know that [Windsor] is not a grimy city. It is a city that has one of the best flower parks in Canada. It is a city of fine schools, hard working and tolerant people. (p. 108)

Suppose we reconstruct this argument as follows:

(1) C: Hailey is wrong to think that Windsor is a grimy city.
P1: Windsor has one of the best flower parks in Canada.

---

10. We need to distinguish the proposition from the sentence in which it is expressed, and both in turn from the statement (or assertion) made by it on a specific occasion (Lemmon 1966).

P2: Windsor is a city of fine schools.
P3: Windsor is a city of hardworking and tolerant people.

In line with our earlier conjecture, it seems clear that the order of the premise-conclusion sequence does not matter here as far as the identity of the argument. Whether the argument is expressed as above {C, P1, P2, P3} or the order of the premises and conclusion comes in slightly different sequence {C, P1, P3, P2}, the identity of the argument is not affected. *Changes in the order of presentation do not affect argument identity.*

Now suppose we were to change the wording of P3 slightly, yielding

(2) C: Hailey is wrong to think that Windsor is a grimy city.
P1: Windsor is a city of fine schools.
P2: Windsor has one of the best flower parks in Canada.
P3i: Windsor is a city of *tolerant and hardworking* people.

or, instead of P3i, change it to P3ii:

(3) P3ii: Windsor is a city of hardworking, tolerant people:

My sense is that these changes do not affect argument identity: Example 1 is the same argument as Example 2 and both are the same argument as Example 3. So slight variations in expression do not affect the propositional content; the identity of the argument is not affected.

Now let us ask whether there can be changes in content which, though they change the *identity* of the argument, do not to alter what I will call the *integrity* of the argument (a notion to be discussed shortly). Consider this variation on the argument we have been featuring: Suppose that instead of P2, we have P2i, the rest remaining the same

(4) P2i: Windsor has Jackson Park, one of the best flower parks in Canada.[11]

I am inclined to think that this is *essentially* the same argument, with just a bit more information. The truth conditions for P2 and P2i are the same.

What about a change that results in the argument's becoming slightly more specific? Let Example 5 be the same as Example 1, except we substitute for P2, P2ii:

(5) P2ii: Windsor has one of the best rose gardens in Canada.

P2ii seems to me clearly a different proposition than P2, for its truth conditions are different.

11. Thanks to Jean Goodwin for pointing out a mistake in an earlier formulation of this statement.

One can imagine a situation where P2 is true but P2ii is not true. Hence I think Example 5 is a *different* argument from Example 1. *But for the purpose of the issues being addressed, that difference appears minimal.* Some might think (and I would be one) that while it is pretty clearly a different argument, the intellectual core of the original argument remains the same. So while Example 5 is not *identical* with Example 1, it could be said to express the same basic thought-content. Although Example 5 is not the same as Example 1, yet the *integrity* of the latter is preserved in the former.

At this moment, I cannot give a precise definition of this notion of *argument integrity.* My purpose here has been to attempt to create awareness of this property and differentiate it from identity. I can say that unlike identity, which is an *inherent* property, the integrity of the argument seems to be an *emergent* property, if you will; that is, it is a property that emerges only when the argument is tested by objections.

This addition to our conceptual apparatus for analyzing argumentative exchanges is important because it allows me to recast the original intuition this way: As long as the arguer is able to preserve the *integrity* of the argument while responding satisfactorily to an objection, then that objection was not a strong one. To illustrate what I mean, let us consider of the example we have been using. Suppose someone were to make the following objection to Example 1: "It is not correct to refer to Jackson Park as a flower garden, because it consists primarily of roses." Suppose that in response to that objection, the arguer were to modify P2 by substituting P2ii (above). The fact that the arguer was able to override the objection by making this slight change indicates that the objection was not a strong one. To put the matter slightly differently: if responding satisfactorily to the objection would force the arguer to change, not just the identity (the wording, the order), but the *integrity* of the argument, then that indicates that the objection is a strong one. It is the nature of a strong objection to force a reworking (or perhaps even the abandonment) of the argument, whereas an objection that can be accommodated by a minor change in the argument is a weak one.

On the other hand, if to respond adequately to the objection, the arguer has to delete some of the propositional content of an argument, he or she has changed, not just the identity, but also what I am calling the integrity. So back to Example 1: Suppose someone were to object that P2 is false, that the schools in Windsor have been below provincial standards for the last 5 years. Suppose the arguer accepts this as a valid objection that she cannot override and thus deletes the premise in question, leaving Example 6:

(6) C: Hailey is wrong to think that Windsor is a grimy city.
P1: Windsor has one of the best flower parks in Canada.
P3: Windsor is a city of hardworking and tolerant people.

I think we'll agree that Example 6 is indeed a different argument; it is obviously not the same argument as Example 1, nor does it preserve the integrity of the original argument. That suggests that the objection was a strong one. However, Example 6 can be described as the *dialectical successor* to A1. That is, Example 6 is a revised version of Example 1 that resulted from a modification to that argument that was required in order to deal with a strong objection to P2.

Sometimes when an argument precipitates an objection, the arguer will revise the original argument. The new argument – its dialectical successor – will then be met with a new objection, which the arguer will respond to with a revised argument. In such a case, we may want to refer to that argument's *dialectical history.* Schematically, this development can be represented this way:

Arg1 → O1 → Resp(O1) → Arg2 → O2 → Resp(O2) → Arg3 → O3 → Resp(O3) → Arg4[12]

5. The fertility of an argument

Let me summarize the paper up to this point. I am attempting to develop some ideas that will for help us to understand better a fundamental aspect of our argumentative practice – responding to an objection. I have put forth a series of examples to test some conjectures about argument identity, reflection on which has led me to introduce the distinction between the identity of an argument and what I have called its integrity. The *identity* of the argument is a function of its propositional content and the inferential relationships; so long as these are preserved, then even if the order and expression are different, the identity of the argument is not affected. Different from identity is what I have called *the integrity of* the argument – a more "elastic" property. Slight changes in the propositional content of an argument can be tolerated with affecting its integrity. An objection that requires only a minor modification in the argument may be said to be a weak objection; the modification made to accommodate it does not affect the integrity of the argument. Thus, the integrity of an argument is a property that emerges as a result of that argument's being subjected to testing or criticism.

My hope is that these notions may help us achieve a better grasp of the whole process of responding to objections. How? To answer that question, let me return to the intuition with which I began the paper: that a good argument is one that can withstand strong objections. If this is correct, then a good argument is one

12. See Horn (1998, pp. 165–184) for a sophisticated approach to the task of visual representation of such material.

that–if confronted with objections – is able to meet to them without compromising its integrity.

One final point: It seems that one indicator of a good argument would be its ability to preserve its integrity through its dialectical history. This leads to the following suggestion: That *an argument has a dialectical history is one indicator of its value.* For, as we all know, not all arguments elicit a response. Some meet the fate Hume complained of with respect to his book which, he says, "fell dead-born from the press." The very fact that someone responds with an objection "says something" about the argument. It says that the argument has caught the attention of the respondent and that the respondent was engaged enough with the issue and the arguer's position to issue a challenge.

Now it may be objected that a good argument may generate no response at all. But I wonder if the real strength of an argument can be known without our seeing how the argument responds under the pressure of objections. The suggestion here is that ability to withstand criticism is a crucial test of an argument's value.[13] But more than this: this line of reflection suggests that an important, but hitherto unidentified, property of an argument is its *fertility.* Some arguments are more fertile than others; that is, they generate more by way of response: more objections, more comments, more criticism. To judge the fertility of an argument, then, we need to consider the quantity, the quality and the type of objections and other responses it occasions. We can then say that a fertile argument is one such that *the dialectical environment* surrounding it will be densely populated. Thus, Wittgenstein's argument(s) against private language have displayed this quality of fertility. The area surrounding this particular argument is densely populated, beginning with Ayer's (1904) and Rhees's (1954) responses, continuing on through to Kripke's (1982) "interpretation" of it, and beyond.[14] To cite my own experience, the argument in *Manifest Rationality* for a dialectical tier of argument has been fertile, while my argument – in that same work – that argument be conceived as an exercise in manifest rationality has attracted very little attention.[15] Another question that interests me issues from this line of reflection: What role should the fertility of an argument have in an assessment of its merits? Suppose that an argument

---

13. I think of Ellie's line in *Showboat*: "I got virtue but it ain't been tested." My question here would be: How can Ellie know she has virtue, if she hasn't been tested?

14. A Google search in June 2007 for "Wittgenstein's Private Language Argument" yielded 227,000 hits; for "Anselm's Ontological Argument" 91,900.

15. I find this strange, because this latter argument is, to my own way of thinking, much more important. As I develop it, the idea of a dialectical tier emerges from reflection on the idea of argument as an exercise in manifest rationality.

one believes is not cogent turns out to be fertile? Suppose that it generated a lot of response in the form of criticisms and objections. Would that not count as some evidence of its value? Yet no normative theory that I am aware of have makes any provision for this eventuality.

6. Conclusion

In this paper, I have focused on one dimension of an arguer's dialectical obligations – the task of responding to objections. I started with the widely shared intuition to the effect that a strong argument is one that can withstand strong objections. I introduced some notions that I think will help further work on these matters: the notion of *the integrity* of the argument – which I have distinguished from its identity; and the notion of a *dialectical successor* and of an argument's *dialectical history;* and more recently, the idea of an argument's *fertility* and the *dialectical environment* surrounding it. All of these notions need further work; my aim here has been to indicate how they may be helpful.

Still ahead are the important questions that I have not addressed are: What must the arguer do to discharge his/her dialectical obligations *successfully*? What is dialectical adequacy? Or, better still, what is dialectical strength? I hope to have more to say about these issues in the future publications.

References

Ayer, A.J. (1954). Can there be a private language? *Proceedings of the Aristotelian Society, Supplementary Volume XXVIII (1954)*, 63–76.

Cohen, L.J. (1964). Do illocutionary forces exist? *Philosophical Quarterly, 14*, 118–138.

Govier, T. (1998). Arguing forever? Or: Two tiers of argument appraisal. In H.V. Hansen, C.W. Tindale & A. Colman (Eds), *Argumentation & Rhetoric* [CD-ROM]. St. Catharines, ON: OSSA.

Govier, T. (1998). Progress and regress on the dialectical tier. In H.V. Hansen, C.W. Tindale & A. Colman (Eds), *Argumentation & Rhetoric* [CD-ROM]. St. Catharines: ON: OSSA

Govier, T. (1999). *The Philosophy of Argument.* Newport News, VA: Vale Press.

Hume, D. (1739/1978). *A Treatise of Human Nature* (E. Selby Bigge, Ed). Oxford: Oxford University Press.

Horn, R.E., Yoshimi, J.K., Deering, M.R. & Carr, C.S. (1998). *Mapping Great Debates: Can Computers Think?* Bainbridge Island, WA: MacroVU Press.

Johnson, R.H. (1997). Argumentative space: Logical and rhetorical approaches. In H.V. Hansen, C.W. Tindale & A.V. Colman (Eds), *Proceedings of the 2nd Conference of Ontario Society for the Study of Argumentation* [CD-ROM]. St. Catharines, ON: OSSA.

Johnson, R.H. (2000). *Manifest Rationality: A Pragmatic Theory of Argument.* Mahwah, NJ: Lawrence Erlbaum.

Johnson, R.H. (2003). The dialectical tier revisited. In F.H. van Eemeren, J.A. Blair, C.A. Willard & A.F. Snoeck Henkemans (Eds.), *Anyone Who has a View: Theoretical Contributions to the Study of Argumentation*. Dordrecht: Kluwer.

Johnson, R.H. & Blair, J.A. (2006). *Logical Self-Defense* (U.S. ed.). New York: IDEA Press.

Johnstone, H.W., Jr. (1978). *Validity and Rhetoric in Philosophical Argument. An Outlook in Transition*. University Park, PA: The Dialogue Press of Man & World.

Kripke, S. (1982). *On Rules and Private Language*. Cambridge, MA: Harvard University Press.

Lemmon, T.J. (1966). Sentences, statements and propositions. In B. Williams & A. Montifiore (Eds.), *British Analytical Philosophy* (pp. 87–107). London: Routledge and Kegan Paul.

Meiland, J. (1981). *College Thinking: How to Get the Best out of College*. New York: Mentor-The New American Library.

Perelman, C. (1982). *The Realm of Rhetoric*. Notre Dame: The University of Notre Dame Press.

Pinto, R.C. (2001). *Argument, Inference and Dialectic*. Dordrecht: Kluwer.

Rhees, R. (1954). Can there be a private language? *Proceedings of the Aristotelian Society, Supplementary Volume XXVIII (1954)*, 77–94.

Russell, B. (1960). *The Autobiography of Bertrand Russell. The Middle Years: 1914–1944*. New York: Bantam.

Searle, J. (1968). Austin on locutionary and illocutionary acts. *Philosophical Review, 57*, 405–419.

Toulmin, S.E. (1958). *The Uses of Argument*. Cambridge: Cambridge University Press.

Wreen, M. (1999). A few remarks on the individuation of arguments. In F.H. van Eemeren, R. Grootendorst, J.A. Blair & C.A. Willard (Eds.), *Proceedings of the Fourth International Conference of the International Society for the Study of Argumentation* (pp. 883–888). Amsterdam: Sic Sat.

Yoshimi, J. (2004). Mapping the structure of debate. *Informal Logic, 24* (1), 1–22.

Pragmatic inconsistency and credibility

Jan Albert van Laar

1. Introduction*

A critic can attack an arguer personally by pointing out that the arguer's position, given that he has displayed specific behaviour, has become inconsistent by advancing a particular standpoint. In this paper, this type of criticism will be dealt with as a form of strategic manoeuvring by which an arguer attempts to balance his dialectical with his rhetorical objectives (van Eemeren & Houtlosser 1999b, 2002, 2003). The manoeuvring makes up a kind of personal attack that can be brought into action for several purposes, but due to its focus on standpoints, all these purposes have to do, at least in part, with the confrontation stage of a critical discussion.[1]

According to the local council of West Lincolnshire (UK), roadside memorials, put there to remember the victims of traffic accidents, cannot be tolerated because they distract drivers. A critic responds:

> It's total hypocrisy. The authorities are happy to put up signs that make big money. But if we campaign to put up signs they treat us as troublemakers, and expect us to keep quiet when our children have been slaughtered. (*The Guardian*, November 3, 2005, Features Pages, p. 8).

Regarding such attacks, where it is alleged that the arguer does not practice what he preaches or that he defects from his own policy, a number of authors hold that they can all the same be part of a good argumentative discussion, under certain conditions at least (Brinton 1985, 1986; Walton 1987, 1998, 1999; Woods 2004).

---

* This paper has been made possible by the University of Groningen and by a grant of the Netherlands Organisation for Scientific Research (NWO) for a project on strategic manoeuvring in argumentative confrontations, led by Peter Houtlosser and Frans van Eemeren and carried out at the University of Amsterdam. I thank Corina Andone, Frans van Eemeren, Peter Houtlosser, Erik Krabbe, Allard Tamminga and an anonymous reviewer for their comments on earlier versions of this paper. This text has also been published in the journal *Argumentation* 2, 2007, pp. 317–334.

1. A critic may also point out a pragmatic inconsistency between a proposed starting point and the behaviour of the person who proposes to adopt this starting point (see van Eemeren & Houtlosser 2003). This variety serves slightly different purposes.

However, there is a difficulty in accepting such attacks as potentially legitimate, for the reason that there is nothing wrong *for a protagonist* to have an inconsistent position, in the sense of committing himself to mutually inconsistent propositions (this will be defended in section 2). If so, any such charge seems to be irrelevant. The questions to be answered in this essay are: what, if any, is the dialectical rationale for this kind of strategic manoeuvring, and in what situations, if any, is this kind of charge dialectically legitimate?

I will try to solve this problem by using the distinction between *the role of the protagonist* in the model of a critical discussion (sections 2 and 3), and *the person adopting that role* in argumentative practice (sections 4 and 5). This person is vulnerable to the inconsistency charge: (a) in so far as the inconsistency undermines the arguer's appeal to his personal trustworthiness when requesting the critic to accept propositions on his say-so; (b) in so far as it undermines his position as an (would-be) *antagonist*; and (c) in so far as it diminishes his credibility as a person capable and sincere enough to play the part of *protagonist* seriously (section 6). Pointing out a pragmatic inconsistency for the purpose of diminishing the arguer's credibility as a person capable and sincere enough to play the part of *protagonist* is dialectically the most risky one, and I will elaborate on this third variant by using Krabbe's distinction between ground level dialogue and metadialogue (2003) (section 7) and by examining the soundness conditions for this form of strategic manoeuvring (section 8). The position to be defended is that there are dialectical situations where this kind of charge is legitimate, but that these are exceptional. Pace Brinton, the theoretical claim here is that this kind of personal attack can be assessed on its merits from a viewpoint that is thoroughly dialectical, although enriched with rhetorical insights.

2. Critical discussion

A model for critical discussion specifies a normative procedure for resolving differences of opinion by critically testing whether a particular standpoint is tenable vis-à-vis a particular antagonist (van Eemeren & Grootendorst 2004, pp. 57–8). The pragma-dialectical model for critical discussion has four stages (pp. 57–62). The parties develop and formulate their difference of opinion in the confrontation stage. In the opening stage they decide on the procedural and material starting points. In the argumentation stage they exchange arguments and criticisms. Finally, in the concluding stage, they determine whether the difference has been resolved, and if so, in whose favour.

Within a critical discussion there is a division of labour to stimulate the parties to consider all relevant pros and cons. The division of labour in the

pragma-dialectical notion of a non-mixed discussion resembles the division of labour in the formal dialogues of Barth and Krabbe (1982). In order to achieve the shared aim of resolution, the protagonist must carry out the individual task of showing that the antagonist's position, given that the antagonist critically doubts the standpoint, is untenable. The protagonist must do so by offering argumentation that starts from the antagonist's commitments and that leads to his own standpoint. So, the protagonist's primary aim is to show to the antagonist that the protagonist's standpoint is defensible on the basis of the antagonist's commitments, but *not* that the standpoint is true or acceptable in its own right. The chief individual task of the antagonist is to show to the protagonist that the antagonist's critical position is tenable after all. If the protagonist fails to do his best, pertinent arguments pro may be left unconsidered, while if the antagonist does not try hard, relevant criticisms may be left unexamined. So, within a critical discussion there is a *prima facie* duty to make optimal use of the available means of persuasion and to interfere with the other party's attempt to win the discussion, although within certain limits of reasonableness. Fulfilling such tasks might be named *rhetorical aims*, but in order to avoid confusion I will call them *(individual) dialectical tasks* (cf. Walton & Krabbe's *individual aim*, 1995).

In order not to impede the resolution of the difference of opinion, or even to make resolution impossible, the parties must have certain rights and obligations that are filled out by the rules for critical discussion (van Eemeren & Grootendorst 2004, chap. 6). The individual dialectical tasks must be carried out within these boundaries. The individual tasks and the discussion rules cannot be understood separately. An individual task is directed towards persuading the other party, in so far as this attempt is instrumental to the resolution of the difference of opinion. Discussion rules provide the restrictions that must be taken into account when carrying out these individual tasks.

The main goal and the individual dialectical tasks can be specified for each of the stages. Consider the confrontation and the concluding stages. The shared goal of the confrontation stage is to formulate the difference of opinion in a way that furthers its resolution. In an impeccable confrontation, the parties carry out the mutually opposite tasks of wording their positions in ways that facilitate their defensive or critical tasks in the argumentation stage. They are, however, not allowed to become overly opportunistic. Discussion rules prevent them from nipping the resolution process in the bud. So, the parties do not hinder one another when advancing or adapting a standpoint or critical doubt; they formulate their contributions as clearly and univocally as possible; they interpret the formulations of the other party carefully; they accede to reasonable requests for usage declaratives; and, in principle, the issue of the status or the position of the arguers does not arise (van Eemeren & Grootendorst 2004, pp. 60, 135–137, 190–191).

The main goal of the concluding stage is to determine whether the difference of opinion is resolved, and if so, whether it has been resolved in favour of the protagonist or in favour of the antagonist. So, a discussion has three possible outcomes. The protagonist may give up his attempt to show to the antagonist that the antagonist's critical position is untenable. In that case the conflict of opinions has been resolved in favour of the antagonist. The antagonist may give up his attempt to challenge the main standpoint, resulting in a resolution in favour of the protagonist. Or the parties may decide that their discussion ends unresolved.

3. Inconsistency in a critical discussion

A set of propositions is inconsistent if its propositions cannot possibly all be true, whatever the situation we imagine. In models for dialogue logic the asymmetry between the role of the proponent (or: protagonist) and the role of the opponent (or: antagonist) is relevant for assessing the act of committing oneself to inconsistent propositions (Barth & Krabbe 1982). In a formal dialogue along the rules of these dialogue logics, the proponent tries to show to the opponent that the latter's critical stance towards the thesis is untenable, given that she has made certain initial concessions, while the opponent tries to show that she is able to withstand this attempt by the proponent. In those dialogue models that correspond to a classical or constructive logic, there is a winning strategy for the proponent whenever the opponent has inconsistent propositions among her initial concessions. Such a commitment to an inconsistency by the opponent can be further understood in dialogical terms, as Barth and Krabbe (1982) have shown, as the adoption of two incompatible dialogical attitudes towards one and the same proposition. The proponent, on the contrary, makes no concessions, because the opponent, having nothing to defend, has no need for them. Suppose, the proponent's thesis is inconsistent, for instance by being a conjunction of a proposition and its denial. Then the proponent can be said to defend a *provocative thesis* (Krabbe 1990, p. 38): the proponent does not claim that the thesis is true or acceptable, but rather that the opponent's concessions commit her to this absurdity.

We have seen that in a critical discussion, as understood in the pragmadialectical approach, the task of the protagonist is to show to the antagonist that her critical position is untenable. If the protagonist exposes a logical inconsistency in the antagonist's position, he is considered to have been successful. However, the antagonist has not achieved her dialectical aim if she points out an inconsistency in the position of the protagonist. First of all, it is not her aim to show the position of the protagonist to be untenable. The antagonist's raising critical doubts and asking for reasons must be understood as a way to unfold or develop a critical position in

a way that is in line with her positive commitments. Second, the existence of two mutually inconsistent commitments of the protagonist does not necessarily make it harder for him to achieve his individual task of showing that the antagonist's position is untenable. What about a standpoint that is self-contradictory? Given the dialectical aim of the protagonist, he must be understood as claiming, again, not that the thesis is true or acceptable, but that the antagonist's concessions commit her to this absurdity.

I take it as a requirement of an adequate dialectical theory of pragmatic inconsistency that it does justice to this basic insight.

4. Rhetorical and dialectical objectives in argumentative practice

The expression *argumentative practice* will here refer to the textual or oral activity of exchanging argumentation and criticism. How can speakers or writers within an argumentative practice adhere to the pragma-dialectical discussion rules? Typically, only in an indirect manner, unlike for instance the way we can adhere to simple traffic rules.

One reason is that the pragma-dialectical model starts from the elementary position where the parties take turns by making singular contributions to the dialogue. Even an explicitly and directly formulated argument is to be reconstructed as an implicit dialogue before evaluating it. Real argumentation is normally complex in the sense that arguers, within one turn, anticipate and respond to several challenges in several ways. So, applying the model to argumentation requires reconstruction.[2] (That argumentation requires reconstruction does not decrease the argumentation's reasonableness for the reason that the participants in an discussion can be expected to cooperate in a Gricean manner.)

If we start from a sense of *rule following* that is overly straightforward, we might say, misleadingly, that parties in argumentative discourse do not need to *follow the rules* for critical discussion. We should understand the obligation to obey the rules as the obligation to make contributions *that can be reconstructed*[3]

---

2. Another reason is that the rules are formulated on an abstract level. Even if we have developed the criteria and interpretation procedures that refine and specify the rules (van Eemeren & Grootendorst 1992a, pp.104–6), they still are to be applied in actual situations. Some room will still be left for giving shape to one's dialectical obligations when substantiating them.

3. See van Rees (2001) and van Eemeren et al. (1993, chapter 3) for the distinction between (normative) *reconstruction*, based on a theoretically motivated model, and *interpretation*, based mainly on linguistic conventions.

as sequences of appropriate singular moves in an ideal critical discussion between the protagonist and the antagonist (for a formal specification of this higher order obligation see Van Laar 2007). A fallacy must be understood as a contribution that cannot be reasonably reconstructed as a series of legitimate singular moves.

Following van Eemeren and Houtlosser (1999b, 2002, 2003), two goals are to be distinguished in order to reconstruct, explain and evaluate argumentative behaviour adequately. Here it is stressed that these are goals assumed to be operative within argumentative practices. First of all, an *arguer*, from now on understood as a *person* (or something acting like a person) having primarily the part of the protagonist, and a *critic*, someone who first of all takes care of the moves of the antagonist, are dialectically bound to achieve the *dialectical objectives* (cf. the related notion of a *dialectical obligation* in Johnson 2000). The arguer and the critic must make contributions that are construable as elements that are legitimate in a critical discussion as well as instrumental for fulfilling the individual dialectical tasks of the protagonist or the antagonist. Secondly, it is methodologically useful to interpret the argumentative behaviour of arguers and critics in the light of their (presumed) *rhetorical objectives*. The central rhetorical objective of the arguer is to get the best of the discussion, that is, to persuade the antagonist to retract her critical doubt regarding the standpoint. The central rhetorical objective of the critic amounts to persuading the protagonist to retract his standpoint vis-à-vis the antagonist. The distinction between an individual dialectical task and a rhetorical objective, as I use these terms, is that an individual dialectical task is by definition carried out within the limits of the rules for critical discussion while the notion of a rhetorical aim does not preclude rule-violations. A party is said to *manoeuvre strategically* when he tries to reconcile his rhetorical objectives with his dialectical obligations (van Eemeren & Houtlosser 1999b, 2002, 2003). The rhetorical objectives can be instrumental for further aims. The critic may try to achieve her rhetorical objective in order to get the arguer to distance himself of the standpoint more strongly, or for the purpose of making him look stupid in a debate, or for the purpose of a good negotiation result, etc. (for the distinction between rhetorical objectives in a stronger and in a weaker sense, see van Eemeren & Houtlosser 1999a).

Arguers and critics can be strongly motivated to realize their rhetorical objectives. By using only dialectically permissible means of persuasion a party can bring his rhetorical and dialectical goals together. There is, however, a risk that the rhetorical motives are so strong that a party abandons his dialectical goals, or gradually loses sight of his obligations. It can be hard to find dialectically appropriate arguments or to analyse a position thoroughly so as to find the dialectically weak spots. If parties resort to unsound (in the sense of illegitimate), but possibly

effective means of persuasion, the strategic manoeuvring derails and a fallacy of some kind has been committed.[4]

Pointing out a pragmatic inconsistency is a kind of *confrontational manoeuvring*, that is, a form of strategic manoeuvring where at least some of the central objectives have to do with the confrontation stage. The main dialectical aim in confrontational manoeuvring is to express a difference of opinion in a way that furthers its resolution. The central rhetorical aim of a party is to shape the difference in a way that is helpful for winning over the other party in the later stages. Consider for example the critic in a situation where the arguer has already advanced a standpoint. For her, the rhetorical objective amounts to get the arguer to change his standpoint, or its formulation, in a manner that is advantageous for her, for instance by emphasizing those parts of his position that are difficult to defend.

5. Inconsistency in argumentative practice

In argumentative practices, a critic may surmise the arguer's position to be inconsistent, not on the ground of his explicit propositional commitments, but on the ground of his behaviour. Actions, by themselves, do not directly lead to propositional commitments, but they do head for them. An action A by P only *suggests* that P is willing to commit himself to his having done A as well as to A's permissibility. Woods and Walton distinguish three types of inconsistency (1989) that may derive from the performance of an action. Here, I will clarify these types with the notion of a *contextual commitment*, "commitments that are assumed to be inherent in the discussion situation at hand" but that are "only of real consequence for the discussion if they stand up to an appropriate intersubjective identification procedure" (van Eemeren & Houtlosser 2003, p. 6). In an intersubjective identification procedure the parties determine who is prepared to commit himself publicly to what propositions.

First, a proposition q is taken to be *praxiologically inconsistent* when a person asserts that q while bringing about that not-q (Woods & Walton 1989, p. 63). P's smoking brings with it a contextual commitment to the effect that P smokes, so if a smoker states that he never smokes, his position is praxiologically inconsistent. Second, a proposition is *deonto-praxiologically inconsistent* in case someone asserts that some state of affairs should not be brought about while actually he

4. The injured party should start a metadialogue in order to persuade the fallacy monger to retract or to adjust his move (Krabbe 2003; van Laar 2003). Below, it will be contended that there are also other circumstances that may give rise to metadialogue.

does bring about that very state of affairs (p. 63). Smoking brings with it a contextual commitment to the permissibility of smoking, so if a smoker states that smoking is impermissible, his position is deonto-praxiologically inconsistent. Third, a proposition is *assertionally inconsistent* if it is logically inconsistent that someone asserts q while q is true (p. 62). Asserting that one asserts nothing, and intending this to be taken literally, is assertionally inconsistent. Making an assertion brings with it the contextual commitment to the effect that there is something that has been asserted.

I will start from the following definition of *pragmatic inconsistency*[5] as a term subsuming the three types of action related inconsistency discussed by Woods and Walton: the position of a person P is pragmatically inconsistent if and only if

1. P has put forward assertion S and, in addition, P has conveyed the message that he considers S acceptable himself (you can make assertions without conveying this message when arguing *ex concessis*);
2. P has performed action A;
3. having performed A, P cannot avoid committing himself to T, when asked to do so;
4. S and T are logically inconsistent.

So, charging an arguer with a pragmatic inconsistency is to express the expectation that P's set of commitments will become logically inconsistent in case the critic requests him to commit himself to the proposition that is implied or suggested by P's action.

As said, actions do not lead directly to commitments. P's position must be considered (pragmatically) *consistent* if there is an acceptable explanation of why P does not need to commit himself to T. For example, if P is seen hitting a person, P might be considered committed to the proposition that he has hit this person, unless P can make it clear that he disagrees with this description of his action and commits himself to the alternative reading that he slapped this person on the back in a friendly manner. Similarly, P can avoid committing himself to the acceptability of hitting a person by explaining that he lost his temper and did something he considers impermissible.[6] If the critic's expectation is wrong, the arguer's position was not really pragmatically inconsistent, although it may have looked that way.

---

5. Harrison (1995) and Bartlett (1988) use this expresion to refer to something like assertional inconsistency. I will follow Walton (1998) and van Eemeren and Houtlosser (2003) who use the expression in a more general sense.

6. Similarly, Woods (2004) holds that there is a pragmatic inconsistency in sofar as an explanation for the behaviour is lacking.

Now, why would an arguer, the person taking primary responsibility for the tasks of the protagonist in an argumentative discussion, worry about a potential pragmatic inconsistency?

6. Three uses of pointing out a pragmatic inconsistency

There are at least three reasons why the arguer may strife after a (pragmatically as well as logically) consistent position, and why the critic may want to point out some inconsistency.

1. First, the arguer may want to be perceived as a *credible* arguer in order to persuade the antagonist of a proposition on the basis of his say-so. The arguer's holding the standpoint acceptable himself then functions as an argument from trustworthiness to persuade the antagonist to accept the standpoint: *Smoking is bad. I mean it*; or *Believe me, smoking is really bad*; or *Don't smoke. I never did.* Such an appeal can best be understood as an application of the symptomatic argumentation scheme (cf. van Eemeren & Grootendorst 1992a, p. 163): 'p, because I say so and I am a credible source with respect to this subject.' Note that arguers do not always need to be credible in this particular sense. If the protagonist is able to support his standpoint with propositions that have already been conceded by the antagonist, the arguer may argue *ex concessis*, having no need to appeal to his trustworthiness.[7]

What if the arguer defends a standpoint in this way, while his behaviour is at odds with it? Source credibility has two dimensions: competence and trustworthiness (Pornpitakpan 2004, p. 244). Competence comprises the speaker's expertise, qualifications, and more in general his capacity to make correct statements. Trustworthiness covers the speaker's character and his integrity to assert what he himself holds to be correct. So, two possible explanations suggest themselves (cf. Woods 2004, chap. 6). The critic may wonder why the arguer did not succeed in persuading himself earlier and may surmise that the arguer is dishonest, disbelieving his own standpoint while talking as if he holds it acceptable, or that he is incompetent by being unaware of what constitutes a plausible position. Both lying about S, as well as holding S and its denial true, diminishes an arguer's worth as a reliable source of the information about S.[8]

---

7. Note that this accords with the pragma-dialectical freedom rule, according to which the status or position of a person can be no impediment for him or her to put forward a standpoint.

8. Several papers on *ad hominem* fallacies seem to focus on this kind of credibility: Woods and Walton connect personal attacks to the weight of the burden of proof (1989, p. 63); Walton

2. Second, the arguer may want to remain consistent, not in his capacity as a protagonist, but in his capacity as an antagonist. Discussions often are mixed, in the sense that the parties defend opposite standpoints. This can be reconstructed as a way of contributing to two non-mixed critical discussions, one for each of the opposite standpoints. So, in a real debate, an arguer may want to reckon both with his aims as a protagonist in the one critical discussion as well as with his aims as an antagonist in the other critical discussion. Moreover, an arguer may want to remain consistent for the long-time purpose of developing one single position (i.e., one collection of propositional commitments) that is his operating base for a number of critical discussions that he wants or needs to engage in, sometimes as a defending protagonist and at other times as an antagonist testing others. To be able to play the part of antagonist in future discussions successfully, the arguer may want to remain consistent in the current discussion.[9]

3. Third, the arguer may want to remain consistent in order to keep up the image of a sincere and capable arguer. In order to fulfill the tasks of a protagonist adequately, such as formulating a standpoint, offering argumentation, and assessing the merits of counterarguments, one must be intellectually capable of doing so, and well disposed towards accomplishing these tasks. If an arguer is credible with respect to these tasks, he can be said to possess *protagonist credibility*. Arguers can be credible as a protagonist within one discussion, while lacking such credibility in a different one. If, given the standpoint he defends, an arguer lacks credibility as a protagonist, we cannot expect a reasonable discussion to unfold, due to fallacies or blunders on the part of the arguer, and so a condition for critical discussion is left unfulfilled.

Following Barth and Krabbe on procedural *rules* of the first, second and third order (1982; pp. 75–6), van Eemeren and Grootendorst distinguish three kinds of *conditions* that must be fulfilled in order to enable the resolution of a difference of opinion (1988, 1992a; van Eemeren et al. 1993). According to the first order conditions, the participants must follow the discussion rules. According to the second order conditions, particular character traits, intellectual capacities, and attitudes are needed to realize the first order conditions. According to the

---

(1999) proposes to extend dialectical models with credibility functions, such that a change in the assessment of the arguer's *ethos* or *character* changes the credibility of his arguments.

9. At a higher level of abstractness, pointing out a pragmatic inconsistency can be seen as a "tu quoque" response to the arguer's claim that challenging the thesis is inconsistent with the critic's commitments: "Inconsistent? I? Look who's talking" (Woods & Walton 1989, p. 60). I suppose this rejoinder only pertains to the arguer in his capacity as an antagonist.

third order conditions, particular external, social and political, circumstances must apply in order to realize the second-order conditions. If an arguer lacks credibility as a protagonist, a second-order condition for conflict resolution is left unfulfilled.

How could an inconsistency of the part of the arguer diminish the arguer's credibility as a protagonist? My answer is tentative, and it applies only to particular circumstances. Often, but not always, an arguer means more than that the critic's position is untenable, regarding the standpoint both justifiable to the antagonist *as well as* acceptable himself. Think of discussions on what we believe to be the case. Suppose, an arguer conveys this additional information, while his behaviour is at odds with it. That makes it *somewhat plausible*, although no more than that, that either the arguer is insufficiently sincere with respect to his expressed intention to fulfill the tasks of a protagonist, or that he is intellectually incapable of fulfilling these tasks. Defecting from policy is probatively relevant for such insincerity to the extent that someone's being insincere about what he believes, indicates an insincerity about his dialectical intentions. Defecting from policy is probatively relevant for such incompetence to the extent that someone's incompetence to detect an inconsistency indicates incompetence to fulfill the protagonist's tasks in a critical discussion. I suppose these warrants carry some plausibility, though, of course, more is needed to build a convincing case for the metastandpoint that, due to the arguer, a second order condition for resolving the difference of opinions is left unfulfilled. And if the arguer does not convey the additional message that he considers the standpoint acceptable himself, defecting from policy is even completely irrelevant for these metastandpoints about the sincerity and the competence of the arguer.

A party in an argumentative discussion can use two different kinds of argumentative means to achieve her objectives in an argumentative confrontation. First, she may contribute to the ground level dialogue, for instance by challenging a statement, by asking for a usage declarative, or by expressing critical doubt. Second, she may contribute to a metadialogue, "a dialogue about a dialogue or about some dialogues" (Krabbe 2003, p. 641). In this chapter, the problem, formulated by Krabbe, of demarcating ground level dialogue from metadialogue is dealt with by considering any move that deals with the fulfilment of a condition for critical discussion as part of a metadialogue. So, a *fallacy criticism*, given the dialectical explications of *fallacy*, starts a metadialogue about a first order condition for critical discussion. Here, however, I am dealing with the charge of pragmatic inconsistency. If used for this third purpose of showing that the arguer lacks credibility as a protagonist, the personal attack starts a metadialogue about a second order condition for critical discussion.

7. Pointing out a pragmatic inconsistency as a form of strategic manoeuvring

Corresponding to these three ways in which an inconsistency can harm the arguer's position, three distinct subcategories of this personal attack can be distinguished. In all three variants, the inconsistency is taken to discredit the arguer, either (a) as a trustworthy source of new information, or (b) in his capacity as an antagonist, or (c) in his capacity as a competent and sincere protagonist.[10] From now on, I will focus on the third, metadialogical form of strategic manoeuvring.

This variant runs as follows:[11]

1 You are insufficiently credible as a protagonist of this standpoint, lacking either argumentative competence or sincerity in this issue.[12]
1.1 Because, your position is pragmatically inconsistent.
1.1.1 Because, you advanced standpoint S and you performed act A.

By pointing out a pragmatic inconsistency, the critic discredits the arguer as a protagonist. According to the critic, a second order condition for resolving this particular issue is left unfulfilled; therefore, the critic can expect the arguer to commit fallacies and make blunders; and consequently, the arguer is not fit to adopt the role of the protagonist of the standpoint. This meta-argument first of all contributes to the opening stage, where the parties decide on the distribution of the discussion roles. Indirectly, however, the critic also tries to influence the course of the confrontation and even the concluding stage in his own favour. By declaring the arguer unfit for the role of protagonist of this particular standpoint, the critic can be seen as pushing the arguer to revise the contents of his standpoint, to give a different formulation of his standpoint, or as pushing him

---

10. These variants are not clearly distinguished in the literature. Brinton, for instance, would probably classify them under the general heading of 'ethotic arguments' (1986, p. 246). Walton's argumentation scheme *circumstantial ad hominem* (1998, p. 219) seems to subsume all three kinds. But Woods and Walton make a remarks that only pertains to the first variant: "*The correct rejection of an argument, for its having committed the fallacy of* ad verecundiam, *involves the non-fallacious use of an* ad hominem" (1989, p. 71).

11. This way of manoeuvring is normally presented elliptically: pointing out an inconsistency may suffice to discredit the arguer (cf. Woods 2004, p. 99). The first and second variant share the reasons 1.1 and 1.1.1 with the metadialogical one, and only differ in the nature of the standpoint. In the first variant, the standpoint is that the arguer is not credible as a source of new information, while in the second variant the standpoint is that the arguer's position as an antagonist has been shown to be untenable.

12. The critic nullifies the *sincerity assumption* or the *rationality assumption* (Woods 2004, p. 99).

to withdraw from the discussion altogether. So, the rhetorical objective served by this variant is to get the standpoint revised in a manner that is advantageous for the antagonist, for instance by highlighting those parts of the standpoint that are hard to defend, or to get the protagonist to admit that the issue cannot be resolved in his favour. In this way, pointing out a pragmatic inconsistency is a device for excluding persons from defending particular standpoints or from defending particular formulations of them. Because resolution is served by the fulfilment of the second order conditions, the critic is able to keep up the pretence of dialectical reasonableness.

The example of the roadside memorials can best be taken as an example of this third variant: the arguer, a council in this case, is considered hypocritical and lacking the credibility needed to participate in a serious, resolution oriented discussion on this issue. So, according to this critic, either the council should revise or refomulate his standpoint, or it should withdraw its standpoint and acknowlegde its loss in the discussion.

8. Soundness conditions

An instantiation of a form of strategic manoeuvring is sound if the discussant succeeds in reconciling his rhetorical with his dialectical aims. But it is considered derailed and fallacious if that attempt fails. As every form of manoeuvring brings with it its own risks of obstructing the resolution process, it is instructive to specify soundness conditions for each form. Following van Eemeren and Grootendorst (1992b), the term *ad hominem* is reserved for fallacious moves, while a *personal attack* can be said to be dialectically sound if its soundness conditions are satisfied.

The soundness of the third variant of pointing out a pragmatic inconsistency in the position of the arguer will be examined by considering the four ways in which the arguer can parry these personal attacks. Corresponding to these four ways, four soundness conditions will be formulated. First, the arguer, in our case the council of West Lincolnshire, can point out that he didn't do such a thing, at least not in the way as the critic describes it, *We never allowed distracting bill boards along highways*, or that he didn't say such a thing, at least not in that way, *We meant: you're not allowed to put up really big memorials, but small ones are allowed*. The first soundness condition for this kind of personal attack is that the premise stating the arguer's act and standpoint (1.1.1) is not falsely presented as a shared starting point.

Second, the arguer may point out that no real pragmatic inconsistency has been established. He can do so in three ways. First, he can show that the intersubjective

identification procedure (van Eemeren & Grootendorst 2004, p. 145–6) does not result in the protagonist committing himself to the contextual commitment: *We did hold bill boards permissible, but not any more* (the arguer can do so by giving an adequate explanation of his behaviour; cf. the second soundness condition of a related manoeuvre in van Eemeren & Houtlosser 2003). Second, he can show that the intersubjective inference procedure (p. 148) does not result in the arguer's commitments counting as inconsistent: *it is quite possible to reject memorials as dangerously distracting while permitting bill boards as only mildly distracting*. Third, the arguer can point out that he did not convey the message that he himself holds the standpoint to be acceptable: *our position is only that you cannot consistently challenge our standpoint*. So, the second soundness condition states that the strategic manoeuvring is sound only if the critic does not falsely present the pragmatic inconsistency to be justified by reference to the arguer's standpoint and behaviour (the justificatory link between 1.1.1 and 1.1).

Third, I suppose that standpoint 1 is argued for sufficiently, only if the critic has offered additional evidence that indicates insincerity or incompetence: *this one pragmatic inconsistency does not rule us out as participants in this kind of discussion*. Pointing out a pragmatic inconsistency can only be dialectically sound if it is part of a much more comprehensive, and factually correct personal attack where, for instance, it is pointed out that the arguer is a habitual liar and that he is heavily biased. If the arguer can only be charged with a pragmatic inconsistency, resolution of the difference of opinion is best served by giving him the benefit of the doubt. Though there is an enhanced risk of blunders or fallacies, the blunders and fallacies can best be dealt with by getting the discussion on track again. Only in extreme cases, the critic is dialectically justified to act on the presumption that the arguer lacks credibility as a protagonist, for in such cases the critic can be sure that her investment in the resolution process will be at no avail. So, according to the third soundness condition, the strategic manoeuvring is sound only if the critic does not falsely present the arguer's lack of credibility as a protagonist to be justified by reference to the arguer's pragmatic inconsistency (the connection between 1.1 and 1).

These three soundness conditions specify Walton's requirement for personal attacks that they must not be presented as *closed* (Walton 1987, p. 323), interpreted here as the requirement that the metadiscussion must not be falsely presented in a win for the critic, leaving the protagonist no other reasonable option in the ground level dialogue than to adapt, reformulate or withdraw his standpoint. The critic should leave the option open for the arguer to *explain* his position, which might turn out to be convincing for the critic (cf. Woods 2004, p. 104–5). A violation of any of these three conditions can be seen as a particular way of committing the

tu quoque fallacy (cf. van Eemeren & Grootendorst 1992b, p. 153; van Eemeren & Houtlosser 2003).[13]

Fourth, the arguer could concede the legitimacy of the personal attack, but insist on the justifiability of the standpoint: *all the same, memorial signs would make the situation worse*. The fourth soundness condition therefore stipulates that an attempt to discredit the protagonist should not be presented as implying that there is no convincing case for the arguer's standpoint or that the standpoint is false. Even if the arguer's ethos appears worthless, the arguer may have convincing arguments. To use Walton's terms, the critic should not commit the *basic ad hominem fallacy* (1987, p. 318).

This ends the list of four soundness conditions for pointing out a pragmatic inconsistency in the arguer's position. Of course, instead of parrying the charge, the arguer can take it to heart by either adapting his standpoint, by reformulating his standpoint, or by withdrawing his standpoint from the discussion.

9. Conclusion

Pointing out a pragmatic inconsistency is a form of strategic manoeuvring that admits of three variants. These three variants correspond to the three different reasons for why an arguer would care for the consistency of his position and to the three rhetorical motives for a critic to manoeuvre thus. The critic may point out the inconsistency for the purpose of interfering with an arguer's pretensions to adopt a tenable position as an antagonist in an adjacent discussion, or do so for the purpose of undermining the arguer's strategy to appeal to his personal trustworthiness, or do so for the purpose of showing the arguer to lack protagonist credibility. This last, metadialogical variant has been examined further by specifying four soundness conditions. According to these conditions, the manoeuvring is sound only in dialectically austere circumstances where the arguer clearly is not fit to play the part of protagonist.

In public debate many contributions do not pertain to the topic at issue directly, but do so indirectly, by making metacomments on how the dialogue

---

13. Van Eemeren and Houtlosser show that a similar fallacy may arise as a derailment of a form of strategic manoeuvring where a discussant explains "why a certain proposition is denied the status of a common starting point" (2003, p. 5). This form is aimed at "reconciling the rhetorical aim of admitting only starting points that are agreeable to the antagonist's own position and the dialectical objective of achieving sufficient common ground for critical discussion" (p. 5).

should proceed.[14] In this paper I started from the supposition that metacomments are those comments that are about whether or not a condition for the resolution of the difference of opinion is satisfied. This lead to the explication of one variant of pointing out a pragmatic inconsistency as a form of strategic manoeuvring on a metalevel. In order to construct more precise theories on such metadialogical ways of manoeuvring, we need a more detailed theory about the higher order conditions for critical discussion. How exactly the soundness conditions pertaining to a metadiscussion are connected to the rules for critical discussion is still to be dealt with.

References

Barth, E.M. & Krabbe, E.C.W. (1982). *From Axiom to Dialogue: A Philosophical Study of Logics and Argumentation*. Berlin: De Gruyter.

Bartlett, S.J. (1988). Hoisted by their own petards: Philosophical positions that self-destruct. *Argumentation, 2*, 221–232.

Brinton, A. (1985). A rhetorical view of the *ad hominem*. *Australasian Journal of Philosophy, 63*, 50–63.

Brinton, A. (1986). Ethotic argument. *History of Philosophy Quarterly, 3*, 245–258.

Eemeren, F.H. van & Grootendorst, R. (1988). Rationale for a pragma-dialectical perspective. *Argumentation, 2*, 271–291.

Eemeren, F.H. van & Grootendorst, R. (1992a). *Argumentation, Communication and Fallacies*. Hillsdale, N.J.: Lawrence Erlbaum.

Eemeren, F.H. van & Grootendorst, R. (1992b). Relevance reviewed: The case of argumentum ad hominem. *Argumentation, 6*, 141–159.

Eemeren, F.H. van & Grootendorst, R. (2004). *A Systematic Theory of Argumentation: The Pragma-Dialectical Approach*. Cambridge: Cambridge University Press.

Eemeren, F.H. van Grootendorst, R., Jackson, S. & Jacobs, S. (1993). *Reconstructing Argumentative Discourse*. Tuscaloosa: The University of Alabama.

Eemeren, F.H. van & Houtlosser, R. (1999a). Rhetoric in pragma-dialectics. *Argumentation, Interpretation, and Translation. Electronic Journal, 1*.

Eemeren, F.H. van & Houtlosser, P. (1999b). Delivering the goods in critical discussion. In F.H. van Eemeren, R. Grootendorst, J.A. Blair & C.A. Willard (Eds), *Proceedings of the Fourth International Conference of the International Society for the Study of Argumentation* (pp. 168–167). Amsterdam: Sic Sat.

Eemeren, F.H. van & Houtlosser, P. (2002). Strategic manoeuvring in argumentative discourse: A delicate balance. In F.H. van Eemeren & P. Houtlosser (Eds), *Dialectic and Rhetoric: The Warp and Woof of Argumentation Analysis* (pp. 131–159). Dordrecht: Kluwer Academic.

14. Especially in public debates audiences will need to rely both on source as well as on protagonist credibility (cf. Brinton 1985).

Eemeren, F.H. van & Houtlosser, P. (2003). More about fallacies as derailments of strategic maneuvering: The case of *tu quoque*. In H.V. Hansen, Ch. W. Tindale, J.A. Blair, R.H. Johnson & R.C. Pinto (Eds), *Argumentation and its Applications* (CD-ROM). Windsor, CA: Ontario Society for the Study of Argumentation.

Harrison, J. (1995). Ethical egoism, utilitarianism and the fallacy of pragmatic inconsistency. *Argumentation, 9*, 595–609.

Johnson, R. (2000). *Manifest Rationality: A Pragmatic Theory of Argument*. Mahwah, N.J: Lawrence Erlbaum.

Krabbe, E.C.W. (1990). Inconsistent commitments and commitment to inconsistencies. *Informal Logic, 12*, 33–42.

Krabbe, E.C.W. (2004). Strategies in dialectic and rhetoric. In H.V. Hansen, C.W. Tindale, J.A. Blair, R.H. Johnson & R.C. Pinto, *Argumentation and its Applications* (CD-ROM). Windsor, CA: Ontario Society for the Study of Argumentation.

Krabbe, E.C.W. (2003). Metadialogues. In F.H. van Eemeren, J.A. Blair, C.A. Willard & A.F. Snoeck Henkemans (Eds), *Proceedings of the Fifth Conference of the International Society for the Study of Argumentation* (pp. 641– 644). Amsterdam: Sic Sat.

Laar, J.A. van (2003). *The Dialectic of Ambiguity: A Contribution to the Study of Argumentation*. University of Groningen. Retrievable from http://irs.ub.rug.nl/ppn/249337959.

Laar, J.A. van (2007). One-sided arguments. *Synthese, 154*, 307–327.

Pornpitakpan, C. (2004). The persuasiveness of source credibility: A critical review of five decades' evidence. *Journal of Applied Social Psychology, 34*, 243–281.

Rees, M.A. van (2001). Argument interpretation and reconstruction. In F.H. van Eemeren (Ed.), *Crucial Concepts in Argumentation Theory* (pp. 165–199). Amsterdam: Sic Sat.

Walton, D.N. (1987). The ad hominem argument as an informal fallacy. *Argumentation, 1*, 317–331.

Walton, D.N. (1998). *Ad Hominem Arguments*. Tuscaloosa, AL: University of Alabama.

Walton, D.N. (1999). Ethotic arguments and fallacies: The credibility function in multi-agent dialogue systems. *Pragmatics & Cognition, 7*, 177–203.

Walton, D.N. & Krabbe, E.C.W. (1995). *Commitment in Dialogue: Basic Concepts of Interpersonal Reasoning*. New York: State University of New York.

Woods, J. (2004). *The Death of Argument: Fallacies in Agent-Based Reasoning*. Dordrecht: Kluwer Academic.

Woods, J. & Walton, D.N. (1989). *Fallacies: Selected Papers*. Dordrecht: Foris Publications.

Reasonableness in confrontation

Empirical evidence concerning the assessment of ad hominem fallacies

Frans van Eemeren, Bart Garssen & Bert Meuffels

1. Aims

In this paper we want to substantiate a specific empirical claim: ordinary language users primarily reject *ad hominem* fallacies on the basis of critical considerations, that is: they reject such fallacious moves because they are lacking in argumentative value. At the same time, we want to refute a specific counterclaim: ordinary language users primarily reject *ad hominem* fallacies because of their impoliteness value. After all, committing an *argumentum ad hominem* usually counts as a severe violation of the politeness principle operative in ordinary conversation. Five independent sources of empirical evidence will be presented to rule out this alternative explanation.

Besides testing the claim and refuting the counterclaim, we will explore in a tentative way the relationship between the reasonableness and persuasiveness of discussion contributions.

2. The conventional validity of the pragma-dialectical discussion rules

Before presenting empirical data to substantiate the claim that ordinary language users reject fallacious moves because of their argumentative value and to refute the counterclaim that ordinary language users reject fallacies because they are impolite conversational moves, for reasons of clarity an outline and overview of the research project in which the claim and counterclaim were tested, is needed. In 1995 we started a comprehensive empirical project, entitled Conceptions of Reasonableness. This project Conceptions of Reasonableness was completed in 2005.

The aim of the project was to determine empirically which norms ordinary arguers use or claim to use when evaluating argumentative discourse and to

what extent these norms are in agreement with the theoretical-critical norms of pragma-dialectics. Expressed differently: the aim of this ten-year lasting project was to investigate and to test the *conventional validity* of the pragma-dialectical discussion rules (i.e., are the rules intersubjectively approved by the parties involved in a difference of opinion?). In contrast with the *problem validity* of the pragma-dialectical rules (i.e., are the rules instrumental in resolving a difference of opinion?), which is primarily a theoretical issue, the conventional validity of these rules can only be investigated by means of empirical research.

In this project we carried out some 50 experiments, investigating the (un)reasonableness of 26 different fallacies. First, we tested the conventional validity of the rule for the confrontation stage (the freedom rule [van Eemeren, Grootendorst & Snoeck Henkemans 2002, pp. 110–113]) by investigating the (un)reasonableness of *ad hominem* fallacies, the *argumentum ad baculum*, the *argumentum ad misericordiam*, and the fallacy of *declaring a standpoint taboo or sacrosanct* (see for an overview van Eemeren, Garssen & Meuffels 2003a, 2005b). Second, we tested the validity of the rule for the opening stage (the burden of proof rule [van Eemeren, Grootendorst & Snoeck Henkemans 2002, pp. 113–116]) by investigating the (un)reasonableness of, among others, the fallacy of shifting the burden of proof and the fallacy of evading the burden of proof (van Eemeren, Garssen & Meuffels 2003b). Third, we tested one of the pragma-dialectical rules for the argumentation stage (rule number 7, the argument scheme rule [van Eemeren, Grootendorst & Snoeck Henkemans 2002, pp. 130–132]) by investigating the (un)reasonableness of the *argumentum ad populum*, the *argumentum ad consequentiam*, the false analogy and the slippery slope (van Eemeren, Garssen & Meuffels 2005b, 2005c). And last, we tested the conventional validity of the rule for the last stage in a critical discussion (the closure rule [van Eemeren, Grootendorst & Snoeck Henkemans 2002, pp. 134–136]), by investigating the (un)reasonableness of the *argumentum ad ignorantiam* (van Eemeren, Garssen & Meuffels 2004).

The overall conclusion of this comprehensive project is that the vast majority of the discussion moves that are by pragma-dialectical standards fallacious are also considered unreasonable by ordinary arguers.[1] In short: the pragma-dialectical discussion rules seem to have (some degree of) conventional validity.

1. The expression 'ordinary arguers' refers in this case to people who are neither experts in the field of argumentation theory nor students who have received some specific training in argumentation analysis.

3. The unreasonableness of *ad hominem* fallacies

In this paper the focus is on fallacies that are considered violations of the freedom rule, in particular *ad hominem* fallacies. The freedom rule (the rule for the confrontation stage) can only be attributed (some degree of) conventional validity if the fallacious moves, covered by this rule (like *ad hominem* fallacies), are (1) rejected as unreasonable moves and (2) rejected as unreasonable moves on the basis of critical considerations.

According to the pragma-dialectical rule for the confrontation stage the parties are not allowed to prevent each other from advancing standpoints or casting doubt on standpoints. Attacking the opponent personally by means of an *ad hominem* fallacy is one way to eliminate him as a serious discussion partner. Traditionally, three variants of the *argumentum ad hominem* are distinguished, and all these variants were investigated in our various empirical investigations: (a) the *abusive* variant, (b) the *circumstantial* variant, and (c) the *tu quoque* (you too) variant. In the abusive variant, a head-on personal attack, one party denigrates the other party's honesty, expertise, intelligence, or good faith, so that the other party loses its credibility. Here is an example taken from the experimental material in one of our investigations:

(abusive variant; direct attack)

A: I think a Ford simply drives better; it shoots across the road.
B: How would you know? You don't know the first thing about cars.

In the circumstantial variant, an attempt is made to undermine the opponent's credibility by pointing out special circumstances pertaining to the opponent or suggesting self-interest on the part of the opponent that make the opponent's arguments mere rationalizations. Here is an example, again taken from our material:

(circumstantial variant; indirect attack)

A: In my view, the best company for improving the dikes is Stelcom Ltd; they are the only contractor in the Netherlands that can handle such an enormous job.
B: Do you really think that we shall believe you? Surely, it is no coincidence that you recommend this company: It is owned by your father-in-law.

The *tu quoque argumentum ad hominem* is directed at revealing an inconsistency in the positions that the opponent has adopted on various occasions. This may point to an inconsistency between the standpoint the opponent attacked or

defended in the past, or a discrepancy between a standpoint verbally expressed by the opponent and other behavior on his part that is not in accordance with this standpoint. An example:

(tu quoque variant; you too variant)

A: I believe the way in which you processed your data statistically is not entirely correct; you should have expressed the figures in percentages.

B: You're not being serious! Your own statistics are not up to the mark either.

Finally, here is an example of a discussion fragment in which the pragma-dialectal freedom rule is not violated:

(no violation of the freedom rule)

A: I believe my scientific integrity to be impeccable; my research has always been honest and sound.

B: Do you really want us to believe you? You have already been caught twice tampering with your research results.

The setup, the design of the experiments we will report here, was in all cases the same: a repeated measurement design, combined with a multiple message design. That means that a variety of discussion fragments (in total 48, unless specified otherwise), short dialogues between two interlocutors A and B, were presented to the participants; in 36 of these fragments the freedom rule was violated, but for baseline and comparison purposes various fragments were included in which no violation of the confrontation rule was committed (i.e., in 12 fragments). Each of the three variants of the *ad hominem* fallacy was represented in 12 discussion fragments. In the discussion fragments, in all cases non-loaded topics were used, and in all cases paradigmatic, clear-cut cases of the *ad hominem* fallacies were constructed. The participants were invariably asked to judge the reasonableness of the last contribution to the discussion (i.e., the contribution of B in the examples above); the participants had to indicate their judgment on a 7-point Likert scale, ranging from very unreasonable (=1) to very reasonable (=7).[2]

From table 1 it is clear that the respondents make a clear distinction between discussion moves that, according to pragma-dialectical standards, involve an *ad hominem* fallacy and those that are not fallacious. The original experiment into

2. See for a more detailed description of the design, the messages (i.e., discussion fragments), the instruction to the participants and the statistical analyses, van Eemeren and Meuffels (2002).

the unreasonableness of *ad hominem* fallacies, carried out in the Netherlands, is for reasons of external validity replicated in several countries outside the Netherlands, in the UK, Germany, Spain, and Indonesia. The general pattern in the data is invariably the same: the fallacious *ad hominem* moves are judged in general as less reasonable moves (remember, the midpoint on the Likert scale equals 4 = neither reasonable, nor unreasonable) than the non-fallacious moves in which no violation of the freedom rule is committed. These last moves are consistently considered as reasonable moves.

Table 1. Means of reasonableness scores (in parentheses: standard deviations) for fallacious ad hominem moves and non-fallacious moves (1 = very unreasonable; 7 = very reasonable) (n = number of participants; k = total number of assessed discussion fragments)

	fallacious *ad hominem* moves	**non-fallacious moves**	**k**	**age**
Netherlands (n = 92)	3.75 (.46)	5.29 (.64)	48	15–17
Netherlands replication (n = 24)	3.43 (.64)	5.26 (.72)	24	15–17
UK (n = 60)	3.99 (.44)	5.24 (.48)	48	18–19
Germany (n = 41)	3.48 (.54)	4.88 (.42)	48	16–18
Spain (n = 47)	4.08 (.60)	4.93 (.65)	48	15–16
Spain replication (n = 30)	3.54 (.64)	4.97 (.86)	24	15–16
Indonesia (n = 50)	3.83 (.69)	5.10 (.56)	48	17–19

As can be seen in table 2 the abusive attack is in all cases regarded as the least reasonable move, followed by the circumstantial variant, and then the *tu quoque* variant.[3]

3. From the results in table 2 it cannot be inferred, however, that the *tu quoque* fallacy is judged as a reasonable move under all circumstances. The fallacious and non-fallacious discussion moves were not presented 'in isolation', but in the context of dialogues that were part of a discussion (see also 4.2). We presented the dialogues to the participants in three types of discussion: a scientific, a political, and a domestic discussion. In a scientific discussion, i.e., that type of discussion that exemplifies the type of exchange of ideas that, generally speaking, resembles the ideal of a critical discussion most closely, the *tu quoque* fallacy was invariably considered as an unreasonable discussion move.

Table 2. Means of reasonableness scores for the abusive variant (abus.), the circumstantial variant (circ.) and the *tu quoque* variant (tu q.) (F = overall test for differences between the three types of *ad hominem* fallacies, with corresponding degrees of freedom; ES = effect size, associated with F; F1 = first *a posteriori* Helmert contrast between the first type of fallacy vs. the second and third; F2 = second *a posteriori* Helmert contrast between the second and third type of fallacy)[4]

	abus.	circ.	tu q.	F	ES	F1	F2
Netherlands	2.91	3.90	4.45	25.22**	.16	43.33**	6.42*
	(.64)	(.57)	(.60)	(2,33)			
Netherlands	2.99	3.47	3.82	1.95 (n.s.)	.00	–	–
replication	(.76)	(.94)	(.88)	(2,15)			
UK	3.32	4.13	4.54	12.12**	.12	18.05**	2.21(n.s.)
	(.64)	(.61)	(.46)	(2,33)			
Germany	2.99	3.52	3.93	4.24*	.06	6.90*	1.61 (n.s.)
	(.61)	(.66)	(.63)	(2,32)			
Spain	3.51	4.23	4.49	9.42**	.05	17.21**	1.21 (n.s.)
	(.87)	(.70)	(.73)	(2,48)			
Spain	3.01	3.61	3.99	4.84*	.07	15.67**	2.72 (n.s.)
replication	(1.12)	(.75)	(.78)	(2,22)			
Indonesia	3.21	3.75	4.53	8.99**	.11	11.71**	6.18**
	(.78)	(.99)	(.83)	(2,39)			

n.s. = not significant; ** = $p < .01$; * = $p < .05$

In sum, the results presented in table 1 and table 2 seem to provide, at least to a certain extent, support for the conventional validity of the freedom rule – but there is an alternative explanation for these results. That is, it is the politeness value of the argument rather than the fallaciousness or soundness of the argument that leads to the participant's evaluations of its (un)reasonableness. The empirical data in, for example, table 2 are in perfect agreement with this counterclaim: the participants rated the abusive attack (which is definitely the most impolite variant of the three *ad hominem* attacks) as the least reasonable move, whereas they invariably judged the least impolite attack (the *you too* fallacy) as the most reasonable.

4. The strategy of convergent operationalism

In what follows, we will present the results of 5 data-sources, 5 different observational methods to refute the counterclaim, and to substantiate our claim that the

4. All the F ratios reported in this article are so called quasi F-ratios (see, for example, Clark 1973; Jackson 1992). Degrees of freedom for such tests are not exact, but must be approximated.

participants reject *ad hominem* fallacies primarily because of the lack of quality of the argumentation. To achieve this aim, we will make use of a particular methodological strategy, the so-called strategy of convergent operationalism. By means of this strategy a researcher uses, for purposes of a solid validation of his research hypothesis, different data sources which are independent of each other, hoping that they will point in the same direction, in other words that they will converge. In essence, this strategy is based upon three vital assumptions: (1) no single data source for validating a hypothesis is without bias; the principal objection against the use of just one, single data source is that no method-specific variance can ever be detected, (2) the method-specific biases in the different data sources may not completely overlap, and (3) if the data sources all point in the same direction, then the elimination of rival hypotheses is, of course, not completely guaranteed (in an absolute sense), but that elimination is made more plausible – at least much more plausible than in the case of just one data source (Webb, Campbell, Schwartz & Sechrest 1966). Because of lack of space, for each of the five data sources only one type of bias is discussed here.

4.1 The first method: Adding *ad hominem* indicators

The first data-source consists of adding *ad hominem* indicators like "are you out of your mind" to the non-fallacious arguments. These indicators are normally taken to be very impolite forms of expression, which often create a sphere of hostility between the interlocutors. In doing so, we hoped to make the non-fallacious arguments more or less equally impolite as the fallacious *ad hominem* moves. If we may assume that the participants in our experiments have the impression that both types of dialogues – both the fallacious and the non-fallacious dialogues – are more or less equally impolite because of the presence of such *ad hominem* indicators, then the differences in reasonableness between both types of dialogues cannot be attributed to differences in impoliteness.

One of the problems with this method, this data source, is that we never investigated the intended effects of this stylistic device on politeness: we did not carry out an independent empirical study in which the (assessed) politeness value of non-fallacious moves with *ad hominem* indicators was compared with the (assessed) politeness value of non-fallacious moves without such indicators. But even if we had done that and even if those results would be in accordance with our expectations, then this would be in no way a full-blown proof for the invalidity of the counterclaim: it is quite possible that both variables, reasonableness and politeness, interact with each other – in this case that would mean that when participants are asked to judge the reasonableness of discussion moves, politeness could be only operative at one level of the independent variable (e.g., if a fallacy is committed).

4.2 The second method: Manipulation of discussion contexts

The second data source is associated with the design of our experiments, in particular with the manipulation of an independent variable. In the 48 discussion fragments presented to our participants, three types of discussion contexts were manipulated: a scientific, a political and a domestic discussion (each context was represented by 16 fragments). In the instruction of the respondents, it was explicitly made clear that these three discussion types differ in two important ways: (a) the extent to which they approach the ideal of a critical discussion, and (b) the extent to which they reflect a formal situation (see figure 1).

Figure 1. Three types of discussion domains, varying on two dimensions.

	Formal situation	Critical discussion
discussion domain		
domestic	–	–
political	+	–
scientific	+	+

A scientific discussion exemplifies the type of exchange of ideas that, generally speaking, resembles the ideal of a critical discussion most closely. The other two discussion types are usually taken to be specimens of exchanges that are further removed from a critical discussion. With respect to the critical aspect, we assume that discussions in the domestic domain are in general indistinguishable from those in a political debate, which are often conducted in a highly rhetorical situation. Regarding the extent to which the three types of discussion reflect a formal situation, we assume that the domestic domain can be regarded as an informal domain (at least in The Netherlands) whereas the other two types can be considered as more or less equally formal settings.

Now, if we assume that our participants react primarily to the argumentative adequacy of discussion moves, one may expect that fallacies in the domestic and political domain are considered as less unreasonable moves that fallacies in the scientific domain, and that fallacies in the domestic domain are regarded as unreasonable as those in the political domain. But if the participants react primarily to the relative impoliteness value of the messages, it is to be expected that rule violations in the domestic domain will be regarded less unreasonable than those in the other two domains, and that in the political and the scientific setting no substantial differences in reasonableness scores will be found.

As can be inferred from the test statistics in table 3, the data (coming from The Netherlands) are in accordance with our first expectation, thus favoring our claim.

Table 3. Means of reasonableness scores for fallacious *ad hominem* moves in three types of discussion contexts (D = domestic domain; P = political domain; S = scientific domain; F1 = first *a priori* Helmert contrast between D vs. P; F2 = second *a priori* Helmert contrast between S vs. D and P)

	D	P	S	F1	F2
Netherlands	4.09	3.94	3.22	0.45 (n.s.)	16.88**
	(.62)	(.66)	(.61)	(1,35)	(1,35)
Netherlands	3.78	3.88	2.63	3.73 (n.s.)	15.32**
replication	(.72)	(.82)	(.79)	(1,12)	(1,12)

n.s. = not significant; ** = $p < .01$

However, one of the flaws of this method is that these results could not be replicated in countries outside The Netherlands.

4.3 The third method: Justifications of reasonableness judgments

In some of our experiments (for example, in the replications in The Netherlands and in Spain) we asked the participants not only to judge and rate the reasonableness of the discussion moves, but also to justify (some of) their answers. Because of the more limited testing time, only half of the items of the original test were presented (24). With regard of 12 of these 24 items the respondents had to explain in writing why they judged the reaction of the antagonist B as reasonable or unreasonable.

To prevent a contamination of the research data, a coding system consisting of 7 categories was developed on the basis of the answers of 10 respondents in oral interviews. Of the 288 answers of the Dutch respondents, only 170 could be interpreted: in 16 cases no answer was given at all; in 102 cases, the answer could not be classified in one of the five content-oriented categories. This was, for example, the case with answers such as "I have the strong feeling something is wrong here but just can't say why." 66 answers could be classified as "rule violations" ("B's reaction is unreasonable because he is not reacting to A's standpoint at all; he is only pointing at personal interests of A"), 64 answers belonged to the category "lack of relevance" ("B's reaction is unreasonable because it is not relevant"), 19 to the category "lack of politeness"("B's reaction is unreasonable because he could have said it in a more polite way"), 17 to the category "bad argument"("It's unreasonable because B's reaction is a bad argument"), and the remaining 4 answers could be classified in more than one category.

Clearly, the majority of the responses (86%) that made sense could be linked to the quality, or lack of quality, of the argumentation. Only a small part (11%) could be attributed to the lack of politeness of a discussion move. These results suggest that the respondents (at least those in the replications in the Netherlands

and in Spain) react primarily to the argumentative value of arguments, not so much to their politeness value.

One of the potential problematic aspects of this method, however, is the possibility that our participants deliberately present a social desirable picture of themselves ("I am a rational human being that judges purely on critical considerations") while in other circumstances the participants could have rated the discussion fragments on subjective, emotional considerations associated with politeness.

4.4 The fourth method: Fallacious vs. non-fallacious personal attacks

To rule out politeness as an alternative explanation of the empirical data in table 1 and table 2, another type of experiment was conducted that was not hampered with the potential problematic aspects of the three methods mentioned above. In this experiment 47 (Dutch) secondary school pupils had to judge and rate the reasonableness of both *reasonable* and *fallacious* personal attacks. Here is an example of a discussion fragment that was presented to our participants, in which a reasonable, non-fallacious *tu quoque* attack is committed:

A: Your behavior is clearly not in accordance with your words.
B: What do you mean?
A: You are talking about the importance of a substantial breakfast, but look at yourself: every morning you just take a cigarette and a cup of coffee.

In contrast, in the next example (which was also presented in a domestic discussion context) an unreasonable, fallacious discussion contribution is made because of a violation of the pragma-dialectical freedom rule:

A: I think I'm old enough to smoke if I want to do so.
B: In my opinion you shouldn't smoke, boy; it is too unhealthy.
A: Look at you, dad! You are smoking yourself.

In the next two examples (also presented in a domestic discussion context), the first one contains a reasonable personal (direct) attack, the second one a fallacious one:

A: I think you are really an unreliable person.
B: What do you mean?
A: We agreed you would tell it to nobody, and meanwhile the whole city got to know it.

A: I think that buying a second-hand car is the best choice for us.
B: In my opinion we should buy a new one: the maintenance is much cheaper.
A: Come on! How would you know? You don't know the first thing about cars.

Notice that in the reasonable as well as in the fallacious type of (direct) attack a face-threatening act is committed: in the first example the antagonist B is attacked

by the protagonist A by putting forward a standpoint in which B is overtly accused of being an unreliable person, in the second case the antagonist of A's standpoint is directly attacked personally by adducing argumentation in which he is reproached for having a complete lack of relevant knowledge; in other words, she has no right to speak. As far as politeness is concerned, both types of attack are comparable: in both types a person is attacked directly. If under these experimental conditions our participants judge the fallacious attacks as less reasonable compared with the non-fallacious attacks, then that difference can hardly be explained by the variable impoliteness.[5]

In table 4 one can see that the data are definitely not in accordance with the counterclaim: the fallacious variants of the direct attack are judged as less reasonable than the corresponding non-fallacious attacks ($F(1,47) = 75.08$; $p < .01$; ES = .36); the same applies, albeit to a lesser extent, for the *tu quoque* variant ($F(1,31) = 8.98$; $p < .01$; ES = .08). Clearly then, these data support our main claim that ordinary language users base their judgments on critical considerations.

Table 4. Mean reasonableness scores for fallacious and non-fallacious (reasonable) personal attacks (direct attack and *tu quoque* variant)

	direct attack	***tu quoque***
fallacious (k = 12)	3.08 (.66)	4.15 (.61)
non-fallacious (k = 12)	5.08 (.64)	4.97 (.64)

Unfortunately, seen from a methodological perspective, the contrast between fallacious and non-fallacious attacks in this design is not as sharp as desirable: in the case of the non-fallacious personal attacks, the impoliteness is linked to the standpoint (in the confrontation stage), whereas in the case of the fallacious attacks impoliteness is associated with the reaction to that standpoint (in the argumentation stage).

5. This time the test, presented to the 47 participants, contained not 48, but 60 discussion fragments: 20 of these were presented in a domestic domain, 20 in a political domain and 20 in a scientific domain. In the instruction of the participants the differences between these domains were, again, explained and elucidated. Within each of the discussion domains 12 fragments contained a fallacy (i.e., 4 direct personal attacks, 4 indirect attacks and 4 *tu quoque* attacks), whereas the other 8 fragments contained reasonable argumentation: 4 of these were reasonable direct attacks, the other 4 reasonable *tu quoque*-like attacks. In the statistical analyses we abstract from the variable discussion context and from the indirect attack, confining ourselves to the fallacious and non-fallacious direct attack and the *tu quoque*.

4.5 The fifth method: A statistical removal of the co-variate politeness

In the fifth method the participants (n = 66) were asked to judge and rate not only the (1) reasonableness of discussion moves (k = 48), but also (2) their relevance, (3) their persuasiveness, and (4) their politeness. The scales of relevance and persuasiveness were added just as foils to conceal the aim of this experiment. Measuring both the variables reasonableness and politeness of each discussion fragment offers the opportunity for a statistical removal of the influence of politeness from the reasonableness scores.

In this experiment we found the same (ordinal) pattern in the results as depicted in table 1 and table 2: fallacious *ad hominem* moves (each variant represented again by 12 fragments) are regarded as less reasonable moves than non-fallacious moves (k = 12). But look at the bottom line in table 5: more or less the same pattern is visible in the politeness data.

Table 5. Mean reasonableness and politeness scores for the abusive variant (abus.), the circumstantial variant (circ.), the *tu quoque* variant (tu q.) and non-fallacious moves (n = 66; each variant is represented by k = 12 fragments)

	abus.	circ.	tu q.	non-fallacious
reasonableness	3.38 (.87)	4.21 (.78)	4.54 (.72)	5.09 (.67)
politeness	3.15 (.79)	3.86 (.70)	3.94 (.62)	4.34 (.62)

It is clear from the data in table 5 that the two variables (reasonableness and politeness) correlate. To disentangle these two variables, we make use of the statistical technique of analysis of covariance.[6] The crucial question in every analysis of covariance is: what happens with an observed, statistically significant treatment difference if the influence of a spurious co-variate (a 'nuisance' variable) is ruled out? Adapted to our problem: what will happen with the statistical significant difference in

6. An example may be helpful to elucidate this statistical technique. Suppose a researcher tests the effects of an experimental teaching method in reading: he assigns one intact class of pupils to the experimental method and another class to a control teaching method. Suppose that after some time the experimental subjects do indeed perform better than the control subjects – in this case all the differences between the two teaching methods could be explained in an alternative way by, for example, initial differences in the variable intelligence: the pupils in the experimental treatment are simply more intelligent (and intelligence is a co-variate of reading ability). Imagine that the researcher has the intelligence score of each child at his disposal. In that case he could remove the influence of the variable intelligence, at least in a statistical sense. An analysis of covariance will correct for initial differences in intelligence between the two classes, taking the correlation between the intelligence measure and the dependent variable, reading achievement, into account.

reasonableness between fallacious *ad hominem* moves and non-fallacious moves if the influence of the covariate politeness is ruled out, in other words, if we just act as if the fragments are, according to the judgments of the participants, equally impolite? From table 6 it can be inferred that, although the drop in effect size is quite considerable, the original differences remain statistically significant, even after removing the influence of politeness.[7]

Table 6. F ratio and effect sizes for the difference between the reasonableness of the abusive variant, the circumstantial variant and the *tu quoque* variant vs. non-fallacious discussion contributions, without and with elimination of the co-variate politeness

	without elimination co-variate	*with elimination co-variate*
abusive	F'(1,27) = 40.94 (p<0.01; ES = .33)	F'(1,36) = 6.06 (p<0.05; ES = .03)
circumstantial	F'(1,21) = 13.00 (p<0.01; ES = .13)	F'(1,22) = 6.83 (p<0.05; ES = .05)
tu quoque	F'(1,21) = 6.53 (p<0.05; ES = .07)	F'(1,21) = 3.52 (p<0.10; ES = .03)

Of course, this method is not without biases. One of the problems associated with the method is the *ex post facto* nature of the statistical analysis. That makes it rather difficult to attribute a causal status to a variable like, in our case, reasonableness.

5. An exploration: The relationship between reasonableness and persuasiveness

In sum, the results of the five independent, different data sources (each one with its own unique, idiosyncratic flaws) all point in the same direction: *ad hominem* moves that violate the pragma-dialectical freedom rule are considered as less reasonable than moves that don't violate this rule. Moreover, ordinary arguers reject such fallacious *ad hominem* moves not so much because these fallacies are impolite forms of expression, but because they are lacking in argumentative value. In short, they reject these fallacies primarily on the basis of critical-rational considerations.

O'Keefe compared the results of empirical studies of factors influencing persuasive effectiveness (that is, research findings indicating what makes for persuasive success) against the conception of normatively desirable argumentative practice as prescribed by the pragma-dialectical argumentation theory. Our fifth data source

7. As a consequence of computational problems, the statistical analysis is not carried out on the basis of (the judgments of the reasonableness and politeness of) the original 12 fallacious and 12 non-fallacious fragments, but on a (random) selection of 9 fallacious and 9 non-fallacious fragments. This explains the somewhat 'deviant' degrees of freedom for the quasi F ratios.

offers the opportunity to corroborate his cautiously formulated conclusion that "at the least to some extent, it does seem as though some very general normative desiderata (with respect to argumentative conduct) are at the minimum not incompatible with practical persuasive success" (O'Keefe 2003, p. 316). Our approach is somewhat different from that of O'Keefe: starting from a descriptive point of view (i.e., empirical findings), he links the descriptive aspect to a normative ideal (i.e., the ideal of pragma-dialectics), whereas our starting point is the (normative) pragma-dialectical theory, linking the pragma-dialectical theoretical critical, normative concept of reasonableness to the descriptive empirical findings of (among others) persuasiveness. Assuming that the results of both divergent approaches are more or less consistent and lead to more or less the same conclusions, seen from the perspective of convergent operationalism this result would mean a strong support for the relationship between reasonableness and persuasiveness.

From table 7 it is evident that there is a striking resemblance between reasonableness and persuasiveness: moves that are according to the pragma-dialectical standards non-fallacious are judged as reasonable moves (with an average of 5.09), but they are also rated as persuasive moves (with an average of 5.10). In contrast, moves that are according to the pragma-dialectical standards fallacious are considered as less reasonable and also as less persuasive.

Table 7. Mean reasonableness and persuasiveness scores for the abusive variant (abus.), the circumstantial variant (circ.), the *tu quoque* variant (tu q.), and for non-fallacious moves

	abus.	**circ.**	**tu q.**	**non-fallacious**
reasonableness	3.38 (.87)	4.21 (.78)	4.54 (.72)	5.09 (.67)
persuasiveness	3.40 (.87)	4.17 (.74)	4.94 (.64)	5.10 (.60)

Not surprisingly, there is a strong correlation between the (judged) reasonableness and (judged) persuasiveness of the 48 fallacious and non-fallacious discussion fragments. To be precise: the median correlation is .72, with a range from .36 to .87 (suggesting that these two variables do not completely overlap). The key question pertaining to the relationship between reasonableness and persuasiveness is: what will happen with the original (statistical significant) differences in persuasiveness between the fallacious moves and the non-fallacious moves if we rule out the influence of the variable reasonableness by means of an analysis of covariance? The answer is clear: under those conditions all the differences in persuasiveness between fallacious and non-fallacious moves disappear. For example, the indirect attack is in a statistically significant sense less persuasive than the non-fallacious moves ($F(1,20) = 13.03$; $p < .01$; ES = .16). Now, if we remove the influence of the variable reasonableness and act as if all the discussion fragments (both the fallacious ones as well as the non-fallacious ones) are equally reasonable, then the indirect attack appears to be as persuasive as non-fallacious argumentation ($F(1,21) = 1.35$; n.s.).

These results seem to suggest that a causal status may be ascribed to the variable reasonableness in the relation between reasonableness and persuasiveness.

Anyhow, these results provide strong support for the contention that, generally, (1) ordinary arguers consider discussion moves persuasive only if they are reasonable, and (2) the reasonableness conceptions of ordinary arguers are largely in agreement with the theoretical-critical norms of pragma-dialectics.

References

Clark, H.H. (1973). The language-as-fixed-effect fallacy. *Journal of Verbal Learning and Verbal Behavior*, *12*, 335–359.

Eemeren, F.H. van, Garssen, B. & Meuffels, B. (2003a). The conventional validity of the pragma-dialectical freedom rule. In F.H. van Eemeren, J.A. Blair, C.A. Willard & A.F. Snoeck Henkemans (Eds), *Proceedings of the Fifth International Conference of the International Society for the Study of Argumentation* (pp. 275–280). Amsterdam: Sic Sat.

Eemeren, F.H. van, Garssen, B. & Meuffels, B. (2003b). I don't have anything to prove here. The (un)reasonableness of evading the burden of proof. In F.H. van Eemeren, J.A. Blair, C.A. Willard, & A.F. Snoeck Henkemans (Eds), *Proceedings of the Fifth International Conference of the International Society for the Study of Argumentation* (pp. 281–284). Amsterdam: Sic Sat.

Eemeren, F.H. van, Garssen, B. & Meuffels, B. (2004). Oordelen over de (on)redelijkheid van het argumentum ad ignorantiam. *Taalbeheersing*, *26*, 291–302.

Eemeren, F.H. van, Garssen, B. & Meuffels, B. (2005a). The conventional validity of the pragma-dialectical freedom rule. In F.H. van Eemeren & P. Houtlosser (Eds), *Argumentation in Practice* (pp. 349–365). Amsterdam: John Benjamins.

Eemeren, F.H. van, Garssen, B. & Meuffels, B. (2005b). Ordinary Language Users' Assessments of Misuse of Argumentation Schemes. In D. Hitchcock (Ed.), *The Uses of Argument: Proceedings of a Conference at McMaster University, 18–21 May 2005* (pp. 66–74). Hamilton: McMaster University.

Eemeren, F.H. van, Garssen, B. & Meuffels, B. (2005c). This can't be true, that would be terrible: Ordinary arguers judgments about *ad consequentiam* fallacies. In C.A. Willard (Ed.), *Critical Problems in Argumentation. Selected Papers from the 13th Biennial Conference on Argumentation Sponsored by the American Forensics Association and National Communication Association, August, 2003* (pp. 669–675). Washington: National Communication Association.

Eemeren, F.H. van, Grootendorst, R. & Snoeck Henkemans, A.F. (2002). *Argumentation: Analysis, Evaluation, Presentation*. Mahwah, NJ: Lawrence Erlbaum.

Eemeren, F.H. van & Meuffels, B. (2002). Ordinary arguers' judgments on *ad hominem* fallacies. In F.H. van Eemeren (Ed.), *Advances in Pragma-dialectics* (pp. 45–64). Amsterdam: Sic Sat.

Jackson, S. (1992). *Message Effects Research: Principles of Design and Analysis*. New York: Guilford.

O'Keefe, D.J. (2003). The potential conflict between normatively-good argumentative practice and persuasive success. Evidence from persuasion effect research. In F.H. van Eemeren, J.A. Blair, C.A. Willard, & A.F. Snoech Henkemans (Eds), *Anyone who has a view: Theoretical contributions to the study of argumentation* (pp. 309–310) Amsterdam: kluwer.

Webb, E.J., Campbell, D.T., Schwartz, R.D. & Sechrest, L. (1966). *Unobstrusive Measures: Nonreactive Research in the Social Sciences*. Chicago: Rand McNally.

Managing disagreement space in multiparty deliberation

Mark Aakhus & Alena L. Vasilyeva

1. Introduction

Making, challenging and defending proposals is ubiquitous activity in decision-making and deliberation. The potential for disagreement to expand to the point that deliberation and decision-making is no longer possible is ever present, and its management is consequential for the content, direction, and outcomes of deliberation and decision-making. This study examines a transcript of a meeting where community leaders from a small community in the northeastern United States and representatives of a land development firm discuss a plan for a housing development in the community. The meeting is not a formal public meeting. While the parties appear to be entertaining and vetting a proposal in their meeting, they ultimately avoid the commitments and obligations involved in initiating and accepting a proposal. How they accomplish this, and the consequences for argument quality, is explained by developing the concept of "disagreement space" (Jackson 1992; van Eemeren, Grootendorst, Jackson & Jacobs 1993) relative to Aakhus' (2006) analysis of proposals and Kauffeld's (1995, 1998) account of the pragmatics of proposing.

2. Background and analytic approach

2.1 The setting

The meeting analyzed here takes place within a larger community conflict over what to do with undeveloped land available within a small borough in the northeastern United States where nearly 900 community members reside in 350 houses. The community was divided over whether available land should remain undeveloped and preserved as open space or whether the land should be developed with housing and amenities catering to those who have retired from work. While land use in this American context is largely driven by choices and deal-making among private parties, these choices are governed by local land use ordinances.

These ordinances provide for local control over land use but must be consistent with county, state, and federal regulations and statutes. The borough's mayor, council members, and planning board, as representatives of the community, make decisions about ordinances and general borough policy. The borough's decision-makers typically rely on advice from their legal counsel as well as public input in making these decisions. The borough council and the planning board hold regularly scheduled public meetings where policies and land ordinance complaints and proposals are put forward and the community members can voice their opinions on these matters. These matters are discussed in a variety of other venues but it is only at the scheduled public meetings where decisions can be officially made about policies and ordinances.

In order for the land development firm to pursue its plans for development, the local ordinances, borough policy, budget and taxes, and a long-term development plan must allow such development to take place. If not, then changes must be made or the development stops. The status of the existing relevant policy, plans, and ordinances would make it difficult for the development firm to proceed as they would like. A meeting takes place among eight members of the community's government (the mayor, four council members, planning board chair, and borough attorney) and five representatives of the development firm (main speaker, his assistant, firm's attorney, the president of the corporation's regional division, and the vice-president of land development for the region). It is not an official meeting and, as was discovered during the pre-trial phase of a lawsuit related to the development, it was apparently a meeting among elected representatives kept secret from the community members.

The meeting involves a speech, made by one of the developer's representatives, that ostensibly makes a proposal for developing land within the community's territory and a discussion of that proposal among the meeting participants. The speech lasts nearly 18 minutes, and the ensuing discussion lasts 1 hour and 30 minutes.

2.2 The opening speech

The speech begins with preliminaries that update those present about matters that the development firm has been "studying." The speaker defines the land under contract (161 acres) and describes the availability of the adjacent pieces of property. He points out their goal to build 350 units, which is the maximum allowed by the borough's ordinance, as a senior lifestyle community with recreational amenities. He also points out that there are several "outside forces in flux" including the determination of the protected wetland boundaries on the property and the borough's ordinances. He then previews the main points of the presentation such as real estate taxes, infrastructure costs, and ordinances. He defines these as "three kinds of global issues" on which the developer "needs some feedback." The speaker

then makes a prediction that the borough residents will realize a "25–42 percent" real estate tax decrease depending on how many units can be developed and how the project is put together. The speaker puts forward a theory of how to make the project successful and thus attain that tax benefit for the whole community.

The speech is arranged in a quasi problem-solution format that can be summarized as follows: The developer projects the point of economic viability for the project is to sell 300 units and that 350 units sold is preferred. The development's success depends on the way it is marketed and priced. The key barrier to marketing is that the development cannot have certain desirable amenities such as a golf course due to the limited availability of land. The proposed solution is to market the development based on the charm of the surrounding community and other recreational amenities such as tennis courts and swimming pools. The key barriers to pricing – the effective cost to each individual buyer – are the cost of building the development, the real estate taxes levied by the community, and the fee for connecting each unit in the development to the community's water and sewer infrastructure. The cost of the development is dependent on how many units can be built.

The developer puts forward two solutions for controlling the effective purchase price of a unit in the development. The first is a payment in lieu of taxes program (PiLT). This program aims at equalizing the real estate taxes paid by unit buyers so that the early buyers pay the same real estate taxes as the later buyers. The second solution involves the community waiving the connection fee for each unit sold, and, in return, the developer will make improvements to the existing water and sewer infrastructure. Connection fees are the cost of hooking up the units in the development to the community's water and sewer infrastructure. It is a way to make new homeowners share in the past costs of building and maintaining infrastructure. The final barrier to the project lies in some problems the developer has with the current landscape, historical, and zoning ordinances for which the developer suggests changes.

The opening speech thus lays out a plan for development and is designed to initiate a discussion about what is apparently proposed. The opening speech also raises several contentious matters within the broader community controversy about land development, such as turning open space into housing, building on or near wetlands, changing ordinances, and sharing in the cost of water and sewer system upgrade.

2.3 Disagreement management

What is of analytic interest in the present study is the way the meeting participants formulate and manage disagreement in their interaction with each other. The expansion and management of disagreement can be understood through

the concept of "disagreement space," which is a "structured set of opportunities for argument" (Jackson 1992, p. 261). From the discourse at hand and context of practical activity it "will always be possible to infer an indefinitely large and complex set of beliefs, wants, and intentions that jointly compose the perspective of [interactional] partner[s]" (van Eemeren et al. 1993 p. 95). When any aspect of an interactional partner's perspective that is relevant to the ongoing exchange is called-out and made problematic in the interaction that "problematized element functions as a 'virtual standpoint' in need of defense" and the "entire complex of reconstructible commitments can be considered as a 'disagreement space'" (van Eemeren et al. 1993, p. 95).

The possibilities for expanding a disagreement space are potentially limitless. The content, direction, and outcomes of any deliberation are shaped in the way parties strike a balance between expressing disagreement and doubt and the way parties manage the potential for unlimited expansion of disagreement. How then do the participants in the meeting between community leaders and developers expand and manage their disagreement and with what consequences?

2.4 Commitments and obligations in proposing

Aakhus (2006) provides a partial answer to this question in an analysis of the opening speech. He identified some commitments and obligations a person or agent takes on in arguing for a proposal by drawing upon the concept of felicity conditions from speech act theory (Searle 1969). The point of the paper by Aakhus was not to engage in classic speech act analysis but instead to use the concept of felicity conditions to describe generalized solutions, or *topoi*, to the practical problem of what to say and how to say it when pursuing goals and implementing plans (e.g., Jackson & Jacobs 1981; Jacobs & Jackson 1989; Kline 1979). Aakhus (2006) compared the act of proposing to the related acts of promising and requesting using felicity conditions to articulate lines of reasoning communicators might employ to address doubts or disagreements others might raise about the commitments and obligations of someone making a proposal.

Aakhus (2006) found that the overall organization of the opening speech and the appeals made had characteristics that would be expected if a person was making a proposal rather than, say, a request or a promise. The parts italicized represent the lines of reasoning employed in the opening speech that give it the characteristics of making a proposal:

1. The speech focused on *a future act (A) of both a proposer (P) and a recipient (R).*
2. The speech was an attempt to *enlist the recipients in mutually bringing about A.*

3. The speaker argues that *A will mutually benefit R and P or at least that if it benefits P it will leave R no worse off.*
4. The speaker argues that *R and P are able to contribute to the accomplishment of A.*
5. The speaker argues that *it is not obvious to both P and R that either P or R can do A of their own accord in the normal course of events.*
6. The speaker argues that *A will leave neither P nor R worse off than not doing A.*

The analysis of the opening speech using felicity conditions is a departure from traditional speech act analysis. Here the concept of felicity conditions provide scaffolding for identifying commitments and obligations people orient to in attempts at persuasion and argument. Different speech actions give rise to issues implicit to the act performed, such as a promise, request, or a proposal, or that was assumed to have been performed. A disagreement space emerges and expands as subsequent acts in a discussion highlight commitments and obligations that remain unfulfilled or unexamined. The types of felicity conditions traditionally associated with speech acts, however, may not exhaust the store of commitments and obligations that could be brought to bear in deliberating and thus disagreement can potentially expand in an unlimited number of ways. Explaining how and whether the implicit issue structure that can be articulated through felicity conditions plays out in the expansion and management of disagreement in deliberative discussion requires further development, which will be addressed here.

2.5 Initiating and completing proposals

The lines of reasoning identified in the list above provides a starting point for understanding the management of disagreement in multiparty deliberation. A conventional speech act analysis of one move in a discussion, however, is insufficient for understanding the activity of disagreement management in a multiparty discussion. Communicative acts typically seek preferred subsequent acts and seek to avoid particular kinds of subsequent acts (Jackson & Jacobs 1980; Winograd & Flores 1987). For instance, a request is an initiating act made in the hope of another granting the request rather than denying it in completing the initiating act. This important practical issue – how to get from the initiating act to the completing act – further characterizes disagreement space. The concept of disagreement space draws attention to the web of possibilities for expanding disagreement but then raises the question of how to close the initiation-completion loop. While others have concentrated on the web of possibilities for expansion, Kauffeld (1995, 1998) has outlined the pragmatics of how the loop is closed.

Kauffeld (1995, 1998) explains how the circumstances of proposing feature one party that wants a second party to consider something that the second party

may otherwise be inclined to regard as not worth considering. Such a circumstance requires that proposals are designed, as Kauffeld points out, to induce participation in a dialectical exchange wherein the speaker has the initial burden of proof but aims to shift that burden to the recipient of the proposal. Thus as the activity of proposing progresses, the recipient's role shifts from one of dismissing or casting doubt to a role where the recipient engages in working out the proposal. Kauffeld's explanation links the act of proposing to an activity of proposing: an activity that is bounded by initiation and completion and that is organized by the potential for a shift in obligations and commitments necessary to close the initiation-completion loop.

The opening speech does more than would be expected if the aim were simply to classify it as an act of proposing. Bringing together Aakhus' (2006) analysis of the opening speech with Kauffeld's insights about the pragmatics of proposing, the opening speech should be seen to be functioning as a bid to engage the meeting participants in the activity of entertaining and vetting a proposal. The opening speech structures the disagreement space. Indeed the speech is an example of strategic maneuvering by the speaker (and the development group) to shape the topical potential of the meeting and the unfolding events of the community controversy (e.g., van Eemeren & Houtlosser 2001). However, the speech not only shapes the content of the discussion by outlining topical potential, it is also a bid on how the interaction should proceed in the way it projects roles, topics, a manner of discussion, and a place for argument. Initiating acts are formulated in ways that highlight and hide particular propositional content and shape the non-propositional, interactional aspects of argumentation (Aakhus 2006).

The remaining analysis of the meeting focuses on the participants' response to the opening speech. The struggle in managing disagreement space involves not only the propositional content of what is said but the collective management of interactivity itself. What is said and the response to it shape possibilities for subsequent moves and the quality of argumentation itself. The analysis that follows examines how the lines of reasoning associated with arguing for a proposal are used in raising doubts and disagreements about the proposal. The analysis identifies patterns of disagreement expansion that arise from the way participants call out and make problematic aspects of the opening speech. The analysis explains some consequences of these expansion patterns for the development of meeting content. The analysis further examines ways that disagreement is managed to regulate the possibility of unlimited disagreement expansion and the consequences for the content, direction, and outcome of the deliberation. Finally the pragmatics of proposing discussed above are used to explain the apparent anomaly that the meeting participants simultaneously treat the opening

speech as a proposal while circumventing the commitments and obligations that come with entertaining and vetting a proposal.

3. Analysis

3.1 Expanding disagreement in multi-party deliberation

The expressions of doubt and disagreement, or moves, about the opening speech open up *sub-dialogues*, as they will be called here, within the broader discussion. Sub-dialogues expand on the doubt or disagreement expressed by the participant's move on the opening speech (this is similar to the distinction made by van Eemeren, Grootendorst, and Snoeck Henkemans (2002)). The sub-dialogues are further characterized in terms of how the initiating move is developed over subsequent contributions. This happens in one of two ways: the sub-dialogue is primarily developed by (1) one participant over a series of turns or by (2) multiple participants over a series of turns (this is similar to van Eemeren and Grootendorst's (1992) concepts of mixed and non-mixed disputes).

The main feature of the sub-dialogues is that in making contributions participants open up possibilities for expanding the disagreement space and thus open up alternative directions to be taken up in the discussion and for content to be developed in the interaction. For instance, in example 1:17.1, the mayor (A) develops his point over a series of turns to show that he apparently disagrees with some aspects of the PiLT program that the developers have introduced as a means to control the borough's use of revenues gained from the development. In making this point, however, the mayor stops and shifts to another point.

Example 1:17.1[1]

A: .hh Okay. I uh- ho- I hope that you are that- that (.) the body that you speaking to right now .hh is responsible for only about twenty-five thousand of the taxes. (1.4)

B: Right.

A: All right ahh this- and I know that everybody on this council uh has uh very firm commitment to holding the line against costs and ensuring that there is the maximum tax benefit uhh out of any project that comes along. However that being said we can't speak (0.8) for the school board

B: Right

1. A modified version of Gail Jefferson's (1984) notation system was used to transcribe the meeting.

A: An- and we wouldn't even attempt to uhm. .hhuh p. We ya- know- tha- that they're going to do what they're going to do, .hh uh we ya- know- tha- that they're going to do what they're going to do, .hh uh we would hope that they would hold the lines uh- as we would. And since they're all paying the taxes as well .hh but, but your point is well taken that .hh when these tax- uh- th- as the assessed evaluation, the assessed evaluation goes up and the tax rate starts to drop .hh there's going to be uh- uh it's gonna be like oh manna from heaven.

B: Right

B, who is the developer's spokesperson that made the opening speech, does not take up the initiating move. B simply lets A make his point. The move by A calls into discussion the PiLT program as an effective control mechanism over how the borough uses its new revenues from the development. Over the course of his contribution A appears to back off of his opening criticism about the lack of borough council control and then shifts to an emphasis on the potential revenue for the borough. It may be that A recognizes how his point of disagreement cannot be sustained in the situation because it does not cleanly refute any of what has been argued in the opening speech. This example illustrates both how a contribution can open up further questions and doubts while at the same time attempt to reign the possibility for disagreement expansion.

By contrast, example 1:37 illustrates how doubt is introduced and developed over a series of turns by more than one participant. In particular, Example 1:37 illustrates how an initiating move creates further opportunity for doubt to be collaboratively developed and new directions for the interaction to open up.

Example 1:37

A: I- I- I just uh. just as a point of information, I'm sure you're aware that you're dealing with two different water sheds here. .hh Uh, the exceptional, que- it may well be that the exceptional quality water shed .hh is that area which is west of your proposal, now that would not be it (allright) (ok, I'm), that dumps into the empty box creek and that's where the endangered species has been observed.=

G: =Yeah but that- that piece of prop, piece of (0.8) (cod) cotton head waters up on top there is a real nice piece of wetland.=

A: =I understand, that's the head waters uh- the Rocky Brook which feeds in to the little stone river.

G: Have had your uh your environmental work done now for how. Uh- des. for how long now?

B: What we've- what we've done is we have gone to the state for a call and absent present determination. Uhm (1.8) and the state has come back and said that, (.) we have documented cases of endangered species in the area, they can't site a specific species on the property but they've said, we're warning you no: w, they're in the area. Uh we have not gone for a formal wetland delineation although we have- we have gone out and and delineated the

extent of the wetlands. Uhm: all through here, and all through here. We kind of stopped when we got to the power lines. (.) so we believe we believe that the wetland line is accurate. Uhm we, still have title issues to resolve as to where everybody's property line is and then create uh- a final survey before we can actually submit a formal application to the DEP.

J: Have you done in- independently of the (estimate) DEP, for uhm: your LOI, you've done any environmental work to

B: Yes

J: Let you know what you think is out there? =

B: =Yes our environmentalist has come back and said, you- there may be some habitat that's suitable. uhm suitable habitat doesn't mean the species exists. (.) Y' know, you can put some French fries in a parking lot and a condor will swoop down and- and eat them. .hh That doesn't make it suitable habitat. uh so, (0.7) while they've said there appears to be suitable habitat in the area, it doesn't mean that that the species is actually there.
(1.8)

A: I'm just- the point that I'm making is that the species, one endangered species has been identified in the uh empty box creak .hh area which is the west

B: That's a creek shed.

A: Water shed, yes right right. They we do not have any documented sightings, for the Rocky Brook area.

B: Okay

A: To the best of my knowledge

B: Okay

In this example the mayor (A) raises what he calls a point of information about wetlands. The move calls out the part of the opening speech where the representative for the developer acknowledges that the delineation of the wetland buffer will have a dramatic effect on the number of units that can be built. Another council member (G) who asks a related question to the developer picks up the mayor's point. The representative (B) answers the question only to be further questioned by the borough attorney (J) when the mayor finally reiterates his point. The participants do not appear to be concerned so much about the wetlands and the relationship to special habitats but seem more oriented toward the effect the wetland boundary delineation will have on the project. Calling out the wetland buffer for discussion raises doubts about the developer's ability to make the development happen.

3.2 Summary

These characterizations of sub-dialogues highlight some patterns of disagreement expansion that occur through the mutual contributions of one or more participants. Of all the contributions made during the 90 minutes of discussion, 42 were considered to be moves made on the speech that raised doubt or disagreement by

calling out, addressing, or attacking key parts of the speech. There were 14 sub-dialogues characterized by disagreements developed through an exchange among participants and 18 sub-dialogues characterized by doubts developed through an exchange by participants. Not all moves were taken up in sub-dialogues as 6 disagreements were developed as an individual's point over a series of turns and 4 doubts were developed by an individual over a series of turns. Of the 42 moves made on the speech, 32 were sub-dialogues and 10 were individual expansions. Here then we begin to see how the participants mutually draw out what is talked about in the meeting through the expansion of doubt and disagreement.

As seen in Table 1, different parts of the speech were made part of the discussion with varying frequency. The infrastructure/connection fee aspect of the speech received the most attention in the discussion, followed by the number of units, the PiLT program, and the overall proposal. The sub-dialogues were strung together during long stretches of the meeting that actually formed coherent sets of threads where the participants carried out a sustained development of doubt and disagreement on two topics of speech: the PiLT program and the infrastructure/connection fees. The thread on the PiLT was pursued through sub-dialogues oriented toward understanding the program. The infrastructure/connection fees thread was pursued through sub-dialogues oriented toward challenging that aspect of the proposal.

The pattern of sub-dialogues reveals a kind of collective choice about what merits discussion and how it is to be discussed. The participants appear to have organized themselves around the activity of proposing and the specific content introduced by the act of proposing. These observations about the moves made on the opening speech illustrate how participants' moves open up opportunities and directions for the interaction and thus shape what becomes the object of discussion. We also see how well the opening speech framed the topical potential of the meeting. Given the numerous opportunities for expanding disagreement, the next section turns to the question of how the expression of doubt and disagreement space was collectively managed by the participants, thus shaping the content, direction, and outcomes of discussion.

3.3 Managing disagreement expansion in multiparty deliberation

While the participants take issue with many important features of the plan, such as the PiLT program and the infrastructure changes, the expression of disagreement does not escalate beyond the control of the participants. Three ways that the participants collectively manage the expansion of disagreement are found in (1) the participants' use of standard ways of reasoning about proposals, (2) the way participants frame their interaction with each other, and (3) the way participants re-frame the act of proposing.

3.4 Orienting to patterns for reasoning about proposals

The moves that participants make in the discussion following the speech initiate sub-dialogues that raise doubts or put forward disagreements with various aspects of the plan, and its underlying theory, put forward in the speech. One reason the discussion of the speech does not escalate into open disputing is that the parties orient toward the speech as a proposal and organize their evaluations and assessments of what is said as such.

The lines of reasoning about proposals identified by Aakhus (2006) that shaped the opening speech into a proposal come into play in the discussion about the speech when the community members express doubt and disagreement with what the speech proposes. This is illustrated in example 1:26.1 below, where a borough council member calls out the connection fee waiver as a problem.

Example 1:26.1

C: I can see possibly a thirty percent reduction .hh or a reduction in your hook up fees down to the extent of- of that so it would it- it would lessen possibly what you're putting out for infrastructure (.) but it would be >defendable by< saying, look the borough doesn't need to uh reach into its pockets for anything but, I-, I- I have a hard time getting behind supporting umm waiving the fee completely or- or reducing it beyond (1.8) a defensible position. It- may- may just get beyond something, that wouldn't even if we make- make us not have to spend.

C's move offers an alternative position that he considers more defensible. He is saying that the borough should not have to pay for improvements the development needs to exist. The move plays off the sense that in proposing, the future action should leave neither party worse off than not doing the action. That is, a full waiver does not leave the borough better off and is thus not a defensible course of action whereas a reduced waiver might be.

In example 1:30.1, the mayor (A) attacks the developer's premise about what needs to be repaired and whether the community needs to make any further contribution to infrastructure repair in order for the development to be built.

Example 1:30.1

A: But le- le- lemme let me give you the true scenario here, and that is the residents of this this community have paid .hh (uh) substantial money to improve a sewer plant that can handle twice the population of our community. You do not need to improve that sewer plant in order to add your houses to it, however, (0.2) .pt you may need to (.) do some INI reduction to keep us within our permitted flows, .hh which is not a capacity issue, .hh that is- that is uh it's it's uh it it's another issue regarding the way that the DEP does their assessment of- of- of I mean the measuring of the effectiveness of the plant, uh the other side of that is, that it may be feasible, I'm not sure how how feasible, that the permitted flows

of the plant may be increased due to a doubling of the size of the community so- so therefore y' know the uhh, the .pt point about having to add capacity of the plant I don't think is a valid one.

A's move makes it appear that the developer is asking for something that has already been done. This move is built around the condition of proposing, which is that both parties are able to contribute to the accomplishment of the proposed action.

What is evident in the present case is that lines of reasoning similar to those used in producing the speech are used in producing doubts and disagreements about the speech. Moreover, the participants' orientation toward the speech as an act of proposing represents a way that they collectively manage the expansion of disagreement along particular lines.

3.5 Framing interaction and the meeting event

Framing the interaction is another way that disagreement was managed. Framing the interaction has less to do with the making of arguments and more to do with shaping or influencing the interactivity of the participants. The opening speech and the event are not officially framed by the participants as making and entertaining a proposal, even though it is clear from references in the transcript that the developer had been taking actions to bring about a development and that the developer had met with borough leaders on at least one occasion before the present meeting. Framing the interaction managed the expansion of disagreement by addressing the obligations and commitments participants may have to take on as a consequence of engaging in the deliberation, thus framing was consequential for the meeting's outcome.

An obligation for the developer to make a proposal was not established at the beginning of the meeting. In example 1:1, the mayor (A) describes the occasion and purpose of the speech.

Example 1:1

A: Uh good evening gentlemen.

Audience: Good evening good evening

A: Uh this is uh (.) uh a committee meeting (.) .hh of the council (.) uhm (.) and uh (.) it's not really a formal meeting that we take action on or anything like that but it's from my understanding that you wish to .hh make a presentation .hh to the council and we appreciate you being here .hh Uh we have our chairman of our (.hh) uh planning board as well here .hh to (.) uh listen to what you have to say and uh .hh might as well just (.) uh unless the council has anything that they wish to address first (.) .hh uh (.), we'll turn it over to you so you can get in and out and make (.) it (.) as sweet as you can.

This framing sets out a footing for the various participants in the meeting and the obligations for participation. The committee will take no action, the community leaders present are there to "listen," and the developers are there to "present."

About one-third of the way through the meeting after some differences of opinion about the plan had been surfaced, the mayor (A) in example 1:25 draws attention to the reason for gathering:

Example 1:25

A: Uh many people in community, uh recognize that y' know wit- our water filtration system, water treatments sy- plant had needs improvements.
B: Right
A: hh T- t'day, we do need more water storage capacity today, uhm hum right, so uh, tch we- we understand that there is uh we have some stake in any improvement that's [put in]
B: [Right]
A: place now, the- the extent .hh of that is yet to be determined a'right and uh that's one of the reasons why we sit and why we have the dialogues, so that we can, try to y' know find that medium ground if you will,
B: Yep .hh uhm:

The mayor is making an explicit attempt to shape the possibilities for discussion. In the early part of this move, A acknowledges some points made in the opening speech but not the whole theory presented by the speaker. The mayor points out that "some" not all the people in the community recognize a need for some improvements but not all the improvements identified by the developer. Moreover, the mayor points out that the community has "some stake" in "any improvement" that is "yet to be determined." These qualifications combined with leaving the sewer system improvement off the list define what is possible and what is not. The community leaders are no longer just listening they are engaged in what the proposal is becoming but not yet accepting what is being proposed.

Closer to the meeting's end, in example 1:52.1, the borough's attorney (J) comments on the value of the preceding discussion and points out that some concrete proposals will have to be put forward by the developer. The attorney for the developer (F) responds by describing the developer's view of the gathering.

Example 1:52.1

F: No no, what we wanted to do was have th' discussion first, cause very [honestly] we
J: [Right]
F: didn't make a lot of sense to suddenly put together uh a pack [age or] expect,
J: [mm understood]
F: have you spend our time reviewing the package without some sense about what we wanted to accomplish an', an' an' an' be willing to consider that kind of situation.

Each of these examples, from the beginning, middle, and end of the meeting, illustrates how participants framed the interaction in the flow of the encounter. At one level, the community members treat the opening speech as a proposal in the way their moves evaluate and assess the speech. At another level, as seen in the examples in this section, it is never quite clear that the community members are treating the opening speech or the meeting as an event of working out the proposal into a course of action. The framing of the meeting does not draw attention to the opening speech as a formal proposal but to the fact that the parties are engaging with each other over things proposed. This seems a bit ironic but it has an effect on managing the expansion of disagreement. In the current situation, unresolved disagreements are not as problematic since there is no explicit commitment to the proposal as something that will go forward. The developers are able to get key information about points of impasse without running the risk of the proposal being rejected. The community members are able to hear the proposal without committing themselves to it in any publicly accountable way.

3.6 Re-framing the opening speech as an incomplete proposal

The community members frame the opening speech as an incomplete proposal. The community members throughout the meeting do not refer to the speech or the actions of the developers in any way as a proposal until near the end of the meeting. At that point, the community leader's responses mark the entire opening speech, and the accompanying points made during the discussion, as something less than a full proposal.

In example 1:52, the council member (C) and the borough attorney (J) challenge the developer to make a more concrete proposal while acknowledging the value of the discussion.

Example 1:52

C: (1.5) John what would you suggest, uh uh s- some kind of uh proposal as to what the numbers in the PILT program would be and and like the time it would be worked under an' add over, and what the expected end rate would be. (0.4)

J: Well, I think uh y' know George, got to kind of sort of got to the bottom line before, I mean they, they know it's going to work for them economically so, .hh uh I would think it would be incumbent upon them, to come up- to come to us, with the total package, you're basically saying there's like we can only spend so much money we can we can only build so many expenses into this project to make it build able and profitable for us. and we've talked about all number of different factors y' know, the connection fees, .hh the offside improvement contributions, the the-taxes .hh uh, you know what your costs are, y' know so I would say come to us with a proposal, or proposals as to how um you can get to uh, what you're gonna be claiming is going is your bottom line. An' I

think you've listened to the council t'night, I mean. I don't think anybody's uh pounded their shoe on the table and (0.2) said we're not willing to uh listen to anything. but- I think I think it's been a good meeting in the sense that you've introduced a lot of the new concepts to us, .hh but I think if we're gonna to move it to the next level or have th' chance of moving it to the next level, we're hafta start seeing some concrete proposals, and uh, (0.2) certainly not going to emanate from this side.

Man ?: I [don't know] what it's gonna do.

Man ?: [( )]

F: No no, what we wanted to do was have th' discussion first, cause very [honestly] we

J: [Right]

F: didn't make a lot of sense to suddenly put together uh a pack [age or] expect,

J: [mm understood]

F: have you spend our time reviewing the package without some sense about what we wanted to accomplish an', an' an' [an' be willing to] consider

A: [(th' around acceptor)]

J: Sure.

F: That kind of a situation.

J: No, I agree, I think that's what you intend an' I think you made a lot of sense, and I again, I can't speak for the council, but from my perspective uh .hh as you said uh, I think, uh' the: you did a good job (.) explaining the concepts, and uh you have seen our reaction to them, in the sense of th' questions we have, and (0.2) I think it was a productive uh I think it was a productive step.

This example illustrates how the participants portray the opening speech and the contributions by the development group as achieving something less than a full proposal. The opening speech is described as explanatory and the discussion as informative but not a proposal on which they can reach a conclusion or engage in working out details.

When the speech is framed as less than a full proposal, the proposal remains in a state of development and the parties are not obligated to working out the proposal together. This manages their obligations to each other and to others involved in the potential decision-making. In this case, the community leaders keep the proposal in the developer's hands so the community leaders effectively have no proposal to present to the public nor do they have to take any kind of official stand on the matter. Moreover, as the speech has been framed as less than a full proposal, the doubts and disagreements expressed to this point in the meeting are reframed as opportunities for further discussion or meaningful constraints to be worked with.

4. Discussion and conclusion

This paper has described ways participants in a deliberative meeting expand and manage disagreement. First, the analysis describes how the possibility for

disagreement is expanded through the emergence of sub-dialogues about some aspect of the meeting's opening speech. These patterns of interaction reveal in part how the content of the meeting is structured by the pursuit of doubt and disagreement using lines of reasoning associated with making and accepting a proposal. Three ways that the participants manage the expansion of disagreement are also described. First, the participants' doubts and disagreements reflect standard lines of reasoning for evaluating a proposal and this appears to keep the argumentation focused on developing what is proposed in the opening speech. Second, the community members do not frame their interaction as entertaining and evaluating a proposal or the event as one where a proposal is being worked out. Third, the community members re-frame the opening speech as an incomplete proposal despite treating it as a proposal throughout the meeting by calling for further proposal development.

An anomaly that emerges from the preceding analysis is that even though the discussion during the meeting treated the speech as though it was proposing a course of action, the participants at the same time treated the event as something other than the activity of proposing. So, what is going here in terms of how disagreement is managed in this deliberative setting?

Following Kauffeld's pragmatics of proposing, what appears to be happening in the deliberation analyzed here is that participants have prevented the shift in obligations and commitments necessary for the initiating act to be completed from taking place. The community members have retained their role of dismissing or casting doubt while the developers remain in the role of initiating a proposal. This has several practical benefits for the parties in the context of holding what is presumably a secret meeting out of the eyes of the public. It enables the participants to have disagreements about a policy without generating impasse, it allows for an exchange of information about what may or may not work in the policy setting, and it allows the participants to avoid making any commitments to a course of action while generating for themselves a better understanding of possible courses of action.

In the end, it appears that the participants exploited the pragmatic principles of proposing to avoid closing the initiation-completion loop. They treat the opening speech as a proposal, and then both sides vet the proposal but avoid the commitments and obligations that would come with a proposal by framing their interactivity and reframing the opening speech and thus preventing the shifting of the burden of proof from the proposer to the proposal recipient. Moreover, this is a collaborative and implicit achievement by all the parties to the deliberative discussion made possible by the design and coordination of their contributions.

Relative to pragma-dialectical theory and the critical discussion model (van Eemeren & Grootendorst 1992) the participants appear to be procedurally open to critique as doubts and disagreement were raised repeatedly throughout and that there seemed to be considerable resolution mindedness as the participants kept to the matters at hand and explored issues raised by the speech. However, the topics discussed were narrow considering the broader community conflict that existed. There was little resistance to the strategic maneuvering over the topical potential of the meeting by the development team (e.g., van Eemeren & Houtlosser 2001), and thus the meeting agenda was driven in large part by the opening speech. The argumentative potential of what was said during the meeting was not developed toward critical rationality but instead argumentative potential of what was said was used to create a zone of agreement over which the participants could frame future bargaining (e.g., Jacobs & Aakhus 2002). The main constraint to rational resolution was the possibility that pursuing some issue to its end might in turn block the ability to satisfy some important value or self-interest for one side or the other or to prematurely end the discussion because some issue was not amenable to resolution.

A disagreement space develops and evolves as participants call out aspects of what is said and then expose commitments and obligations presupposed and projected upon what is said. The trajectory of the discussion develops from how the disagreement space expands and contracts in the working out of commitments and obligations. The lines of reasoning associated with an initiating communicative act provide a resource for participants to work out the obligations and commitments and thus a shift from initiation to acceptance. As seen here, these lines of reasoning also provide ways for participants to prevent the shift from happening in a way that leaves the participants appearing reasonable without having resolved their disagreement.

Appendix

Table 1. Opening speech topics x moves on speech

Aspects of the opening speech	Number of moves made on aspect of opening speech
Infrastructure/Connection Fees	14
Number of Units, Wetland Buffer	7
PiLT Program	7
Proposal	6
Taxes	4
Zoning/Ordinances	4
Total	42

References

Aakhus, M. (2006). The act and activity of proposing in deliberation. In P. Riley (Ed.), *Engaging Argument. Selected Papers from the 2005 National Communication Association/American Forensic Association Summer Conference on Argumentation* (pp. 402–408). Washington, DC: National Communication Association.

Eemeren, F.H. van, & Grootendorst, R. (1992). *Argumentation, Communication, and Fallacies: A Pragma-Dialectical Perspective*. Mahwah, NJ: Lawrence Erlbaum.

Eemeren, F.H. van, Grootendorst, R., Jackson, S. & Jacobs, S. (1993). The pragmatic organization of conversational argument. In *Reconstructing Argumentative Discourse* (pp. 91–116). Tuscaloosa, AL: University of Alabama Press.

Eemeren, F.H. van, Grootendorst, R. & Snoeck Henkemans, A.F. (2002). *Argumentation: Analysis, Evaluation, Presentation*. Mahwah, NJ: Lawrence Erlbaum.

Eemeren, F.H. van, & Houtlosser, P. (2001). Managing disagreement: Rhetorical analysis within a dialectical framework. *Argumentation and Advocacy, 37*, 150–157.

Jackson, S. (1992). "Virtual standpoints" and the pragmatics of conversational argument. In F.H. van Eemeren, R. Grootendorst, J.A. Blair & Ch. A. Willard (Eds), *Argumentation Illuminated* (pp. 260–269). Amsterdam: Sic Sat.

Jackson, S. & Jacobs, S. (1981). The collaborative production of proposals in conversational argument and persuasion: A study of disagreement regulation. *Journal of the American Forensic Association, 18*, 77–90.

Jacobs, S. & Aakhus, M. (2002). What mediators do with words: Implementing three models of rational discussion in dispute mediation. *Conflict Resolution Quarterly, 20*, 177–204.

Jacobs, S. & Jackson, S. (1989). Building a model of conversational argument. In B. Dervin, L. Grossberg, B. O'Keefe & E. Wartella (Eds), *Rethinking Communication: Paradigm Exemplars: Vol. 2* (pp. 152–171). Newbury Park: Sage.

Jefferson, G. (1984). On stepwise transition from talk about a trouble to inappropriately next-positioned matters. In J.M. Atkinson & J. Heritage (Eds), *Structures of Social Action: Studies of Conversation Analysis* (pp. 191–222). Cambridge, UK: Cambridge University Press.

Kauffeld, F. (1995). The persuasive force of arguments on behalf of proposals. In F.H. van Eemeren, R. Grootendorst, J.A. Blair & Ch. A. Willard (Eds), *Analysis and Evaluation. Proceedings of the Third ISSA Conference on Argumentation*, Vol. 2 (pp. 79–90). Amsterdam: Sic Sat.

Kauffeld, F. (1998). Presumptions and the distribution of argumentative burdens in acts of proposing and accusing. *Argumentation, 12*, 245–266.

Kline, S. (1979). Toward a contemporary linguistic interpretation of the concept of stasis. *Journal of the American Forensic Association, 16*, 95–103.

Winograd, T. & Flores, F. (1987). *Understanding Computers and Cognition*. New York: Addison-Wesley.

Predicaments of politicization in the debate over abstinence-only sex education

Sally Jackson

Early in 2004, a group of scientists from many fields issued a two-part report entitled "Scientific Integrity in Policymaking: An Investigation into the Bush Administration's Misuse of Science" (Union of Concerned Scientists 2004a, 2004b). Challenging assertions by the Bush Administration of a policy of using the best available science in formulating policy, two forms of "misuse" were alleged: first, suppression and distortion of scientific findings to serve political ends, and second, letting politics trump qualifications in selection of members for scientific advisory groups. According to the Union of Concerned Scientists (UCS), the Bush Administration had basically predetermined the science advice it would get by stacking advisory boards and pressuring agencies to misrepresent the state of knowledge in a field. A number of prominent scientists, including Nobel laureates, signed the report. The report did not just try to set the record straight on science, but built a case for deliberately improper behavior by the Bush Administration. "Restoring scientific integrity" is now an ongoing program of the Union of Concerned Scientists.

This incident is one chapter in an ongoing and deeply layered debate over the "politicization of science." Scientists have charged the Bush Administration with politicizing science, arguing that the Administration ignores or actively represses any scientific findings that challenge its political goals. And science itself has become more politicized in at least two respects: first, in the literal mobilization of the scientific community around political protest, and second, in the growing tendency of politicians of all kinds to treat scientific conclusions as mere instruments of political expression (rather than as a neutral fact base from which all advocates can draw equally in support of their views). The more scientists actively debate the political significance of their work, the more justified politicians feel in treating scientific work products as political expression and as "belonging" to one side or another.

The politicization of science, I argue, creates a special kind of rhetorical challenge, especially for scientists whose interest is not primarily political in the usual sense, but who feel compelled to speak for the science itself. Following Goodnight

(2003) and others (Barnes & Edge 1982), I have labeled this special kind of challenge an argumentative predicament (Jackson 2005; Jackson & Jacobs 2006). Predicaments of politicization can be characterized most simply by saying that when a scientist reacts to conduct framed as politicization of science, the scientist's own conduct may be taken up as nothing more than a political move.

The purpose of this study is to examine how predicaments of politicization unfold and to speculate on how participants might strategize within such predicaments.

1. Theoretical background

The conceptual framework for this study is drawn from work I have done since the late 1970s with Scott Jacobs. Our approach to argumentation is based on the central assertion that argumentation occurs as a particular kind of expansion of projected speech act sequences. Our position has much in common with pragma-dialectics (van Eemeren & Grootendorst 1984, 2004), but differs in several particulars that flow from seeing arguments not as a type of complex speech act but as expansion of speech act sequences (Jacobs & Jackson 2006). I want to begin this study by reviewing four core claims Jacobs and I have advanced.

First, naturally occurring arguments are subsumed by and subsume other contexts of action and belief. The normal initiation of an argument is as "repair" undertaken when one party notices that something said by the other exposes a disagreement in views (Jackson & Jacobs 1980; Jacobs & Jackson 1982, 1989). All the background knowledge that is implicated by an assertion could be thought to belong to its grounds or premises. Classical argumentation theory (i.e., Aristotle's rhetoric and the centuries and centuries of work built on his insights) says argumentation is (or should be) built on established premises – so that even though knowledge itself is uncertain, resolution of specific disagreements may be grounded in prior agreements. Modern argumentation theory, especially *The New Rhetoric* (Perelman & Olbrechts-Tyteca 1971) and related strands of work such as ours, say that on the contrary, what argument does is to uncover the taken-for-granted beliefs of participants and to disentangle the web of assumptions and presumptions that make the emergence of disagreement an interactional problem. Jacobs and I go one step further, emphasizing that all kinds of speech acts, not just assertions, implicate background beliefs and create a space for the challenging of virtual standpoints. A request or an offer may launch an argumentative discussion, and to understand the disagreement space around any particular problematised belief, we need to understand the interactional business that depends on what result is returned from argumentation.

Second, argument is about externalizing disagreements for which it is possible that procedures can be found to reach agreements. What happens in argument is that an identifiable disagreement gets routed into a process of comparing source beliefs and trying to find a resolution. In pragma-dialectics, this routing of the disagreement to a resolution process is described as the opening stage of a critical discussion (van Eemeren & Grootendorst 2004; van Eemeren, Grootendorst, Jackson & Jacobs 1993). The process may be simply further exchange of assertions and counter-assertions, or it may be some complicated search for additional data capable of supporting one side more definitively. Ideally, the disagreement gets routed to the resolution process and the result is returned to the main business of the exchange, allowing whatever else was going on to proceed.

Third, sometimes there is no resolution. Resolution, when it occurs at all, is rarely if ever absolute. Indefinite expansion of an argument is a theoretical possibility: it can occur because each assertion made in support of a prior assertion opens a new disagreement space that can be expanded. Theorizing the possibility of indefinite expansion is a contemporary improvement over older views that sought means (both practical and theoretical) to avoid infinite regress. In the strands of argumentation theory that follow from The New Rhetoric, where no assumption is made that we are headed toward a truth that cannot be overturned, the open-endedness of argumentation is reframed as an opportunity for progress rather than as a vulnerability to regress. Just as indefinite expansion is a theoretical possibility, so is impasse a practical fact: it occurs when parties isolate as their particular disagreement a pair of opposing beliefs that could, theoretically, be expanded further, but that in fact neither will treat as arguable (Woods 1992). Sometimes, in other words, parties enter into argument expecting to make progress toward agreement but reach a point where it is basically certain that they can progress no further toward a common point of view.

Fourth, there are practical ways of closing an argumentative discussion that do not depend on mutual acceptance of one of the competing standpoints; these practical routes to dispute resolution are also theoretical objects that can be given theoretical critique. When all has failed, and the participants in an argumentative discussion reach a point at which they must acknowledge the disagreement to be irresolvable, life must nevertheless go on. The context in which the disagreement arose still exists, and often there is a practical decision to make. The methods people devise for addressing unresolved disagreement are theoretically important because, over time, these methods can either reinforce or erode the normative foundations of critical discussion. In other words, not only is argumentative discourse of theoretical interest, but so are the design resources that can be brought to bear on shaping the conduct of argumentation. Among the objects of interest for their design features are special methods for attempting to reach resolution,

special methods for moving on when all acknowledge that resolution cannot be reached, and special patterns for construction of moves and countermoves within a dispute.

In real controversies, many disagreements remain unresolved. This seems rather to be the rule than the exception in political argument. Whether or not argument ends on a given issue, practical decisions must be made. In democracies, people (both ordinary citizens and their elected representatives) vote. Executive and Legislative branches of government are elected and govern according to what they take to be their mandate from the people, voting within their own ranks as a routine part of their business. But even when the practical decision at the heart of a controversy has been settled through some means such as voting, the disagreement may remain active and potent, resurfacing over and over in unexpected contexts. So it is with the current controversy over the "politicization of science."

A very important point, not one that follows directly from these four claims but that remains to be defended in this study, is that resolution of a disagreement as originally framed is not the only outcome that can be usefully returned from argumentative discussion. A good strategist within a debate understands this and plans accordingly.

2. Predicaments

An argumentative predicament is a situation in which all moves available to a participant seem to lead away from resolution of a disagreement (Jackson 2005). Argumentative predicaments are not simply rhetorical problems for individual advocates – problems of how to devise winning strategies. They are also dialectical problems affecting the value of the discourse itself for coming to any mutually acceptable resolution. Predicaments occur in all kinds of discourse, not just in political discourse. Jacobs and I have noticed them in contexts such as third party mediation, for example, where mediators must constantly struggle to enact a posture of neutrality while working to control abusive moves by individual participants (Jacobs 2002). No one participating in good faith can achieve a fully satisfactory outcome if the debate itself spirals out of control.

In other recent papers (Jackson 2005; Jackson & Jacobs 2006), I have identified several specific ways in which scientists are lured into predicaments of politicization. A scientist may see these situations as ones in which someone else has introduced scientific evidence fallaciously – for example, deliberately distorting what scientists have said to create an appearance of objective support for a political position. But even if it is entirely true that the science has been distorted and the motive for the distortion is political, these are lures into danger. For example, when

fringe viewpoints within a scientific field are presented as authoritative on a subject, the scientific community risks amplifying these fringe viewpoints by attacking them politically. Similarly, when a policy position depends on findings chosen selectively from a large literature, scientific criticism of the cherry-picked findings can raise doubts among the public about what is truly authoritative within a scientific literature. Finally, when political partisans exaggerate scientific uncertainty to justify inaction, rebuttal choices open to scientists are all dangerous in different ways, but most dangerous when framed by accusations of deliberate distortion.

While each of these types of predicaments have distinct features, they all share an important commonality: The risk to the arguer is in each case associated with opening a "disagreement space" (Jackson 1992) that the opponent can exploit with devastating effect. Disagreement space is the structured opportunity for argumentative expansion presented by any move within a discussion. Every type of speech act offers different avenues for expansion, along with expansions specific to the propositional content. In other words, the disagreement space shape-shifts in response to each successive speech act, opening slots for expansion around whatever issues are associated with that type of argumentative move.

Falling prey to an argumentative predicament is like falling into a trap in chess. Consider the speech act of criticizing. To criticize another participant in a discussion is to take on the full burden of commitments associated with the speech act, captured in the act's felicity conditions. These include the assertion that the other participant has done something and the assessment that this something merits disapproval or other social sanction, and up to this point, making the criticism can be considered to have scored points in a contest with an opponent. But the burden of commitment also includes other conditions that must be satisfied for a properly performed criticism, including a condition on the right of the speaker to notice and evaluate the opponent's action – sometimes provoking responses like the *tu quoque* form of *argumentum ad hominem*. While such responses do not usually contain any relevant evidence against the truth of an arguer's claims, they do contain evidence relevant to other conditions on criticism. Pointing out that a *tu quoque* argument is fallacious does not normally deny it the power to weaken the target's position within the contest. The critic often gains an advantage so fleeting as to be completely illusory.

3. Case study: The controversy over the "science of abstinence"

A large body of written material has accumulated in the popular press and other published sources in response to an ongoing controversy within public health, over the justifiability of building sex education for young people on promotion of abstinence

from sex prior to marriage. Such sex education programs are known as "abstinence-only sex education," distinguished from "comprehensive" or "abstinence-plus" programs that urge abstinence but also incorporate instruction about safe sex and birth control. The corpus of relevant material ranges from major addresses by President Bush to posters proclaiming that "Abstinence only is ignorance only."

Argumentation produced within any broad controversy will present considerable difficulties for analysis, and especially for analysis of the flow of move and countermove. It is often quite difficult to know what responds to what. I will not try to survey the entire corpus, but will develop my theoretical point with reference to a sequence of three texts, with the second responding directly to the first and the third responding directly to the second. This sequence will be sufficient to show how predicaments unfold through move and countermove.

The three texts are public documents, readily available for analysis: (1) a report published by the Union of Concerned Scientists ([UCS] 2004a) summarizing results of an investigation of the "misuse of science" by the Bush Administration; (2) a rebuttal delivered to Congress by Dr. John H. Marburger III, chief science advisor for the Bush Administration (Marburger 2004); and (3) a rejoinder to Marburger's response issued by the Union of Concerned Scientists (UCS 2004c). Each of these texts deals with a large number of specific scientific topics.

The portions dealing with abstinence-only sex education are outlined in Figures 1–3, in the form of a flowsheet that represents not only the structure of each side's own argument but also the points of contradiction between sides. The first column in each panel is a summary of sections of the UCS report that deal with sex education, arguing that Bush policy on sex education purposely ignores the relevant science. The second column summarizes portions of Marburger's response, selecting those passages that respond directly to the UCS plus other passages that build a coherent framework for the Administration position. The third column summarizes UCS rebuttals to Marburger's responses. It could also have substantively extended the UCS position, but in this particular text the UCS confined itself to refutation.

The three panels represent related sections of the three texts, so they are segmented to mimic the segmentations in the first of the three texts. By virtue of how the UCS constructed its case, each panel represents one independent line of argument in support of the main UCS claim that "Bush policy on sex education purposely ignores the relevant science," along with the moves that follow in the other two texts. The UCS structured their own argumentation to first develop the point that the Bush Administration has actively pushed an approach for which there is no evidence of effectiveness, then to present the evidence for actual suppression of evidence, and finally to charge that the Administration selects scientific advisors in such a way as to avoid getting objective advice. (Parallel cases are developed on a number of other policy topics to provide multiple argumentation in support of

a still more general claim that the Bush Administration systematically interferes with and distorts science for ideological reasons.)

3.1 Section by section commentary

The first section, shown in Figure 1, deals with the claim that the Bush Administration has actively pushed an approach for which there is no evidence of effectiveness. There are two coordinate supporting points, of which Marburger needs to rebut only one in order to "win" that section. He does not deny that the Bush Administration is pushing abstinence-only education, but concedes this point quite readily, basing his rebuttal on weakness in the UCS claim that abstinence-only education has been shown to be ineffective. He does not try to claim that it has been proven effective; rather, he points out that its effectiveness has not yet been seriously tested. This is very important, as we shall see shortly. The UCS attempts to counter by pointing out that Marburger has not addressed their central claim, but what actually appears to have happened is that the UCS fails to engage with Marburger's own point.

UCS (2004a)	Marburger (2004)	UCS (2004c)
Bush policy on sex education purposely ignores the relevant science.	[On the contrary, the Bush Administration is actively seeking scientifically valid programs to promote abstinence.]	UCS stands by its findings.
Bush pushes abstinence only education & Scientific evidence indicates that abstinence-only sex education is ineffective.	→ [No science behind abstinence-only sex ed because no serious effort yet to evaluate it.]	WH does not address the central claim that the Administration is promoting abstinence-only sex ed despite scientific evidence that it does not work.
Abstinence-only programs flopped in Texas.	→ HHS program was never designed as a scientific study	→ WH contention is unresponsive to the published evidence that monolithic abstinence-only programs have a paradoxical effect on teen pregnancy.
Evidence of ineffectiveness has been deliberately concealed.	→ The UCS accusation is false....	

Figure 1. Flowsheet panel 1.

The second section, shown in Figure 2, presents a form of argumentation in which each supporting point is independent of the others, but none is individually sufficient to prove the conclusion. In this form of argumentation, each subpoint that survives rebuttal adds weight to the conclusion, and each subpoint

that falls victim to rebuttal reduces the plausibility of the conclusion. Commonly, it is assumed that rebuttals of one subpoint have little effect on the status of the others (for they are logically independent), but this case shows that the common assumption is too simplistic. Several distinct examples are presented to establish the conclusion that the Bush Administration has been suppressing findings unfavorable to its own views. What is needed to defeat argumentation structured this way is always somewhat unclear, but effective rebuttal of any particular piece within the structure in this case not only chips away at the support for the claim but also contributes support to a potential counterclaim of opportunism in interpretation of evidence. Although none of the UCS examples are very persuasive taken singly, Marburger responds to each one individually, fitting the response to each example into a general suggestion that these are merely selective views of routine government business. In responding, the UCS is able to introduce reasons for doubting whether these actions were mere routine, but doubting whether actions are routine is far from proving that they make up a pattern of deliberate suppression of information. The UCS's own point, that these individual examples demonstrate a systematic pattern, is not extended effectively.

UCS (2004a)	Marburger (2004)	UCS (2004c)
Bush Administration has actively suppressed effective science-based programs.	[Has not.]	UCS stands by its findings.
"Programs that Work" was removed from the CDC website →	"Programs that Work" was removed because the programs listed were limited: CDC is working on a new initiative. →	WH contention that "Programs that Work" was "limited" does not account for suppressing those that have been provably successful.
Websites on condom use were removed. →	Condom website was removed for updating and then replaced; CDC routinely takes information off its website and replaces it with newer info. →	[Facts are not consistent with this account.] The fact sheet was removed for more than a year. The update underplays the effectiveness of condoms in preventing STDs.

Figure 2. Flowsheet panel 2.

The third section (shown in Figure 3) also presents multiple-example argumentation on the UCS claim that the Bush Administration chooses scientific

advisors for ideological conformity. This UCS argument looks weaker in the flowsheet than it really is, because only examples related to abstinence-only education are shown in the flowsheet, whereas the report gave examples from many areas of science. Nevertheless, viewed in terms of the strategic management of disagreement space, this section is the most interesting of the three. Here Marburger gives only the briefest substantive rebuttal of UCS claims, simply asserting that both individuals are qualified and referring the audience to their widely available CVs. But he also deliberately frames the UCS argument as an "accusation" and expands into the disagreement space associated with the speech act of accusing. The UCS made the strategic mistake of ridiculing the credentials of the two appointees, justifying Marburger in treating the argument as an accusation and in describing it not only as wrong but as offensive. Short of presenting and dissecting the CVs, there is little for the UCS to do but abandon this line of argument. The response to Marburger contains no further mention of the appointees' credentials.

UCS (2004a)	Marburger (2004)	UCS (2004c)
Bush Administration has appointed underqualified advisors in this area in order to validate a pro-abstinence research agenda.	→ This accusation is offensive and wrong.	
	Both the individuals cited by the USC are in fact well qualified.	
Dr.W. David Hager [is underqualified and politically biased].	→ Hager's CV is widely available and it is not necessary to repeat it here.	
Scant credentials Best known for prescribing Bible verses for PMS		
Dr. Joseph McIlhaney [is underqualified and politically biased].	→ McIlhaney's CV is widely available and it is not necessary to repeat it here.	
Dearth of publications Known for his disdain for use of condoms to prevent HIV		

Figure 3. Flowsheet panel 3.

3.2 Marburger's case

Unfavorable as the section-by-section scorecard is for the UCS, the full force of the politicization predicament is not in the weakness of the UCS extensions but

in the failure of the UCS to see that Marburger has completely turned the tables on them. He makes a constructive claim of his own, and chooses where and how to rebut particulars so as to present a very cohesive case in support of this claim. Marburger's claim (shown in brackets in the flowsheet to indicate that it is not present in the text even though it is clearly reconstructible from text) is that the Bush Administration is actively seeking scientifically designed programs to promote abstinence. His point is that, far from ignoring science and simply insisting that schools teach abstinence, the Bush Administration is investing dollars and political will in finding ways to do this *effectively*. In effect Marburger counters the claim that Bush policy on sex education is contrary to the relevant science with a counterclaim that the relevant scientific community has simply not accepted the challenge of finding a way to promote abstinence – *choosing* instead to find ways of promoting safe sex. What he implies is made explicit by many other supporters of the Bush Administration: that the scientific community is taking sides politically, and that the scientific research reflects prior, non-scientific moral preferences. An effective abstinence-only program would prevent pregnancy and disease as a direct benefit of re-establishing chastity as a virtue – whereas typical programs aimed at promoting safe sex are limited to prevention of consequences, and not to protecting the values of mainstream American society.

For many academics and other intellectuals, it will be tempting to dismiss Marburger's case and deny that it has any serious substance. Not everyone believes that chastity is a virtue. But if one entertains the possibility that abstinence might be desirable (whether for moral reasons or for public health reasons), it is neither more nor less scientific to search for effective ways to promote abstinence for its own sake than to search for effective ways to prevent pregnancy and disease. Setting social goals is not usually regarded as the business of science but as the business of politics, and there is nothing improper in any legitimate government deciding to fund science that offers prospects for achieving its significant social goals. The UCS arguments make entirely too clear that the scientific research community simply does not consider abstinence to be a worthwhile goal – and this is a moral position, not a scientific one.

This is what allows Marburger to turn the tables. The scientific position is not morally neutral. It reflects a presumption that young people will be sexually active from an early age and an acceptance of the normalcy of having multiple partners. Some advocates make completely explicit that making sex safe is more important than trying to prevent it in the first place. In the ideological divisions of American society, both sides are assuming the rightness of their own morality and behaving as though blind to the way moral presuppositions affect choice among scientific questions.

By failing to comprehend the critique of science inherent in the Bush Administration positions, scientists expose the political (or at least moral) presuppositions of their own choices. This is another way of describing the politicization predicament: Exposing what is wrong with politicized use of science is quite difficult without opening disagreement space around exactly who is doing the politicizing. The more important politically neutral findings are to political decisions, the more urgently scientists feel a need to enter into the discourse as political actors. But the more scientists act politically, the less neutrality they can claim.

A skillful response to an argumentative predicament of this kind depends on strategically managing the disagreement space. Recall that a predicament is a situation in which all moves appear to lead away from resolution of the controversy. Avoiding predicaments in the first place is far easier than getting out of them once trapped. But recall too that predicaments do not merely make it harder for one participant to win the argument, but do their worst damage to the integrity of the discourse itself, corroding its ability to uncover deeper commonalities of belief and interest. In cases like this one, there is more than one way to envision the disagreement space, and there is considerable strategizing just around what is being debated. At a minimum, we must try to understand both the disagreement space around assertions about the effectiveness of abstinence-only sex education and the disagreement space around charges that one party or another has politicized science.

3.3 Managing the disagreement space around abstinence-only sex education

How can the disagreement space around a topic like abstinence-only education be better managed to produce both better rhetorical outcomes and better dialectical outcomes? One obvious and highly generalizable rule of thumb is to refrain from opening any disagreement space at all around other people's motives for acting as they do. What is wrong with such a move is not that it is irrelevant to the truth of a proposition the opponent is trying to prove, but that it creates a separate and unproductive debate space whose resolution, if it were even possible, would not return a usable result to the main dispute.

Refraining from negative characterizations of another's motives is in fact very helpful to the process of rhetorical invention, because it stimulates the search for what makes sense about an opponent's position. What makes sense in the Bush Administration position on abstinence-only sex education is the belief that scientists have given up too readily on the search for effective ways to present chastity as a virtue in a culture that presents promiscuity as a norm. It may well be that there are no effective ways to do this, but a minimally attentive

response by the scientific community as a whole would signal recognition of the goal, and a better elaborated response would indicate that the scientific community not only recognizes the goal but has exhausted all promising avenues for meeting it. (Clearly, not all promising avenues have been exhausted, since new abstinence-only approaches are being devised and tested in response to federal funding priorities.)

Gutmann and Thompson (1996, p. 83) point out the "corrosiveness" of claiming that a position is politically motivated, rather than respecting the moral status of the position and giving moral reasons for opposing it. Whether the Bush Administration is acting properly or improperly with respect to science and scientific communities, all participants seeking good dialectical outcomes should focus on exposing what is wrong with actual reasoning and should avoid the meta-debate about who has acted wrongly. The disagreement space associated with this meta-debate cannot return any resolution that will move the policy debate forward. By failing to comprehend this, ironically, scientists expose the politically-tinged underpinnings of their own choices concerning what is worthy of research effort: the refusal to see that a culture may promote chastity as a virtue without yoking that to any particular religion, and the corresponding demotion of abstinence from an intrinsically worthwhile goal to a mere means of avoiding pregnancy and disease.

3.4 Managing the "politicization" disagreement space

The debate over abstinence-only sex education is one of many feeding the broader theme of the politicization of science. This broader disagreement space is clearly political and not scientific: Whether government officials are trying to intimidate individual scientists is not a scientific question, as is whether abstinence-only education is effective in promoting a certain kind of outcome. The point of UCS participation is to win voters away from the current government, not to resolve a disagreement with George W. Bush or John H. Marburger, III.

It is this broader debate that most urgently needs more thoughtful management of the disagreement space if anything productive is to result. In this broader debate, it seems inevitable that attributions of political motives must be central. As currently framed, the debate over the politicization of science has no other plausible direction for expansion.

But productive moves and countermoves can be designed even within this framework. There are authentic issues to discuss: Who, ultimately, sets the priorities for science and technology investment, and who, ultimately, sets a discipline's research agenda? Can expert communities such as scientific disciplines always be trusted to recognize when their own (nonscientific) values have shaped their

scientific choices? How accountable should scientific disciplines be to the rest of society?

A good outcome for debate over the politicization of science would be the uncovering of disagreement in views on these questions and the search for common understandings – for example, a renegotiation of the division of responsibility for the national research agenda and associated investments. Part of this search for common understandings must be greater responsiveness on the part of science to the social agenda, including social goals that may have little appeal among intellectuals, and greater willingness to treat public perspectives as more than political interference. This is what is meant by saying that resolution of a disagreement as originally framed is not the only useful result that can be returned from debate.

3.5 The complexity of interlocking disagreement spaces

To fully understand the complexity of the controversy over abstinence-only sex education and the strange sub-themes within it, one must understand the way many different kinds of speech acts link together. Within the controversy, we can certainly find assertions, including direct statements by President George W. Bush, that dominate segments of the controversy. One central assertion, for example, is the assertion that abstinence-only sex education programs have not been effective when tested empirically. The disagreement space around this assertion is surprisingly complex, because the direct evidence for the assertion is not really accessible within public discourse. Instead, the assertion enters the discourse as part of a package that also includes reliance on social science methods and expert peer review as validators and interpreters of the underlying evidence. Questioning the grounds for scientific claims is a problematic speech act, and asserting privilege for scientific claims or criticizing nonspecialists' challenges to this privilege are also problematic speech acts that open potentially corrosive disagreement space without offering prospects for settling consequential disagreements.

But in any case, the controversy is not limited to assertions about whether abstinence-only sex education is or is not effective – nor even to the collateral speech acts that are needed to attack and defend these assertions. The controversy is also over whether it is appropriate for federal funding agencies (such as the National Institutes of Health) to *offer* funding only for abstinence-based programs. In other words, within a view of argument as expansion of speech act sequences, the initiating act need not be an assertion of fact at all ("abstinence-only education is/is not effective") but can also be an entirely different kind of speech act. We may regard requests for proposals issued by funding agencies ("RFPs") as a kind of recurring institutional speech act, around which a disagreement space can

be defined that is peculiar to the embedding of the RFP in structures governing American science funding. Much of the controversy over abstinence-only sex education is really controversy over the repeated offer to fund research aimed at finding effective abstinence-only programs.

4. Conclusion

Let us end by considering effects on the audience before whom debate unfolds. From the perspective of nontechnical participants, expert testimony and other appeals to authority are package deals consisting of the substantive claims made (e.g., the testimony content), the credibility of the source (e.g., the expert witness), and the prestige of the expert field (see Walton 1989, 1997). So long as the field's membership is easy to recognize and the members all agree among themselves on a conclusion, the package may be very strong, but when experts disagree or when it is not clear who is and who is not an expert the package presented by *each* purported expert is degraded by loss of confidence in the field as a source of reliable judgment. The fragility of expert authority within nonexpert discourse is the source of the predicaments of politicization.

In the politicization debate, the scientific community has sensible goals that are imperiled rather than advanced by the impulse to protest against distortion. How would a good strategist behave within the politicization debate? Keeping in mind that every move reshapes the disagreement space, the wise strategist will concentrate not on scoring points at every turn but on pushing toward questions that are truly worth answering.

Skirmishing over who is and is not an authority is well known to diminish the credibility of entire disciplines (Ezrahi 1971), so scientists should not open this space by attacking government experts. Taking sides undercuts any claims to neutrality and objectivity, so scientists individually and collectively should avoid going after individual politicians. Scientists have legitimate perspectives on what is likely to be possible given the current state of knowledge, so they may convincingly argue about which scientific topics are best targets for public investment, but they should avoid attacking the topics themselves or the values behind them. In the case of abstinence-only sex education, arguing that investing in the search for an effective way to promote abstinence *is unlikely to succeed* creates a better and more productive debate space that rejecting the search itself as unscientific.

The meta-debate over the politicization of science does not, after all, really help to settle any of the individual controversies in which it emerges. If it were admitted freely that one goal of the Bush presidency is to get scientists to exert themselves in developing science around the conservative agenda, it is unclear

what would have been gained. Accusing the Bush Administration of impropriety might help persuade voters to replace the Administration with some other, but it will not make America's deep ideological divides disappear.

The politicization debate stands in for a very different debate over values and goals. It may be an important path to exposing the deepest level of disagreement, but it is not a main path toward resolution of any of the policy controversies in which it surfaces.

References

Barnes, B. & Edge, D. (1982). General introduction. In B. Barnes & D. Edge (Eds), *Science in context: Readings in the sociology of science* (pp. 1–12). Cambridge, MA: MIT Press.

Eemeren, F.H. van & Grootendorst, R. (1984). *Speech acts in argumentative discussions*. Dordrecht: Foris.

Eemeren, F.H. van & Grootendorst, R. (2004). *A systematic theory of argumentation: The pragma-dialectical approach*. Cambridge: Cambridge University Press.

Eemeren, F.H. van, Grootendorst, R., Jackson, S. & Jacobs, S. (1993). *Reconstructing argumentative discourse*. Tuscaloosa: University of Alabama Press.

Ezrahi, Y. (1971). The political resources of American science. *Social Studies, 1*, 117–133.

Goodnight, G.T. (2003). Predicaments of communication, argument, and power: Towards a critical theory of controversy. *Informal Logic, 23*, 119–138.

Gutmann, A. & Thompson, D. (1996). *Democracy and disagreement*. Cambridge, MA: Belknap Press of Harvard University Press.

Jackson, S. (1992). "Virtual standpoints" and the pragmatics of conversational argument. In F.H. van Eemeren, R. Grootendorst, A. Blair & C.A. Willard (Eds), *Argumentation illuminated* (pp. 260–269). Amsterdam: Sic Sat.

Jackson, S. (2005, August). *Designing countermoves to reshape a disagreement space*. Paper presented at the 14th NCA/AFA Conference on Argumentation, Alta, UT.

Jackson, S. & Jacobs, S. (1980). Structure of conversational argument: Pragmatic bases for the enthymeme. *Quarterly Journal of Speech, 66*, 251–266.

Jackson, S. & Jacobs, S. (2006). Designing countermoves to questionable argumentative tactics. In M. Hazen & D. Williams (Eds), *Contemporary perspectives on argumentation*. Amsterdam: Sic Sat.

Jacobs, S. (2002). Maintaining neutrality in third-party dispute mediation: Managing disagreement while managing not to disagree. *Journal of Pragmatics, 34*, 1403–1426.

Jacobs, S. & Jackson, S. (1982). Conversational argument: A discourse analytic approach. In J.R. Cox & C.A. Willard (Eds), *Advances in argumentation theory and research* (pp. 205–237). Carbondale: Southern Illinois University Press.

Jacobs, S. & Jackson, S. (1989). Building a model of conversational argument. In B. Dervin, L. Grossberg, B.J. O'Keefe & E. Wartella (Eds), *Rethinking communication: Paradigm exemplars* (pp. 153–171). Newbury Park, CA: Sage.

Jacobs, S. & Jackson, S. (2006). Derailments of argumentation: It takes two to tango. In P. Houtlosser & A. van Rees (Eds), *Considering pragma-dialectics* (pp. 121–134). Mahwah, NJ: Erlbaum.

Marburger, J.H., III. (2004). *Statement of the Honorable John H. Marburger III on scientific integrity in the Bush Administration*. Retrieved June 27, 2005; from http://www.ostp.gov/html/ucs.html

Perelman, Ch. & Olbrechts-Tyteca, L. (1971). *The new rhetoric: A treatise on argumentation* (J. Wilkinson & P. Weaver, Trans.). Notre Dame, IN: University of Notre Dame Press.

Union of Concerned Scientists. (2004a). *Scientific integrity in policymaking: An investigation into the Bush Administration's misuse of science*. Retrieved June 27, 2005; from http://www.ucsusa.org/documents/RSI_final_fullreport.pdf

Union of Concerned Scientists. (2004b). *Scientific integrity in policymaking: Further investigation into the Bush Administration's misuse of science*. Retrieved June 27, 2005; from http://www.ucsusa.org/documents/Scientific_Integrity_in_Policy_Making_July_2004.pdf

Union of Concerned Scientists. (2004c). *Analysis of White House claims: UCS review of April 2, 2004 document from White House Office of Science and Technology Policy*. Retrieved June 27, 2005; from http://www.ucsusa.org/global_environment/rsi/page.cfm?pageID=1393

Walton, D.N. (1989). Appeals to authority. In D.N. Walton (Ed.), *Informal logic: A handbook for critical argumentation* (Ch. 7). Cambridge, UK: Cambridge University Press.

Walton, D.N. (1997). *Appeal to expert opinion: Arguments from authority*. University Park, PA: Pennsylvania State University Press.

Woods, J.H. (1992). Public policy and standoffs of Force Five. In E.M. Barth & E.C.W. Krabbe (Eds), *Logic and political culture* (pp. 9–108). Amsterdam: KNAW.

Rhetoric of science, pragma-dialectics, and science studies

Gábor Kutrovátz

1. Science studies and rhetoric of science

In the past few decades, our understanding of the workings of science have been immensely enriched and deepened by various theoretical approaches unfolding in the conceptual space opened by the so-called Kuhnian revolution. The field of science studies has developed as a diverse inter- and cross-disciplinary enterprise where the attention shifted, from the logical analysis of idealised proposition systems called 'theories', to the sensitive study of the actual practices of scientific activity. As the main thrust has been focused on the social dimensions of what scientists do, and how it is framed on different scales by the social environment, discursive practices have also become a major issue for several studies. While specific and contingent features of the linguistic medium of scientific communication used to be disregarded or ignored as either transparent or irrelevant by most traditional views, numerous recent approaches consider discursive reality to be constitutive of scientific knowledge production.

Typically, discourse-oriented analyses treat scientific communication in rhetorical terms (e.g., Bazerman 1988; Prelli 1989; Gross 1990; Dear 1991; Ceccarelli 2001). The focus of attention is directed to scientific controversies where conflicting claims create spaces in which persuasive techniques become functional. In other words, discursive practices are seen as tools for persuasion, and language operates both as a transmitter of beliefs and a transmitter of cognitive attitudes to beliefs. While there are serious disagreements and divergences between certain approaches within rhetorical analyses of science – all the mentioned authors represent significantly different theoretical standpoints – I will refer to the vague family of these views with the umbrella term 'rhetoric of science'. The primary message here to be taken from the rhetoric of science is that belief acceptance is a process that idealised, discourse-insensitive cognitive factors are insufficient to explain.

Rhetoric of science fits in the main genre of science studies in several respects. First, by focusing on the influence of communicative performances on receptive communities, it places scientific discourse in a social dimension. Perhaps the most fundamental novelty introduced by science studies is the view that science is an

essentially social enterprise. It is not only to say that scientific knowledge is 'too much' to be known by single individuals and therefore has to be distributed among numerous scientists, nor is it to simply claim that different fields and disciplines require different experts who need to cooperate in order to accumulate the whole body of knowledge. Rather, the essentially social nature of science implies that scientific knowledge is produced and practised in a social space, that social processes are constitutive of the workings of science, and also, that scientific cognition is, on the whole, not suitable to be described in traditional individualistic epistemological terms. Rhetorical approaches fall clearly on the side of science studies with their social sensitivity, as opposed to the main bulk of pre-Kuhnian philosophy of science.

Second, by studying the linguistic medium of scientific communication, rhetoric of science contributes to broadening the spectrum of perspectives from which science is now analysed. While the standard philosophical view of science articulated most of its questions in a logical dimension, science studies scholars have developed various approaches to the complexity of scientific activity. Golinski's useful summary of constructivist studies of science (Golinski 1998), for instance, offers a thematic presentation of the most influential work done in the field, devoting each chapter to different aspects of science such as social identity, laboratory work, scientific instruments and representation, cultural aspects – and scientific communication, as described by seminal works in the rhetoric of science (pp. 103–119). Scientific discourses are in the focus of countless contributions to science studies.

Third, factors used by rhetoricians to explain mechanisms in science are clearly distanced from the explicit evaluative criteria used by scientists. Philosophers of science suggested to assess theories in terms of empirical content, experimental adequacy, logical coherence, etc. – criteria that scientists themselves would refer to, although with less theoretical elaboration, when giving reasons for adopting or rejecting certain scientific theories. But many authors in science studies emphasise a clear distinction between actors' categories and analysts' categories, advocating a meta-scientific attitude that does not fall back on its subject level. In other words, since scientific discourse attempting to describe nature is distinguished from the meta-scientific discourse aiming to describe science, the explanatory toolkit used by science studies need not to coincide with reflexive tools used by scientists when describing their own activity. Indeed, explanations given by science studies are usually found, by scientists, less acceptable and more irrelevant than the more conform philosophical theories, as frequently voiced in the so-called science wars (see e.g., in Labinger & Collins 2001). As references to rhetorical devices are usually missing from self-descriptions given by scientists (except in the pejorative sense), analysts' categories employed by rhetoricians of science are definitely distinct from the actors' (i.e., scientists') categories.

Fourth, rhetoricians aim at providing empirical descriptions of the efficiency of persuasive techniques in specific situations, and generally refrain from formulating normative claims, at least in terms of 'universally' valid criteria. Avoidance of normativity is a wide spread, although not universally accepted, claim in science studies, and it is strongly interconnected with the previous point, i.e., distance from actors' categories. According to a central commitment of the field, the way science studies reflects upon science is analogous to the way science reflects upon nature. In Bloor's seminal Strong Programme, sociology of knowledge is a naturalistic enterprise where explanations of belief acceptance are formulated in terms of casuses, instead of reasons referred to by actors (e.g., Bloor 1992). The normative charge inherent in the concept of 'reason' is lacking from the entirely naturalistic concept of 'cause', and evaluative terms such as 'rationality', 'objectivity', or 'truth' are expelled from Bloor's programme where knowledge, instead of being 'justified true belief', is "whatever people take to be knowledge" in the purely descriptive sense (Bloor 1992, p. 5). Norms that govern or inform scientific research become themselves objects of explanation, and hence their normative force on the analyst of science cannot be accepted by her without facing the danger of blunt circularity.

However, such a strong rejection of normativity has been challenged even within science studies, where the influence of anthropology introduced participant observation methods at the expense of the 'stranger's perspective' favoured by sociologists (e.g., Latour & Woolgar 1979). The 'third wave of science studies' proposed by Collins & Evans (2002) attempts to bridge the gap between actors' and analysts' categories, by making use of a form of normativity that is simultaneously binding for both scientists under study and those examining science. According to them, since the concept of 'expertise' informs both the analyst and the actor, a normative theory of expertise may facilitate a deeper insight into the workings of science without having to rely too much upon other norms of scientific activity. In other words, while the analyst keeps some distance from the field she studies in order to benefit from the advantages of an external perspective, she remains close enough to understand some inherent properties hidden from the eyes of a complete stranger.

Nevertheless, 'expertise' seems too broad a concept to efficiently deal with the discourse of science. While it is apt to cover a number of aspects having to do with the 'craftsmanship' profile of experimental science Collins and others investigate, it needs further specification when we focus on the discursive dimension of scientific activity. A special form of expertise used both by scientists and analysts of science is argumentative expertise: the use of arguments is a commitment that is shared by scientists and those who study them, and thus it may offer a promising way to bridge the gap between actors and analysts. As I argue below, a partially normative theory of argumentation can serve as a guideline to build such a theory.

2. Pera's 'rhetoric' of science

The term 'rhetoric' carries an undesirable connotation that rhetoricians of science have to confront: it is understood, in a majority of discursive situations, as an ornamental use of language that is able to persuade an audience in contrast to 'rational' means of convincing. Taken in this sense, what could be more ortogonal to rhetoric than science where claims are to be accepted according to the soundest reasons? Some prominent founders of early modern science held rhetoric in contempt for providing tools to conceal the truth, and this contempt is inherited by most of modern descriptions of scientific cognition. Naturally, rhetoricians of science often try to deconstruct, or at least deny, such an unfitting sense of rhetoric. One outstanding example is Marcello Pera, whose views will be discussed here in more detail in order to highlight some of the promises, as well as the problems, inherent in rhetorical approaches to science.

Pera's *The Discourses of Science* (1994) is not only a plea for rhetorical considerations in the study of science; rather, it is a challenge to the traditional philosophy of science from a rhetorical perspective. For this purpose, Pera has to define rhetoric in a way that is markedly different from the general cultural intuition: for him, rhetoric is not ornamental in the sense of presenting claims in appealing forms to the audience. Instead, rhetoric is "the *practice* of persuasive argumentation" (p. viii), understood in the most general sense. The distinction from the usual meaning is intensified by the term's intimate relation to another term, dialectics, presented here not as an alternative to rhetoric but as the "*logic* of such [persuasive] practice or act" (*loc. cit.*). Thus any discursive act aiming to persuade any audience is rhetorical, following its own dialectical rules.

Since scientific communities have to be persuaded about the acceptability of new claims, changes in scientific knowledge always involve rhetorical activity. For Pera, rhetoric and dialectics are connected to belief change. His "dialectical model of science" portrays cognition as an essentially social process: in contrast with the traditional "methodological model" where two players, the scientist asking questions and nature giving answers, are at play, his model completes the picture with a third player, scientific community, which has to come to agreements about what the answer given by nature is. Nature does not speak up for itself, its reactions have to be interpreted and decided upon – a point frequently emphasised in the science studies tradition. Pera's epistemology is a socialised one where discursive practices within scientific communities are seen as constitutive of knowledge production, in a similar way and for similar reasons to, for example, the influential view offered by Harry Collins (1985) and expressed by the term 'negotiation'. What is specific to Pera is that he focuses on argumentative practices, and employs a theory of argumentation,

rather than hermeneutical, anthropological or sociological tools, to describe discourses resulting in belief change.

The reason why nature's answers have to be agreed upon is what Pera calls the "open texture" of methodological rules (p. 51). Rules, procedures and techniques are not fixed once and for all, rather, it is always contingent what codes scientists apply in certain situations or how they interpret vague and incomplete rules. Again, his emphasis on rule contingency is akin to many arguments in science studies stemming from Wittgensteinian considerations, expressed e.g., by Karin Knorr-Cetina (1981) with terms like 'contextuality', 'opportunism', 'decision ladenness' or 'situatedness'. In such situations agreements are achieved, in Pera's view, by means of well-argued decisions. Rhetorical arguments (i.e., arguments aiming at belief change) are thus not good or bad in themselves, but relative to situations: there are no universal rules of assessment in scientific practice.

Contingency, however, does not lead Pera to conclude with relativism. What he challenges is "the Cartesian Syndrome" (p. 4), a view according to which if there are no universal methods of assessment in science, then science is not a rational enterprise. While any rule can be violated, he claims, even rule violations can be found rational. Just as he distances himself from the 'methodological model' of traditional philosophy of science where universal methods were suggested as eternal standards of theory appraisal, he also opposes to the 'counter-methodological model' that concludes from the lack of universal standards to the thesis of 'anything goes'. Analysts of science do not have to dispense with the concept of rationality, nor do they need to restrict it to the purely descriptive claim that a theory is rational if it prevails. Rather, local and situated decisions made by scientific communities can be found good or bad, rational or irrational, by the analyst, although not in terms of the rules and methods that were applied, but in terms of the arguments that were put forward in favour of the decisions. It is the quality of the arguments that demarcates good science from bad science.

Note that Pera departs not only from the commonsense meaning of rhetoric, but also from its usual technical sense. Many science studies scholars would, and often do, happily agree with him in claiming that rhetoric is not merely ornamental, that it is connected to all forms of persuasion, and that rhetorical arguments are thus constitutive of scientific knowledge production. But most of these authors would reject a classical sense of rhetoric that is prescriptive with regards to the use of rhetorical forms, and adopt instead a purely descriptive sense according to which rhetoric studies the effect of discursive performances on local communities. While Pera claims to be nonprescriptive with regards to the factors in terms of which arguments can be appraised (p. 112), meaning that these factors are not free inventions of the analyst, he admits that the notion of rationality he employs is normative (p. 144), since it is possible for the analyst to evaluate arguments as

good or bad, quite independently of the actual effect they had but not independently of the situation in which they were formulated. In other words, the quality of an argument depends on the local and contingent commitments of the community, and can only be assessed after a careful empirical study of these factors, but it can still be appraised and evaluated.

The position Pera takes between the two extremes, methodological absolutism and descriptive relativism, invites attacks from both sides. One can ask, from the relativist side, how he can distance himself from the actual and idiosyncratic decisions made by the communities under study. How is it possible, in principle, that a community rejected a theory that the analyst finds, in terms of their own standards, to be supported by good arguments (say better than arguments for its prevailing rival), or that they accept a theory that is supported, according to the analyst, by bad arguments (or worse than its alternative)? Is it because scientists were ignorant of their own standards, and made a bad decision in spite of their critical discussion? Or is it because the analyst is ignorant of the precise standards functioning in the specific situation, and misjudges the quality of the argument? How can we distinguish between the two cases? On the other hand, the absolutist might oppose, if we accepted that arguments could be appraised independently of the actual decisions of communities, why not admit that standards in terms of which the analyst evaluates arguments belong to the analyst herself? Is it not the case that there are good arguments and bad arguments, and as sciences advance we learn more and more about what it means to be a good argument – independently of what historical actors believed about it? Why do we want to do justice for the historical actors who already did justice for themselves, and why don't we rather do justice for ourselves?

In order to face these questions, it would be useful to specify what exactly we mean by the term 'argument', what methods we use to reconstruct arguments, and how we choose or identify those criteria by which we evaluate them. That is, we need a theory of argumentation. However, Pera does not explicate such a theory in full detail, and many of his historical reconstructions are left, in my opinion, at a rather intuitive level. In the followings, I turn to the most detailed and most widespread theory of argumentation now available: the pragma-dialectical model.

3. The pragma-dialectical potential for science studies

The pragma-dialectical approach to argumentation theory was developed in Amsterdam by van Eemeren, Grootendorst, Houtlosser, and others (e.g., van Eemeren & Grootendorst 1992, 2004; van Eemeren, Grootendorst, Jackson & Jacobs 1993), combining several insights from different trends in contemporary

discourse theories (see van Eemeren et al. 1996). This programme has proved in the past decades to be the most influential recent approach to argumentation, and it offers a highly detailed and specific theory of arguments. However, its full potential for different applications still needs to be exploited. One obvious field of application is the realm of scientific arguments.

In the followings, I examine how the theoretical meta-principles of pragma-dialectics accord with the attitude represented by science studies. The approach relies on four "core commitments". Externalisation: instead of treating mental attitudes, the theory deals with externalised acts of communication. Socialisation: argumentation is viewed as an interactive process between language users. Functionalisation: discursive elements are functional instruments within an environment of speech acts. Dialectification: argumentation is an attempt to convince a critical opponent by resolving the difference of opinion by rational means.

Externalisation is perfectly in line with the empirical nature of the science studies: only by focusing on externalised elements of discourse can substantive, tangible reality be attributed to entities the theory deals with. Otherwise the analysis is restricted to either stipulated mental contents or idealised conceptual (re)constructs. In the first case, a sufficiently strong psychological theory of mental attitudes is required to back discourse analysis, and even if such a theory is available – which does not seem to be the case – study of argumentation is more likely to be reduced to that theory than being developed in its own right. In the second case, self-sustained conceptual contents are to be abstracted from actual language use, and the result will be highly contingent upon massive philosophical presuppositions concerning these 'World 3' entities. The most plausible alternative is to subject concrete, externalised elements of discourse to empirical inquiry.

Socialisation is also promising, since the need for understanding scientific activity as an inherently social process is probably the major central tenet of science studies. Naturally, any approach that focuses on communication between certain actors, rather than the abstract content expressed by communication, places the scope of study in a social dimension. In traditional terms, it is rhetoric and dialectics that can perform this task, as opposed to logic with its disregard for the actors of communication. However, I will argue that a dialectical approach has several advantages over a rhetorical one. I do not claim that the points I mention have not been recognised by many authors representing the diverse field 'rhetoric of science', or that none of them has been able to overcome the problems by transforming the concept of rhetoric in different ways – indeed, the single example examined above, Marcello Pera, was found to use the term 'rhetoric' in a quite exotic sense, and similar examples could be shown in case of other authors as well. Instead of a general survey of approaches that would exceed the limits of this paper, I simply claim that dialectics, taken here in a vague and general sense,

is more promising for science studies than 'rhetoric' understood in a wide spread and traditional way. In other words, while rhetoric also deals with social events, dialectics portrays a social dimension that is more suitable than that of rhetoric in a number of respects.

First, the communication model used by traditional rhetorical approaches is unidirectional: the basic element of discourse is a 'speech' (spoken or written) made by the active 'orator' and directed at the passive 'audience'. In dialectic, on the other hand, communication is viewed as fundamentally interactional in nature, and both parties play an active role in mutually shaping discursive space. Moreover, the parties of a dialectical dialogue are treated basically on equal terms, and they are endowed symmetrically with their positions in scientific communication – which more often than not seems a better model of actual scientific discourse within a core-group than the completely asymmetrical set-up suggested by the rhetorical perspective. Journal articles may seem to be a better subject of rhetorical analysis, since the audience can be taken as passive, but the acceptance of claims by communities is always a matter of interaction between several articles referring to each other, and in this sense most articles can be seen as explicitly or implicitly polemical. Scientific beliefs are seldom accepted after a single act of persuasion – rather, they are debated and critically discussed by members of the community.

Also, the fundamental element in rhetorical analysis is a unique persuasive act with a very limited temporal dimension. Temporality is related to *kairos*, the speaker's ability to adapt to the contingent features of the discursive situation, i.e., to choose the most persuasive form of presenting the message according to, for example, the time of presentation, but temporality in this sense does not exceed the temporal limits of presentation. Dialectics, on the other hand, deals with dynamic processes of interactions between interlocutors, and thus it shows a closer similarity with the temporal sensitivity of many construction-oriented trends in science studies. While recent scholarship in the rhetoric of science has made serious and successful attempts to escape from the confines set by classical rhetorical inheritance, it still seems that the potentials immediately inherent in a dialectical perspective are often more promising to deal with several essential aspects of scientific discourse than those offered by the basic toolbox of rhetoric.

Functionalisation succeeds in taking discourse elements out of the formal context of logic and relocating them in the contingent environment of real-life events. Traditional argumentation theories worked in the framework of logical analysis, and evaluated arguments according to stipulatedly universal structural properties. In pragma-dialectics, purely structural reconstruction is replaced by functional analysis, and discursive elements are treated as speech acts serving specific purposes determined by the actual argumentative situation. This latter approach provides access to the discursive content, while leaving the rules of

dialogue contingent and contestable. Access to issues of content is a key feature of the dialectic approach since, in contrast with the structural reconstruction characteristic of the philosophy of science, authors in science studies often aim to address the emergence of specific knowledge contents, in addition to organising forms. However, in order to evaluate arguments understood in this framework, one needs to be able to internalise the 'form of life' in which the argumentative situation takes place, and it requires sharing some commitments between the analyst and the actor.

It is *dialectification* that might first seem partially at odds with some basic principles of science studies, as it brings in the thorny issue of normativity. Pragma-dialectics treats arguments as rational tools for resolving differences of opinion, and such an analysis relies on a normative theory of what it means to make rational moves in a controversy. Science studies with its relativistic taste, as I have argued, often avoids such normative approaches. Similarly, rhetoric of science focuses on persuasion, which can be pursued in a purely descriptive manner. The pragma-dialectical school contrasts persuasion with convincing, in that while persuasion can be achieved by any tools, conviction is a result of rational discussion providing argumentative reasons for accepting or rejecting standpoints (van Eemeren & Grootendorst 2004; pp. 29–31). While rhetoric maintains a broad interest in all persuasive tools of *ethos, pathos,* and *logos*, dialectic puts a major, although not exclusive, stress on *logos* and offers an ideal model of rational discussion (pp. 21–22), as well as "commandments to reasonable discussants" (p. 190). If we applied dialectic to scientific controversies, relativists may ask, would it not amount to retreating to the mostly abandoned strongholds of normative philosophy of science?

Normativity as conceived by pragma-dialectic discourse analysis has several advantages over how traditional philosophers of science formulated normative claims. On the one hand, many philosophers proposed universal criteria of valid argumentation – i.e., forms of inductive or deductive inferences to ideal explanations – or at least logical properties of theories were identified as guidelines to scientific methodology. The pragma-dialectical model treats norms of rational discussion in a more flexible way. No rules of discussion are taken for granted once and for all, and the ideal model is fine-tuned with respect to actual discursive practice. This is achieved by developing a careful interaction between descriptive and normative issues, and hence allowing for empirical feedback to the normative theory based on descriptive insights (pp. 9–11, 27–31). Just as in the case of Pera's nonprescriptive approach, norms are neither *a priori* given nor absolute: they are abstracted from practice where, at the same time, they ought to hold.

On the other hand, rules of rational discussion are acknowledged both by actors and analysts. One does not need to become a scientist in order to be

competent in what it means to argue rationally, yet one needs to share some commitments with her scientist informants: a complete stranger has only limited access to understanding-based explanations. In his influential attack on the Strong Programme, Laudan criticised the symmetry principle – i.e., the same types of causes must be attributed to 'rational' and 'irrational' beliefs – by emphasising that it is an 'empirical' question whether a belief is rational or not: a rational belief is one "that the agent can give reasons for antecedent to the adoption of the belief", and thus arguments are causally efficient in adopting rational beliefs (Laudan 1984, p. 58). (Similar but more detailed criticisms are given by Friedman 1998, 2005.) While it is a question whether recognition of arguments is an empirical matter, I tend to agree that argumentative reasons are seen in our broad culture as in some sense superior to other factors influencing belief acceptance, especially in highly critical cultural enterprises such as science. In order to understand discursive practices in science, it seems necessary to share some competence in these practices.

Collins & Evans (2002) distinguish between 'interactional expertise' and 'contributory expertise', claiming that analysts need a degree of expertise sufficiently strong to enable them to understand the problems of the field under study, while weaker than such that would enable them to contribute to this field. In other words, their entry point to scientific activity is a competence that is similar to, but lesser than, what serves as knowledge base for scientific research. What I claim here is that it is not the degree but the range of expertise that provides access to discursive practice in science. Arguments may be the best candidate for capturing the kind of expertise that connects scientists to analysts of scientific discourse, thus offering a common forum for practice and interpreting that practice. Moreover, discourse theorists have *more* competence in analysing and evaluating arguments than the scientists who formulate these arguments: while scientists' discursive competence stems from tacit practice and experience, scholars of argumentation derive their expertise from explicit, conscious, and systematic reflection.

What can we gain from the study of scientific arguments? First, with the application of a clear methodology, we can identify the realm of shared assumptions: the theoretical, conceptual, and methodological toolkit accepted and employed by actors situated in a given historical situation. Second, we can also identify the space of disagreement, i.e., those assumptions that become addressed or challenged in a certain controversy. Third, we can map the conceptual order by analysing how other commitments are recruited in order to back or undermine these problematic assumptions. Fourth, we can follow the reasoned moves that result in changes in the conceptual order, thus learning not only how but also why certain episodes happen the way they do. Finally, we can evaluate discursive situations, and provide feedback to scientists from which they might even benefit eventually.

4. Terrains of applicability

Still, further specification is required regarding the circumstances under which dialectics might be an efficient tool for studying scientific discourse. Markus (1987) argued that the primary discourse of science is so much formalised and ritualised that it is immune to hermeneutical analysis. According to him, the most fundamental medium of communication in science consists of papers published in scientific journals, and the language used in these papers is regulated and impersonalised to such a degree that no informative research into the specific forms of language use is available in a hermeneutical framework. His arguments seem to bear relevance to dialectics: since the pragma-dialectical model makes essential use of speech acts, the relative rarity of various forms of speech acts in scientific publications may pose problems to the applicability of this approach. While papers argue for, and often against, certain standpoints, dialogic elements are submerged and traces of strategic moves are concealed (which in turn can be understood as a form of strategic maneuvering). In the least, scientific publications seem to pose a challenge to pragma-dialectical argumentation theory.

However, just as some hermeneuticians of science argued that Markus's arguments fail to show the immunity of scientific activity to hermeneutical analysis (e.g., Heelan 1989), I claim that they similarly fail to secure scientific discourse from both dialectical and rhetorical studies. First, while journal papers are indeed the most specific form of scientific communication, there are other, less standardised, forms as well that are functional in knowledge production, and thus provide readily suitable material for discourse analysis. Second, journal papers are themselves a historical category that emerged in a certain process under certain circumstances, and as a result of certain decisions that can be studied in the framework of both rhetoric and dialectics, informing the analyst about how and why the primary form of scientific communication evolved into what scientists today take for granted. Third, the highly ritualised and standardised style of journal papers is not necessarily a hindrance to discourse analysis: there is a number of ways in which papers can differ, and a number of decisions traceable in the text, that can easily be identified against the background of such a formal context. Let me spell out these points in more detail.

Regarding the less standardised forms of scientific communication, the history of science provides countless examples of argumentation where language use was less ritualised and more flexible than it is today. Markus (1987) claims that the fundamental character of modern scientific prose was not fixed until the late nineteenth century – before that, a rich variety of discourse types had been available. For instance monographs, having been a prime medium of scientific publication before journal papers gradually superseded them during the 19th century, often

used a rich arsenal of various argumentative styles. The same applies to letters, especially favoured in the 17th and 18th centuries. Or one can think of dialogic treatises such as written by Galileo, clearly viable to style-sensitive discourse analyses, as shown e.g., by Pera (1994). Moreover, letters often represent controversies, and dialogic monographs are written as reconstructed or anticipated controversies, so these could provide a huge amount of fuel to pragma-dialectical studies that are more sensitive to such situations than standard rhetoric, as I argued above.

Naturally, the question arises how far the validity of our norms of rational discussion can be projected on the historical past. This is a matter for both philosophical and empirical inquiry, but tentatively I assume that the range of most of these rules plausibly cover modern, and most of early modern, scientific era. On the other hand, pragma-dialectics may contribute to the study of how specific norms were implicitly or explicitly challenged, and how others were introduced to replace them, in actual scientific discourse. As we saw in the case of Pera, the historical dynamics of norms and commitments may pose a problem to such an analysis that, on the one hand, undertakes an empirical study of these factors but, on the other hand, chooses to evaluate arguments with regards to them. Such a problem might be resolved by the pragma-dialectical programme according to which "normative and descriptive approaches to argumentation should be fine-tuned to one another" (van Eemeren & Grootendorst 2004, p. 11), but the precise way how this can be achieved in case of the history of science still needs to be elaborated in case studies.

However, one does not need to turn to the history of science to find less formal types of scientific communication. Sociologists and anthropologists often conduct 'field study' by visiting research sites and recording informal discussions. While most of these studies are done from the relativist 'stranger's perspective', a normative theory of argumentation could also prove fruitful for understanding the internal dynamics of these discursive interactions. For example, when the first attack of science studies introduced the concept of 'negotiation' in order to blur the stipulated distinction between pure intellectual discussions and interest-driven political-type disputes, it sacrificed not only undesirable philosophical presuppositions but also means of rational assessment. Perhaps it is time to re-introduce a similar, but still different, distinction between resolution-oriented rational discussion and persuasion-oriented opportunistic dispute – especially in the light of scientists' conviction that such a distinction does exist and plays an important role in shaping the order of various aspects of scientific activity.

If we focus on the problem of journal papers, one interesting question suitable for rhetorical and dialectical analysis is how this literary form was created. Charles Bazerman, in his classical work *Shaping Written Knowledge* (1988), examines "the emergence of literary and social forms in early modern science" (pp. 59–150), and

finds that the style and structure of journal papers evolved, in the 17th and 18th centuries, in a close interrelation with the newly emerging social roles created by science. A study of the creation and spreading of literary techniques informs the analyst about the shaping of social structures and cultural roles associated with science. (Similar considerations can be found, for example, in Shapin & Schaffer 1885; or Shapin 1994.) Fundamental commitments of the scientific enterprise that are now hidden by tacit consensus can be identified as once debated and contingent features.

Even if the main structure and the literal forms in journal articles are strongly constrained by tradition, contingent decisions are always functional in the final form of the text. Bazerman (1988) emphasises the 'lexicon' of the text that is telling about the ontology the author adopts, or explicit citations and implicit references illuminating the author's relationship to previous claims, or the choice of persuasive moves that are always chosen with regards to the anticipated audience (p. 25). Such a rhetorical analysis can be supplemented with a dialectical one, in light of the above-mentioned consideration that most journal articles are at least implicitly, if not explicitly, polemical. Even experimental reports do not stand alone: they are fully informative only against the background of previous similar experiments where instruments, methods, techniques and interpretations were chosen, and these choices are either accepted or rejected by the author(s) of the new paper. The theoretical, conceptual, and methodological toolbox from which the authors choose may seem as fixed or given, but any choice can in some way question the applicability and validity of these tools. Theoretical papers are usually more explicitly polemical where disagreements and conflicting standpoints become functionally explicit. Scientific publications, if taken in their relation to one another, add up to those controversies that amount to the critical discussion producing scientific knowledge.

Controversies, understood in this general sense, often challenge certain elements of the set of shared assumptions. In other words, controversies in science tend to display meta-scientific, in addition to scientific, ambitions, and methodological, meta-theoretical, or philosophical commitments are frequently at issue. The degree to which the space of disagreement gets operational in the controversy, as well as the size and shape of this disagreement space, can vary on broad scales. Depending on the extent to which resolution is achieved or aimed at, distinctions can be made between different kinds of debates, as – following Dascal's (2003) typology – e.g., between discussion (where the same norms are accepted on both sides, and the aim is to correct an error), dispute (where differences in commitments are too radical to make resolution possible), and controversy (in between the two other types, where some commitments become addressed but others remain available as bases on which resolution can be achieved).

Pragma-dialectic analysis can be efficient in using speech act theory to identify which common assumptions get addressed and how the discussants make strategic moves to defend or reject contested commitments. Assertives can be found as tools to propose, maintain or cast away, certain standpoints or arguments, or to ascertain the result of controversy. Commissives can also express relations to standpoints, while expressives – a rather rare type of speech act in scientific texts – show exceptionally strong or emphasised relationships. Directives show expectations with regards to the adversary's moves (also quite rare), and declaratives – especially usage declaratives – are usually related to definitions, specifications, explications and modifications. In sum, scientific texts even such as journal papers contain a wide spectrum of speech acts, and their analysis can be a very useful help in understanding the dynamics of knowledge production.

Having seen some promising fields of application, we can finally ask whether all areas of scientific communication seem equally fruitful for a dialectical analysis. As was shown above, there are no forms of communication in science where a discourse-sensitive analysis would prove useless. Communication practices that are more asymmetrical in terms of the positions of interlocutors, however, might benefit from a rhetorical analysis probably at least as much as from a dialectical one. One example is 'science communication', i.e., communication between science and the public, where scientific knowledge seems to flow from the scientific community into the public domain, and the uni-directional model implied by a genuinely rhetorical stance could provide a better framework than the dialectical model of mutual exchange. Members of the public have to be persuaded, one could say, rather than convinced about the acceptability of scientific claims to which they have no access in terms of reasoned arguments.

Recent scholarship in the public understanding of science, however, has challenged such a conception of science communication (e.g., Gregory & Miller 2001). They contrast the traditional 'deficit model', according to which the public's heads need to be filled with scientific knowledge in order to promote both their admiration for science and their abilities to make the right decisions in their science-laden everyday lives, with the so-called 'contextual model' which calls for mutual communication between the needs and opinions of the public and the needs and opinions of scientific experts. According to them, laypeople do not need more scientific knowledge to deal with their problems; rather, they need a general understanding of how science works and a social competence in how to choose between different experts with different claims. These scholars propose that the relationship between science and the public should be placed in a discursive place where both parties are active. Following their considerations, science

communication, if pursued according to the needs of a democratic expert society, is to be seen as a mutual and reasonable discussion, calling for a dialectical approach to discourse analysis.

Communication within science, on the other hand, does not always seem as clearly symmetrical and two directional as portrayed above. Different specialities cooperate in strong interdependence, and theories, methods and instruments are used in areas far away from where they were contrived. When these theories, methods and instruments have been accepted in their 'home field', perhaps as a result of a reasoned and critical discussion of similarly (if not equally) competent experts, or as a result of the cooperation of the members of the 'core set', they become 'black boxes' (e.g., Latour, 1987) that are utilised as non-transparent elements of the stock of scientific knowledge. Scientific results heavily rely on a large number of such black boxes, used by scientists as readily received elements that they themselves are not able to look into in full detail. If the flow of scientific knowledge is conceived as an irreversible process between unequal experts, then genuinely rhetorical considerations become as relevant as dialectical ones.

5. Conclusion

The paper has tried to show that study of scientific activity could benefit from the application of the pragma-dialectic approach to discourse analysis. I argued that the basic commitments of pragma-dialectic are in fine agreement with several characteristics of recent trends in social studies of science. At the same time, a dialectical framework seems to have a number of advantages over a purely rhetorical one. I emphasised that dialectic endorses an interactive model of the social dimension, and it is more sensitive to the temporal dynamics of communicatory practice. On the other hand, the model's normative elements create links between subject and interpretation while encouraging empirical flexibility. I also tried to identify some forms of scientific communication in which the pragma-dialectic approach seems especially promising.

However, all these theoretical arguments are insufficient to show the advantage of a dialectical study of science. The usefulness of dialectics to science studies is to be demonstrated by providing detailed and informative case studies of argumentative dialogues in science. Such a work has hardly started yet, but one instance of such an analysis is offered by Gábor A. Zemplén in this volume. (A similar work in Hungarian is Kutrovátz & Zemplén, 2008.) This paper, besides expressing my expectations, tried to contribute to the necessary conceptual preparations before real work gets started.

References

Bazerman, C. (1988). *Shaping Written Knowledge: The Genre and Activity of the Research Article in Science*. Madison: University of Wisconsin Press.

Bloor, D. (1992). *Knowledge and Social Imagery* (2nd Ed.). London: Routledge and Kegan Paul.

Bloor, D. (1999a). Anti-Latour. *Studies in History and Philosophy of Science, 30*(1), 81–112.

Bloor, D. (1999b). Reply to Bruno Latour. *Studies in History and Philosophy of Science, 30*(1), 131–136.

Ceccarelli, L. (2001). *Shaping Science with Rhetoric: The Cases of Dobzhansky, Schrödinger, and Wilson*. Chicago: University of Chicago Press.

Collins, H. (1985). *Changing Order. Replication and Induction in Scientific Practice*. London: SAGE.

Collins, H. & Evans, R. (2002). The third wave of science studies: studies of expertise and experience. *Social Studies of Science, 32*(2), 235–296.

Dascal, M. (2003). *Interpretation and Understanding*. Amsterdam: John Benjamins.

Dear, P. (1991). *The Literary Structure of Scientific Argument: Historical Studies*. Philadelphia: University of Pennsylvania Press.

Eemeren, F.H. van & Grootendorst, R. (1992). *Argumentation, Communication, and Fallacies. A Pragma-Dialectical Perspective*. Hillsdale, NJ: Erlbaum.

Eemeren, F.H. van & Grootendorst, R. (2004). *A Systematic Theory of Argumentation. The Pragma-Dialectical Approach*. Cambridge: Cambridge University Press.

Eemeren, F.H. van, Grootendorst, R., Jackson, S. & Jacobs, S. (1993). *Reconstructing Argumentative Discourse*. Tuscaloosa: The University of Alabama Press.

Eemeren, F.H. et al. (1996). *Fundamentals of Argumentation Theory*. Mahwah, NJ: Erlbaum.

Freedman, K.L. (2005). Naturalized epistemology, or what the strong programme can't explain. *Studies in History and Philosophy of Science, 36*(1), 135–148.

Friedman, M. (1998). On the sociology of knowledge and its philosophical agenda. *Studies in the History and Philosophy of Science, 29*(2), 239–271.

Golinski, J. (1998). *Making Natural Knowledge. Constructivism and the History of Science*. Cambridge: Cambridge University Press.

Gregory, J. & Miller, S. (2001). Caught in the crossfire? The public's role in the science wars. In J.A. Labinger & H. Collins (Eds), *The One Culture? A Conversation about Science* (pp. 61–72). Chicago: University of Chicago Press.

Gross, A.G. (1990). *The Rhetoric of Science*. Cambridge, MA: Harvard University Press.

Heelan, P. (1989). Yes! There is a hermeneutics of natural science: a rejoinder to Markus. *Science in Context, 3*, 477–488.

Knorr-Cetina, K. (1981). *The Manufacture of Knowledge. An Essay on the Constructivist and Contextual Nature of Science*. Oxford: Pergamon.

Kutrovátz, G. & Zemplén, G.A. (2008). A Bloor-Latour vita. Egy tudományos vita érveléselméleti vizsgálata. In J. Gervain & Cs. Pléh: *A láthatatlan nyelv* (pp. 231–259). Budapest: Osiris.

Labinger, J.A. & Collins, H. (Eds). (2001). *The One Culture? A Conversation about Science*. Chicago and London: University of Chicago Press.

Latour, B. (1987). *Science in Action: How to Follow Scientists and Engineers through Society*. Cambridge: Harvard University Press.

Latour, B. (1999). For David Bloor … and beyond: A reply to David Bloor's 'Anti-Latour'. *Studies in History and Philosophy of Science, 30*(1), 113–129.

Latour, B. & Woolgar, S. (1979). *Laboratory Life: The Social Construction of Scientific Facts.* Beverly Hills: Sage.

Laudan, L. (1984). The pseudo-science of science? In J.R. Brown (Ed.), *Scientific Rationality: The Sociological Turn* (pp. 41–73). Dordrecht: Reidel.

Markus, G. (1987). Why is there no hermeneutics of natural sciences? Some preliminary theses. *Science in Context, 1*, 5–51.

Pera, M. (1994). *The Discourses of Science* (Botsford, C., Trans.). Chicago: University of Chicago Press.

Prelli, L.J. (1989). *A Rhetoric of Science: Inventing Scientific Discourse.* Columbia: University of South Carolina Press.

Shapin, S. (1994). *A Social History of Truth: Civility and Science in Seventeenth-Century England.* Chicago: University of Chicago Press.

Shapin, S. & Schaffer, S. (1985). *Leviathan and the Air-Pump. Hobbes, Boyle, and the Experimental Life.* Princeton: Princeton University Press.

Scientific controversies and the pragma-dialectical model

Analysing a case study from the 1670s, the published part of the Newton-Lucas correspondence

Gábor A. Zemplén

1. Incorporating argument-analysis into the study of scientific debates*

History of science has significantly departed from the view that it should be relegated as a discipline collecting facts and anecdotes about the past or serve as a handmaiden for philosophy of science. Consequently, in the last decades the study of scientific controversies has become one of the most important areas of post-Kuhnian history of science. The reasons are manifold, but one is doubtless the failure of "logic-centred" philosophy of science as a true and useful guide to assist historians. The disenchantment with logic coincided with the quick increase of broadly speaking "externalist" and slow decline of "internalist" approaches, even though a meaningful internalist-externalist dichotomy, i.e., what factors influence science from the "outside" and what from the "inside" has not been entrenched. The so called *practical turn* in history of science introduced novel ways of investigating what actually scientists do, and how knowledge is produced and transmitted from the workbench through the scientific community to the wider public. Science became practice and culture (Pickering 1992), and historians and science-studies scholars developed novel approaches to address the novel questions.

However, even today relatively little attention is given to a major focal point of knowledge production, the practice and culture of debating, that is the "argumentative" sphere of science (Caplan & Engelhardt 1987; Pera, Machamer & Baltas 2000).

---

*I thank the support of the Békésy György and Bolyai fellowships, the NKFP6–00107/2005 project, and the OTKA (K 72598). Earlier versions of the paper have been discussed in Berlin (MPIWG) and Budapest (BUTE, Phil. and Hist. of Science Dept.). These, and the fruitful discussions with Gábor Kutrovátz, Frans van Eemeren, Peter Houtlosser, Tihamér Margitay, Benedek Láng, Márta Fehér and Friedrich Steinle, as well as the friendly comments by Ofer Gal and Marcelo Dascal helped me refine many aspects of the paper.

Apart from a rather loosely understood interest in "rhetoric", analysts have few methods of analysis and reconstruction to study the fine detail of arguments that influence the way scientists (and in the long run non-experts) come to hold the views they do.

In the following I will investigate only a small part of an important scientific controversy, the debate that followed Isaac Newton's first publication in 1672 (Newton 1671–72), outlining his new theory of light and colours. I hope to show some symptomatic features characteristic of controversy-studies in general by concentrating on this single example, and to outline a fruitful approach to the close-study of scientific debates. This necessarily requires the use of *termini technici* from both argumentation theory and history of science. However, to limit the size of the contribution, no detailed methodological or conceptual framework will be given, and only the published part of the Newton-Lucas correspondence will be investigated. While I feel the obligation to provide some background and details relevant for experts in both areas, and this runs the danger of eclecticism, I aim to focus on discussing the moves of the historical actors, and of the analysts of the debate. I aim to show that a dialectical model can yield novel insights for both levels of analysis. To help the reader navigate among the various levels, I partition the analysis of the two letters. Where the historical background is given I rely partly on the same historians whose utterances are critically investigated in other sections of the paper. This is not an inconsistency – earlier historical and rhetorical reconstructions are necessary for the understanding and appreciation of the controversy, yet these reconstructions can have problematic elements. Similarly for the historical actors, I first give reconstructions followed by critical appreciation, if appropriate.

2. Background to the Newton-Lucas correspondence

Newton's first publication connected two areas that up to the 17th century had generally been considered as separate: the study of light and the system of colours. Until this period light and the behaviour of light belonged to the subject matter of a proper science, optics. According to the accepted disciplinary boundaries, it was one of the mixed mathematical sciences (*scientiae mediae*), together with astronomy, harmonics and geometry. Colours, on the other hand, seemed to have little to do with geometry and mathematics, and, except for a few peculiar cases like the rainbow (Boyer 1959), they appeared to be stable properties of objects.

Newton's article was based on novel experimental findings, and proposed a new theory of light as well as a mathematised theory of colour. It relied heavily on the notion of the *crucial experiment* (experimentum crucis) to prove Newton's proposition that "Light consists of Rays differently refrangible" (Newton 1671–72, p. 3079).

Newton's way of proving his theory questioned a number of accepted methodological norms. His belief that refrangibility determines colour entailed the rejection of the modificationist accounts of colour production – the dominant theories of the time, holding that homogeneous white light is in some form modified to give rise to colours.

Not surprisingly, a controversy ensued, one of the first major debates in a scientific periodical. The exchange of letters that followed Newton's first publication in the *Philosophical Transactions* (Newton 1671–72) included well-known figures, like Robert Hooke, Christiaan Huygens, and courteous correspondents like Ignace Gaston Pardies. Other critics also appeared, most notably Jesuits from the college of Liège, among them one of the protagonists of the current article, Anthony Lucas. This part of the controversy ended with Newton's termination of the correspondence, but the controversy was only settled – more or less – after the publication of Newton's *Opticks* in 1704, and the public reproduction of the experiments in 1714 and 1715.

As the letters from Lucas are closely connected to those of his colleagues, a short recapitulation is in order before the analysis. In October 1674, the seventy-nine year old Francis Hall (Line or Linus 1595–1675) suggested that the clouds near the sun could have disturbed Newton's experiment. The letter from an "old fool" (Westfall 1966, p. 303), Newton's "bitterest and least intelligent critic" (Kuhn 1958, p. 34) was followed by a second one in February 1675. Their import and that of Line's visit to London and to the Royal Society was that Newton decided to write a long letter to the Royal Society in the autumn. After the death of Linus, John Gascoigne continued his professor's fight and raised objections to the crucial experiment. He was 'wanting convenience' to carry out experiments, and handed the case over to Anthony Lucas (1633–93). Originally from Durham, Lucas succeeded Line as Professor of Theology in 1672 in Liège, and became Rector of the English College at Rome after 1687. In 1693, shortly before his death, he was appointed Provincial of the order (Gjertsen 1986). Lucas embarked on correspondence with Newton on 17 May 1676, (Turnbull 1960, p. 8f), who was by this time probably eager to terminate the debate that was sparked by his "New Theory" of light and colours and consumed much of his time for over four years.

3. Rhetorical accounts of the controversy

How can an individual persuade his cohorts that his (novel) point of view is worth adopting by others as well – even by sacrificing some of their own views? As the question is to find the appropriate means of persuasion – given a certain topic and audience – the appropriate means of study seems to be rhetoric. This might

appear the most fruitful approach and is also the most common, as contemporary argumentation-studies are dominated by rhetorical approaches (Schiappa 2002). Argumentation scholars studying scientific controversies in history of science therefore mainly follow some form of rhetorical approach. As the examples below show, most historians also – explicitly or implicitly – use methods of reconstruction and analysis that are broadly speaking rhetorical.

Concerning the controversy after Newton's first publication, the historian Richard Westfall in his still authoritative biography held that the impact of the correspondence on Newton's views was negligible: "The continuing correspondence provoked by the initial paper … involved only one addition to his optics, his introduction to diffraction and brief investigation of it" (Westfall 1980, p. 238). If the correspondence did not change Newton's views significantly, it seems justified to see the various letters throughout the controversy as repeated attempts to persuade fellow scientists – and apply rhetorical tools. Such an account is given by the rhetorician Charles Bazerman, who writes:

"Newton, perceiving journal publication as a platform, created a forceful statement, but the bitter experience of controversy taught him that journal publication meant entry into an agonistic form. To address this newly perceived situation, he developed new rhetorical resources to answer criticisms in the following issues of the *Transactions*." (Bazerman 1986, p. 82).

According to this view the history of the controversy is a history of how Newton – already having developed a revolutionary theory – acquired successful means of persuasion. In Bazerman's explicitly rhetorical account "The basic claims that Newton presents in these various forms were set by the first university lectures, even though later controversy and developments of the argument would cause some drawing back, some further elaboration, and further precision" (Bazerman 1986, p. 84).

Whereas Bazerman's teleological, Mertonian view has rightly been criticised by historians for portraying experimental writers "as making steady and unidirectional progress toward such modern ideals as impersonality, methodological caution" (Golinski 1998, p. 113), the legitimacy of this reliance on rhetorical analysis appears to be generally accepted by historians of science today. Even social constructivist authors often assume implicitly that 'social construction' of knowledge is achieved by an actor persuading others to accept (at least to some extent) his (already developed) position. Such an approach is exemplified by Simon Schaffer, who claims that "the contrast between these lectures [the earlier, Lucasian lectures in optics, unpublished at the time] and the version Newton released to his audience helps reveal how he sought to persuade that audience" (Schaffer 1989, p. 80). On the later controversy he writes: "The dramatic innovation in the tactics of prism trials and the challenges to the utility of common prisms were not made

visible. But controversy prompts protagonists to expose such tacit knowledge. During the trials of the 1660s and the controversies of the 1670s, Newton specified more details of how prisms should properly be prepared and used." (Schaffer 1989, p. 78). From the perspective of rhetorical analysis, the task of the scientist, once a theory is discovered, is to find the most persuasive forms of presentation of his standpoint, given a specific audience. If the first attempt is unsuccessful, exposing, explicating, and specifying the existing position will take place.

Contemporary historians often implicitly assume that discovery of an idea is separate from the communal process that leads to acceptance. This view is surprisingly similar to the Reichenbachian distinction between context of discovery and justification (Reichenbach 1938), only the logical positivists' preoccupation with logic is replaced by the study of how communal belief is formed (and, to study this latter process, rhetorical tools seem to be the best choice). Traditional notions of knowledge (as *justified true belief*) went well with the view of justification as rational – logical – reconstruction. Social constructivist views of knowledge, on the other hand, often define knowledge as "whatever people take to be knowledge" (Bloor 1991, p. 5). Rhetorical approaches fit very well with this view of knowledge as *shared belief* thus giving a new approach to study how 'knowledge' is formed, again, without referring to the process of discovery.[1]

4. Shortcomings of rhetorical approaches and advantages of dialectical models

Possibly as a result of the general acceptance of various rhetorical approaches, some of which are less textual than the ones discussed in the present article, certain problematic aspects of these accounts seem to be overlooked.

While very fruitful for the study of self-fashioning and the creation of credibility, a rhetorical approach is unidirectional, and breaks up an interaction into separated attempts at persuasion. The whole credit of developing a theory is attributed to the individual. This view raises a number of issues. A major problem is that while changes in the positions can be uncovered, the dynamics and the proper role of the other participants cannot be captured. Other scientists are "the audience", who need to be persuaded, and the changes are simply seen as attempts to formulate a convincing message (or as forced concessions in a process of negotiation). But why would Newton draw back, and elaborate in this view? Do these changes have functions in the argumentative discourse? Or are they to be explained by

1. For a detailed appraisal see (Schickore & Steinle 2006).

reference to internal states of the actors or social forces? This or that move was considered by Newton as the most persuasive at that moment in time, or Newton was forced to formulate this or that way to get acceptance from his cohorts.

To be able to account for the dynamic nature of argumentation, or, in many cases to *see* the dynamics of a debate, a different model is required. As opposed to 'standard" rhetoric, a framework is needed where the actors' moves can be analysed in detail, and where functional role of certain elements of the discourse can be traced, which can *account for respective moves* or changes in argumentation in the opponent's arguments. This seems to necessitate the use of pragmatics or some sort of speech-act theory, but this is exactly what most rhetorical approaches are lacking (Dascal & Gross 1999).

Even though a rhetorical analysis studies argumentative discourse in a social setting, it investigates the repeated attempts of an individual to convert the cohorts. These are separate, individual actions, and it is not unproblematic to relate these to one another. To overcome this difficulty, one possibility is to connect individual attempts at persuasion and incorporate them into the analysis of the debate. This, however, is more in line with a 'dialectical' approach. In contrast to the comparison of successive isolated attempts to persuade a (mostly passive and often heterogeneous) group of listeners, as in a rhetorical analysis, traditionally designed for speeches, dialectics studies conversations, which might contain speeches. In the following, I will utilise and investigate one such approach, a pragmatically informed dialectical view, developed by the Amsterdam School of argumentation.

The model needs little introduction. It investigates to what extent the argumentative discourse contributes to the resolution of differences of opinion (van Eemeren & Grootendorst 2004). It is normative, investigates argumentation using a pragmatic framework, and arguments are treated as series of speech acts (van Eemeren & Grootendorst 1984). Specific criteria are introduced that guide the reconstruction and analysis of the arguments in a way as to optimally support the evaluation. The model incorporates traditional fallacy-typologies into a unified procedural model (van Eemeren & Grootendorst 1992), and recent attempts have been made to incorporate rhetorical insights as well (van Eemeren & Houtlosser 2002b).

Using this approach, texts in a scientific controversy in general and the Newton-Lucas correspondence in particular can be treated as small speeches that together constitute a dialogue. Such a starting point has numerous benefits. Functional roles can be assigned to elements of the utterances, and changes with respect to the various issues can be mapped. As a result, it becomes possible to relate the different "speeches" to one another. Furthermore, one can account for some of the changes

in the positions as responses to the argumentative moves of the opponents. The pragmatically informed dialectical reconstruction – as opposed to a rhetorical one – allows the analyst to see and point to the active participation of antagonists in the production of knowledge.[2]

This has obvious relevance – and great potential benefits – for any constructivist view of the development of science. While constructivist works argued for the importance of social and institutional norms in the production of scientific knowledge, the question of attributing credit was seldom raised with respect to *antagonists* to a certain view. A normative dialectical model can thus give a more thoroughly constructivist account of scientific controversies (Kutrovátz 2007, and this volume, further explores the connection of social constructivism and dialectical models of argumentation as well as the question of normativity in science studies and history of science). Furthermore, the use of pragmatic insights can contextualise philosophical or methodological notions as functional elements in a debate, which would otherwise be treated in an abstract space of ideas (like "the Newtonian methodology").

However, to demonstrate all these benefits is far beyond the possible scope of this paper. Radically reducing the aspirations of the study I will only show some of the promises of such an approach (mostly via the analysis of Lucas's letter), and some possible problems (connected to the reconstruction of Newton's reply). To carry out these I implicitly rely on the pragma-dialectical model – some steps in the reconstruction are therefore not explicated. I mostly use the analytical part of the model to reconstruct the debate. This aspect is less often discussed than the normative, evaluative part. Although the model has rarely been used for the study of longer argumentative texts or scientific controversies, I hope its potential usefulness will become obvious even in this short discussion.

5. The reconstruction and analysis of Lucas' first letter: The issues

In his first letter addressed to Oldenburg on 17 May 1676; Lucas took up Line's argument, earlier crusaded by Gascoigne (Turnbull 1959, p. 393) about the possible disturbance of the spectral image by clouds. In Newton's experimental setting, where light from a small opening falls on a prism in a dark room, and from the prism a spectrum is cast on the opposite wall, the clouds near the sun can significantly change the shape of the spectral image. Lucas had to comply with

2. The related problem of authorship and distribution of credit in a scientific community will not be discussed here (Biagioli & Galison 2003).

the "party-line" and further maintain Line's earlier criticism, at the same time he attempted to introduce his own experiments and his new objections to Newton's theory. This required manoeuvring, and can be seen as an attempt to shift the focus of the debate without admitting Line's defeat.

Controversies are often seen as involving dichotomies, but on a closer look, this view can hardly ever be maintained. In Lucas's letter many standpoints are at issue and the difference of opinion is *multiple*. While the letter seems to combat Newton on numerous points, one of the criticisms does not *create* a difference of opinion, but rather aims to *resolve* it (issues will be referred to by the bracketed numbers):

> (1) "I constantly found the length of the coloured image … considerably greater than its breadth, … on a clear day: but if a bright cloud were near the sunn, I found it sometimes exactly as Mr. Line wrot you, namely broader than long …" (Turnbull 1960, p. 8).

With regards to issue (1) Lucas aims to establish the result and save face, for issues (2) and (3) to raise novel objections:

> (2) According to Newton the length of the coloured image was 5 times the diameter of its breadth; but Lucas never "found the excesse above thrice the diameter, or at most 3 1/2, while the refractions on both sides of the prism were equall. Soe much as to the matter of fact" (ibid. p. 8–9).

While issue (2) seems to be a single objection, the rejection of Newton's statement ($-/p_{N1}$), it is in fact also the assertion of Lucas' own view ($+/p_{L1}$).

p_{N1} : The ratio of the spectrum is at least 1 : 5
p_{L1} : The ratio of the spectrum is at most 1 : 3 1/2

On this point, the discussion is *mixed*, and there are two standpoints. Lucas wants arguments from Newton in favour of his standpoint, or wants him to retract his standpoint. At the same time, by committing himself to another position with respect to the shape of the prismatic image, he can also be challenged to defend his position.

The rest of his letter is arranged around the third issue, a challenge to Newton's general theory:

> (3) "Since severall experiments of refraction remaine still untouch'd by him I conceived, a further search into them would be very proper in order to a further discovery of the truth of his assertion" (ibid., p. 9). [Following this, Lucas lists a number of cases, where in his view Newton's theory should hold, but his experiments show different results.]

As for (3), Lucas appears to ask for further support for his theory from Newton ($?(+/p_{N2})$), or to question it ($-/p_{N2}$), where p_{N2} is

p_{N2}: Newton's theory, referring to (Newton 1671–72). (Lucas does not clearly specify what he takes to be the main tenets of Newton's theory.)

As a support for the challenge Lucas lists eight experiments. As promised earlier, no time- and space-consuming technical introduction to seventeenth century optics and modificationist colour-theories is given. Instead, however, I show how – even though a detailed analysis is generally lacking – historians are committed to radically different evaluations of Lucas's challenge (Section 6). In Section 7, I show how the contestable reconstructions of the various issues of the letter enable the analyst to evaluate evaluations.

6. Earlier evaluations of Lucas's critique

The eminent biographer of Newton, Richard Westfall noted that "Lucas's letters betrayed no particular acumen; the experiments he presented were not well designed" (Westfall 1980, p. 275). A "close scrutiny of Lucas' letters simply cannot sustain a high regard for his scientific ability", and "his letters manifest a failure to comprehend the very nature of experimental investigation" as "Lucas espoused the grab-bag method of experimentation" (Westfall 1966, pp. 306–7). Other historians, however, consider Lucas as one of the ablest but little recognised of Newton's opponents. Gruner labelled the dispute "very promising", and claims that the interesting points were never effectively answered by Newton (Gruner 1973, p. 328). Laymon calls Lucas's arguments "ingenious and bold" (Laymon 1978b). More recently Sepper called Lucas's critique "sustained and well-planned" (Sepper 1988, p. 159), and in Guerlac's narrative Lucas is "the ablest of Newton's continental critics" (Guerlac 1981). On the one hand we have the degrading comments on the "grab-bag" method of experimentation, on the other an ingenious and bold critique.

Even today there is no consensus on how to evaluate the episode. In the following I deal most extensively with the latest (and most significant) debate touching on the Newton-Lucas correspondence between historians Simon Schaffer and Alan Shapiro. Schaffer in his groundbreaking and influential article on Newton's prisms and use of experimentation and rhetoric (Schaffer 1989) stresses the importance of the Liège group (including Lucas). After a long discussion of the episode, he notes that "The reaction of Line and the colleagues who continued his work from autumn 1674 showed how hard it was for Newton to achieve authority over his 'publick'. It demonstrated the problems of achieving agreed replication." (Schaffer 1989, p. 87). In his social constructivist account Schaffer stresses the role Newton's position had in the final acceptance of the theory:

"These 'improvements' [of prisms and experimental techniques in the early 18th century] had to be seen as such by all protagonists in order to achieve persuasive

power. That power lay in control over the social institutions of experimental philosophy. In the 1670s, Newton had exercised no such power. After 1710 his authority among London experimenters was overwhelming. This authority allowed carefully staged trials before chosen witnesses and the distribution of influential texts and instruments stamped with the imprimatur of collective assent. Enemies were condemned, as was Rizetti, either as incompetent or evilly disposed." (Schaffer 1989, p. 100).

In his detailed response Shapiro pointed to certain weaknesses in Schaffer's social constructivist account, which connected the acceptance of Newton's theory to his control over institutions. He listed a number of adherents to Newton's optics (among them mathematicians, Scottish intellectuals, etc.) who accepted – and in cases even taught – Newton's theory before his social power became significant. In Shapiro's narrative, however, the resistance of Lucas and his colleagues has little significance. Commenting on Schaffer's view he notes that

"If this is the case, in which replication could not be achieved nor closure attained, is a constructivist's dream, it was Newton's nightmare. Schaffer not surprisingly devotes much attention to it [the critique of Lucas and the Liège group]. Yet it was of little historical significance. The exiled Jesuits had no support in England, where even Hooke, certainly no supporter of Newton or his theory, derided them as "extravagantly impertinent – who never will yeald be the matter soe plain" (Hooke to Newton, May 25, 1678). I have never seen the Liège group cited by anyone after the publication of the *Opticks,* when Newton's theory was debated and Mariotte's experimental refutation was frequently cited. They were ignored by the scientific community. Why? To my knowledge it was the only failure to replicate the basic experiment of the elongated image. Consequently, they had no credibility with the scientific community. Failure to reach agreement or closure with the Liège group did not mean that Newton did not establish "authority" with his experiments, as Schaffer holds, but rather that the community judged the group to be incompetent." (Shapiro 1996, p. 78)

Even eminent contemporary historians seem to disagree on what the significance of Lucas's critique is – but as I will show in the next section, the separate reconstruction and analysis of the issues would decrease these disagreements.[3]

---

3. The disagreements stretch back to the early 19th century: Lucas was cited by numerous authors from Whewell (Whewell 1837) to Goethe, the latter calling him the first clear-headed opponent of Newton ("Antonius Lucas … der erste helle Kopf unter den Gegnern Newtons" (Goethe, *Die Schrifte zur Naturwissenschaft* Leopoldina Ausgabe 6: 271). The close connection is also to be noted in the positive appraisal of Lucas and analysts of Goethe's theory of colour: see for example Sepper's book (1988), or Gruner (1974).

7. Evaluating evaluations of historians

In the above I have surveyed the opinions that historians have concerning the episode. These often include value-judgements, but also judgements of facts. Are these accounts equally true or plausible? An obvious possibility is to trace or uncover the agenda of a historian – and label this outdated, *passé*, or simply wrong. Shapiro, to cite just one example, describes the historiographical past of the episode as already studied in great details. He notes that "However, what has been studied with respect to the 1670s, after the publication of the "New Theory" in 1672, is not who accepted the theory, when, and why, but rather the opposition to it." He stresses the theme of delayed acceptance of Newton's view, a common element to many narratives of the period and states that "Underlying these approaches is the implicit assumption that Newton's theory is obviously true and that opposition had to come from conservatives, reactionaries, and incompetents who were unable to come to grips with the new." (Shapiro 1996, p. 59).

The type of historiography that Shapiro refers to is a little less common now. Even if Shapiro is right – and in my belief his view holds true for much of the early scholarship of the controversy – this view is critical of a certain *type* of history writing, and does not analyse the *actual works* of other historians. Much of the profession today sees internalist history writing outdated. But then how can the more modern approaches be evaluated? Especially as it is often claimed that more modern historical accounts avoid evaluation of actors by giving up commenting on the quality of past scientists to stand to some a-historical criteria of rationality or competence. Yet simply claiming that a controversy is important (as Schaffer does for the Newton-Lucas correspondence) or that it is not significant and overemphasised (as Shapiro states for the same exchange) is already an evaluative move. The choice of works discussed, the way of presenting various actors or social groups, highlighting certain aspects and downplaying the importance of others all have an evaluative dimension.

Can the explicit or implicit evaluative moves of the analysts themselves be evaluated? I will aim to show that through the contestable analysis of actors' moves, the historians' views can be evaluated *without* recourse to sweeping generalizations about historiographical trends. I also aim to show that a detailed analysis can yield novel insights into and better understanding of the historical controversy in question.

7.1 Issue (1): The elongation of the image

Concerning issue (1), Shapiro believes that the "recalcitrant Liège group" (Shapiro 1996, p. 133) never replicated the elongated image. ("it was the only failure to

replicate the basic experiment of the elongated image" p. 78). Yet concerning issue (1), Lucas writes:

> And indeed the observations of thes two learned persons [Line and Newton], as to this particular, are easily reconcileable to each other, and both to truth, Mr. Newton (as appears by his letter of Nov. last, wherein more fully he delivers his minde) contending onely for the length of the image (transverse to the axis of the prisme) in a very cleare day; whereas Mr Line only maintaining the excesse of breadth, parallel to the same axis, while the sun is in a bright cloud. (Turnbull 1960, p. 8)

Here Lucas *establishes the result* with an *assertive*, which – in case it is accepted – *concludes* the debate over this issue. Newton's original description was very terse and as most historians (including Shapiro) accept, much of the ensuing debate was the result of this condensed form of presentation. Newton's statement about the elongated image of the sun was contested by Line, and as a response Newton in a letter in November gave a more detailed account, *consenting* that for the proper elongation the sky has to be sufficiently clear. This condition was not mentioned in the 1672 letter, and Newton's modified ('explicated') view did not contradict the Jesuit's experimental findings. It appears that Lucas, after successfully replicating this part of Newton's experiment uses issue (1) to propose a resolution of the difference of opinion between Newton and Line (deceased by this time). The way Lucas formulates his assertive allows both parties to save face. While Shapiro correctly questioned Line's reliability (and it is very likely that *he* never could replicate the elongated image), Lucas's strategic manoeuvring – showing that he could replicate an elongated image – seems to be overlooked by him (but not by Newton, as Section 9 will show).

7.2 Issue (2): The shape of the image

Historians seem to *pick* from Lucas's letters elements that further support their evaluation. Writers sympathising with Lucas can draw attention to the fact that the data Lucas gives in issue (2) should have made Newton seriously consider the problem of achromaticity, as it coincides with Newton's own earlier measurements, and already surfaced in the debate with Hooke (Bechler 1975; Whiteside 1966), but Newton disregarded this: "It is well worth noting here that (in 1668?) Newton measured a spectrum whose length was 3 or 3 1/2 times the breadth. But after 1670 he stubbornly insisted that the length must be at least 4 or 5 times the breadth, although the angles of the prisms were all nearly 60 degrees … In 1675 Newton declined to believe in the numbers of his opponent Lucas, although they differed little from his own numbers from 1668." (Lohne 1968).[4]

---

4. Even in the *Lectiones Opticae* there is an observation where the ratio is 1: 3 1/4, see (Newton 1984, p. 27, fn 3). This is very close to what Lucas measured, and which measurement Newton rejected.

Lucas does not attempt to reconcile the two ratios (p_{N1} with p_{L1}), or to explain the discrepancy, so this issue should not be overstressed when evaluating the debate. The controversy could have problematized the image-ratio aspect, and this could have led to the discovery of a significant optical property of glass prisms, but it did not.

7.3 Issue (3): The Newtonian theory

Turning to issue (3), historians' reconstructions differ significantly, as to what *the actual position* of Lucas is. The weaker the conclusions attributed to Lucas are, the stronger his arguments for those conclusions appear to be. If an analyst, like Westfall, expects to find a coherent alternative model ($+p_{L2}$), Lucas's position will definitely be seen as weak. Historians who have a negative opinion about Lucas usually reconstruct the letter this way. Such a strong reading, however, is pragmatically unsupported, as Lucas never claims to develop a rival theory. On the other end of the spectrum, an evaluation is very favourable if Lucas' work is reconstructed as only questioning some of the truth claims ($?/+p_{N2}$). This approach is equally problematic, as a large part of the letter describes Lucas's experiments, where at times he clearly denies the truth of Newton's assertions.

Therefore the reconstruction of an intermediate position is justified, where Lucas is taken to deny the Newtonian theory ($-p_{N2}$), not only requesting further arguments ($?/+p_{N2}$), and obviously not providing an alternative view ($+p_{L2}$). Such a reconstruction is supported by the fact that later in his letter Lucas *challenges* Newton's position, claiming that further experiments can both 'much strengthen' or 'wholly overthrow' the theory (Turnbull 1960, p. 9). On a methodological level Lucas seems to be committed to the view that renewed experiences are needed to make Newton's results evident.[5]

7.4 The role of experiments

The appreciation of Lucas' experiments is affected by the reconstruction of the position. Historians not thinking highly of Lucas pick those elements that fit their views – and some of the experiments are clearly not designed too well or are given too strong interpretations. Historians favouring Lucas (Sepper, Gruner) pick some of the better-designed experiments that cannot be explained easily by the

5. This is also in line with the *principle of charity*, stating that the analysis of argumentation should aim at a *maximally argumentative* reconstruction, believing that speakers consider their utterances relevant. This should, however, not be overinterpretation. For reasons of politeness or face-keeping it is common to cloak criticism in an expression of doubt (van Eemeren & Grootendorst 1992, p. 21).

Newtonian theory, challenging specific propositions of Newton's theory, and base their positive evaluations on these.

To take just one example, after a series of experiments, where ivory discs are placed in the way of sunrays and a change of colour from yellow to red is observed, Lucas concludes that "whence it seems to follow that yellownesse of light, is not a primary color, but a compound of red &c." (Turnbull 1960, p. 11). The *experiment* is not trivially explainable using the Newtonian theory, and is more suitable to be accounted for in a modificationist theory (Steinle 1993, Zemplén 2004), so could be used for a positive appraisal. The following assertion, however, cannot be grounded on the experiment without very contrived and most likely forced reconstruction. Furthermore, Lucas nowhere gives an alternative (modificationist) theory that could account for Newton's results. The "New Theory" *has the potential* to accommodate most of his experimental findings even though these and similar instances are not listed in the epistle of 1672. The standpoint Lucas puts forth is not well supported – an ideal target for criticism. Stressing the experiment or the assertion can yield very different readings of the same letter.

7.5 Benefits of a detailed reconstruction

Specifying Lucas's position helps explain why historians differ in their evaluations and how some evaluations are very negative while others are decidedly positive. It also shows the problematic nature of both the condemnation and the praise. Without discussing in detail the numerous accounts of the debate from the early nineteenth century onwards, a rather trivial – yet often disregarded – point of the article becomes apparent. The different views that historians hold are closely connected to varying norms employed in the reconstruction of the letters, as well as the method and detail of the reconstruction. As the "grain size" of the analysis decreases, and the details are discussed, a less clear-cut picture of Lucas emerges. As the reconstruction shows, the more positive accounts often skip over the problematic aspects of Lucas's views, and it seems far-fetched to call this critique 'well-planned'. It is equally mistaken to believe that there are no gems in the 'grab-bag'. The analysis helped separating the issues at stake, and provided a useful tool to analyse Lucas's letter. This enabled the evaluation of some pronouncements by historians on this scientific controversy. It also helped to portray a more nuanced reading and appreciation of Lucas's first letter as was heretofore available.

8. Newton's first answer

Newton's first answer on 18 August 1676 to Lucas was the last letter of the correspondence that was published in the *Philosophical Transactions*. The following

letters are highly significant, as they highlight numerous differences between the mostly neo-Aristotelian Lucas and the more mathematically oriented Newton. These letters shed light on Newton's views on demonstrative knowledge, the changing role assigned to the crucial experiment and other issues of interest for the historian of early modernity. This part of the correspondence was suppressed by Newton.

Only elements of Newton's published reply relevant for the present volume will be investigated in detail, to further explore the use of dialectical models in scientific controversies. As opposed to the previous sections that highlighted some fruitful aspects and the potential of the use of the pragma-dialectical model, some problematic features are also discussed below. The first of these is connected to the indispensability of rhetorical insights for a meaningful study of scientific controversies. The role rhetorical studies have in the understanding and appreciation of actor's moves seems to go beyond the position that rhetoric plays in the novel "strategic manoeuvring" concept of pragma-dialectics (Section 8). Section 9 highlights the problematic nature of the stages that the pragma-dialectical school posits, and argues for a solution to this problem.

8.1 Responding to issues (1) and (2): Taking up the challenge

In the first paragraph of his letter Newton directly replied to Lucas's establishment of the result concerning (1): "The things opposed by Mr. Line being upon tryalls found true & granted me: I begin wth ye new question about ye proportion of ye length of ye Image to it's breadth." (Turnbull 1960, p. 76). This also *concludes* the discussion of issue (1), but by establishing a different result. Newton accepts the fact that the Jesuits could finally produce the elongated image, but he aims to resolve the difference not by splitting the burden, but by saving his face only: he was right all the way and the challenge was retracted. Interestingly, there is no mention of any modification of his standpoint, even though Line's experiment did contradict Newton's first statement about the elongated image.

The lion's share of the letter, however, deals with issue (2). Newton claims that his position ($+/p_{N1}$) and that of Lucas' ($+/p_{L1}$) can both be reconciled with his theory. So, while maintaining the correctness of his theory, he accepts the observations by Lucas. In a later letter Lucas's trustworthiness will be questioned concerning these same measurements, but here Newton takes pains to account for both positions, just as Lucas did for (1) in his letter. Newton measures the length and breadth of several spectra. He meticulously tests several angles of two prisms, noting: "You may perceive that the length of ye images in respect of ye angles that made them, are somewhat greater in the 2^{d} Prism then in ye first: but that was because ye glass of wch ye second Prism was made, had ye greater refractive power." (Turnbull 1960, p. 77).

8.2 Difficulties of incorporating rhetorical insights in the pragma-dialectical model

Newton's exact description of his different prisms, image-lengths in different atmospheric conditions has been much praised since (Rosenfeld 1927). For some historians his superior precision was a sign of superior method (Westfall 1966, p. 306). Surely this part of the letter is highly significant *scientifically*, as it gives the most detailed data about spectra (and prisms) up to this time. But the text is explicitly aimed at a wider readership – "that no body a mind to try ye experiment exactly might be troubled to procure a Prism" (Turnbull 1960, p. 77). From a rhetorical point of view these pages replying to the four lines written by Lucas strengthen the *ethos* of the meticulous observer Newton. They are also instrumental for the resolution of the difference if we take the general state of the discipline and the lack of standardisation into account (a key point discussed in detail in Schaffer, 1989). However, little direct (functional) role can be assigned to this part of the letter in resolving the difference of opinion. In fact, as I understand the pragma-dialectical theory these scientifically important elements do not even appear in the reconstruction. It is worth looking at some of these to show how precision is used to support both Newton's status as an experimenter and his theory.

Commenting on the clearness of the sky Newton measures the difference of the length of the spectra between two reasonably clear days "to be about 1/4 of an inch", but here he gives the *smallest* value of his measurements as an approximation to downplay Line's main objection concerning the shape of the spectrum (the actual values are 1/4, 1/3, 3/8). He measures the distance of the prism and the wall as "18 feet & 4 inches". And later remarking on his prism states that "the convexity being about as that of a double convex glass of a sixteen or eighteen foot Telescope". This imprecision disappears when he suggests specific prisms for the Jesuits to try the experiments with. The data converge, and the convexity of the prism becomes ideal for the given distance: "If a Prism may be had wth sides exactly plain, it may do well to try ye experiment wth that: but it's better if ye sides be about so much convex as those of mine are … For this convexity of ye sides does ye same effect as if you should use a Prism wth sides exactly plain, & between it & ye hole in ye window shut, place an object glass of an *18 foot* Telescope"[6] (Turnbull 1960, p. 78. Lucas in a later letter stresses that his prisms are slightly concave.)

6. A detailed analysis of Newton's response can also yield historiographically important insights, like the ones discussed earlier for Lucas's letter. This rhetorical move, for example, strongly supports Shapiro's view that some historians have not been fully justified to claim that Desaguliers's experiments in the 1710s to support Newton's theory were "really new". As Lohne claimed "prism-lens variants definitely replaced the *Experimentum Crucis* of 1672 (Lohne 1968, p. 190). Similar

Lucas only gave the refracting angle of his prism a round 60° value (Turnbull 1960; p. 8), while Newton gave as many as twelve values with accuracy to the minute (e.g., 63°48', see Turnbull 1960, p. 77). Newton's prisms were admittedly convex, and he never specified how he measured the angles. In addition to this, one minute difference accounts to 1/150 of an inch difference in the length of the spectrum, 10' account for 1/15 inch, and even a whole degree difference results in a length error of 2/5 of an inch (Laymon 1978a; Zemplén 2005) – not easy to perceive with the relatively fast movement of the spectrum in the Newtonian setting (about 3 cm/min). This is even less significant, if the difference on two relatively clear days can be up to 3/8 of an inch according to Newton (Turnbull 1960, p. 77). It is thus unnecessary and meaningless to provide more exact measurements than Lucas did. By not conforming to Newton's standards of accuracy he simply wasn't following an – in this case – pointless practice. As a result, for many historians Lucas appeared as a sloppy and untalented experimenter.

Rhetorical techniques of early modern scientists have often been analysed in recent decades, and many insightful studies have resulted. However, I earlier argued that the use of rhetoric has problematic aspects and that a dialectical approach is more suited to study the dynamic developments of controversies. Can analyses like the above be incorporated into a dialectical model? As it presently stands, the pragma-dialectical approach is far from incorporating all or most rhetorical insights. Early steps have been made with the concept of "strategic manoeuvring" (van Eemeren & Houtlosser 2002a, 2005, 2006). Even in this extended pragma-dialectical approach, however, the rhetorical aspects only find their way in the reconstruction as subordinated to the resolution-oriented dialectical goals. In the above case it means that only the elements that have a *functional role* in the resolution of the difference of opinion will become visible in the reconstruction – and only in these cases can we account for the use of rhetoric. Therefore many audience- and persuasion-oriented elements are left out of the reconstruction. As a result, elements that are of primary

---

views have been expressed by Guerlac (Guerlac 1981, p. 127), and Schaffer: "Desaguliers' tactic, following Newton's advice, was to marry the techniques for making uncompounded colours described in the fourth proposition of the *Opticks*, including the careful treatment of clear glass prisms and the use of collimating lens, with the lay-out of experiment six, that which most closely resembled the original *experimentum crucis* of 1672. Desaguliers now did what Newton had not done. He revived the name *experimentum crucis* for this completely reconstructed trial." (Schaffer 1989, p. 95). Newton's own description of the convexity of his prism already implies the existence of a lens – and the idealised lens has the same focal length as the prism's distance from the wall. This much strengthens Shapiro's claim that the addition of the lens for the *experimentum crucis* is less significant a departure from Newton's original ideas than many historians claim. At the same time it suggests that the two types of experiments – to prove unequal refrangibility and color-immutability – are not as separate as Shapiro claims (Shapiro 1996, p. 107).

importance for the historian studying the scientific controversies, like the scientifically important measurements that Newton made (and made up), or the changing norms of "literary technology" and rhetorical moves are overlooked. For these either a traditional rhetorical analysis is needed or a more thorough integration of dialectic and rhetoric, a synthesis much wished for by the experts, but not yet achieved (van Eemeren & Houtlosser 2002b).

9. Not responding to issue (3): Newton's manoeuvring

In the same letter, Newton's tackling of issue (3), where Lucas challenged Newton's standpoint (–/pN_2), is highly interesting from the point of view of argumentation theory and how using such theories can change the way historians (and philosophers) think about methodology of science. Newton refused the challenge to defend his standpoint. The most argumentative part of the letter is, unsurprisingly, to support and justify this move. As only fragments of it are quoted in appraisals, I give a detailed reconstruction of the argument (the original text is readily accessible in Turnbull 1960, p. 79). I use the standard pragma-dialectical method of reconstruction, where subordinative argumentation corresponds to the decimal levels, multiple arguments have different numbers on the same decimal level, coordinative arguments have the same numbers but differing letters, implicit premises are in parentheses followed by an apostrophe, etc. (van Eemeren & Grootendorst 2004):

1. It is not necessary to reply specifically to Lucas' experimental objections
   (1.1') Lucas focuses on number of experiments and not on their weight
   1.1. instead of a multiple of things Lucas should try only the *Experimentum Crucis*
      1.1.1 it is not number of Expts, but weight to be regarded
         1.1.1.1 I could have added more
            1.1.1.1.1a I had taken much pains in trying experiments
            1.1.1.1.1b (I had) written a Tractate on that subject wherein I had set down at large ye principall of ye experiments I had tryed; amongst which there happened to be the principal of those experiments wch Mr Lucas has now sent me.
            1.1.1.1.2 ye Experiments set down inmy … letter … were only such as I thought convenient to select out of that Tractate
         1.1.1.2 Lucas should not have grownded his discourse upon a supposition of my want of experiments till he had examined those few
            1.1.1.2.1 For if any of those be demonstrative, they will need no assistants nor leave room for further disputing about what they demonstrate

1.1.1.2.1.1 main thing he goes about to examin is ye *different refrangibility* of light *different refrangibility* is demonstrated by ye *Experimentum Crucis*

1.1.1.2.1.1a if this demonstration be good, there needs no further examination of ye thing;

1.1.1.2.1.1b if not good the fault of it is to be shewn,

1.1.1.2.1.1.1 ye only way to examin a demonstrated proposition is to examin ye demonstration.

1.2 Objections arising from an improper method need not be specifically discussed

(1.2') Lucas' objections derive from his improper method

1.2.1 Lucas does not follow the best method and should change the method he uses

1.2.1.1a Lucas's aim is the knowledge of truth

(1.2.1.1a') Whose aim is the knowledge of truth should chose the shortest, clearest (proper) method

1.2.1.1b Lucas should chose the shortest, clearest (proper) method

1.2.1.2 The shortest & clearest (not to say ye only proper way) is not to follow Lucas' method

1.2.1.2.1a If Lucas's method is followed, the discussion is drawn from a demonstrative experiment

1.2.1.2.1b To discuss non-demonstrative experiments might create trouble of a long dispute for both parties

1.2.1.2.1c The long dispute (multitude of words) can cloude rather than clear up ye truth

1.2.1.2.1c.1 if we should give our selves up to dispute upon every argument that occurs might create endless trouble

1.2.1.2.1c.1.1a it has already cost us so much trouble to agree upon a ye matter of fact in ye first and plainest experiments

1.2.1.2.1c.1.1b we are not fully agreed

1.2.1.2.1c.2 in such a tedious dispute truth is in danger

(1.2.1.2.1c') It is not the aim of a debate to cloud truth

9.1 Radical contextualization of methodology

This argument is a beautiful example how methodology (like the notion of crucial experiments) acquires specific functions in the course of a controversy. Schaffer has already noted that "Newton criticised Lucas for his effort to perform large numbers of optical trials" (see 1.1.1 as supporting 1.1). He also observantly stated: "Yet this was not always the view which Newton and his interlocutors expressed. Newton himself denied in 1677 that 'I brought ye *experimentum crucis* to prove

all'" (Schaffer 1989, p. 85, referring to Turnbull 1960, p. 79–80). The *reasons* for this change in position, however, are not discussed. As already stated, the use of pragmatic insights can contextualise philosophical or methodological notions as functional elements in a debate, and this example nicely illustrates the usefulness and applicability of the approach. When Newton refused the challenge to defend his standpoint and to reply to Lucas's numerous experiments, he stressed that one single experiment carries all the weight – any critique has to address this experiment first. Later, when Lucas did criticise the *experimentum crucis*, Newton responded by decreasing the burden on this single experiment. As opposed to proving both his theory of light and colour (including colour-immutability), he claimed that it only proved that some rays are more refrangible than others.[7]

Schaffer noted similar inconsistencies. Concerning Newton's earlier debate with Hooke, he observes the same repositioning: "Indeed, Newton did not seem consistent in his account of what this trial [the *experimentum crucis*] showed. In February, he said that it demonstrated that there were differently refrangible rays in light without reference to colour; in June, when publicly answering Hooke, he said that it demonstrated that 'rays of divers colours considered apart do at equall incidences suffer unequall refractions', so raising the issue of specific colour" (Schaffer 1989, p. 86)

Newton's shifting of the burden on the crucial experiment can be tracked and analysed easily in a dialectical model, and the functions of these shifts can also be connected to the specific situations. Though contextual readings are *en vogue*, they usually stop short of investigating how methodological norms are influenced by the textual fabric of debates. The analytical tools of pragma-dialectics allow contemporary historians move away from treating positions in an abstract space of ideas (like this is *the* relevance of the notion of crucial experiments for the "Newtonian method"), and to locate them in the argumentative discourse. Via this 'radical contextualisation', methodological norms can be seen as responding to their immediate argumentative context – especially if inconsistencies in the use of norms can be found, like in the case of Newton's use of his crucial experiment.

---

7. As Newton replied to Lucas: "[Question of different refrangibility which I bring] ye Experimentum Crucis to decide, is not, as I sayd whither rays differently coloured are differently refrangible, but only whether some rays be more refrangible yn others .... If you consider this you wil see yt while you have laboured to oppose different refrangibility, there's not one of your objections wch concerns it except ye third where ye Experiment succeeds otherwise than you have reported it. The rest are only against analogy between refrangibility & colour, for if I would say yt rays differently refrangible have no appropriate colours, all your objections would cease." (Turnbull 1960, p. 257–8)

9.2 The opening stage – a precursor to the argumentation stage?

Apart from this great potential, however, a problem also has to be noted in connection with Newton's argument discussed above. In the pragma-dialectical model the preparatory stages of the argumentative exchange are classified to the confrontation stage and the opening stage, and the previously reconstructed rather lengthy argument is a part of the opening stage. With his manoeuvring Newton attempts to channel the disagreement. Lucas originally raised experimental counterexamples concerning his theory. Instead of accepting the challenge and entering the argumentation stage of the discussion, he remains at the opening stage, arguing for specific procedural norms of the debate (and why the experimental objections need *not* be discussed). This is not just a prerequisite to resolve the difference of opinion, but a very important question in its own right. We must not forget that this is one of the first major debates in any scientific journal. How should differences of opinion be settled in this newly invented form of scientific communication is a major issue that has already surfaced in earlier parts of the controversy around Newton's paper, but always as an issue *linked* to a difference of opinion concerning science "proper". These auxiliary issues are of paramount interest for the development of scientific communication and of great significance for the historian.

In fact, similar instances can be found in most scientific controversies, and one could argue, that most controversies that are scientifically and philosophically interesting and that in hindsight can be seen as important for the development of science generally abound in such lengthy arguments. Such arguments and counterarguments – taking up a significant part of the unpublished part of the Newton-Lucas correspondence as well as most other scientific controversies – are in the pragma-dialectical model all crammed into the opening stage.

Should the opening stage carry that entire burden? Is this the stage where major scientific and methodological breakthroughs happen? Instinctively, one would think that the *argumentation* stage should play a bigger role. Therefore a different categorisation might be more useful if not indispensable. Newton's argument makes clear methodological commitments, and the refusal to defend a standpoint opens a meta-level debate on the procedural form the debate should take. If we follow Krabbe's suggestion (Krabbe 2003, 2007) it could be subsumed under the category "metadialogue", and embedded in the argumentation stage. The opening stage might still contain 'some uncomplicated negotiation', but persuasion dialogues like this, especially as they are extremely important in scientific controversies, could become parts of the argumentation proper.

Let us return to Newton's letter from this theoretical digression for a final note. The argument by Newton on the procedural form of the debate was not only uncommon in the *Philosophical Transactions*, but also seemed to go counter to

Newton's own proposal, who was asking for information about the outcome of experimental trials "or if anything seem to be defective, or to thwart this relation I may have an opportunity of giving further direction about it, or of acknowledging my errors, if I have committed any" (Turnbull 1959, p. 102). His letter to Lucas, however, ended with *directives* that could either be read as suggestions or as normative claims on how to further conduct the debate.

As has been observed by Dascal, Newton rarely took part in controversies (Dascal 2001). Either he could manoeuvre so as to reduce the stakes and channel the disagreement into a discussion, or else he became relentlessly polemical. In agreement with Dascal, who argues for a special place for scientific controversies, as a middle ground between discussion and dispute (Dascal 1998, 2000; see also this volume), it is important to note that in case of the Newton-Lucas debate the controversy could not unfold as a result of the polemicizing moves by Newton. His infamous final comment to John Aubrey, secretary of the Royal Society on the issue as he terminated the correspondence was: "I understand you have a letter from Mr Lucas for me. Pray forbear to send me anything of that nature" (Turnbull 1960, p. 269).

Before the termination of the correspondence, however, Newton and Lucas exchanged some very important letters. Among others Lucas, grudgingly accepting the procedural form suggested by Newton, carried out a detailed investigation of the *experimentum crucis*, described further observations, and challenged Newton's claim to have demonstrated a new property of light. In response Newton gave a detailed explication of his methodology and research strategy. As Newton forbade the publication of these letters, not until the correspondence of Newton was finally published in the second half of the twentieth century did the public and historians learn about the other letters.

10. Conclusion

I used the pragma-dialectical model to study the published part of the Newton-Lucas correspondence. Through analysing Lucas's letter I highlighted the fruitfulness of using a dialectical model, and its advantages over purely rhetorical analyses. Via the analysis of Newton's response I drew attention to the possibility of 'radical contextualization' of methodological norms, but also pointed to difficulties that need to be overcome: in its present state pragma-dialectics needs to be supplemented with rhetorical tools, and introducing the notion of 'metadialogues' would help the tracing of crucial elements in scientific controversies. Already this preliminary study, however, testifies to the fruitfulness of the model.

Issues concerning the normativity of the model, the epistemological grounding, and the metatheoretical commitments (Kutrovátz 2007, and also this vol-

ume) all need detailed further analysis before this field-independent framework becomes a useful and accepted tool in the hands of historians interested in the field-dependent aspects of scientific controversies.

Concerning the historical period I hope I demonstrated that the conscious use of various textual approaches can highlight shortcomings or problematic aspects of earlier accounts – including the important and recent historiographic debate on the rhetorical structure of this episode by Schaffer and Shapiro.

By decreasing the "grain size" of the analysis, a more nuanced picture of the historical actors emerges. We see varying techniques, and varying success with regards to issues. With this, the possibility to pass easy judgement on the actors also decreases. Whether this is beneficial or not, can be debated. But as a result of a similar debate (heralded as the *historical turn* in philosophy of science), most scholars stopped labelling scientists "right" or "wrong". This yielded many novel insights that changed the way we now think about the history of science and scientific controversies.

References

Bazerman, C. (1986). *Shaping Written Knowledge. The Genre and Activity of the Experimental Article in Science*. Madison: The University of Wisconsin Press.

Bechler, Z. (1975). 'A less agreeable matter': The disagreeable case of Newton and achromatic refraction. *The British Journal for the History of Science, 8*(29), 101–127.

Bloor, D. (1991). *Knowledge and Social Imagery* (2nd Ed.). Chicago: University of Chicago Press.

Boyer, C.B. (1959). *The Rainbow: From Myth to Mathematics*. New York: Thomas Yoseloff.

Caplan, A.L. & Engelhardt, H.T. (1987). *Scientific Controversies: Case Studies in the Resolution and Closure of Disputes in Science and Technology*. Cambridge: Cambridge University Press.

Dascal, M. (1998). Types of polemics and types of polemical moves. In S. Cmejrkova, J. Hoffmannova, O. Mullerova & J. Svetla (Eds), *Dialogue Analysis VI (Proceedings of the 6th Conference, Prague, 1996)* (Vol. 1) (pp. 15–33). Tübingen: Max Niemeyer.

Dascal, M. (2000). Epistemology and controversies. In T.Y. Cao (Ed.), *Proceedings of the Twentieth World Congress of Philosophy: Philosophy of Science*, Vol. 10 (pp. 159–192). Philadelphia: Philosophers Index Inc.

Dascal, M. (2001). How rational can a polemic across the analytic-continental 'divide' be? *International Journal of Philosophical Studies, 9*(3), 313–339.

Dascal, M. & Gross, A.G. (1999). The marriage of pragmatics and rhetoric. *Philosophy and Rhetoric, 32*(2), 107–130.

Eemeren, F.H. van & Grootendorst, R. (1984). *Speech Acts in Argumentative Discussions: A Theoretical Model for the Analysis of Discussions Directed Towards Solving Conflicts of Opinion*. Dordrecht: Foris.

Eemeren, F.H. van & Grootendorst, R. (1992). *Argumentation, Communication, and Fallacies: A Pragma-Dialectical Perspective*. Hillsdale, N.J.: L. Erlbaum.

Eemeren, F.H. van & Grootendorst, R. (2004). *A Systematic Theory of Argumentation*. Cambridge: Cambridge University Press.

Eemeren, F.H. van & Houtlosser, P. (2002a). Strategic maneuvering. Maintaining a delicate balance. In F.H. van Eemeren & P. Houtlosser (Eds), *Dialectic and Rhetoric. The Warp and Woof of Argumentation Analysis* (pp. 131–159). Dordrecht: Kluwer.

Eemeren, F.H. van & Houtlosser, P. (Eds) (2002b). *Dialectic and Rhetoric. The Warp and Woof of Argumentation Analysis*. Dordrecht: Kluwer Academic Publishers.

Eemeren, F.H van & Houtlosser, P. (2005). Strategic maneuvering. *Studies in Communication Sciences, Special Issue 'Argumentation in Dialogic Interaction'*, 23–34.

Eemeren, F.H. van & Houtlosser, P. (Eds) (2006). Perspectives on strategic maneuvering [Special Issue]. *Argumentation, 20*(4)

Gjertsen, D. (1986). *The Newton Handbook*. London: Routledge & Kegan Paul.

Golinski, J. (1998). *Making Natural Knowledge: Constructivism and the History of Science*. Cambridge: Cambridge University Press.

Gruner, S.M. (1973). Defending Father Lucas: A consideration of the Newton-Lucas dispute on the nature of the spectrum. *Centaurus, 17*, 315–329.

Gruner, S.M. (1974). Goethe's criticism of Newton's Opticks. *Physis, 16*, 66–82.

Guerlac, H. (1981). *Newton on the Continent*. Ithaca: Cornell University Press.

Krabbe, E.C.W. (2003). Metadialogues. In F.H. van Eemeren, J.A. Blair, Ch.A. Willard & A.F. Snoeck Henkemans (Eds), *Anyone Who has a View: Theoretical Contributions to the Study of Argumentation* (pp. 83–90). Dordrecht: Kluwer.

Krabbe, E.C.W. (2007). On how to get beyond the opening stage. In F.H. van Eemeren, J.A. Blair, Ch. A. Willard, B. Garssen (Eds) *Proceedings of the Sixth Conference of the International Society for the Study of Argumentation* (pp. 809–813). Amsterdam: Sic Sat.

Kuhn, T.S. (1958). Newton's Optical Papers. In I.B. Cohen (Ed.), *Isaac Newton's Papers & Letters On Natural Philosophy* (pp. 27–45). Cambridge: Harvard University Press.

Kutrovátz, G. (2007). A role for dialectic in science studies. In F.H. van Eemeren, J.A. Blair, Ch. A. Willard & B. Garssen (Eds) *Proceedings of the Sixth Conference of the International Society for the Study of Argumentation* (pp. 835–839). Amsterdam: Sic Sat.

Laymon, R. (1978a). Newton's advertised precision and his refutation of the received laws of refraction. In P.K. Machamer & R.G. Turnbull (Eds), *Studies in Perception: Interrelations in the History of Philosophy and Science*. Columbus: Ohio State UP.

Laymon, R. (1978b). Newton's experimentum crucis and the logic of idealization and theory-refutation. *Studies in History and Philosophy of Science, 9*(1), 51–77.

Lohne, J.A. (1968). Experimentum crucis. *Notes and Records of the Royal Society, 23*, 169–199.

Newton, I. (1671–72). New theory about light and colors. *Philosophical Transactions of the Royal Society, 80*, 3075–3087.

Pera, M., Machamer, P.K. & Baltas, A. (2000). *Scientific Controversies: Philosophical and Historical Perspectives*. New York: Oxford University Press.

Pickering, A. (Ed.) (1992). *Science as Practice and Culture*. Chicago: University of Chicago Press.

Reichenbach, H. (1938). *Experience and Prediction: An Analysis of the Foundations and the Structure of Knowledge*. Chicago: University of Chicago Press.

Rosenfeld, L. (1927). La théorie des couleurs de Newton et ses adversaires. *ISIS, 9*, 44–65.

Schaffer, S. (1989). Glass works: Newton's prisms and the uses of experiment. In D. Gooding, T. Pinch & S. Schaffer (Eds), *The Uses of Experiment: Studies in the Natural Sciences*. Cambridge: Cambridge UP.

Schiappa, E. (2002). Evaluating argumentative discourse from a rhetorical perspective. In F.H. van Eemeren & P. Houtlosser (Eds), *Dialectic and Rhetoric. The Warp and Woof of Argumentation Analysis* (pp. 65–80). Dordrecht: Kluwer.

Schickore, J. & Steinle, F. (2006). *Revisiting Discovery and Justification. Historical and Philosophical Perspectives on the Context Distinction*. Berlin: Springer.

Sepper, D.L. (1988). *Goethe Contra Newton: Polemics and the Project for a New Science of Color*. Cambridge: Cambridge University Press.

Shapiro, A.E. (1996). The gradual acceptance of Newton's theory of light and color, 1672–1727. *Perspectives on Science, 4*(1), 59–140.

Steinle, F. (1993). Newton's rejection of the modification theory of colour. In M.J. Petry (Ed.), *Hegel and Newtonianism* (pp. 547–556). Dordrecht: Kluwer.

Turnbull, H.W. (Ed.). (1959). *The Correspondence of Isaac Newton I. 1661–1675*. Cambridge: Cambridge University Press.

Turnbull, H.W. (Ed.). (1960). *The Correspondence of Isaac Newton II. 1676–1687*. Cambridge: Cambridge University Press.

Westfall, R.S. (1966). Newton defends his first publication: The Newton-Lucas correspondence. *ISIS, 57/3* (189), 299–314.

Westfall, R.S. (1980). *Never at Rest: A Biography of Isaac Newton*. Cambridge; New York: Cambridge University Press.

Whewell, W. (1837). *History of the Inductive Sciences*. London: Frank Cass.

Whiteside, D.T. (1966). *The Mathematical Papers of Isaac Newton 1664–66* (Vol. I.). Cambridge: Cambridge University Press.

Zemplén, G.A. (2004). Newton's rejection of the modificationist tradition. In R. Seising, M. Folkerts, & U. Hashagen (Eds), *Form, Zahl, Ordnung. Studien zur Wissenschafts- und Technikgeschichte* (pp. 481–502). Stuttgart: Franz Steiner Verlag.

Zemplén, G.Á. (2005). *The History of Vision, Colour, & Light Theories – Introductions, Texts, Problems*. Bern: Bern Studies in the History and Philosophy of Science.

Index

A

Aakhus, M., 12, 13, 19, 197, 200, 202, 207, 213
adjudication, 11, 12
agreement, zone of, 6, 9, 74, 213
Albert, H., 9
analogy, 55, 143–144
analytic overview, 22, 24
antagonist, 8, 164
argument
  fertility of, 8, 159–161
  identity of, 154–159
  integrity of, 8, 153–154, 159, 161
argumentation stage, 9, 12, 22, 269
argumentative
  activity type, 11, 12, 20, 22
  practice, 167
  predicament, 17, 219
  space, 149
  strategy, 17, 64–66
argumentum
  ad baculum, 182
  ad consequentiam, 182
  ad hominem, 10, 11, 15, 55, 68, 111, 171, 175, 177, 181–195, 219
    abusive variant, 15, 183
    circumstantial variant, 15, 174, 183
    tu quoque variant, 11, 15, 36, 183, 219
  ad ignorantiam, 182
  ad misericordiam, 182
  ad populum, 182
Aristotle, 32, 54–56, 66, 72, 74, 84–85, 101, 109–110, 113, 121, 128, 130, 216
audience, 74–75, 253
authority, argument from, 113
Ayer, A.J., 38, 160

B

Baltas, A., 249
Barnes, B., 216
Barth, E.M., 8, 165–166, 172
Bartlett, S.J., 170
Bazerman, C., 231, 242–243, 252
Bechler, Z., 260
Beetz, M., 118–119
Biagioli, M., 114, 255
Blair, J.A., 156
Bloor, D., 233, 253
Bourel, D., 104
Boyer, C.B., 250
Brinton, A., 163–164, 174, 178
burden of proof, 112–113

C

Campbell, D.T., 187
Caplan, A.L., 249
Carnap, R., 38
Ceccarelli, L., 231
Clark, H.H., 186
Cohen, L.J., 151–152
Collins, H., 232–234, 240
communication principle, 14–15, 109–122
completing proposals, 201–203
concessions, 21
concluding stage, 9, 12, 22
confrontation, 1–25, 7, 181–195
  stage, 9, 12, 20, 22, 182
confrontational maneuvering, 11, 168–169
context, universal, 3
contextual commitment, 169
contextualization, macro level of, 19
controversy, 1–25, 46–47, 53, 56, 74, 93, 109, 127, 253, 256
convergent operationalism, 10, 186–193
Crawshay-Williams, R., 3
credibility, 163–178
Cremaschi, S., 41, 130
criterion
  contextual, 3
  objective, 3
critical discussion, 8, 12, 21, 22, 164–167
  rules for, *see* pragma-dialectical discussion rules
criticism, 150

D

Darwin, C., 1, 6, 13–14, 16–17, 51–75
Dascal, M., 1, 3–6, 16–18, 21–22, 27, 37, 41–42, 44, 52–54, 74, 106, 115–116, 121, 127–128, 130–132, 138, 243, 254, 270
De Santillana, G., 83
Dear, P., 231
debate, types of, 27–48
declaring
  a standpoint sacrosanct, 182
  a standpoint taboo, 182
de-dichotomization, 17, 18, 27, 34–42, 45–48
diaeresis, *see* division, method of
dialectic ladder, 135–146
dialectical
  aims, *see* dialectical objectives
  environment, 160–161
  history, 8, 153–154, 159–161
  objectives, 167–169
  obligation, 149–151, 161, 168
  perspective, 7–13
  principles, 111
  successor, 8, 153–154, 159, 161
  tasks, 165
dialectics, 7, 54–55, 125–132, 234, 253

dialectification, 14, 237, 239
dichotomization, 1, 17, 27, 34, 39–45
dichotomy, 18, 27–48
Dieckmann, W., 111, 115
differentia specifica, 29
disagreement
deep, 3, 25, 20
space, 9, 17, 197–213
interlocking, 227–228
management of, 197–213, 225–227
discussion, 3, 4, 6, 18, 21, 22, 42–47, 52, 138
context, 188–189
disinflation, 38
dispute, 3, 4, 18, 21, 22, 42–47, 52, 138
dissuasion, 135–146
model, 20, 135, 140–141, 145
division, method of, 29, 31

E
Edge, D., 216
Eemeren, F.H. van, 1, 9–11, 14–15, 27, 51–53, 75, 109, 111, 136, 163–165, 167–172, 175–178, 181–182, 184, 197, 200, 202, 203, 213, 216–217, 236–242, 249, 254, 261, 265–266
effective presence, 80
efficiency principles, 113
Engelhardt, H.T., 249
episteme, 39
eristic debate, 22
ethos, 17, 57, 66, 239
Euli, E., 2, 20, 135, 145
Evans, R., 233, 240
externalization, 14, 217, 237
Ezrahi, Y., 228

F
Falk, R., 141
fallacy, 11, 173
fallacy criticism, 173
false analogy, 182
Farrell, J., 79
felicity conditions, 200–201
Ferreira, A., 2, 15–16, 125, 127–128, 132
Finocchiaro, M.A., 83–84, 86
Flores, F., 201
Flores, M., 140
Forlani, M., 145
Forst, R., 139
Francke, A.W., 118–120
Friedländer, D., 1, 18, 93–107
Friedman, M., 240
Fritz, G., 2, 14–15, 20, 109, 110, 118
functionalization, 14, 237–238

G
Galtung, J., 139, 145
Garssen, B., 1, 9–10, 14–15, 181–182
Gehema, J.A. à, 113, 119
generation, 126
Geuder, M.F., 119
Gierl, M., 118, 120
Gieryn, T., 77–78, 80, 86
Gjertsen, D., 251
Gloning, T., 110
Goeze, J.M., 113
Goldenbaum, U., 111
Golinski, J., 232, 252
Goodnight, G.T., 215
Govier, T., 149–151
Gracia, J.J.E., 29
Gregory, J., 244
Grice, H.P., 10, 37, 110, 128, 167
Grootendorst, R., 10, 14, 15, 51, 52, 53, 109, 111, 136, 164–165, 167, 171, 172, 175–177, 182, 197, 203, 213, 216–217, 236, 239, 242, 254, 261, 266
Gross, A.G., 231, 254
Gruner, S.M., 257–258, 261
Guerlac, H., 257, 265
Gutmann, A., 226

H
Hamblin, C.L., 109
Hare, R.M., 38
Harrison, J., 170
Heelan, P., 241
Héritier, F., 137
hermeneutical principles, 111
higher order conditions, 15, 168, 178
Hintikka, J., 110
Hobbes, T., 113–114, 117
Hooke, R., 43–44
Horn, R.E., 159
Houtlosser, P., 10–11, 15, 19, 111, 163, 168170, 176–177, 202, 213, 236, 249, 254, 265–266
Hume, D., 37–160
Hunold, C.F., 120

I
identity of argument, *see* argument, identity of
inconsistency, 166–167, 169–171
pragmatic, 19, 163–178
initiating proposals, 201–203
integrity, *see* argument, integrity of
interpretation, 167

J
Jackson, S., 3, 16–17, 186, 197, 200–201, 215, 216–219, 236
Jacobs, S., 197, 200–201, 213, 216–218, 236
Jardine, N., 115
Jastrow, R., 79
Jefferson, G., 203
Johnson, R.H., 8, 13, 149, 151, 156, 168
Johnstone, H.W., Jr., 149
justification, 126, 189–190

K
kairos, 238
Kasher, A., 110
Kauffeld, F., 197, 201–202, 212
Kepler, J., 115, 117, 119
Klassen, J., 93
Kline, S., 200
Knorr-Cetina, K., 235
Koyré, A., 83–84, 86
Krabbe, E.C.W., 8, 164–166, 169, 172–173, 269
Kripke, S., 160
Kuhn, T.S., 83, 85, 127, 231, 249, 251
Kutrovátz, G.A., 6, 7, 14, 16, 23–24, 231, 245, 255, 270

L
Laar, J.A. van, 11, 19, 163, 168–169
Labinger, J.A., 232
language use, rules of, 10
Latour, B., 233, 245
Laudan, L., 125–126, 240
Laymon, R., 257, 265
Leff, M., 130–131
legal dispute, 22
Leibniz, G.W., 31–32, 45–46, 109, 112–116, 121

Lemmon, T.J., 156
Lessl, T.M., 2, 17–18, 77, 83
linguistic principles, 111
Locke, J., 104–105, 113–114
logical principles, 111
logos, 57, 66, 131, 239
Lohne, J.A., 260, 264
Losee, J., 85
Lowenstein, S.M., 105
Lynch, J.M., 57

M
Machamer, P.K., 249
Marburger, J.H., 220–224, 226
Markus, G., 241
Marras, C., 2, 20, 135, 136, 139
maxims of conversation, 110
mediation, 12
Mendelssohn, M., 94–99, 101, 103–105
meta-argument, 174
metadialogue, 269
meta-level, 42–48
metascience, 77–91
vacuum, 86–91
Meuffels, B., 9–10, 14–15, 181, 182, 184
Meyer, M.A., 93, 127
Miller, S., 244
Mivart, G., 1, 6, 13–14, 16–17, 51–75
moderation, 137
Mosse, W., 94
multiparty deliberation, 197–213

N
National Academy of Sciences, 77–91
negotiation, 12, 234, 242, 135, 138, 144
Newman, A., 103
Newton, I., 14, 16, 18, 43–44, 85–86, 249–271
Nickles, T., 126

O
objection, 149–161
O'Keefe, D.J., 193–194
Olbrechts-Tyteca, L., 216
opening stage, 9, 12, 22, 269
order, 131
ordinary arguers, 182
Osiander, L., 117–118

P
Patfoort, P., 138
pathos, 17, 57, 66, 131, 239
Peckham, M., 57
Pelli, M., 103
Pera, M., 6–7, 14, 54, 66, 83–84, 86, 234–237, 239, 242, 249
Perelman, C., 80,149, 216
personal attack, 163–164, 173–177
ad hominem, *see* argumentum ad hominem
non-fallacious, 190–191
persuasiveness, 193–195
phronesis, 39
Pickering, A., 249
Pickle, J.W., 103
Pinto, R.C., 149
Plato, 28–29, 31–34, 84
point-by-point refutation, 116–118
polemical, 138
disputation, 22
polemics, 51–75
politeness principles, 111, 114, 118–120
Pombo, O., 41
Popper, K.R., 126–128, 146
Pornpitakpan, C., 171
pragmatics, 15, 125–132
historical pragmatics, 111
pragma-dialectical discussion rules, 167, 181–182
pragma-dialectics, 8, 14, 16, 19, 51, 213, 216, 231–245, 249–271
Prelli, L.J., 231
presuppositions, 61–62
proportionality, 34
protagonist, 8, 164
credibility of, 172
provocative thesis, 166
Putnam, H., 36–39

Q
Quine, W.V.O., 37

R
radical contextualization, 16, 267–268
rationality, weak or soft, 130, 235
reasonableness, 9, 181–195
judgments, justifications of, 189–190
reconstruction, 167
re-dichotomization, 46–48
reductio ad absurdum, 55
Rees, M.A. van, 167
refutation, 55, 94, 101–103, 135–146
Regner, A.C., 1, 6, 13–14, 16–17, 20, 51
Reichenbach, H., 253
repair, 216
Rhees, R., 160
rhetoric, 10, 54, 125–132, 234, 251–255, 264
of science, *see* science, rhetoric of
rhetorical
rhetorical aims, *see* rhetorical objectives
rhetorical effectiveness, 20
rhetorical objectives, 165, 167–169
rhetorical perspective, 7, 15
rhetorical principles, 111, 113
Rosenbusch, C., 118–119
Rosenfeld, L., 264
Röslin, H., 115, 119
Rovatti, P.A., 143
Russell, B., 153

S
Saim, M., 1, 17–18, 93
Scattola, M., 138
Schaffer, S., 243, 252–253, 257–259, 264–265, 267–268, 271
Schiappa, E., 252
Schickore, J., 253
Schleiermacher, F., 1, 93, 95, 99, 102–106
Schwartz, R.D., 187
science, rhetoric of, 7, 12, 231–245
scientific
controversy, 125–132, 249–271
demarcation, 77–91
discussion, 22
Searle, J.R., 4, 10, 44, 151–152, 200
Sechrest, L., 187
Semler, J.S., 118
Sepper, D.L., 257–258, 261
Shapin, S., 110, 118, 120

Shapiro, A.E., 257–260, 264–265, 271
slippery slope, 36, 182
Snoeck Henkemans, A.F., 1, 182, 203
Snow, C.P., 41
socialization, 14, 237
Sorkin, D., 94, 105
Sorensen, A.B., 39
Steinle, F., 249, 253, 262
Stern, A., 1, 35–36
Stevenson, C.L., 37–38
strategic maneuvering, 10, 11, 12, 17, 20, 163, 168, 174–175, 202, 213, 266–270
  derailment of, 11
Strauss, L., 1, 35–36
straw person, 151
Strawson, P.F., 37
syllogistic logic, 32

T
Taylor, C.A., 77
Tecchio, R., 143
Teller, W.A., 1, 18, 93–107
tertium quid, 59–60
text production
  principles of, 111
Thomasius, J., 109, 120–121
Thompson, D., 226
Tomasoni, F., 99
topoi, 55–56, 200
Toulmin, S.E., 39–42, 155
Turnbull, H.W., 251, 255–256, 260–266, 268, 270

U
Union of Concerned Scientists, 215, 220
universal context, *see* context, universal

V
validity
  conventional, 9, 181–182
  problem, 182
Vasilyeva, A.L., 12–13, 19, 197
virtual standpoint, 200

W
Wallace, A.R., 57–58, 66
Walton, D.N., 111, 163, 165, 169–172, 174, 176–177, 228
Webb, E.J., 187
Westfall, R.S., 251–252, 257, 261, 264
Whewell, W., 258
Whiteside, D.T., 260
Winograd, T., 201
Woods, J.H., 3, 163, 169–172, 174, 176, 217
Woolgar, S., 233
Wreen, M., 154
Wright, C., 57–58
Wright, G.H. von, 41

Y
Yoshimi, J.K., 153

Z
Zemplén, G.A., 14, 16, 18, 24, 245, 249, 262, 265
zone of agreement, *see* agreement, zone of

In the series *Controversies* the following titles have been published thus far or are scheduled for publication:

6 **EEMEREN, Frans H. van and Bart GARSSEN (eds.):** Controversy and Confrontation. Relating controversy analysis with argumentation theory. 2008. xiii, 278 pp.

5 **WALTON, Douglas:** Dialog Theory for Critical Argumentation. 2007. xviii, 308 pp.

4 **DASCAL, Marcelo and Han-liang CHANG (eds.):** Traditions of Controversy. 2007. xvi, 310 pp.

3 **FROGEL, Shai:** The Rhetoric of Philosophy. 2005. x, 156 pp.

2 **EEMEREN, Frans H. van and Peter HOUTLOSSER (eds.):** Argumentation in Practice. 2005. viii, 368 pp.

1 **BARROTTA, Pierluigi and Marcelo DASCAL (eds.):** Controversies and Subjectivity. 2005. x, 411 pp.

The essays that are collected in Controversy and Confrontation provide a closer insight into the relationship between controversy and confrontation that deepens our understanding of the functioning of argumentative discourse in managing differences of opinion. Their authors stem from two backgrounds. First, the controversy scholars Dascal, Marras, Euli, Regner, Ferreira, and Lessl discuss historical controversies in science, both from a theoretical and an empirical perspective; Saim concentrates on a historical controversy; Fritz provides a historical perspective on controversies by analyzing communication principles. Second the argumentation scholars Johnson, van Laar, van Eemeren, Garssen and Meuffels address theoretical or empirical aspects of argumentative confrontation; Aakhus and Vasilyeva examine argumentative discourse from the perspective of conversation analysis; Jackson analyzes argumentative confrontation in a recent debate between scientists and politicians. Last but not least, two contributors, Kutrovátz and Zemplén, make an attempt to bridge the study of historical controversy and the study of argumentation.

ISBN 978 90 272 1886 5

9 789027 218865

John Benjamins Publishing Company