

Argument Structure

Edited by

Eric Reuland

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John Benjamins Publishing Company

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Volume 108

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Edited by Eric Reuland, Tanmoy Bhattacharya and Giorgos Spathas

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Preface

This volume arose from an international conference on *Argument Structure*, organized by the Department of Linguistics, University of Delhi in collaboration with the Central Institute of Indian Languages (CIIL). The conference took place on January 5–7, 2003 at the premises of the University of Delhi, with K.V. Subbarao, Tanmoy Bhattacharya, Tista Bagchi as the principal organizers. The conference was characterized by a vivid interaction by audience and speakers on the issues addressed by the conference call. Not only did the presentations each by themselves make pathbreaking contributions to the international debate on the fundamental issues of argument structure, but it also became clear that the whole was greater than the parts, and that the way in which the various perspectives came together had a significant value by itself. As a consequence the idea came up to make a coherent selection of contributions available to the linguistic community in the form of an edited volume. It is important to note that this is not a ‘proceedings’, but a selection of articles on argument structure, specifically written for the present volume.

As anyone who has experience with edited volumes will know, delays appear to be almost inevitable, even if one starts with the best of intentions in the most optimistic of spirits. In this case too, for various reasons, the volume has been on its way for more than four years, due a series of relatively small delays that in the end appear to have added up.

The editorial team originally consisted of Tanmoy Bhattacharya, Eric Reuland and K.V. Subbarao. For personal reasons K.V. Subbarao had to decide to leave the team. His place was filled by Giorgos Spathas from Utrecht University, who kindly accepted the invitation to join the team, although he had not been present at the original conference. Also on behalf of Tanmoy, I would like to thank Giorgos for all the work he did with such an incredible energy and enthusiasm. But for him, the completion of this work might – who knows – have taken another couple of years.

On behalf of Tanmoy and Giorgos, I would like to thank the contributors for their patience – and of course for their excellent work. Finally I would like to thank John Benjamins Publishing Company for their support throughout this process.

Utrecht, July 12, 2007

Eric Reuland

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Introduction

In recent years the discussion around issues of argument structure, argument projection and argument changing operations in the generative literature has focused around two extreme positions on the role of lexical entries. The more traditional view (*Lexicalist* or *endo-skeletal*, as in Borer 2003) assumes that the lexical entry of a given verb encodes enough information to allow structure to directly project from it. The various implementations of this idea differ substantially in issues such as whether the projected structure is lexical or syntactic, whether information on syntactic category is present on the lexical entry, whether argument changing operations are located in the lexicon or are simply by-products of syntactic manipulation, what are the semantic roles involved etc. Still, all such approaches would argue that the lexical semantics of a given entry determine the theta roles assigned by the verb and that argument structure, in turn, determines the projection of (lexical or syntactic) structure.

The alternative view (*neo-constructionist* or *exo-skeletal* in Borer 2003) that has emerged as the direct opposite of the lexicalist view, argues that (ideally) all properties of argument structure are taken up by syntactic structure. Under this view, structure is not derived by any of the properties of the lexical entry. Rather, what appear to be properties of a lexical entry (be it argument structure, syntactic category, morphological information, etc.) are all derivatives of syntactic structure. In the case of argument structure in particular, the correlation between theta role and syntactic position is reversed. In the neo-constructionist view the interpretation of a given argument is determined by its position in the syntactic structure and the event structure that it (the syntactic structure) establishes.

In this volume, Tor Åfarli addresses directly the question of whether the lexical semantics of a head play any role on argument structure and argues for the neo-constructionist view. First, he concentrates on *made-up verbs*, usually proper names or other nouns used as verbs, as in *How to Russell a Frege-Church*. Åfarli argues that made-up verbs have no semantic-conceptual content that could trigger the formation of lexical argument structure. Thus, a view that projects syntactic structure on the basis of a verb's lexical argument structure is not sustainable. Second, he discusses cases of *flexible verbs*, like the Norwegian *danse* 'dance'. Flexible verbs

seem to be more permissive to the syntactic configurations they can occur in than one might expect if these syntactic configurations were strict derivatives of the verb's semantic or conceptual content. Áfarli argues that a view that derives argument structure by inserting lexical material into syntactico-semantic frames does not face such problems. Frames exist independently of any lexical material in a given sentence; the argument structure of a given word is acquired by insertion in the frame. Made-up verbs have argument structure because they are inserted in a frame, independent of their lexical content. Flexible verbs are actually what one expects under the neo-constructionist view; if frames are independent of lexical material a verb should be able to occur in as many syntactic configurations as there are frames to support them.

A number of approaches have been developed in the generative framework that lie between the two extremes of the lexicalist and the neo-constructionist view. Nomi Erteschik-Shir and Tova Rapoport have been developing a system that retains the basic neo-constructionist position that theta role assignment is a property of syntactic positions. But whereas in a strict neo-constructionist analysis the relation between theta role and syntactic structure is mediated by event structure, in Erteschik-Shir and Rapoport's system a theta role is determined by syntactic structure which is in turn a function of the verbs meaning components. The meaning components are universally restricted and are part of a verb's lexical entry. Different meaning components project different syntactic categories that merge with the morpho-phonological verbal head. The resulting structure assigns a distinct thematic role to the argument in it its specifier and receives a distinct aspectual interpretation.

In their contribution in this volume, Nomi Erteschik-Shir and Tova Rapoport apply this system to explain the argument projection of verbs of contact, like *hit* and *break*. Contact verbs are specified for two meaning components: 'Manner (forceful means)' and 'Location (point of contact)'. Each of the two meaning components is in principle allowed to project freely. Full interpretation determines that each verbal projection should be linked to a single meaning component and each meaning component should be linked to a verbal projection. Meaning components can be interpreted either via structural encoding (projecting a syntactic category) or via modification (resulting in adverbial modification). In a sentence like *The car hit the wall*, 'Location' projects the syntactic category P and the argument of P specifies the point of contact. 'Manner' adverbially modifies the predicate *hit the wall*, resulting in the interpretation 'The car went with force to a point of contact on the wall'. Notice that the interpretation of meaning components determines the possibility of alternations in argument projection. A verb like *cut* with the meaning components 'Manner (sharp instrument)' and 'S (cut)' cannot enter a change-of-state configuration as in *The bread cut*, meaning 'The bread was cut with a sharp instrument'.

Full interpretation is satisfied here, since ‘Location’ projects the syntactic category A and ‘Manner’ modifies the resulting predicate. The sentence is out, however, because the interpretation of ‘Manner (sharp instrument)’ requires the presence of a referential wielder which is absent in *The bread cut*. ‘Manner (forceful means)’ poses no such requirements resulting in the felicitous *The car hit the wall*. This way possible alternations are restricted by the interpretation of the meaning components, avoiding the need to assume different lexical representations.

Erteschik-Shir and Rapoport’s system is a modification of the system presented in Hale and Keyser (1993). Whereas in Erteschik-Shir and Rapoport’s system merging a verbal head with any meaning component yields a predicate with the same syntactic structure, in Hale and Keyser verbs derived from different types of root components (verbal, nominal, adjectival, prepositional) have a different syntactic structure. So, each lexical category projects an unambiguous structure, a Lexical Relational Structure (LRS). For example, nominal root components do not project a specifier, whereas adjectival root components do. The different theta roles, then, correspond to spec-head or head-comp relations within verbal, nominal, etc. LRSs. As in Erteschik-Shir and Rapoport, then, each verb is linked to a single lexical representation. Alternations in argument structure are attributed not to meaning components, but to the different possibilities of movement and incorporation within a LRS.

In his contribution, K.A. Jayaseelan discusses the argument structure of the dative construction, assuming Hale and Keyser’s theory of argument structure. It is shown that the same underlying LRS, the one for experiencer and possessor theta roles, can have three alternations: (i) ‘be NP-dat’, (ii) ‘NP-nom have NP’ and (iii) ‘NP-nom be Adjective’. Languages differ in the alternations they use; where English has nominative case, Malayalam has dative, and where English has an adjective, Malayalam has a noun. Jayaseelan shows that, unlike in Hale and Keyser’s theory, Adjective is not a primitive category, at least not in Dravidian. The differences in (i) to (iii) then are derived via different choices of incorporation; when dative case incorporates into *be*, the result is *have* (in the spirit of Kayne 1993). When a Noun incorporates into dative case we get Adjective.

In the same spirit, R. Amritavalli concentrates on the different realizations of the dative construction in English and Dravidian languages. Amritavalli agrees with Jayaselaan that Dravidian languages lack the categories A and P and that this gap in syntactic categories explains the differences in possible argument structures between languages, since there arise different possibilities for incorporation (see Jayaselaan above). Amritavalli expands this line of argumentation to explain Emonds’ (1985) observation that languages that have serial verb constructions lack PP structures. Whereas English allows serial verb constructions only with imperfect and negative participles, but not with perfect participles, Kannada allows for serial verb

constructions with all three types. The pattern is attributed to differences in case incorporation into participles; all Kannada participles retain their case. English imperfect and negative participles are ‘adjectival’ in that they incorporate case. English perfect participles, on the other hand, do not incorporate case, and, thus, cannot be used in positions where case is not licensed as in the English participial adjunct construction.

Syntactic theories that deny the importance of lexical semantics for the licensing of theta roles often assume that the task is taken up by functional heads. This has been extensively argued particularly for the case of external arguments (e.g. Marantz 1997, 2007, Kratzer 1996). It is argued that the verb by itself poses no restriction on the type of external argument it can license. A functional head *v* (often called *little v*) is merged that is responsible for licensing the external argument and for the specific thematic role assigned to it.

Peter Svenonius investigates this idea in the case of DP arguments licensed by the category *P*. After arguing that the category *P* is a cross-linguistic category that includes prepositions, postpositions and (at least in some languages) particles, Svenonius demonstrates that the thematic restrictions posed by this category to the arguments it licenses are extremely uniform; elements of the category *P* assign the theta role of ‘Ground’ in their internal argument and that of ‘Figure’ in their external argument. He further argues that this asymmetry parallels the asymmetry found in the verbal domain between Agents/Causers (external arguments of *V*) and Themes/Patients (internal arguments of *V*). Svenonius explains the parallelism by extending the split-*V* hypothesis to the category *P*; the same way Agents/Causers are introduced by a head *v*, Figures are introduced by a head *p*. The main difference between the two categories, namely that verbs can introduce a much wider range of arguments than adpositions, is then explained partly by the richer lexical content of verbs and partly by the richer event structure associated with verbs, that interacts with aspectual and temporal operators, both lacking in the case of adpositions.

M.T. Hany Babu and P. Madhavan exploit the little-*v* hypothesis to derive the properties of two imperfective constructions in Malayalam. The two constructions (the *-ukayaaṇa* construction and the *-unnuṇḍa* construction), differ with respect to the verb types they can occur with; whereas the *-ukayaaṇa* type is possible in transitive/causative and unaccusative construction but ungrammatical with middles and statives, the *-unnuṇḍa* construction poses no such restrictions. Hanybabu and Madhavan seek to explain this asymmetry by making use of little *v* heads in the sense of Marantz 1997. They claim that the *-ukayaaṇa* construction is, in fact, a reduced (pseudo)cleft. Evidence from focus-presupposition effects and adverb placement are given to this end. The reduced part is a little *v*, the covert counterpart of the overt *cey* ‘do’. *Cey* is agentive and, thus, not compatible with middle and

stative predicates. In unaccusatives, the little *v* is eventive, akin to the verb ‘occur’. The *-unnunḡḡ* construction, on the other hand, has neither agentive nor eventive *v*. In this case, the auxiliary is an existential operator, heading the EventP (Harley 1995) and binding an event variable.

In his contribution, Halldór Ármann Sigurðsson argues for a theory of clausal architecture based on the idea that grammar is a device with grammatical features that interpret event features in relation to speech features. Given this conception of grammar, an ‘argument’ is a set of relationally interpreted features. The relevant features for argument identification would then be: the participants of the propositional event situated within the *v*P and bearing theta roles; grammatical ϕ -features, most importantly Person, situated in the IP area; and λ -features, *syntactic* features that represent the logophoric roles in a particular speech event, situated in the left periphery of the clause. An ‘argument’ is then the end product of the process that identifies event participants with logophoric roles through the mediation of grammatical ϕ -features, the same way Tense mediates to establish a link between the event time and the speech time. In Sigurðsson’s system, case is reserved for distinguishing event participants; it is, thus, interpretable and assigned within the *v*P. Higher movement of the cased event participants (or cased theta roles) is driven by Person checking and EPP (fin) checking. ‘Low’ nominatives, quirky agreement, Stylistic Fronting and expletive-distribution in Scandinavian languages are provided as evidence.

Tista Bagchi explores the nature of the features that provide the thematic encoding of arguments in correlation with the features responsible for syntactic encoding. She argues against recent proposals in the literature (e.g. Fanselow 2001) that conceive of theta role assignment as involving purely computational features. Fanselow’s analysis is empirically motivated by a base-generation analysis of German scrambling. In his system, theta roles are linked to some formal feature *f* (itself not to be understood as a ‘theta feature’) and are assigned under syntactic checking of uninterpretable features, overtly or covertly. Bagchi takes issues with both Fanselow’s empirical motivation for a base-generation analysis of scrambling and the claim that theta roles are only required to be checked at LF. She argues for each of Fanselow’s arguments against movement that they are inconclusive and that alternatives that link scrambling with operator features (e.g. focus) should be considered. Furthermore, Bagchi argues that, although it is true that theta role assignment should be visible at LF, *s*-selectional properties and theta grids of lexical items should also be present at the Lexicon. Arguments from the formation of lexical compounds, the unaccusative alternation and causativisation are presented to that effect. She concludes that theta features must be features of a very different kind than the features involved in the operations Move/Agree.

Tanmoy Bhattacharya and Andrew Simpson explore the relation of argument structure with higher domains of the clause, like the C domain. Analyses of Superiority phenomena in both multiple *wh*-fronting (e.g. Russian) and single *wh*-fronting languages (e.g. English) usually assume that *wh*-sequencing is the result of a structural condition like the Shortest Move Condition that minimizes potential dependencies to the ones involving the shortest possible movement. Thus, *wh*-objects will never be allowed to move over intervening *wh*-subjects to a [+Q] C head, since movement of the *wh*-subject will always result to a shortest move. In that respect, *wh*-sequencing reflects the syntactic hierarchy of the arguments in the lower ‘theta’-domain of a sentence. Absence of Superiority effects in certain languages (or *within* certain languages) can, then, either be explained by denying that languages have a uniform syntactic hierarchy of arguments or by claiming that certain Superiority violations reflect the fact that some instances of *wh*-movement fall under the domain of some other kind of dependency (e.g. focus movement) not subject to the Shortest Move Condition. Bhattacharya and Simpson argue that both these positions are untenable. They argue that Superiority effects cannot be due to any structural condition like the Shortest Move. The “Superiority” effects observable in multiple *wh*-sluices can be attributed to the natural strong tendency to follow and copy the argument prominence relation established and present in the non-sluced clause by the linear sequencing of the indefinite DPs anteceding the sluiced *wh*-phrases. Focusing on new such data from Bangla, that exhibits Superiority effects under genuine *wh*-movement, and re-examining familiar facts from English, they capitalize on the importance of animacy distinctions, thematic relations, prosodic weight and referential familiarity of the *wh*-phrases to explain Superiority patterns. Once these factors are taken into account, Superiority patterns across languages seem to be much more uniform than initial appearances indicate.

Probal Dasgupta goes one step further. He investigates argument-changing operations outside the domain of a single clause, with relation to other utterances in a given domain of discourse. Dasgupta argues that operations on argument structure are sensitive not only to a syntagmatic axis, but to a paradigmatic axis as well. In Dasgupta’s framework of Substantivism, a linguistic entity is defined by its external relations with its partners in the next-larger syntagmatic and paradigmatic domains where the entity is located. Any operation targeting a linguistic entity, then, can make reference to linguistic entities outside the domain of a single clause and establish relations across utterance and speaker boundaries. Dasgupta proposes this inclusion of the paradigmatic axis on the basis of Bangla causatives. He first argues that an economy account in terms of blocking is not enough to account for the distribution of regular causatives in Bangla; since there is no one-to-one correspondence between bases and causative alternations, a treatment that would

attribute the absence of a regular causative to the presence of an irregular counterpart fails. Dasgupta points to the appearance of these regular causatives that are normally unavailable in, what he calls, the Sarcastic Causative, to argue that a new notion of economy is needed, one that is based on the notion of pragmatic markedness. Dasgupta proposes a new device, Look Across, that allows operations to apply using the paradigmatic axis. Using Gricean maxims, Look Across is constrained to apply only to cases of pragmatic markedness.

The contributions in this volume thus address the primary issue of the proper locus of argument structure information and argument structure alternations in depth, using diverse perspectives and theoretical tools and providing empirical evidence from a wide range of languages.

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Do verbs have argument structure?*

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I argue that the mainstream view of the lexicon-syntax interface whereby a verb's lexically specified argument structure is projected as syntactic structure is wrong. Instead, I argue for the neo-constructionist view that what we perceive as the argument structure of the verb is really determined by the syntax, namely by syntactico-semantic frames that are generated independently of verbs and other lexical items. That is, argument structure is *not* projected from the verb and the verb's semantic-conceptual properties, but it is rather something that the verb *gets* by being inserted in a particular syntactico-semantic frame.

1. Background and aims

In this article, I want to argue that verbs do *not* have an argument structure in the sense of having an inherent lexical-semantic specification of a semantic role structure that is projected into the syntax as syntactic structure.

Broadly, the term *argument structure* may be used in two related ways. First, it can refer to the syntactic structure surrounding the (main) verb. Second, it can refer to an inherent lexical-semantic property that the verb has, typically understood as a capacity the verb has to assign certain semantic roles, or theta roles. A central idea in most linguistic theories is that argument structure in the first, syntactic sense is determined by argument structure in the second, lexical-semantic sense, i.e. that a verb's lexical-semantic properties determine the syntactic structure surrounding the verb. Thus, Aitchison (2003: 125) says: "Verbs dominate a sentence and dictate its structure", and Baker (2003: 95) says: "[S]yntacticians are accustomed to specify the Theta-grid of a lexical item and to having this grid determine the syntactic structure that the word appears in".

* This article is based on a talk given at the *International Seminar on Argument Structure*, University of Delhi, January 5, 2003. Thanks to the audience for useful comments. Thanks also to Kristin Melum Eide and Heidi Brøseth for comments to an earlier version of this article.

How is this lexical-semantic determination of syntactic structure construed? Consider the verb *kick*. This verb is assumed to denote a concept KICK, which implies two participants, the one who kicks and the one who is kicked. This semantic-conceptual information is the basis for a definition of the lexical-semantic argument structure of the verb. The two participants implied by the concept KICK are construed as theta-roles that the verb assigns, specifically so that *kick* assigns an agent role as the external role and a theme or patient role as the internal role. This then constitutes the core part of the verb's lexical-semantic argument structure. This argument structure is then projected into the syntax by designated linking rules applying at the lexicon-syntax interface such that the external agent role is realised syntactically as the subject and the internal theme role as the direct object. For instance, when the argument structure of the verb *kick* specifies that this verb assigns an internal theme role, that is interpreted as an instruction that the verb must have a direct object that is the bearer of that role, i.e. that the verb must have a particular syntactic structure in its postverbal domain. In parallel fashion, the lexical-semantic argument structure of any verb can be seen as "the lexical representation of grammatical information" (Grimshaw 1990: 1).¹

Summarizing, according to the mainstream view of the lexicon-syntax interface just sketched, a verb's semantic-conceptual properties determine the verb's lexical-semantic argument structure, and the verb's lexical-semantic argument structure in turn determines the basic syntactic structure of the clause that the verb occurs in. Thus, the verb's semantic-conceptual properties essentially determine the basic syntactic structure of the clause.

I have two main aims in this article. The first is to show that the mainstream view is on the wrong track. The second is to argue for the alternative view that what we perceive as the argument structure of the verb is determined by the syntax. To be slightly more specific, I want to argue that argument structure is determined by *syntactico-semantic frames that are generated independently of verbs* (or any other lexical elements of the clause). When a verb is inserted into a given frame, it is the frame that determines what argument structure the verb becomes associated with. Thus, argument structure is *not* projected from the verb and the verb's semantic-conceptual properties, but argument structure is rather something that the verb *gets* by being inserted in a particular syntactico-semantic frame.

1. Grimshaw (1990: 1–2) gives a clear and concise presentation of the traditional generative view of the lexicon-syntax interface, see also Jackendoff (2002: 132–150).

The analysis I am going to propose belongs to a family of analyses that have been called neo-constructional. Hagit Borer once formulated the neo-constructional approach as follows:

[...] an approach which shifts the computational load away from the lexical entry to the syntactic structure, subscribing to the view that an independent lexicon includes a minimal amount of structural information, and that it is structural constraints which determine traditionally lexical properties such as syntactic category type and argument structure [...]

The modern origins of neo-constructional analyses can be found in *Construction Grammar*, see e.g. Goldberg (1995). Similar ideas have been proposed by, among others, van Hout (1996), Borer (1994, 2003), Åfarli (2004) and by linguists working within the *Distributed Morphology* framework (Halle and Marantz 1993, Harley and Noyer 1999).

In what follows, I will first discuss the syntactico-semantic frames that I will assume (Section 2). Then I will try to show that these frames exist independently of the verb's semantic-conceptual content (Sections 3 and 4). I will end in Section 5 by discussing to what extent a verb can be said to have a grammatically relevant semantics at all.

2. Frames

A syntactico-semantic frame can be seen as a formal representation of semantic and syntactic elements and relations, and in that sense it is of course quite like an ordinary syntactic representation. However, a frame is unlike an ordinary syntactic representation in that it is more abstract. It should be seen as a basic and stable template that constitutes a kind of underlying structural backbone for a class of sentences, namely those sentences that conform to the given frame/template. Moreover, it is generated independently of the lexical elements (words) that the sentence consists of.

My hypothesis is that there are very few frames available for a given language. For instance, I propose that Norwegian (the main example language used in this article) employs only five different frames. Three of them are shown in (1–3). They correspond to sentences that contain intransitive, transitive and ditransitive main verbs, respectively, as illustrated by the lexical instantiations which are given as examples. (1) and (2) are probably universal (*mutatis mutandis*), whereas (3)

can be seen as a kind of extension of (2) (by adding an argument position) that only certain languages employ.²

- (1) ‘Marit ponders.’
- ```

 PrP
 / \
 DPsu Pr'
 Marit / \
 Pr VP
 | |
 grublari V
 |
 ti

```
- (2) ‘Marit threw the stone.’
- ```

      PrP
     /  \
  DPsu  Pr'
  Marit /  \
        Pr  VP
        |  /  \
      kastai V  DPdo
              |  steinen
              ti
  
```
- (3) ‘Marit granted us the loan.’
- ```

 PrP
 / \
 DPsu Pr'
 Marit / \
 Pr VP
 | / \
 innvilgai DPio V'
 | / \
 oss V DPdo
 | lånet
 ti

```

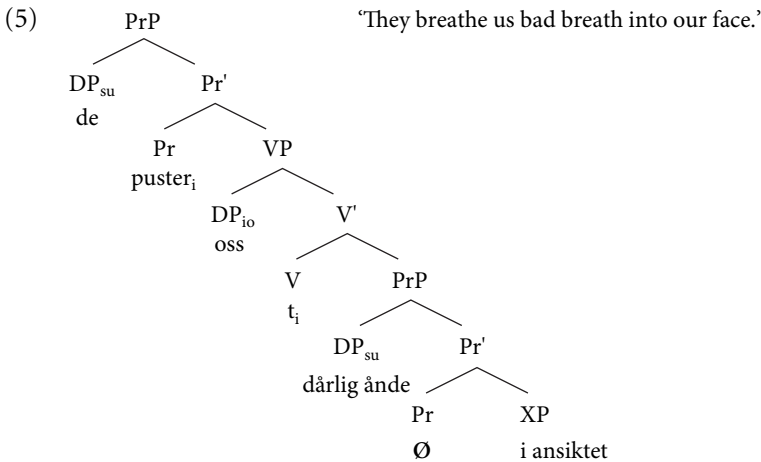
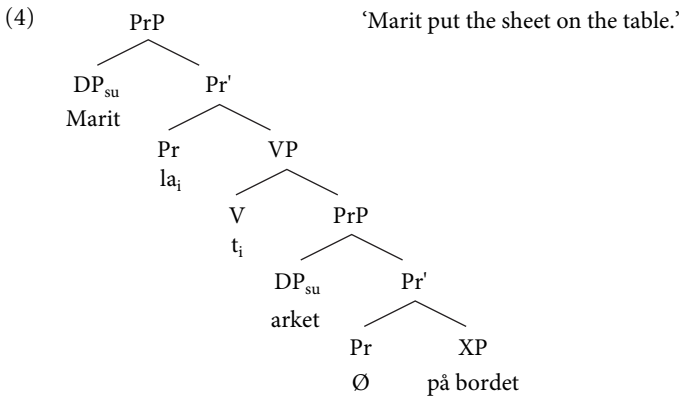
I will very briefly explain how the representations in (1–3) should be seen. In these frames, syntactic structure closely parallels semantic structure, so that the basic semantic relations are transparently detectable from the syntactic relations. For instance, abstracting away from the words that are inserted, (1) is the frame for the sentence *Marit grublar* ‘Marit ponders’. *Gruble* is a verb that denotes a property that must be converted to a predicate (i.e. a propositional function) in order to

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2. As a point of departure, I want to adopt a modified version of the type of representations proposed in Bowers (1993, 2001), although that particular choice is not essential in the context of this article, the really important point being that the frames are conceived of as generated independently of putative lexical argument structure and other semantic or conceptual properties associated with individual verbs.

constitute the main verb of a sentence. This conversion takes place by means of a predication operator. In (1) VP is the syntactic correlate to the property element *gruble*, Pr is the correlate to the predication operator, and Pr' is the correlate to the predicate *gruble* (syntactically *gruble* is raised from V to Pr). The predicate in turn takes a predication subject, which corresponds to the syntactic subject  $DP_{su}$  in (1), and forms a proposition, corresponding to the basic sentence, i.e. PrP.<sup>3</sup>

Norwegian employs two additional frames that are generated by substituting the direct object position in (2) and (3) by a predication resultative structure. (4) is a simple resultative frame, whereas (5) is a ditransitive-resultative frame. Illustrative lexical instantiations are shown.



3. Notice that (2) and (3) are in fact very different as regards the structural position of the direct object as compared to the representations that Bowers (1993) proposes. This is irrelevant in the present context.

The complex ditransitive-resultative frame shown in (5) seems to be quite rare in languages; it is absent in English, for instance. It will be briefly commented on in Section 4, cf. (16) and (17).

My working hypothesis is that *any* sentence in Norwegian can be analysed as an instantiation of one of the five frames given above. Notice that there are two factors that are important for the structural make-up of the sentence which I will ignore for the purpose of the discussion in this article. First, although I assume that the frames given above are incorporated in a richer functional structure (at least TP, CP), I will say nothing about such structure here, simply because it is not relevant for the problems discussed (as I conceive them). The second factor is that various types of adjuncts (typically PPs) can be added to the frames. These are potentially important for the relation between semantic-conceptual interpretation and syntactic structure, but can be ignored for the purpose of this article (which discusses the more basic relations between the frames and perceived argument structure).

Another question concerns the generation of the frames in the first place. If they are not projected from the verb, where do they come from? In some neo-constructional approaches it is common to assume that syntactic frames are generated from underlying aspectual *event*-structures (e.g. Borer 2003). Alternatively, the frames might be construed as being generated from predication structures in a fashion consistent with Bowers (1993, 2001). I will tentatively assume the latter alternative as a promising possibility, although this at present amounts to little more than a stipulation that the frames be taken as primitive objects.<sup>4</sup>

I will now give some empirical evidence for the contention that the syntactico-semantic frames in (1–5) exist independently of a putative lexical-semantic argument structure.

### 3. Made-up verbs

One type of evidence has to do with a certain type of made-up verbs. These are verbs that seem to lack a semantic-conceptual content that can trigger the formation of a lexical-semantic argument structure specification. Two examples are given in (6).

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4. Carstairs-McCarthy (1999) proposes a very interesting third alternative. He argues that syntactic form does *not* have a semantic (conceptual, aspectual or predication) basis in evolution, i.e. syntactic form has not evolved to express semantic relations. Rather, he argues that rudimentary syntactic forms evolved on the basis of the structure of syllables, and ultimately as an effect of the evolution of man's larynx. Thus, Carstairs-McCarthy argues that syntactic form is primary, whereas semantics is a secondary interpretative exploitation of syntactic forms.

- (6) a. How to *Russell* a Frege-Church.  
(title of article by David Kaplan)
- b. Pene jenter i TV2 *værer* solskinn og regn.  
nice girls in TV2 weather-PRES sunshine and rain  
'Nice girls in TV2 forecast sunshine and rain.'

In (6a) the proper name *Russell* is used as a verb, specifically as a transitive verb with subject and direct object. (The subject is PRO, but a corresponding example with a full subject is easily formed: *Kaplan Russelled a Frege-Church.*) In a lexically driven model, proper names that are used as verbs in this way must be listed in the lexicon with an argument structure specification that stipulates that they have the required Theta-grid. In addition, they must be listed as proper names. Since *any* proper name may be used as a verb in a similar way, all proper names must have a corresponding double specification. In other words, the argument structure specification has no explanatory power and is reduced to a stipulative description of whatever syntactic configuration the lexical element occurs in.

On the other hand, if a lexical element becomes a verb with a certain argument structure by virtue of being inserted into the V position in a syntactico-semantic frame like (2), sentences like (6a) are not unexpected. The fact that they are quite frequent and can be formed spontaneously, is as it should be. Similar reasoning applies to (6b) (taken from *Språknytt* 3/1996: 17), where the common noun *vær* 'weather' is used as a spontaneously made-up transitive verb (with tense inflection). I will not discuss this example explicitly here, as its significance should be clear from the discussion of (6a).

I conclude that the examples in (6) indicate quite clearly that argument structure is not projected from inherent lexical-semantic properties of the verb. Rather, they indicate that what we perceive as argument structure must be determined by something else. My proposal is that this something else is the syntactic frames that are generated independently of the lexical elements.

A possible objection to this conclusion purporting to give an alternative explanation, is to say that made-up verbs like those in (6) are made on the basis of an *analogy* with more normal verbs. However, as I see it, that would not be a solution to the problem that these verbs raise, simply because nobody has proposed a mechanism of analogy that has the required explanatory credibility. Therefore, *analogy* is just a term for the problem to be solved rather than a solution to the problem. On the other hand, the analysis in terms of frames that is defended above, is an attempt to solve the problem of analogy posed by examples like those in (6).

The frame analysis of the examples above also illustrates how the syntactico-semantic frame forces a verbal semantics onto a word that does not typically function as a verb. This is a clear example of what Gleitman (1990) calls *syntactic bootstrapping*, i.e. the use of syntax to predict semantics. Gleitman argues for *syntactic*

*bootstrapping* as a general strategy (primarily in acquisition), and she contrasts that approach with *semantic bootstrapping*, i.e. the use of semantics to predict syntax, which of course is the perspective of the current lexicon-driven approaches that I have been arguing against. Among other things, Gleitman (1990: 23) says that “the syntax acts as a kind of mental zoom lens for fixing on just the interpretation, among [all the] possible ones, that the speaker is expressing”. I would like to suggest that the five frames that I have proposed can be seen as five different settings on Gleitman’s zoom, and each setting implies a particular syntactico-semantic view on how the state-of-affairs that are talked about should be perceived.

#### 4. The verb’s flexibility

Another type of evidence that what is perceived as argument structure is determined by frames, has to do with words that are easily recognised as verbs, but where the verb occurs in a syntactic configuration that is *not* in harmony with what we perceive as the verb’s semantic or conceptual content. Before I discuss concrete examples, I want to briefly discuss what it would be natural to expect if it really were the case that basic syntactic VP-configurations are determined by the inherent semantic or conceptual content of the verb that occurs in V.

One expectation would be that there should exist quite many different VP-configurations in a language. The reason for this is that there exist many and pronounced semantic differences between the verbs of a language. But if I am right, there are only five different VP-configurations, i.e. frames, in a language like Norwegian, which indicates that there cannot be a very close match between the number of semantic content types associated with verbs and basic syntactic frames. For instance, a verb like *buy* implies four or five conceptual roles, but usually this verb occurs in a simple transitive configuration.

Another expectation is that the syntactic configuration that a verb occurs in should be closely correlated with the semantic-conceptual content of that verb, but that does not seem to be the case at all. Not only is there frequent mismatches between semantic-conceptual content and syntactic configuration, but verbs are also very *flexible* as to what syntactic configurations they occur in. I will show examples of this flexibility presently, but I want to draw the conclusion right away. It cannot be the case that the syntactic configuration that a verb occurs in, is determined by the inherent content of that verb. Rather, it must be the case that the syntactic configuration is determined independently of the verb by what I have called the syntactico-semantic frame.

I want to illustrate the verb’s flexibility by using the Norwegian verb *danse* ‘dance’. This verb denotes the concept DANCE, which implies one conceptual role,

namely the role denoting the one or those who dance. This conceptual role is a substantial part of what we perceive as the semantic or conceptual content of the verb. Therefore, we should expect that the verb can occur in the intransitive frame (1a), as it can, as seen from (7).

- (7) a. Per dansa  
'Per danced.'
- b.
- 
- ```

graph TD
    PrP --> DPsu["DPsu  
Per"]
    PrP --> Pr'
    Pr' --> Pr["Pr  
dansai"]
    Pr' --> VP
    VP --> V["V  
ti"]
  
```

Strictly speaking, this should be the only frame that this verb can occur in, if syntactic structure is rigidly lexically driven, but as seen in (8), *danse* 'dance' can occur in the transitive frame as well.

- (8) a. Per dansa ein vals.
'Per danced a waltz.'
- b.
-
- ```

graph TD
 PrP --> DPsu["DPsu
Per"]
 PrP --> Pr'
 Pr' --> Pr["Pr
dansai"]
 Pr' --> VP
 VP --> V["V
ti"]
 VP --> DPdo["DPdo
ein vals"]

```

The direct object *ein vals* 'a waltz' is a cognate object. It is not unreasonable to try to derive the possibility of having a cognate object as an effect of the semantic-conceptual content of the verbal concept DANCE. One could probably argue quite convincingly that implicit in this concept is not only that there is a dancer, but also that a certain dance is performed. Nevertheless, it is unexpected, given a fullblooded lexically driven approach to structure building, that the cognate object occupies exactly the same structural object position as ordinary patient/theme objects do. Again, this is an indication (albeit a minor one) that the relevant structural configuration is generated independently of the inherent lexical-semantic properties of the verb.

More surprising still is the fact that *danse* 'dance' can have a patient/theme object, cf. (9).

- (9) Per dansa Marit (som Marit aldri er blitt dansa før).  
'Per danced Marit (like Marit had never been danced before).'

Notice that there is a semantic asymmetry between the subject and the direct object in (9). Such an asymmetry is absent in e.g. (10) where the PP containing *Marit* is adjoined to the frame. In (9) it is clear that Per is agent and Marit is patient/theme, but in (10) both participants are implied to be agents.

- (10) Per dansa med Marit.  
'Per danced with Marit.'

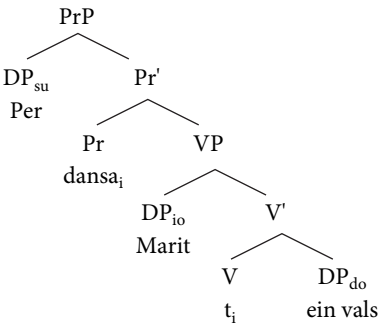
The fact that Marit is danced in the sense of being a patient for the dancing activity, is clearly not implied by the verbal concept DANCE. On the other hand, it seems to be implied as a function of the inherent semantics of *Marit* (denoting a person), and the fact that *Marit* is situated structurally in the direct object position in a transitive frame. Thus, the frame itself seems to imply a certain canonical interpretation for the structural direct object position, specifically such that the argument situated in that position is interpreted as a patient or patient-like argument (if that interpretation is otherwise possible given the inherent semantics of the phrase bearing the patient role).

Correspondingly, it is a reasonable hypothesis that the structural indirect object position is a canonical beneficiary/goal position, and that the structural subject position is a canonical agent position. The latter contention has often been argued, e.g. by Borer (2003: 32) in a neo-constructional framework: "[...] suppose it is not the case that Agents project externally (universally), but rather, that nominal expressions which project externally must be interpreted as Agents". Borer assumes that the interpretation of the arguments takes place on the basis of their structural position in underlying aspectual event-structures, whereas my working hypothesis is that the interpretation takes place on the basis of the position of the argument in more rudimentary syntactico-semantic structures (the frames) (together with the inherent semantic content of the argument). However, the essential point that is common for both is formulated as follows in Borer (2003: 2): "[...] the syntactic structure gives rise to a template, or a series of templates, which, in turn, determine the interpretation of the arguments. Within such approaches lexical items do not determine structure, but rather, function as its modifiers".

I will now return to the discussion of the verb *danse* 'dance'. Can this verb occur in the ditransitive frame (3)? Typically, verbs that occur in the ditransitive frame are verbs of transaction, e.g. verbs like *send* or *give*. The reason for this is that such verbs imply three participants (roughly corresponding to agent, beneficiary/goal, patient/theme), which correspond neatly to the three structural positions defined by the frame (subject, indirect object, direct object). In other words, as regards

transaction verbs, there is full harmony between the semantic-conceptual content of the verb and the semantics implied by the frame itself.

A verb like *danse* 'dance' is clearly not a verb of transaction conceptually or semantically, but that verb can nevertheless occur in the ditransitive frame, as seen in (11).

- (11) a. Per dansa Marit ein vals.  
 Per danced Marit a waltz  
 'Per danced a waltz for Marit.'
- b.
- 
- ```

graph TD
  PrP --> DPsu["DPsu  
Per"]
  PrP --> Pr'
  Pr' --> Pr["Pr  
dansai"]
  Pr' --> VP
  VP --> DPio["DPio  
Marit"]
  VP --> V'
  V' --> V["V  
ti"]
  V' --> DPdo["DPdo  
ein vals"]
  
```

This sentence can be interpreted as saying that Per danced a waltz with Marit in order to make her happy, or that he danced a waltz with a third person in order to impress Marit (who is an on-looker). However, some speakers will probably feel that these interpretations are a little far-fetched and that the sentence is somewhat marginal. However, the following is an authentic example:

- (12) Den kvelden danset jeg meg en kjæreste.
 that evening danced I me a sweetheart
 'That evening, I danced myself a sweetheart.'

This is parallel to (11), except that the direct object is non-cognate. Here, *danse* 'dance' clearly functions like a transaction verb (a transaction of a sweetheart to the very person who initiates the action). This is an interpretation that follows from the ditransitive frame; it is in no way implied by the semantic-conceptual content of the verb, which very roughly means just that someone executed dancing activity. Thus, once again we see an example which clearly suggests that syntactic frames exist independently of the verb. In particular, the examples clearly show that the beneficiary/goal interpretation of the indirect object cannot come from the content of the verb.

We have now seen several indications that the syntactic VP-configurations are not determined by the lexical-semantic properties of the particular verb that fills the V-position. Instead, there is reason to believe that there are independently generated syntactico-semantic frames that the lexical elements (verbs) are inserted into. Thus, the verb *receives* an argument structure by being inserted into a particular frame.

That being the case, it should be possible to use *danse* ‘dance’ in the remaining two frames as well, and that expectation is fulfilled. For instance, (13) shows that this verb can be used in the resultative frame (4).

- (13) a. Per dansa valsen i ryggen på Ola
 Per danced waltz-the in back-the on Ola
 ‘Per danced the waltz into Ola’s back.’
- b.
-
- ```

graph TD
 PrP1[PrP] --- DPsu1[DPsu
Per]
 PrP1 --- Prp1[Pr']
 Prp1 --- Pr1[Pr
dansa_i]
 Prp1 --- VP[VP]
 VP --- V[V
t_i]
 VP --- PrP2[PrP]
 PrP2 --- DPsu2[DPsu
valsen]
 PrP2 --- Prp2[Pr']
 Prp2 --- Pr2[Pr
Ø]
 Prp2 --- PP[PP
i ryggen på Ola]

```

This example can mean that Per danced the waltz in such a fierce manner that he (and his partner) bumped into Ola’s back (expressed metaphorically by saying the waltz bumped into Ola’s back). Alternatively, one could use the resultative frame to express e.g. that Per’s partner Marit bumped into Ola’s back, cf. (14).

- (14) Per dansa Marit i ryggen på Ola.  
 Per danced Marit in back-the on Ola  
 ‘Per danced Marit into Ola’s back.’

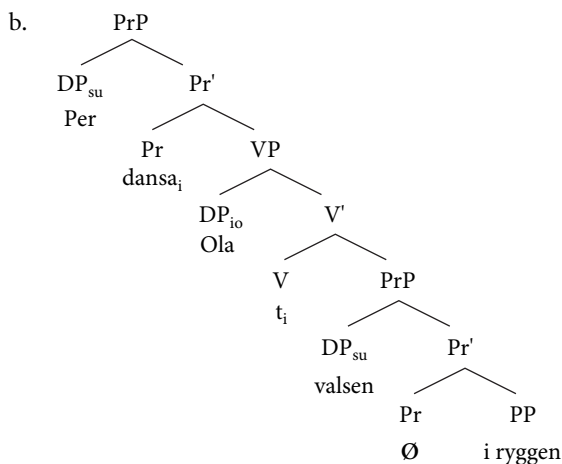
Generally, one can imagine that Per danced several kinds of “results” regarding Marit. Some possibilities are given in (15).

- (15) a. Per dansa Marit ut av rommet.  
 ‘Per danced Marit out of the room.’  
 b. Per dansa Marit i golvet.  
 ‘Per danced Marit onto the floor.’  
 c. Per dansa Marit sveitt.  
 ‘Per danced Marit sweat.’  
 d. Per dansa Marit sur.  
 ‘Per danced Marit sour.’

In all these examples, a result is brought into existence as a consequence of the dancing activity. It is clear that this is not implied by the concept DANCE or by the lexical-semantic content of the corresponding verb *danse* ‘dance’. Rather, the resultative meaning is an effect of the verb being inserted into the appropriate resultative frame.

Next, (16) shows that *danse* ‘dance’ can also be inserted into the ditransitive-resultative frame in (5).

- (16) a. Per dansa Ola valsen i ryggen.  
 Per danced Ola waltz-the in back-the  
 ‘Per danced the waltz into Ola’s back.’



This example is formed from the resultative example in (13) by placing the owner of the (inalienable) body-part referred to in the PP in (13) as an indirect object in (16). Thus, (16) means roughly the same as (13), as indicated in the translations, but whereas the resultative frame can accommodate many different types of resultative meanings, the ditransitive-resultative frame typically accommodates a very restricted type of interpretation, i.e. an interpretation where the indirect object is the owner of the (inalienable) body-part referred to in the resultative PP. This is also shown in the example sentence used in (5), and in the two authentic examples in (17), taken from Brøseth (1997) and Hundal (2002), respectively.

- (17) a. De pisser oss god samvittighet oppetter ryggen.  
 they piss us good conscience up back-the  
 ‘They piss good conscience up our backs.’  
 b. Han nynnet oss et kjærtegn i nakkegropa.  
 he hummed us a caress in neck-the  
 ‘He hummed a caress into our necks.’

I do not want to explore why this interpretative restriction exists at present. The point in this context is that (16) shows that *danse* ‘dance’ can be used in the fifth frame as well, and that the particular interpretation associated with this frame cannot be derived from the conceptual-semantic content of the verb.

Summarizing, the above investigation of the verb *danse* ‘dance’ shows that this verb can be used in all the different frames independently of the verb’s inherent meaning.

This strongly suggests that the frames are generated independently of the verb. The fact that the verb does not sound equally natural in all the frames, is due to various factors. The main factor is that harmony between syntactico-semantic frame type (as to canonical roles) and the verb's semantic-conceptual content (as to implied participants) will be perceived as more "natural" than disharmony in that regard. In addition, the inherent meaning of the arguments plays a role, too. Gleitman (1990: 31) says that "[...] structures will be chosen for utterances only to the extent that they fit with the semantics of the verb items". Even though this sounds a bit too rigid (especially the expression "only to the extent"), it is nevertheless reason to believe that harmony in the sense suggested above will be perceived as more natural than disharmony, which may be perceived as odd or deviant to some degree.

I conclude that what we perceive as argument structure is syntactically determined by the frames, and not by the verb's semantic-conceptual content. In other words, argument structure construed as a well-defined lexical property of the verb that is projected as syntactic structure, as assumed in most current syntactic frameworks, does not exist.

## 5. A brief note on the role of lexical semantics in syntactic theory

If the verb does *not* have an argument structure determined by its semantic-conceptual content, which is projected as syntactic structure, then one begins to wonder what the grammatical role of the verb's lexical semantics really is. Since the argument structure specification (in this sense) is usually thought to be the central component in the verb's lexical semantics, its disappearance as a determining factor in the syntactic derivation seems to suggest that the very notion of lexical semantics is irrelevant for the syntactic derivation. In other words, the suggestion is that a verb's semantic-conceptual content does not have any strictly grammatical or linguistic role to play.

There is no doubt that a (main) verb is generally associated with a very rich semantic-conceptual meaning, including what is called semantic roles, lexical meaning, encyclopedic meaning and connotative meaning. The problem is to define in a natural way any particular part of this content as specifically grammatically relevant (see e.g. Aitchison 2003: Chapters 4 and 7). Assume that the verb's semantic-conceptual content is, from a strictly grammatical view-point, a structureless amorphous mass, but that (some portion of) this mass is given a particular form when the verb is inserted into a syntactico-semantic frame (recall Gleitman's zoom). This suggests a quite strict modularity hypothesis as to the relation between grammar and lexical semantics, more specifically it is a modularity hypothesis that excludes the possibility that lexical-semantic representations are projected

as syntactic representations. On the other hand, modularity permits that a lexical element, say a verb, carry along with it into the frame where it is inserted, its semantic-conceptual content. In that way, the semantics of the frame (canonical roles) will interact with the inherent semantics of the verb and the arguments that are inserted into the frame. Thus, the insertion of lexical elements into the frame implies a semantic *enrichment* of the very rudimentary semantics of the frame itself.

I take Fodor (1998) and Fodor and Lepore (2002) as support for the view-point on lexical semantics that I have just sketched. These two works criticise theories that assume that lexical meaning can be decomposed or analysed by grammatical or syntactic methods, or that lexical semantics has grammatical effects. Instead, they assume that what we call lexical semantics is essentially indistinguishable from general encyclopedic knowledge about the things or relations that the words denote in the world. Fodor argues for a causal semantic theory. I, for my part, would rather like to suggest that the lexical elements are tags that we place on segments of our conceptions of the world. The point is that those segments are heterogenous, fuzzy and holistic, and that a “lexical semantics” that tries to define the semantics of a word, will end trying to define our conceptions of the world, simply because there is no well-defined (or natural) dividing line between the holistic meaning of the word and a putative lexical semantic meaning.

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# Projecting argument structure

## The grammar of hitting and breaking revisited

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This paper is concerned with one of the most basic syntactic questions: what are the properties of verbs that determine syntactic structure, aspectual interpretation and argument selection? We approach this issue through an examination of two different types of verbs of contact. We propose that the meanings of verbs are decomposed into atomic meaning components and that these meaning components project syntactic structure. From these meaning components and the structures they project we derive argument number and selection, theta-role and aspectual interpretation, and transitivity. This theory is strongly minimalist in that the various predicate meanings of a verb are derived from a single lexical representation, requiring neither functional projections nor movement.

### 1. Introduction

In this paper, we explore the properties of contact verbs. Our examination is conducted within a theory of the lexicon-syntax relation that we have been developing over the past few years. In this theory, the meanings of verbs are decomposed into atomic meaning components which themselves project syntactic structure. Because the meaning components themselves are responsible for syntactic structure, syntactic properties are directly derivable from the meaning of the verb; and the combination of the meaning components and the structures projected yields all the semantic properties of verbs as well. Moreover, since the inventory and number of meaning components is universally restricted, so are the types of structures that can be projected.

The restricted inventory of meaning components that comprise verbal meanings includes (as in much lexical research) Manner (=means/manner/instrument) (**M**), State (**S**), Location (**L**) and, as far as we are able to tell, not much else. Meaning components may or may not project. In general, verbs with one component project an intransitive structure and only verbs with two meaning components (e.g. **M+S**, **M+L**) can project a transitive structure.

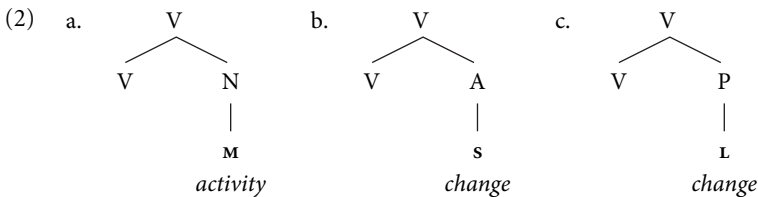
Here we analyse contact verbs (e.g. *hit*) as **M+L** and thus account for their various aspectual interpretations as activities, accomplishments, and changes (achievements).

## 2. Background

The lexical entry of a verb consists of the morpho-phonological verbal head and its meaning components, as shown in (1).<sup>1</sup>

- (1) **BREAK**: /break/<sub>V</sub>, **M** ('forceful means'), **s** ('broken')

The verbal head has only a phonological form (as well as a morphological classification) and no semantics. The meaning components, conversely, are pure semantic morphemes, with no phonology.<sup>2</sup> Following Hale and Keyser (e.g. 1993, 2005) each such semantic morpheme has categorical properties as shown in (2): **MANNERS** project **N**, **STATES** project **A** and **LOCATIONS** project **P**. (Categorical projection is language specific although here again variation is limited.) The verbal head must always merge a complement in order to yield a typed predicate. The restricted inventory of verbal components parallels the restricted inventory of lexical categories, restricting predicate types and consequently possible interpretations, following Hale and Keyser.



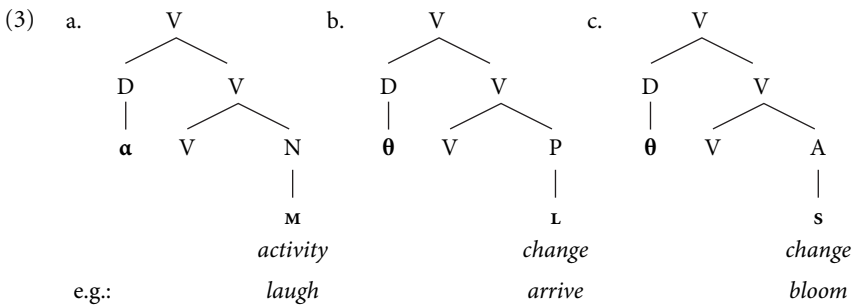
The predicate resulting from the projection of a verbal head and a meaning component complement is aspectually interpreted as follows: the V-N predicate projected by the morpho-phonological verbal head and the **M** meaning component

1. It seems, at least in the languages we have examined, that a verb's meaning may consist of at most two meaning components. Why no verb (without additional morphology) can have a double cause meaning is an interesting question.

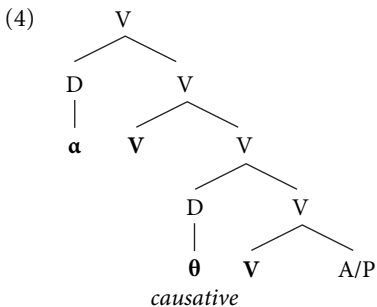
2. 'Broken' is a rough approximation of what *break*'s state meaning component is, i.e. something like 'separation in material integrity'. Throughout this paper, we will use such English representations of the concepts of meaning components.

is interpreted as an activity (e.g. *laugh*); the V-A and V-P predicates projected by V and s or L are both interpreted as ‘change’ predicates (a term that covers achievements, inchoatives, and unaccusatives/ergatives; e.g. for s, *bloom*, and for L, *arrive*). All change events are represented by this structure, whether telic or atelic, whether definite or indefinite: e.g. *melt/cool (in/for an hour)* or *roll/sink (for an hour)*. (See Erteschik-Shir and Rapoport (2004) for an aspectual classification in terms of change rather than telicity.)

When a specifier is merged with either of the two different predicate types, it is interpreted according to that predicate. The subject of the V-N activity predicate is interpreted as a (proto-)agent and the subject of the V-A and V-P change predicates is interpreted as a theme; this is shown in (3) (in which  $\alpha$  signifies a proto-agent and  $\theta$  a theme). In this way, the so-called ‘theta-role’ is derived structurally. There is no further structural distinction between the two subject types.



In addition to the three simple structures, a complex structure is also derivable. Chomsky (2000) suggests weakening the requirement that an item of a lexical array be removed when accessed in computation, thereby allowing multiple copies. We make use of this suggestion: multiple selection allows the merger of an additional copy of the verb with the structures of (3). This is how the complex structure of (4) is derived.



The two verbal copies form a chain, of which the head is pronounced. As before, the (upper) subject of the V-V predicate has a derived ‘thematic role’; it is interpreted as a causer.

In this way, the flexibility of component projection enables the derivation of a variety of interpretations from a single verb with a single lexical representation.

## 2.1 Full Interpretation

The principal constraint on the acceptability of the freely projected structures is the principle of Full Interpretation (FI). We adopt the requirement expressed in FI of Chomsky (1986), that “every element of PF and LF, . . . , must receive an appropriate interpretation . . .” extending this requirement as follows:

- (5) *Full Interpretation*:
- i. the interpretation of a lexical verb *v* requires the interpretation of each meaning component of *v*, and
  - ii. the interpretation of each maximal projection of *v* requires the interpretation of a distinct meaning component.

The result of FI is that a verbal head must always have a complement. Thus, FI captures the one-to-one relation between meaning components and predicate projections. In this way, the number of components of a verb restricts the number of projected copies of that verb, despite the freedom of projection in principle.

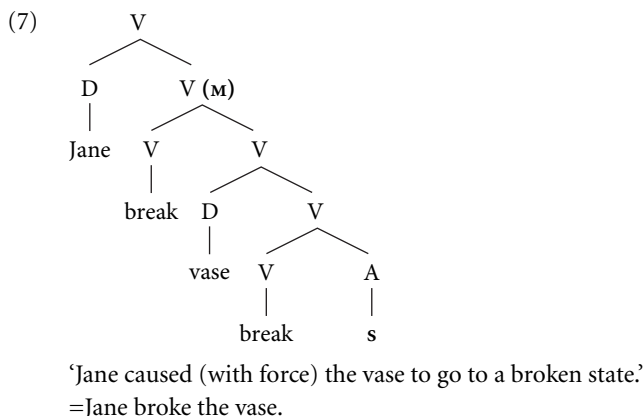
A projected meaning component aspectually types the predicate projected by *v*, thus allowing for its interpretation, as shown in (2). Non-projecting meaning components must also be interpreted. In order to illustrate this, consider the example of the two-component *break* (with the lexical entry in (1)), when it projects the intransitive change (inchoative) structure:

- (6)
- 
- ```

graph TD
    V1[V] --- D[D]
    V1 --- V2[V (M)]
    D --- the_vase[the vase]
    V2 --- V3[V]
    V2 --- A[A]
    V3 --- break[break]
    A --- s[s]
  
```
- ‘The vase went to a broken state (with force).’
 =The vase broke.

In this structure, *break*’s *s* ‘broken’ projects the complement of the verbal head, the resulting predicate receiving the change interpretation. *Break*’s other component, *m* ‘force’, is interpreted as modifying that predicate, resulting in the complete interpretation shown.

The same verb *break* can also project the causative structure in (7):



Here two copies of the verb *break* are merged, forming a chain of which, as usual, only the head is pronounced. As before, *break*’s *s* projects the complement in the change structure, but here *break*’s *M* modifies the upper cause predicate, as shown. The complex structure in (7) is derived by free projection and merge.³ Free projection also yields the structure in (6), in which only one copy of the verb projects. In this way, we derive syntactic alternations from one lexical representation, the only restriction being FI.

Non-projecting meaning components, like structural adjuncts, are interpreted as modifiers. Accordingly, meaning components can be interpreted in one of two ways:

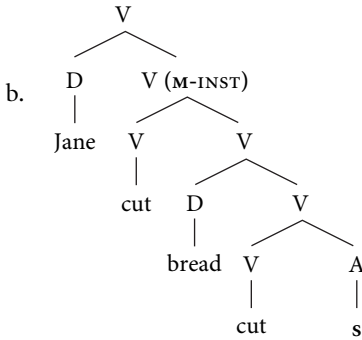
- (8)
1. via *structural encoding*:
the meaning component projects its syntactic category and aspectually types the predicate
 2. via *modification*:
 - i. modification of a predicate = adverbial interpretation (e.g. (6),(7))
 - ii. modification of a DP = adjectival interpretation (e.g. (12))

While every two-component verb can project either an intransitive or a transitive (causative) structure, not every such projection will result in an acceptable sentence, that is, one meeting FI. As an illustration, consider the instrument verb *cut*, with the lexical entry shown in (9), which can project the causative, as shown in (10).

3. This complex structure is also projected by analytic causatives such as *Jane cut the bread into slices*, *Jane broke the glass into pieces*, *Jane hammered the metal flat*, etc.

(9) *CUT*: /cut/_V **M** ('sharp instrument'), **s** ('cut')

(10) a. Jane cut the bread.

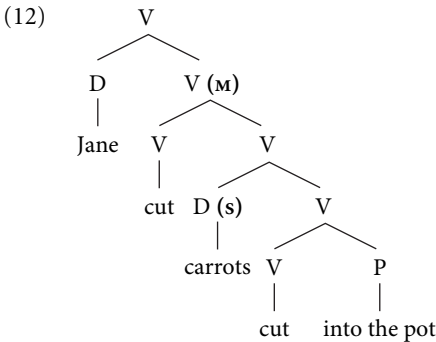


'Jane caused (with a sharp instrument) the bread to go to a cut state.'
 = Jane cut the bread.

Here FI(i) is satisfied since *cut*'s **M** modifies the upper cause projection and *cut*'s **s** is structurally encoded. FI(ii) is satisfied since the upper cause projection is licensed by **M**'s interpretation and the lower change projection is licensed by the interpretation of **s**.

Since component projection is free, *cut* can also project the causative in (11), with the structure (12), in which an overt PP projects the cutting's endpoint.

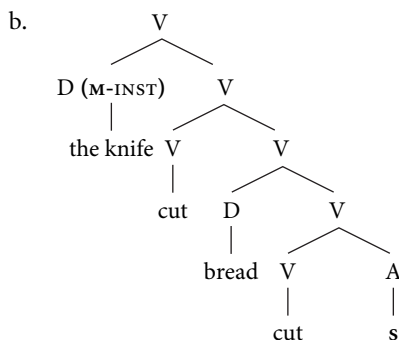
(11) Jane cut the carrots into the pot.



'Jane caused (with a sharp instrument) the (cut) carrots to go into the pot.'

In this structure both components of *cut* are interpreted by modification, not projection. *Cut*'s **M** modifies the upper cause predicate and *cut*'s **s** (restrictively) modifies the subject of the lower projection, that is, the carrots go into the pot in a cut state. Modification of the cause projection is not the only option for *cut*'s instrumental manner 'sharp instrument'; a sharp instrument can also be projected as the subject of the cause projection, as in (13).

- (13) a. The knife cut the bread.

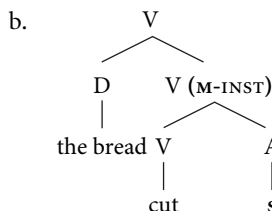


‘The knife (= sharp instrument) caused the bread to go to a cut state.’

Here, the upper subject *the knife* identifies the instrumental *m* component of the verb, specifying *cut*’s instrument in this case as a knife. This type of modification also licenses the upper projection for the purposes of FI.

While *cut* shows several transitive possibilities, the intransitive change structure projected by *cut*, exemplified in (14), is impossible.

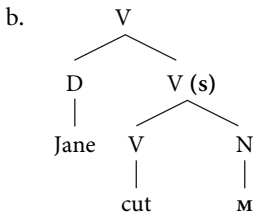
- (14) a. *The bread cut.



We have seen that the verb *break* allows this same structure because its means component *m* ‘force’ can modify a change event, but *cut*’s *m* ‘sharp instrument’ cannot be interpreted in this way. (14b) violates FI(i) since, in a specific event, the instrument *m* requires a referential wielder. In the causative structure, the subject provides such a wielder, the upper subject. But in the change structure, the *m* component is left uninterpretable in the absence of such a wielder. The change, or inchoative, based on instrumental verbs thus violates FI.⁴ FI is also violated when *cut* projects the activity structure:

- (15) a. *Jane cut.

4. This is true of a sentence describing a particular, referential event. The middle interpretation of instrument *m*+*s* predicates, also based on the change structure, is grammatical, by contrast. This is because middles are generic and generic wielders (for the verb’s instrument) are always available. See Erteschik-Shir (1997, 2000, in preparation) for details.



This structure violates FI(i) since *s* can never modify an activity predicate. (Nor can agents be modified by, or identified with, an *s* component. For this reason, **Jane broke*, under an activity interpretation, is also unacceptable.

In summary, transitivity alternations are constrained by FI(i), which requires that each component be interpreted; and the number of possible arguments is constrained by FI(ii), since each projection must be licensed either by the projection of an overt complement or by the interpretation of a verbal component.

3. Contact verbs

Contact verbs consist of two meaning components. The verbs we discuss in this section have a means or instrument component and (adapting Fillmore 1970) a location, the point at which two entities make contact. An example with means ('forceful') is the verb *hit*, with the lexical entry in (16), and examples with Instrument are the verbs *punch*, *kick*, and *slap*.

- (16) HIT: /hit/_V M ('forceful means'), L ('point of contact')

Because it is a *M*-means verb (rather than an *M*-instrument verb) *hit* is relatively free with respect to the constructions in which it can be found. Thus, we find it in agentive constructions (as in (17a,b)) as well as in the change construction with a theme subject (as in (17c)).

- (17) a. Jane hit the table.
 b. Jane hit the ball to the other side of the field.
 c. The car hit the wall.

Hit's L, 'point of contact' expresses a relation between two entities. The first is an agent making the contact or a theme changing location and thus effecting a contact. The second entity provides the location of the point of contact. In (17a,b and c), L is interpreted as the point at which Jane and the table, Jane and the ball, and the car and the wall, respectively, come into contact.

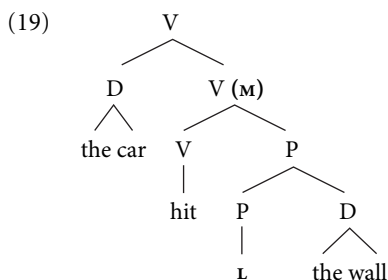
Although some verbs specify their L component (*shelve*, for example), the verb *hit*'s L component does not specify the second entity that would provide the particular

location of the point of contact. This location must therefore be specified overtly, as a comparison of (17) with (18) shows.⁵

- (18) a. *Jane hit.
b. *The car hit.

3.1 Contact as change

We turn now to the structures projected by the various sentences above. Consider first the case in which *hit*, via free projection and merge, projects the change structure, exemplified by (17c):



‘The car went (with force) to a point of contact on the wall.’

The *L* component ‘point of contact’ projects a preposition that is null in English.⁶ The preposition must take a complement due to the need to specify the location of *L*’s relation.

This structure complies with FI as follows: the V-P change projection encodes *L*, which is interpreted as a relation between *the car* and *the wall*. *Hit*’s force-manner, a component shared by the verb *break*, modifies this change predicate, just as it does in a sentence like *The vase broke*. Obviously, the two verbs do not behave the same across the board since *break*’s second component is a state. But they do share the element of force. In fact, this is clarified in an interesting way in Danish, in which ‘hit to pieces’ expresses the same meaning as the transitive verb *break* in English:

- (20) Sofie slog vasen i stykker.
Sofie hit the-vase to pieces
‘Sofie broke the vase.’

5. Many *L* components require overt specification. Consider the verbs *put* or *stow*, for example, as in *Jane put the books on the shelf*, *Jane stowed her books under the bed*. Such verbs contrast with those like *shelve* or *bank*, in which the already-specified *L* allows sentences like *Jane shelved the books*, *Jane banked her savings*. Spatio-temporal locations also do not require overt specification as in *And then the storm hit*.

6. Crosslinguistic investigation is required to see the types of prepositions involved with contact verbs in other languages.

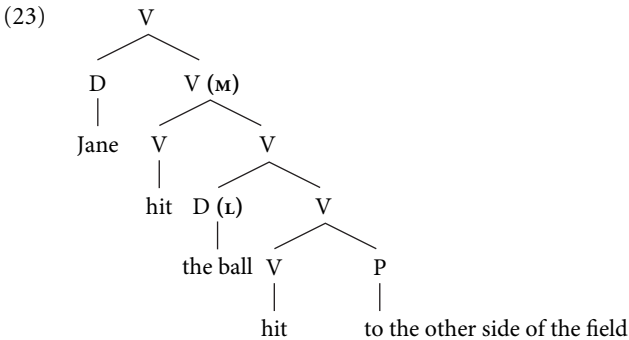
It is *hit*'s manner type that allows the change structure. But not all verbs with **M** and **L** meaning components allow the change structure, as shown in (21). The verbs *kick* and *punch*, like *cut*, have instrument **M** components which cannot modify a change predicate. Therefore, like *cut*, these verbs do not allow a change:

- (21) a. Jane kicked the wall./*The car kicked the wall
b. Jane punched the wall./*The car punched the wall

L's interpretation provides another reason for the unacceptability of some change structures. Consider (22a), as it contrasts with the well-formed cause equivalent (22b).

- (22) a. *The ball hit to the other side of the field.
b. Jane hit the ball to the other side of the field.

In order to explain the unacceptability of (22a) we first explain how its causative counterpart meets the conditions on component interpretation. Consider the structure projected by the cause (22b):



In this case, an overt goal predicate is projected and the interpretation is of a change of location of the theme *the ball*. **M** modifies the cause projection, thus licensing the complex structure. **L** in this case is identified by *the ball*; in other words, the theme DP provides the location of the point of contact. Interpretation of **L** goes through because the structure provides another entity for the contact relation: the upper subject *Jane*. (The **L** component cannot be identified by the phrase *the other side of the field* because this phrase is selected by the preposition *to*. Since *to* imposes its own interpretation on its complement, that incompatibility blocks the point-of-contact **L** interpretation.)

The complete interpretation is 'Jane caused (with force) the ball (= the location of the point of contact) to go to the other side of the field'. The correct change-of-location

interpretation is derived from a combination of the contact verb and the structure projected and FI is satisfied.⁷

But FI is not satisfied in the change structure (22a) *The ball hit to the other side of the field*. While the modification of the change event by *hit's* *M* goes through as usual, the interpretation of *hit's* *L* is problematic. The identification of *L* by either DP is not enough for its interpretation. This type of *L* component expresses a relation between two entities and, in these examples, only one entity is available. The preposition *to* blocks its complement from being considered the second entity because it is incompatible with the point-of-contact interpretation required by the *L* component.

(22a) contrasts with the well-formed (24), in which there is no preposition *to* to contradict or block the contact interpretation.

- (24) a. The ball hit the other side of the field
b. The ball hit the wall (contrast: *The ball hit over the wall)

Here, it is the null *P* of point-of-contact that introduces the phrase *the other side of the field*. This phrase is then understood as the second entity in the contact relation, *L* is interpreted, and so the sentences meet FI.

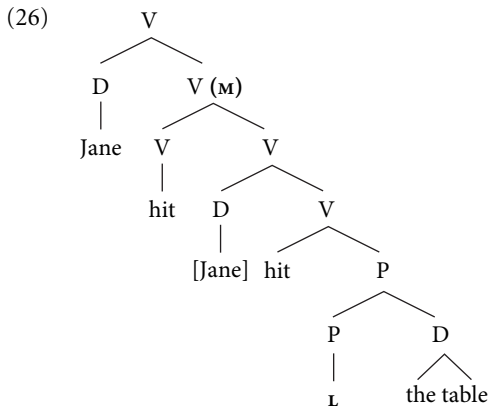
And finally, FI rules out the following intransitives since *L* cannot be interpreted in the absence of a second contact element.

- (25) a. *The wall(*L*) hit
b. *The ball(*L*) hit

3.2 Contact activities

The structure of *hit* under the activity interpretation of (17a) *Jane hit the table* offers an interesting insight into the way this kind of verb works as well as its relation to other verb types. The transitive verb *hit* does not project the activity structure (equivalent to 'Jane did a hit' or 'Jane produced an instance of hitting'). Rather, given *hit's* two components, two predicates are projected in this case also, yielding the structure in (26). (Recall that change structures represent any change-of-state or change-of-location, whether telic or atelic, definite or indefinite.)

7. We note a typical baseball example: *The next hitter hit to the other side of the field*. In this case, the dropped object (not an unusual phenomenon with activity verbs) is interpreted through discourse context as the baseball.



This structure is interpreted as ‘Jane caused, with force, Jane to come into contact with (some point on) the table’. This situation is derived via multiple selection of the verb as well as multiple selection of its subject argument *Jane*, that is, a single D is projected both as agent and as theme. (As with the verb, the two instances of D form a chain, of which only the head is pronounced.) This seems, at first, an odd situation; in general, one does not find the same D (with the same referent) acting as both agent and theme. In our system, there is no problem with multiple copies as long as an interpretation for the apparent thematic clash can be derived. The possibility of an interpretation depends on two factors connected to the meaning of the verb. The first factor is whether there is a resolution for the appearance of the same D as the subject of two different predicates. A legitimate interpretation requires distinct interpretations of the two copies. This is possible just in case the second instance can be interpreted as inalienably possessed by the first. If, for example, the theme of (26) is interpreted as Jane’s hand, this interpretation is distinct from that of the agent *Jane*, but is still a possible referent for the theme *Jane*. Distinct interpretations of the same D is the first factor. The second factor is the possibility of an event-type that allows an identical agent and theme. Change-of-location is the only kind of event that can be simultaneously initiated and undergone. In *Jane hit the table* Jane is both the instigator of the forceful action and the one of whom a part is changing location to make contact with the table.⁸

Verbs that do not involve the theme’s changing location do not allow this interpretation. Take *cut*, for example: although one can cut oneself, the theme of the verb does not necessarily change location as part of the cutting action. A sentence like

8. See Erteschik-Shir and Rapoport (in preparation) in which sentences like the non-agentive *Jane hit her head on the shelf*, *Jane hit her hand against the table* are analyzed in the same way as *Jane got her hand caught in the door*.

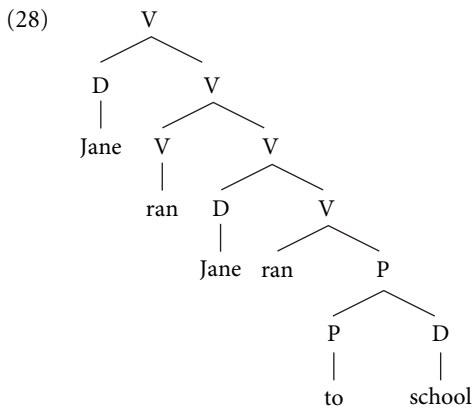
Jane cut to pieces (with the theme understood as Jane) is therefore impossible. (The parallel theme in *Jane cut herself to pieces* is acceptable in the way that any overt theme is.)

We thus have an interpretation of the structure and an interpretation for both components: FI is met in the basic contact interpretation of verbs like *hit*.

This account predicts that there is another case in which the agent and the theme can be selections of the same D. That case involves manner-of-progression verbs, such as *run* and *roll* (discussed in Erteschik-Shir and Rapoport 2004 and 2005). When an overt PP projects an endpoint, such verbs also involve a change of location. Consider the sentences in (27) (the latter being Jackendoff's 1972 classic example of agent-theme ambiguity).

- (27) a. Jane ran to school.
b. Jane rolled down the hill

Each of these sentences has two readings: the change interpretation in which Jane is a theme and the one relevant here, which we analyze with the complex structure shown in (28).

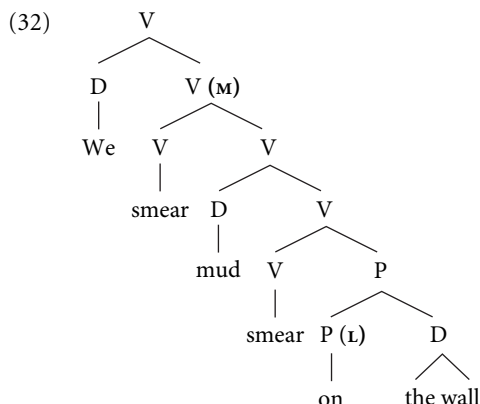


This analysis extends Goldberg's (1995, 1997) and Marantz's (1992) analysis of the (overt) *one's way* construction, for example, *Jane made her way out of the room* and *Jane lied her way past the guards*. In these sentences, the way, or path, is created by some action of the subject referent.⁹ In (28), too, the interpretation is that Jane makes her (running/rolling) way to school/down the hill.

As with *hit* these verbs allow a distinct interpretation of an identical agent and theme. Since *hit* is a point-of-contact verb, the theme can be interpreted as any body making contact. With manner-of-progression verbs, it is the whole entity

9. See Erteschik-Shir and Tova Rapoport (2004) for a detailed analysis of such sentences.

The two components allow for the projection of the cause structure in (32).

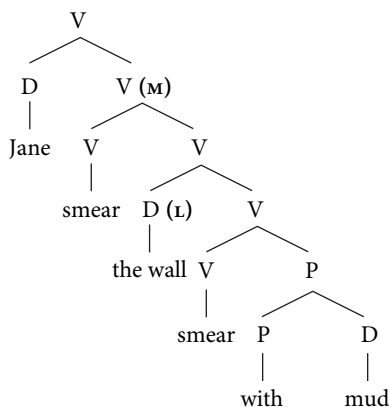


‘We caused (with a smearing application) mud to go to (surface contact with) the wall.’

The parallel change structure *Mud smeared on the wall* is blocked, in much the same way as the change structure of *cut*, due to the **M** component, which indicates a particular manner of applying. Just as instrument manners cannot modify the change structure because the wielder of the instrument is absent, so the manner of applying cannot modify the change structure, because of the absence of the ‘applier’.

Under the view that verbs are associated with meaning components rather than with argument structure, and that projection is free, any structure which fulfills FI should be possible. We are therefore able to predict the alternate cause structure projected by these verbs, the one shown in (33).

(33) *Cause-to-have (=possess) structure*



‘Jane caused (with a smearing manner) the wall (= location of surface contact) to have mud on it.’

We derive the possessor relation from the identification of the **L** component by the theme subject, modulo compatibility with the predicate. Here, the predicate contains the PP *with mud*. A compatible predicate is also one containing the verb *have*, as in *The wall has mud on it*. (Here, too, the theme identifies a surface location.)¹⁰

A similar case is that found in the dative. Here, too, free projection allows for the verb's meaning components to project two different sentences, as shown in (34), and here too we find that when the theme identifies **L**, the theme is interpreted as a possessor.

- (34) a. Jane gave a book to Mary.
b. Jane gave Mary a book.

The first of the sentences projected by the verb *give* means that Jane caused a book to change its location to Mary and the second means that Jane caused Mary (identified with *give*'s **L**) to be in possession of a book.

We find parallel interpretations in the inverse applicative alternation:¹¹

- (35) 'inverse' applicatives (adapted from Herslund 1994)
a. He emptied clothes out of the suitcase.
(**L** = 'container')
b. He emptied the suitcase of clothes.

In (35b) the container location is interpreted as the (now former) possessor.

Not every **L** component can be interpreted as a possessor, as shown in (36):

- (36) *Jane put the shelf with books.

The **L** component of *put* is a spatial location, allowing for any overt PP of the relevant type. But *put*'s **L** is unspecified, that is, the verb does not specify one particular spatial relationship. For instance, one can put books next to a shelf/table/etc., on a shelf/table/etc., under a shelf/table. An attempted identification of such an unspecified **L** by a theme is doomed to failure as it cannot result in a defined possession relation.

To sum up, one verbal lexical representation yields all the alternations and interpretations, without syntactic (or lexical) derivation.

10. See Hale and Keyser's (1997) discussion of the argument structure of locatum verbs as involving a preposition of 'central coincidence' and the thematic relation of possession.

11. And see Erteschik-Shir and Tova Rapoport (in preparation) for an analysis of the creation alternation, for example, *Jane baked a cake for June* and *Jane baked June a cake* and the possession interpretation of the latter.

3.3.1 *Smear vs. hit*

With *smear*-type verbs, we do not find the same agentive activity-type of construction as with *hit*-type verbs.

- (37) a. ?Jane smeared/rubbed the wall.
b. *Jane smeared/rubbed the mud.

The first sentence contains only the location of contact. The matter required by the application type of manner must also be interpreted, in this case to be filled in by context. This sentence is awkward at best because it is not easy to get the right kind of context. Still, consider as one example a context in which everyone is smearing or rubbing mud on part of some house; then, *Jane smeared/rubbed the wall* is fine.¹²

(37b) is also impossible. This sentence can be interpreted only as ‘Jane caused, with a smearing manner, the mud to go to. . . some unidentified surface location’. Again, the only possibility would be filling in that location from context, a task even more difficult than that for (37a) although not, perhaps, unacceptable.

4. Conclusion

We have analysed contact verbs within our framework of meaning component projection and have shown how the various alternations and interpretations are derived directly from free projection and component (and so structure) interpretation.

Our account clearly draws its inspiration from the work of Hale and Keyser (e.g. 1993, 2005), but differs in significant ways, such as in the elements constituting the verb and the actual structures projected.

For Hale and Keyser, the verb consists of a root, containing the semantic and phonological features of the verb, and an empty verbal host. Since the verb’s semantic features are contained in a single root (which is incorporated into the host to derive the verb), there is no way in their system that a verb can have more than one such semantic element.

In our framework, a verb entry consists of a head with the morpho-phonemic features of the verb and meaning components with the semantic features. Our system thus allows verbs with more than one meaning component.

Verbal heads (which may be selected more than once) must be typed by a complement, whether a component or overt phrase. In this way the number of meaning components (and overt complements) determines transitivity properties of the verb.

12. An analysis parallel to that in (26) for the agentive *Jane hit the table* is impossible for (37a) because an empty preposition cannot encode the ON surface relation.

In Hale and Keyser, verbs derived from different types of root components have a different structure. Adjectival root components (e.g. *break*) require a specifier, whereas nominal root components (e.g. *cough*) do not. In our framework, the verbal head and its complement form a predicate and all predicate types have a specifier.

Like Hale and Keyser, we have one lexical representation for all of a verb's alternations, but here, the interpretation of meaning components via projection or modification allows the variety of constructions without movement. Our framework, too, is based on the premise that a verb's meaning projects syntactic structure, but for us all syntactic, semantic and aspectual properties of verbal constructions are derived from the projection and interpretation of the verb's meaning components.

In this way, our theory of the lexicon offers a solution to what Pinker (1989) refers to as "Baker's Paradox" (Baker 1979): Given the nonavailability of negative evidence, how are the variable syntactic properties of verbs acquired?

With the objective of an explanatory theory of the lexicon-syntax connection that conforms to syntactic principles and that can account for acquisition crosslinguistically (see Chomsky 1995, 2001), our solution combines elements of both the lexicon-driven approach (e.g. Pinker 1989, Levin and Rappaport Hovav 1995) and the syntax-driven approach (e.g. Ritter and Rosen 1998, Borer 2003).

We take for granted that the inventory of meaning component types is highly restricted and that it is part of UG. What is acquired is the association of a particular form with its particular components, which is, in essence, the association of sound with meaning. Our model is, in this sense, lexicon driven. It differs from approaches such as Pinker's, however, in not assuming any lexical or linking rules. This is because syntactic projection is free. The projected structures are what yield aspectual information, argument number and thematic role information. It follows that our model is also syntax driven.

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The argument structure of the dative construction

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It is argued that the ‘dative construction’ – i.e. the construction in which an Experiencer or Possessor argument is realized as a DP marked with dative Case, and the VP has the form ‘be NP’ – alternates with two ‘nominative constructions’ (i.e. constructions in which the Experiencer/Possessor argument has nominative Case): one in which the VP has the form ‘have NP’ and another in which the VP has the form ‘be AdjP’. We try to account for the three-way realization of the same underlying Lexical Relational Structure (LRS) in terms of incorporation: when the dative Case incorporates into ‘be,’ we get ‘have’; and when a Noun incorporates into dative Case, we get an Adjective.

1. The dative construction and its alternates*

Let us refer to the construction illustrated by the Malayalam sentences in (1–3) below by the term ‘dative construction’. In this construction, an NP bearing a particular theta role – in (1–3) this theta role is that of the Experiencer – has the dative Case.

- (1) *eṇ-ik’kə̃ santooṣam uṇḍə*
I-DAT happiness is
‘I am happy.’
- (2) *eṇ-ik’kə̃ wiś’appə̃ uṇḍə*
I-DAT hunger is
‘I am hungry.’

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- (3) $e\bar{n}$ -ik'kə (awa $\bar{n}$ -ooḍə) deēṣyam uṇḍə
 I-DAT he-2nd DAT anger is
 'I am angry (with him).'

We may take the structure of these sentences here as representative; for it is this structure that a great many of the world's languages use, when they express ideas like 'being happy/sad/hungry/angry'. Typologically, it is instantiated in all the languages of the Indian subcontinent and in most of the languages of Asia. Interestingly, it was also the structure used by Old English in its so-called "impersonal construction" (see Jayaseelan (2004) for a discussion of the Old English facts vis-à-vis the Dravidian facts).

The contrast of this structure with the corresponding English structure has been discussed a great deal in recent literature under the rubric of 'quirky Case subjects'. What has caught the attention of linguists here is the Case contrast: dative Case vs. nominative Case on the Experiencer argument. But there is another consistent contrast here. English has an adjective where Malayalam has a noun.

This second contrast (to the best of my knowledge) has never been focused on, for whatever reason. But it will be my contention in this paper that there is a dependency between the adjective/noun choice and the dative/nominative choice for the Case of the 'subject'.

Many languages also use the dative construction to express the notion of possession. Cf.

- (4) $e\bar{n}$ -ik'kə raṇḍə kuṭṭikal uṇḍə
 I-DAT two children are
 'I have two children.'
- (5) $e\bar{n}$ -ik'kə raṇḍə kaiyyə uṇḍə
 I-DAT two hands are
 'I have two hands.'
- (6) awa $\bar{n}$ -ə paṇam uṇḍə
 he-DAT money is
 'He has money.'

Here the NP with the Possessor theta role has the dative Case. In the English glosses of these sentences there is no adjective; this is in contrast to the English glosses of the sentences in (1–3). But there is now another contrast: where Malayalam has a verb that can only be translated as 'be', English has the verb 'have'. But interestingly, in the possessor construction, although English typically uses 'have', it has also (in some cases) a way to express the same idea using 'be'; but when it does this, an adjective appears. Cf.

- (7) a. He has money.
 b. He is moneyed.

- (8) a. He has wealth.
b. He is wealthy.

I shall (again) claim that there is a dependency here, a relation between the *be/have* choice and the two choices that we mentioned earlier, namely the dative/nominative choice and the adjective/noun choice. I shall suggest that there are three possibilities for languages to express notions like ‘being happy/sad/hungry’:

- (9) a. to-DP be NP e.g. *en-ik'k'a santonšam unða*
('To me happiness is')
- b. DP(Nom.) be AdjP e.g. 'I am happy/hungry.'
- c. DP(Nom.) have NP e.g. 'I have (great) pleasure/an appetite.'

Similarly, languages have three ways – the same three ways – to express the notion of possession:

- (10) a. to-DP be NP e.g. awan-ə paŋam uŋdə
(‘To him money is’)
b. DP(Nom.) be AdjP e.g. ‘He is moneyed/wealthy.’
c. DP(Nom.) have NP e.g. ‘He has money/wealth.’

All three patterns (I shall try to show) are derived from the same underlying thematic structure, by different choices of incorporation.

2. Dravidian has no adjective

Before we proceed, a fact should be noted: It has often been observed that Dravidian languages probably have no adjectives; they appear to fulfill the adjectival function by using participial forms which are transparently deverbal, or by nouns.¹ Thus Anandan (1985) has argued that all Malayalam, or more generally Dravidian, 'adjectives' that end in *-a* (and the fact is that most Dravidian adjectives end in *-a*) are participial forms of verbs that have the relativizer *-a* suffixed to them. In other words, they are 'concealed relative clauses'. The Malayalam adjectives in the second column below are derived from the verbal roots given in the first column:

- (11) we|ukk- ‘to become white/whiten’ we|utta ‘white’
 cuwakk- ‘to redden’ cuwanna ‘red’
 muṣiy- ‘become dirty’ muṣiñña ‘dirty/bored’

1. Actually, there is no consensus on this question. Thus Zvelebil (1990: 27) writes: "Among those who tend to deny or do deny the existence of adjectives as a separate 'part-of-speech', the most prominent are Jules Bloch and M.S. Andronov. Master, Burrow and Zvelebil, on the other hand, accept adjectives as a separate word-class." Bhat (1994) advances several arguments in support of his contention that Dravidian has a class of adjectives; but see Amritavalli and Jayaseelan (2003) for the observation that most of Bhat's arguments are functional and not syntactic.

Even adjectives like *nalla* ‘good’, *waliya* ‘big’ and *pazhaya* ‘old’, which don’t have immediately recognizable verbal roots in the contemporary language, are derived from obsolete verbal roots that still turn up in poetry. Besides these adjectives that end in *-a*, Malayalam has a small class of adjectives that Anandan shows are plain nouns (going by all the syntactic tests).

In Kannada, similarly, adjectives are formed from verbs or from nouns by suffixation. Kannada (but not Malayalam, for some reason) has a process of deriving adjectives by dative suffixation to a noun, which is particularly interesting to us and which is illustrated below:

- (12) *udda* ‘height’ *udda-kke* (‘height-DAT’) ‘tall’
 kappu ‘blackness’ *kapp-ige* (‘blackness-DAT’) ‘black’

The language also has a way of deriving adjectives by suffixing *-aagi* (lit. ‘having become’) or *-aada* (lit. ‘having happened’) to nouns; e.g. *ettara-vaada* (lit. ‘height having happened’) ‘tall’; see Amritavalli and Jayaseelan (2003) for more details.

But the point we wish to emphasize is that the absence of the category of adjective in Malayalam, as opposed to its availability in English, is not the explanation for the ‘adjective/noun’ contrast noted above; the explanation is deeper and more interesting. It is only in languages in which, owing to processes of language change, the Case system has become destabilized that the incorporation process that gives rise to adjectives can take place (or at least, happen in a widespread manner). This point is argued more at length in Amritavalli (this volume) and Amritavalli and Jayaseelan (2003).

The fact that some languages of the world do not have the category ‘adjective’, suggests a line of thinking: suppose ‘adjective’ is not one of the basic categories of human languages. Consider the possibility that even in English, adjective is a derived category. There are some fairly transparent cases here, e.g. the adjective *asleep*, which is derived from a preposition and a noun:

- (13) *at/on + sleep* → *asleep*

Lumsden (1987: 302, 317) points out that in the transition period from Old English to Early Middle English (the 12th century), the “loss of Case signals . . . encouraged speakers to use more prepositions”, and that (during this period) many prepositions – *to*, *of*, *on* and *at* – were used interchangeably; also that the EME *on* is the ancestor of the *a-* we find in the predicate adjectives *asleep*, *alive*, *afloat*, *away*, *asunder*, *afire*, *aloft*, and *o’clock*. Thus, if English permitted a sentence like *The child is at sleep* or *The child is on sleep*, we would say that the complement of the copula is a PP; but in *The child is asleep*, we say that the complement is an adjective. We shall argue that the incorporation of a noun into a preposition (or Case) is the process by which all adjectives are derived.

3. The dative construction in English

Our discussion in Section 1 may have given the impression that the dative construction is a typological property of the languages of India and (much of) East Asia, which *distinguishes* these languages from (Modern) English. But the fact is that English too has something like the dative construction, although the English dative construction is much more limited in its privileges of occurrence.

Consider the following pair of sentences:

- (14) a. There must be a lid to this.
b. This must have a lid (to it).

The (a) sentence has (what we may call) a ‘dative NP’ *to this*; in the (b) sentence it corresponds to a nominative NP which is the subject. There is also a contrast in the verb, *be* in the (a) sentence and *have* in the (b) sentence. The other NP in these sentences, namely *a lid*, is subject to a non-referentiality constraint; thus one cannot have a definite NP in its place: **There must be the lid to this*; **This must have the lid (to it)*. The relation between the two NPs is one of possession; thus one speaks of “this vessel’s lid”. The reader will immediately recall the way Malayalam expresses the relation of possession; we repeat (4) here:

- (4) en-ik’kə rəṇḍə kuṭṭika| uṇḍə
I-DAT two children are
‘I have two children.’

Here, the possessor NP has the dative Case in Malayalam, and the nominative Case in the English translation. The verb is *uṇḍə* ‘be’ in Malayalam, *have* in the English translation. But the fact is that, if we make allowance for the word order difference and the fact that Malayalam is a pro-drop language while English requires a pleonastic *there* in the subject position, the Malayalam sentence is completely parallel to the English sentence (14a). The interesting thing that we have just demonstrated in (14), then, is that the structural contrast between the Malayalam sentence and its English translation is instantiated *within* English.

Here are some more examples of the structural alternation illustrated in (14):

- (15) a. There is no end to this.
b. This has no end (to it).
(16) a. There are some advantages to this.
b. This has some advantages (to it).
(17) a. There is a sequel to this.
b. This has a sequel (to it).
(18) a. There is a catch to this.
b. This has a catch (to it).

In English, unlike in Malayalam, only a very restricted type of possession relations can be expressed by the dative construction; e.g. the possessor cannot be animate, as shown by the following contrast:

- (19) a. *There are ten fingers to me.
b. There are five fingers to each hand.

The Experiencer relation also can be expressed in English by the dative construction; but here the restrictions are even narrower and more difficult to define. Cf.

- (20) a. There came to him a feeling of boredom.
b. He had a feeling of boredom.
(21) a. There came to us a smell of roses.
b. We got a smell of roses. (OR We smelt roses.)

The verb *be* (for some reason) cannot appear in the dative construction here, cf. **There is to him a feeling of boredom*. Also, the NP denoting the ‘experienced’ thing has some kind of a heaviness constraint, because the sentence is marginal when the N is not modified, cf. ?? *There came to us a smell*.

4. The possessive construction in English and Hungarian

We now come to the central problem that we wish to address in this paper, namely the one posed by the three-way alternation illustrated in (9) and (10). Our analysis takes off from Kayne’s (1993) account of the *be/have* alternation. Kayne bases his analysis on some facts regarding the behavior of the possessive in Hungarian described by Szabolcsi (1983), and on Szabolcsi’s analysis of these facts. In Hungarian, the possessive construction has a verb *van* which can be translated as ‘be’. It takes (according to Szabolcsi) a single DP complement, which contains the possessor DP. The possessor DP occurs to the right of (lower than) the D^0 head of *be*’s complement. The full structure is as follows:

- (22) ... van [_{DP} Spec D^0 [DP_{poss} [AGR⁰ QP/NP]]]

If DP_{poss} stays in situ, it has nominative Case. But if it moves to Spec of D^0 , it gets dative Case; it may now move out of the DP entirely, but the dative Case is retained. If D^0 is definite, the two movements mentioned above are optional; but if D^0 is indefinite, these movements are obligatory. Thus the possessive construction in Hungarian would be (something like) *To John is a sister*, where *to John* is a dative-marked DP.

Kayne claims that the English possessive construction has a substantially parallel underlying structure, with just a few parametric variations. The verb is an abstract copula, BE, which takes a single DP complement. A difference is that English has

a nonovert “prepositional” D^0 as the head of this DP, which Kayne represents as D/P_e^0 . The structure is:

- (23) ... BE [_{DP} Spec D/P_e^0 [DP_{poss} [AGR⁰ QP/NP]]]

In English, AGR⁰ cannot license nominative Case on DP_{poss} , which therefore moves to the Spec of D/P_e^0 . But the latter also cannot license dative Case; so DP_{poss} must move further up, to get nominative Case in Spec,IP. The “prepositional” D^0 obligatorily adjoins to BE in English, and is spelt out as HAVE.

- (24) D/P_e^0 + BE → have

The idea that *have* is *be* with a preposition incorporated into it is adopted from Freeze (1992).

In the light of the above analysis we can make sense of the alternation between structures (*within* English) illustrated in (14–18). We repeat (14) below:

- (14) a. There must be a lid to this.
b. This must have a lid (to it).

In the (a) sentence, D/P_e^0 has not adjoined to BE; so there is no *have* in the place of *be*. And the dative Case associated with D/P_e^0 is realized as the preposition *to*. The Case relations of Old English were translated as preposition relations in the transition to Early Middle English, as Lumsden (1987) notes. And since, during the same transition, English ceased to be a pro-drop language (as Jespersen 1909–1949 notes), the subject position is filled by the pleonastic element *there*.

The (b) sentence represents the ‘normal’ possessive construction in English. The D/P_e^0 has adjoined to BE, and so we get the verb *have*. The possessor DP, since it can no longer get its Case from D/P_e^0 , moves to Spec,IP and gets nominative Case. (The optional ‘to it’ can perhaps be explained as follows: D/P_e^0 , when adjoining to BE, leaves a copy which is optionally realized as *to*; the Possessor DP subsequently moves to the subject position, leaving a pronominal copy *it*. The movement from a Case position to another Case position (we must assume) is allowed in this case, because the moved DP continues to be in the Spec of the same element, namely D/P_e^0 .)

5. A Lexical Relational Structure (LRS) for Experiencer and Possessor theta roles

We shall adopt a slightly different structure for the possessive construction than the one Kayne (1993) proposes. Assuming Hale and Keyser’s proposal that theta roles are to be defined as positions in structural configurations, let us ask the question: What is the structure corresponding to the Possessor theta role? Obviously,

functional elements like AGR^0 and D^0 cannot be part of a configuration that determines a theta role; therefore in (23), DP_{poss} cannot have as its base position the Spec of AGR^0 . The AGR projection, if it must be postulated, must be higher. We shall also assume, differently from (23), that D^0 and P^0 are heads of separate projections; and that a D^0 may not be generated at all if the DP is indefinite.

As regards P^0 , its function in Kayne's analysis is to license, or "assign", the dative Case of the possessor DP. But if we adopt the position (of distributed morphology) that Case is not "assigned", but DPs simply move into the Spec of a Case Phrase (KP) headed by a Case morpheme, we need a different execution here. Thus, when a P appears to "assign" Case to its object DP, what happens is that P selects, and is "paired with," a KP into whose Spec position the object DP moves. Since there is no preposition on the Malayalam (or indeed, Hungarian) possessor DP, we need not postulate a P^0 at all; all we need is a K^0 – or more specifically, a K^0_{dat} – heading a KP. But since this KP also is only a functional category, it cannot be part of the LRS representation of the Possessor theta role, and so must be generated higher.

So then, what does form part of the LRS representation of the Possessor theta role? The notion of possession implies two entities that stand in a certain relation. Let us represent this relation as P, which take two entity-denoting expressions in its Spec and complement position. (This element is not a member of the lexical category P, which in English at least, we believe, is a development of the loss of Case in Early Middle English; moreover P, being a functional category, cannot be part of a theta configuration. It is semantically simply a 'R(elation)'. But for want of such a categorial notation, we call it P advisedly.) The copula BE may or may not be an essential part of the configuration in question. For concreteness, let us assume that it is. The theta configuration for the Possessor we assume is the following:

$$(25) \quad BE \quad \dots \quad [_{pp} \quad DP_{poss} \quad [\quad P \quad QP/NP \quad]]$$

The space indicated by '...' implies a claim that a theta configuration need not be strictly local: in the particular case (25), functional heads like K^0 , AGR^0 and D^0 may intervene between BE and the PP. (But if BE is not an essential part of the possessive configuration, we may dispense with both BE and '...' in (25); nothing in our analysis is affected by this decision.)

We suggest that this is also the configuration for the Experiencer theta role, a claim which would be in line with the observation that the theta roles available to Language are quite few in number owing to their being limited by the number of distinctive configurations available (Hale & Keyser 1993). Therefore, (25) may be revised as (26):

$$(26) \quad BE \quad \dots \quad [_{pp} \quad DP_{poss/exp} \quad [\quad P \quad QP/NP \quad]]$$

Possibly, (26) is also the configuration for Locatives. A figure-ground configuration may be the underlying notion here; the Possessor, or the Experiencer, or the Location being the ground, and the possessed thing, or the experienced thing, or the located thing being the figure.²

The configuration (25) (or (26)) always occurs in a context of functional categories in the structures we are interested in. In order to linearize these functional categories, let us look at the Hungarian facts again. The Hungarian D^0 , when definite, is optionally overt; and when it is overt, what we find is that DP_{poss} is nominative when it occurs to the right of D^0 , and dative when it occurs to the left of D^0 . This argues that AGR^0 (licensing nominative Case) is to the right of D^0 , and $P_{\text{dat}} - K_{\text{dat}}$ in our analysis – is to the left of D^0 . The *inter se* order that we must postulate for these functional categories, then, is: ' $K^0 - D^0 - AGR^0$ '.

If we generate these functional categories in the space indicated by '...' in (25), the full structure we are dealing with may be something like (27):

$$(27) \quad BE \quad [_{KP} \text{Spec} \quad K^0_{\text{dat}} \quad [_{DP} \text{Spec} \quad D^0 \quad [_{AGRP} \text{Spec} \quad AGR^0 \quad [_{PP} DP_{\text{poss}} \\ [P^0 \text{QP/NP}]]]]]]$$

But here, the D^0 (as we said) may not be generated if the possessed entity is indefinite; as it is in all the cases that we shall speak of.³ The AGR^0 also may be only optionally generated. If D^0 and AGR^0 are absent, what we get is (28):

$$(28) \quad BE \quad [_{KP} \text{Spec} \quad K^0_{\text{dat}} \quad [_{PP} DP_{\text{poss}} \quad [P^0 \quad \text{QP/NP}]]]]$$

Consider the situation where DP_{poss} has moved into the Spec of K_{dat} :

$$(29) \quad BE \quad [_{KP} \quad DP_{\text{poss}(i)} \quad K^0_{\text{dat}} \quad [_{PP} \quad t_i \quad [P^0 \quad \text{QP/NP}]]]]$$

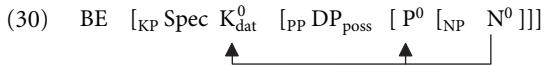
In English, K_{dat} adjoins to BE and we get *have*; and DP_{poss} then moves to the Spec of a higher functional projection to get nominative Case.

2. As regards the two phrases related by P in (26), it may be the case that the more referential (definite) phrase goes into the Spec position, and the less referential into the predicative (complement) position. This means that, depending on their relative referentiality, the positions of the two phrases may be reversed. In the Hale-Keyser derivation of the denominal verb *shelve*, the N *shelf* is non-referential and is therefore in the complement position, from where it is free to incorporate into the head of the phrase.

3. For a way of dealing with a sentence like *John has your article (with him)*, where the possessed entity is a DP, see Kayne (1993, Fn. 14).

6. The genesis of adjectives

Kayne's claim (as we just said) is that in English, K_{dat} (or what he called D/P^0_e in his analysis) adjoins to BE and we get *have*. We suggest that something else can happen in (29): when the complement NP consists of only an N, it may adjoin to K_{dat} ('picking up' the intervening head P^0 on its way) and be realized as an adjective.



This hypothesis explains a fact noted in Kayne (1993), namely that *have* cannot take an adjectival complement:

- (31) John was /* had unhappy.

Note that if *be* can take an adjective, and if *have* is derived from *be*, it is prima facie surprising that *have* cannot take an adjective as its complement. But we now see why this is so: it is the same K_{dat} that either incorporates into BE to yield *have*, or is adjoined to by a noun to give us the adjective.

Our hypothesis also solves a ‘technical’ problem that Hale and Keyser encounter with adjectives (see Hale and Keyser 2002: 25–27, 205ff.). Consider the following:

- (32) We found [the sky clear]

Here, *the sky* is an argument of *clear*, so we would want to generate it in a projection of the adjective. But if we merge the DP and the A, the mechanism of Merge will give us only a Head-Complement relation, not a Spec-Head relation. The authors' solution is an LRS representation for A, in which A's argument is always realized in the Spec of another head that takes A as a complement. Our analysis of adjectives obviates this problem: the subject DP of a small clause with an adjectival predicate is never merged with A; it is merged in the Spec of an abstract P^0 which takes an N as complement.

But the biggest result of our hypothesis about adjectives is that we are now in a position to explain the three-way alternation that languages exhibit in expressing the notion of experiencing something or the notion of possession. We repeat (9) here:

- (9) a. to-DP be NP e.g. en-ik'k'a³ santoošam uŋdə
 ('To me happiness is')
- b. DP(Nom.) be AdjP e.g. 'I am happy/hungry.'
- c. DP(Nom.) have NP e.g. 'I have (great) pleasure/an appetite.'

If K_{dat} remains independent, the Experiencer DP (or the Possessor DP, as the case may be) can move into the Spec of this KP and get dative Case; this gives us (a).

But if K_{dat} is absorbed into BE as in (c), or into N as in (b), the Experiencer (or Possessor) DP must move up into Spec,IP and get a nominative Case there.⁴

What needs to be further noted is that this type of “absorption” of Case into other categories takes place in a widespread manner only in a language in which the Case system has become destabilized as a result of language change. This happened in English, but not in Dravidian. Which explains why English has adjectives and Dravidian has no adjectives (or few adjectives); also, why English has a verb like ‘have’ and Dravidian does not; and also, why the dative construction is such a prominent part of Dravidian syntax whereas this construction has only a minimal presence in English.

We conclude this paper by drawing attention again to an ‘adjective-making’ strategy that obtains in Kannada, because it supports our proposal about adjectives in a particularly transparent fashion. In Kannada the normal way to say ‘Rama is tall’ is:

- (33) raama udda-kke idd-aane
Rama (nom.) height-DAT be-3SG.MASC
'Rama is tall.'

Here, *udda-kke* 'height-DAT', which is functionally an adjective, is transparently N+K. The contrasting nominative pattern:

- (34) raaman-ige udda ide
 Rama-DAT height is
 ‘Rama is tall.’ (‘Rama has height’)

4. Halldór Sigurdsson (p.c.) points out that there are a few cases in Icelandic where a dative construction has apparently an adjective as predicate, cf. (i); he also gives a German example, cf. (ii), and says that there are similar examples in Russian.

- | | | | | |
|-----|--------------------|--------|--------------|-------------|
| i. | okkur | er | kalt | (Icelandic) |
| | us.DAT | is.3SG | cold.NEUT.SG | |
| | 'We are freezing.' | | | |
| ii. | Uns | ist | kalt | (German) |
| | us.DAT | is.3SG | cold | |
| | 'We are freezing.' | | | |

Such examples, although few in number (the construction is non-‘productive,’ according to Sigurdsson), are nevertheless a problem for our analysis: how can the Case element, which has become part of the adjective, also show up on the Experiencer DP? One way to solve the problem is to suggest that *kalt* ‘cold’ in this context is actually a Noun; but we have not investigated how viable such a suggestion is. Another possibility is that K_{dat}^0 , when it moves along with the Experiencer DP to a Topic-like position, leaves behind a copy which (exceptionally) is amenable for the N to adjoin to. (This solution would be in the spirit of our earlier suggestion about the optional ‘to it’ in sentences like (14b).)

is used in Kannada only in special contexts like ‘Rama has the height to do something (e.g. join the army).’

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Syntactic categories and lexical argument structure

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Differences between languages in the syntactic categories they instantiate may lead to parametric variation, as syntactic categories constrain possible argument structures. The Dravidian language Kannada is argued to be typical of overt case-SOV languages in having only the categories N and V: P and A (argued to be N plus case) develop only as case weakens; as does the verb *have* (i.e. *be* plus case). We seek to explain thus the ubiquity of the dative experiencer in Kannada, and its vestigial presence in English; and the absence of *have* in Kannada. We also explain an observation that languages which have serial verb constructions lack PP structures, showing that English has serial verb constructions with imperfect and negative participles but not with perfect participles. This gap arises from the way case is incorporated into participles in English to form adjectives (and currently explained in terms of the category of these participles); in Kannada, verbal participles uniformly retain their case.

1. Syntactic categories and argument structure

The guiding intuition of this paper is that differences between languages in the syntactic categories they instantiate may lead to parametric variation. The syntactic categories in a language constrain the possible argument structures of that language.¹ Hale and Keyser (1993), aiming to derive thematic functions from the LRS (Lexical Relation Structure) projected by lexical categories, assume the inventory N, V, A and P, corresponding to the semantic types of entities, events, states and relations.

Not all languages have all four of these categories, however. In particular, the question whether Adjectives are a category in Kannada (and Dravidian more

1. We assume the position of Hale and Keyser (1993: 76): “Argument structures, or LRS [Lexical Relation Structure] projections, are constrained in their variety by (i) the relative paucity of lexical categories, and (ii) the unambiguous nature of lexical syntactic projections.”

generally) has been a matter of long-standing debate.² Similarly, the so-called postpositions in Kannada and Malayalam may be nouns, or even verbs.³ Assuming, then, that Kannada and Malayalam reliably have only the two lexical categories N and V, the natural question that arises is: how does this restriction on the set of lexical categories affect the LRSs in these languages?⁴

2. Case and the category P

We begin with an observation (in Amritavalli 2001: 173) that a construction-type typical to our languages has a vestigial counterpart in English that is almost a word-for-word translation. Consider the English example (1), and the Kannada gloss for the English. All that is needed to obtain the Kannada dative of possession sentence (2) from this gloss is to put the Kannada words in the right order (leaving aside the *there/pro* difference).

- | | | | | | |
|-----|---|----------------|---------|------------|----------------|
| (1) | There must be a | lid | to | this. | <i>English</i> |
| | <i>pro</i> | beeku ira ondu | mucca a | -kke ida- | <i>Kannada</i> |
| (2) | ida-kke | ondu | mucca a | ira beeku. | |
| | this-DAT | one | lid | be must | |
| | '(There) must be a lid to this.' (= this must have a lid) | | | | |

Now the interesting point about these examples is that the English sentences regularly show an alternant with *have*, whereas Kannada does not. Descriptively, Kannada lacks the verb *have*. So we have the English example (1') corresponding to (1).

2. Cf. Zvelebil (1990: 27, n. 75, and the discussion in the text): "Among those who tend to deny or do deny the existence of adjectives as a separate 'part-of-speech,' the most prominent are Jules Bloch and M.S. Andronov. Master, Burrow and Zvelebil, on the other hand, accept adjectives as a separate word-class."

3. Cf. Amritavalli (2000: 62): "Kannada postpositions are nominal in category: they take nominal case inflections, and the postpositional object is marked genitive." Jayaseelan (1996) notes a number of postpositions in Malayalam that have a verbal origin.

4. Hale and Keyser in fact introduce a caveat to their assumption of "the traditional categories V, N, A, P" (Hale and Keyser 1993: 66), to say that these may not be universal (their n. 6): "In LRS representations, of course, we are dealing with the universal categories, whatever they turn out to be. Their realization in individual languages as nouns, verbs, and so on, is a parametric matter. Thus, the English possessive verb *have*, for example, is probably a realization of the universal category P, not V. But the Warlpiri verb *mardarni*, which most often 'translates' English *have*, is clearly V, not P"

- (1') This must have a lid. *English*

Other triplets are listed in (3–4), of paired *be/have* possessive sentences in English, with corresponding dative of possession examples in Kannada.

- (3) a. There is no end to this. ~ This has no end (to it).
 b. There are some advantages to this. ~ This has some advantages (to it).
 c. There is a sequel to this. ~ This has a sequel (to it).
- (4) a. ida-kke kone illa.
 this-DAT end be-NEG
 ‘(There) is no end to this.’
 b. ida-kke (ida-ralli) kelavu laabhaga|u ive.
 this-DAT (this-LOC) some advantages are
 ‘(There) are some advantages to this/in this.’
 c. ida-kke ondu tippani ide
 this-DAT a footnote is
 ‘(There) is a footnote to this.’

What is the difference between English and Kannada, which makes the dative of possession a marginal possibility in English but ubiquitous in Kannada? I had argued for a de-thematization of the *to*-NP position as a possessor position in English, noting that this “extremely restricted” construction in English “is happiest when the possessor is inanimate or abstract, and the possessed NP is non-referential: thus, *There must be a cap to this* is much more felicitous than **This is the cap to this*.” The alternation of *be* and *have* reinforced Kayne’s analysis of *have* as a *be* incorporating a *to*. I suggested that *be* universally has an optional dative benefactive argument; the de-thematization of this argument position in English is due to the incorporation of *to* into *be*, to yield *have* (cf. Jayaseelan’s account of this, this volume).

This tells us why English has *have* (and not the dative of possession), but it does not say why Kannada does not have *have* (and has the dative of possession). Why doesn’t the dative case incorporate into *iru* in Kannada?

There is an ill-understood relation between case markers and prepositions. Emonds (1985) treats case as P. Larson (1988) suggests that English *to* has the status of dative case.⁵ But why do we invoke the case-like status of *to* when we speak of its absorption? I am not aware of analyses postulating the absorption of genuine case in overt case-marking languages. Absorption seems to apply primarily to case destabilized in the course of syntactic change. The disappearing dative

5. Interestingly, this suggestion is again in the context of its absorption: in this instance, by a double-object taking verb (in a VP-internal passive operation, which derives the double object construction *send Mary a letter*).

case is that which is a remnant in a language that has lost overt case and invented prepositions.

3. Postpositions and adjectives in Kannada

In the course of syntactic change, then, case-markers either strengthen into a new syntactic category P(reposition), or may get absorbed into existing lexical categories: into V, e.g. into *be* to give *have*; or even into N, to yield A. If so, we deduce that languages with case-markers do not have P, and do not have a verb *have*. Since these are usually OV languages, we deduce that the category “postposition” does not exist: it is not a P. Neither should these languages have adjectives, if adjectives are nouns which incorporate P. Thus there is an implicational relationship between P and A.

Recall our claim at the outset that Kannada has neither of these categories. Consider first the case for P in Kannada, as distinct from case. We note the noun-like character of putative postpositions in Kannada (*meele* ‘on’, *kelage* ‘below’, *madhye* ‘between’), in that they take genitive “objects” (positionally indistinguishable from “subjects”) (5a), and can themselves be case-marked (5b):

- (5) a. ada-ra meele/ke|age/madhye
 it-GEN top under centre
 ‘on top of it/under it/(at) its centre’
 b. ada-ra meel-/ke|ag-/madhyad -inda
 it-GEN top under centre from
 ‘from on top of it/under it/its centre’

A second prediction for P-less languages is that they do not license complements to N or A (Emonds 1985: 30).⁶ In this respect, Jayaseelan (1996) notes that “derived nominals” do not tolerate complements in Malayalam, and this is so in Kannada as well. The nominal counterpart of the verb ‘to write’ has no complement in (6b), where its subject is genitive. A complement is possible only in a gerundive nominalization, with a nominative subject (6c):⁷

- (6) a. avanu pustaka (vannu) bareda.
 he book (ACC) wrote
 ‘He wrote a book.’

6. Emonds makes a set of six predictions for an imagined P-less language. We consider here only the first.

7. (6b) has, of course, an interpretation as a compound, ‘his book-writing’, where *book* is not referential: **avana nenne pustaka baraha* ‘His writing of a book yesterday’.

- b. *avan-a pustaka baraha
 he-GEN book writing
 ‘*His writing of a book’
- c. avanu pustaka (vannu) barey-uvudu
 he book (ACC) write-NOM
 ‘His writing a book’

Similar facts hold for such doublets as *keelike/keeluvudu* ‘query, asking’, *heelike/heeluvudu* ‘saying’, *noota/nooduvudu* ‘look, looking’, *oodu/ooduvudu* ‘studies, reading’, and so on. In general, gerundive nominals have the full range of sentential case-marking: they license nominative subjects, and the internal arguments of the verb as well.⁸ Projections of the N-category with the typical genitive NP specifier do not license complements, arguing for the absence of P in Kannada.

Consider next the category of adjectives in Kannada. One argument against distinguishing these from nouns is that they both take the same range of specifiers. Intensifiers in English distinguish nouns from adjectives (Emonds 1985: 18): we say *how angry*, but *how much anger*. We shall consider here for Kannada the very few underived adjectives such as *olleya* ‘good,’ which are among the best candidates for adjectives, occurring in a bare form preminally (they must be suffixed with nominal agreement markers when they occur predicatively). (Most putative adjectives or adverbs in Kannada are clearly morphologically derived from nouns, either by dative suffixation to a noun (cf. *udda* – *udda-kke* ‘height – to a height’, i.e. tall; *kappu* – *kappige* ‘dark, black’), or by *-aagi* suffixation to a noun (*sukha* – *sukhav-aagi* ‘happiness, happily’), where *-aagi* (lit. ‘having become’) is perhaps a complementizer (‘as’).) Compare the noun specifiers in (7a) with those for the putative adjective in (7b), and note the difference in the translated glosses for the same intensifier in Kannada.

- (7) a. avanige yeṣṣṭu koopa!
 he-DAT how.much anger
 ‘How much/What anger he had!’
 avanu yeṣṣṭu koopīṣṭa!
 he how.much angry person (m.)
 ‘What an angry person he was!’
 (lit. ‘How much of an angry person he was’)
- b. idu yeṣṣṭu olleya yoochane!
 this how.much good thought
 ‘How (*much) good a thought/what a good thought this is!’

8. We speculate that nominative case-marking in gerunds (which are tenseless) is by the 3p. neuter Agr element *-du*, which presumably also licenses nominative subjects in copula-less equative sentences.

The distribution of *iṣṭu* ‘this much,’ *aṣṭu* ‘that much’ is similar across these categories.

- (8) a. *iṣṭu/aṣṭu akki*
 ‘this much rice/that much rice’
 b. *iṣṭu/aṣṭu olleya akki*
 ‘such good rice’, i.e.
 ‘this good a rice’ (lit. this-much-good rice),
 ‘that good a rice’ (lit. that-much-good rice)

Again, intensifiers like *bahaḷa* ‘very much,’ *tumba* ‘very many,’ *svalpa* ‘little,’ *saakaṣṭu* ‘enough, quite a few,’ cooccur with N and A.

- (9) a. *bahaḷa/tumba/svalpa/saakaṣṭu jana*
 many lots few enough people
 ‘many people/lots of people/a few people/enough people’
 b. *bahaḷa/tumba/svalpa/saakaṣṭu doḍḍa (sthāḷa, etc.)*
 big (place, etc.)
 ‘a very big place/a very big place/a slightly larger place/
 a large enough place’

Turning to the question of complements to A in Kannada, these should be doubly prohibited, given that (i) Kannada lacks P, and that (ii) Kannada A is syntactically N, which (as we saw in (6b) above) does not license complementation, again due to the lack of P. And indeed, the analogues of *good to me*, *angry with me* do not exist in Kannada.⁹

Our argument, then, is that P in English corresponds to the categories of Case and Noun in Kannada; and that A in English is again N, perhaps case-marked, in Kannada.¹⁰

4. The licensing of imperfect and perfect participles

Emonds (1985: 40, n. 18b) notes an intriguing correlation: “Languages which have ‘serial verb constructions’ often apparently lack PP structures.” Why should this be so?

Let us return to the *have~be* alternation. Jayaseelan reminds us that *have* licenses and case-marks N; and shows that *be* licenses, but does not case-mark, A, which

9. What is attested is the *-aagi* or ‘as’ complement, e.g. *avanu nanage shatru-vaagi huṭṭida* ‘he was born (as) my enemy,’ i.e. ‘he was born an enemy to me.’

10. English P also instantiates itself in complementizers. The Kannada complementizers *anta* ‘that’ and *-aagi* ‘as’ are deverbal rather than prepositional.

has an incorporated P (or case). Now recall the well-known difference between imperfect and perfect participles in English: *V-ing* is a complement to *be*, but *V-en* is a complement to *have*.

- (10) is eating has eaten

This fact in (10) is parallel to the facts about N and A complements to *have/be*, cf. (10’):

- (10’) be + Adjective have + Noun

Let us deduce from this that in English (i) *V-ing* incorporates P or case (“is adjectival”); (ii) (consequently?) *V-ing* does not need case to license it. Whereas *V-en* (i) does not incorporate P or case (“is not adjectival”); and (ii) needs case to license it.

We will now show that English does have a “serial verb” construction, with a gap in it that corresponds to the licensing requirement of these participles. That is, participial adjuncts in English attest imperfect but not perfect participles. We shall argue that in Kannada at least, the serial verb construction is a participial adjunct construction which equally permits all the three participles in the language: imperfect, perfect and negative.

First, let us observe the following facts about the serial verb construction in Kannada. The citation form of this construction is with perfect participles, and this is admittedly the most commonly attested type of serial verb.

- (11) a. naanu maavinakaayi kitt-u to[e-du
I raw.mango pluck-PERFP wash-PERFP
hacc-i tinde.
cut-PERFP ate
‘I plucked, washed, cut and ate a raw mango.’
(lit. having plucked, etc.)

The construction in (11a) has no English analogue. But Kannada also instantiates imperfect and negative participles in this construction:

- (11) b. naanu maavinakaayi kii[-utt-a to[e-yutt-a
I raw.mango pluck-PRESP wash-PRESP
hacc-utta kuṇḍide.
cut-PRESP danced.
‘I danced, plucking, washing, cutting a raw mango.’

Notice that (11b), in translation, looks quite acceptable as an English sentence: thus “present participles” or imperfect participial constructions have a parallel in

English to the Kannada serial verb construction. This point is reinforced by the examples below:¹¹

- (12) a. *E* She came dancing, singing, strewing flowers.
K ava|u kuṇiyutta, haadutta, huuga|annu hariyutta
 She dancing singing flowers strewing
 banda|u.
 came
- b. *E* The storm came, uprooting trees, frightening people.
K aandhi bantu, maraga|annu biil|isutta, janarannu
 storm came, trees uprooting, people
 hedarisutta.
 frightening

Kannada has a negative participle that occurs in this construction. Once again there is an English parallel.

- (13) naanu maavinakaayi to|ey-ade hacc-ade tinde.
 I raw.mango wash-NEG PRT cut-NEG PRT ate
 ‘I ate a raw mango unwashed and uncut.’

The point (more generally) is that in the English participial adjunct construction, imperfect participles and negative participles (with *un-*) occur; perfect participles do not readily do so. Our claim is that adjuncts, which by definition are not externally case-licensed, instantiate only those participles with incorporated case, which do not require external case; hence English perfect participles are proscribed as adjuncts (except for passive participles with incorporated case, cf. the discussion below).

- (14) She came dancing.
 She came unwashed, unannounced, unnoticed.
 *She came danced.

The explanation for (14) has long been that imperfect and negative participles are “adjectival” in English. Prenominally as well, perfect participles may not readily occur in English “because they are not adjectives”:

- (15) the dancing girl
 the unwashed girl
 *the danced girl

11. Notice the word-order correspondences and differences. The positions of the finite verb (and its object, if any; cf. (11a) above) are mirror-imaged in English and Kannada, as expected. But the serial verbs themselves are strung together in precisely the same order in both languages. This argues that there is no embedding of the verbs in the participial structure with respect to one another. Sentential complement embedding, on the other hand, shows mirror-imaging of the word order.

But the appeal to the categorial label “adjective” here, to distinguish imperfect from perfect participles actually reflects the different licensing requirements of these participles with respect to case-marking. Thus, we cannot readily say that a participle in the verb phrase, in the perfect tense, “is an adjective.” Yet, English present and perfect participles differ in their licensing requirements in clearly verbal contexts, in precisely the way that reflects their ability to occur in “adjectival” (prenominal or adjunct) contexts. Perfect participles occur with *have*, which has the ability to case mark; they fail to occur prenominally or as participial adjuncts, suggesting that unlike adjectives, they do not have an incorporated case. Imperfect participles occur with *be* in the progressive tenses, as well as prenominally, and in participial adjuncts: all of these being positions in which no external case assignment takes place.

Considering now the Kannada “serial verb” data, which allow both perfect participles (in (11a)), and imperfect participles (in (11b)), we can easily predict that perfect participles in Kannada must fully share the privileges of occurrence of imperfect participles, occurring in positions they are proscribed from in English. Let us look at the following contexts for the Kannada perfect participle:

- i. as a complement to *be* in the perfect tenses:

Both the perfect and the progressive tenses are formed with the auxiliary *iru* ‘be’ in Kannada. Compare (16) with (10) above.

- | | | | | |
|------|----|---|----|--|
| (16) | a. | tinn-utt ide
eat-IMPERF be
‘is eating’ | b. | tin-d ide
eat-PERF be
‘has eaten’ |
|------|----|---|----|--|

- ii. in the serial verb construction: compare (11a) with (11b).
 iii. as participial adjunct: Observe that we illustrate here the perfect and negative participles of an *intransitive* verb. We discuss the significance of this below: i.e. to the extent that English has corresponding perfect participles, they are “passive” participles.

- | | | |
|------|----|--|
| (17) | a. | ava u kuṇiy-utta banda u.
‘She came dancing.’ |
| | b. | ava u kuṇi-du banda u.
‘She came danced.’ (She came, having danced.) |
| | c. | ava u kuṇiy-ade banda u.
‘She came undanced.’ (She came without having danced/without dancing.) |

- iv. prenominally, as relative participles:

- | | | |
|------|----|--|
| (18) | a. | kuṇiy-u-va huḍugi ‘the dancing girl’ |
| | b. | kuṇi-d-a huḍugi ‘the danced girl’
(the girl who danced) |

- c. kunij-a-da huɖugi ‘the not-danced girl’
 (the girl who did not/does not dance)

These data suggest that in Kannada, unlike in English, perfect participles incorporate case, and do not need external case-licensing.

There is one well-known context in which English perfect participles do incorporate case: they “absorb” the verb’s case, in the passive. Thus perfect participles found as adjectives in English have a “passive” interpretation:¹²

- (19) cooked rice, washed clothes, (un)read books

But perfect participles of intransitive verbs in English have no such luck; they remain without case incorporation, and so perfectives of intransitives do not usually occur as adjectival participles.

- (20) *the come/ gone year (cf. the coming year; cf. also in the years to come), *the walked man (cf. the walking man)

In Kannada, intransitive perfect participles occur as adjectives or relative participles, as already shown in (17–18) above. Cf. also:

- (21) hooda varṣha (lit. the gone year, i.e. last year)
nadedā manuṣhya (lit. the walked man, i.e. the man who walked)

Again, perfect relative participles of transitive verbs permit both an active and a passive interpretation.

- (22) oodida pustaka the read book
oodada pustaka the unread book
oodida heŋŋu a read girl, i.e. an educated girl
oodada heŋŋu an unread (i.e. uneducated) girl

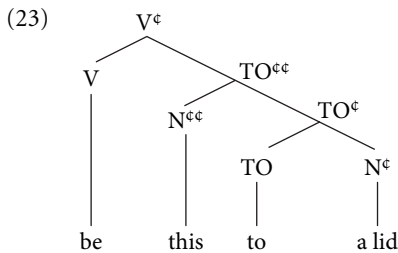
How do these observations about participle case bear on Emonds' observation about serial verb languages lacking PPs? We have suggested that P is a development from V's case. Then P-less languages, we speculate, still have case resident in only V, and crucially, V retains case in its participial forms. The only difference between participle and other verb forms would be their finiteness. (Thus participial forms typically have a negative element different from that which occurs in clauses, in English as in Kannada. In Kannada, the free neg *illa* cannot occur in relative or adjunct participles. In English, *un* and *without* can occur but *not* cannot: *She ran away without* (?not) *dancing, unwashed* (*not washed). When *not* occurs, *have* occurs as its licensor: *She ran away, not having danced, not having washed.*)

12. Compounds such as *well-read*, however, occur in English both actively and passively:
well-read books, well-read people.

The occurrence of attributive, prenominal participles in Kannada is (again) not in conflict with our claim that Kannada does not distinguish A as a category. These privileges of occurrence we have sought to explain not in terms of category change as much as in terms of case-licensing. Given a more sophisticated theory of syntactic categories, we would expect the traditional categories to go the way of construction-types, which have no inherent theoretical significance.

5. Dative experiencer predicates as arguments of nouns

Let us return to the dative experiencer construction. Adopting Jayaseelan's (this volume) configuration for the position of Possessors and Experiencers, we have the following LRS for *There is a lid to this* or its Kannada translation *idakke muccaLa ide*:



The TO-phrase in whose Spec the Experiencer occurs is a case phrase or a PP. This category is allowed to have an “internal subject” in the Hale and Keyser framework. The “forcing of an inner subject” in the LRS, in Hale and Keyser’s terms, is dependent on a category “being a predicate.” Hale and Keyser consider P and A to be predicative, and thus allow the Spec of PP and AP to be occupied in their LRSs; but not the Spec of NP, or VP. (Nouns are not predicative; H&K treat the deverbal noun *laugh* as a product. Recall that N, V, A, P correspond for them to entities, events, states and relations.)

But to say that the Experiencer in (23) is licensed by virtue of the TO phrase is not the entire truth. Let us first observe the marginal existence in English of dative experiencer constructions such as the following, which easily translate into Kannada:

- (24) a. A thought came to him.
 ondu yoochane bantu avan-ige.
 b. Remembrance came to him. A memory came to him.
 gnaapka bantu avan-ige. ondu nenapu bantu avan-ige.

The marginality of the construction in English is evident in (25), which is, however, fine in Kannada:

- (25) ?A/The smell came to him. ??There came to him a smell.
(ondu) vaasane bantu avan-ige.

But the English examples in (25) significantly improve on expanding the noun phrase complement of TO, cf. (26). I.e. (25) improves when the ‘predicative value’ of the noun phrase complement of TO is increased.

- (26) The smell of roses/of fear/of death came to him.
There came to him a smell of roses/of fear/of death.

This suggests that the Experiencer is actually licensed by, or is the “subject of,” the noun phrase in (25–26). Indeed, typically, it is Nouns that seem to license Experiencer datives: cf. *a puzzle to him*, *a bother to me*, *a blow to him* (as in *This has been a blow to him*), *a joy/comfort to us*. This last phrase has a possessive alternant *our joy and comfort*, but the first four examples show that Experiencer datives do not always alternate with possessive arguments of Nouns.

Experiencer dative arguments of nouns alternate, rather, with the subjects of adjectival predicates. Cf.

- (27) He was disappointed/This was a disappointment to him
was shocked a shock to him
was surprised a surprise to him
We were disgraced by him/He was a disgrace to us

We do not often notice the dative experiencer construction in English because it more often than not yields ground to the adjectival construction. But Kannada has no counterpart to the adjectival sentences in (27). This brings us back to the claim we made at the outset: we can now say that a language with few or no adjectives, which depends mainly on nouns to indicate states, will have Experiencer datives. Nouns in Kannada correspond not only to entities but to states.

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Adpositions, particles and the arguments they introduce

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Spatial relations, and certain other relations among entities and events, are expressed in many languages by caseless, tenseless words that grammarians often call prepositions or postpositions (adpositions). In this article I make some general observations about these words and their role in providing thematic content and licensing to DP arguments. I refer generally to adpositions and related complementless particles as members of category P, and compare the category P to V, suggesting that they share some similarities in argument structure, but that the temporal dimension of V distinguishes it fundamentally from P.

1. Introduction*

This article is a bird's eye view of adpositions and related expressions cross-linguistically. I discuss the general properties of the category P in Section 2. In Section 3 I suggest that the internal argument of P is universally a 'Ground,' or location, while the external argument is a 'Figure' or theme of location and motion, and that this pattern is as robust as the principle that Agents or Causers are external arguments of V, while Themes or Patients are internal arguments. The extent to which these generalizations should be extended to non-spatial senses of adpositions is discussed in Section 4.

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In Section 5, I propose that the split-V hypothesis, by which Causers or Agents are introduced by a head (v) distinct from the main V root (Kratzer 1996), should be extended to P. In the Split-P hypothesis, there is a functional head p , analogous to v , which introduces the Figure (Svenonius 2003). The sole argument of P is then the Ground.

However, V has a richer range of possibilities when it comes to the introduction of arguments. I discuss this in Section 5 and propose a connection to tense. Tense, then, turns out to be a crucial property distinguishing P and V; more precisely, I suggest that Tense binds an e variable which is present in all verbs and absent from all adpositions. I compare this defining quality of verbs with that proposed by Baker (2003), namely that verbs have specifiers.

2. P as a universal category

There has been much debate of whether categories like N, V, and A are ‘universal’ or not (see most recently Baker 2003). Usually such discussion revolves around whether all languages manifest those categories or not; if this is a necessary condition for a category being universal, then P may not be universal, as some languages are claimed to lack adpositions entirely (for example, Andrews 1975 on Classical Nahuatl, Holmer 1996 on the Austronesian language Seediq, Amritavalli 2002 on Kannada). However, the striking similarity of adpositional inventories in otherwise very different languages demonstrates that something about the human language acquisition device settles on the same solution for the same problem over and over again. In this sense, adpositions must be a direct reflection of UG (so-called Universal Grammar), even if the category is developed to differing degrees in different languages.

Of course, there is a quantitative difference between a category like P and a category like N or V, as languages have inventories of verbs ranging from the low dozens (e.g. the Australian language Jaminjung, cf. Schultze-Berndt 2000) to the thousands (e.g. English), while prepositional inventories may contain zero members or one (e.g. the Amazonian language Wari’, cf. Everett and Kern 1997) and may never reach very much over a hundred or so (English again scoring high).

The smallness of the category may be an indication that P is a functional category, rather than a lexical one, though that designation depends very much on theory-internal assumptions regarding what it means to be a lexical or a functional category (cf. van Riemsdijk 1978). Given an explicit theory such as those of Marantz (2001) or Borer (2004) in which it is lexical categories which are associated with encyclopedic content, we might assume that P in a language like English must be lexical, since the meanings of certain Ps are so rich and nuanced. On the other hand, Baker (2003) argues at length that P is a functional category, based partly on the

absence, cross-linguistically, of derivational morphology deriving adpositions from other categories, and partly on patterns of incorporation, among other things. I will tentatively assume, with Baker, that P is essentially a functional category, despite its association with encyclopedic information, though the assumption is not crucial in the account laid out here.

2.1 Adposition-like words crosslinguistically

Despite the existence of some adposition-poor languages, the degree to which unrelated languages have similar-looking adpositional inventories is striking. Consider, for example, the following sample, including postpositions (from Lakota, a Siouxan SOV language, and from 'O'dham, an Uto-Aztecan aux-second language) and prepositions (from Persian, an SOV language, and from Chinese, which has mixed order). The lists here are meant to be illustrative, not exhaustive.

- | | |
|---|--|
| <p>(1) a. 'O'dham (Zepeda 1983; Saxton and Saxton 1973)</p> <p><i>am</i> 'at'</p> <p><i>ab</i> 'at, on'</p> <p><i>eda</i> 'in'</p> <p><i>wui</i> 'to, toward'</p> <p><i>we:m</i> 'with'</p> <p><i>we:hejed</i> 'for (benefactive)'</p> <p><i>da:m</i> 'on top of, above'</p> <p><i>we:big</i> 'behind'</p> <p><i>weco</i> 'under'</p> <p><i>hugidan</i> 'next to'</p> <p><i>ba'ic</i> 'in front of (person)'</p> <p><i>ba:so</i> 'in front of (thing)'</p> <p><i>ta:gio</i> 'toward'</p> <p><i>amjed</i> 'about, from'</p> <p><i>sa:gid</i> 'between'</p> | <p>b. Persian (Mace 1962)</p> <p><i>dar</i> 'in'</p> <p><i>bé</i> 'to'</p> <p><i>az</i> 'from'</p> <p><i>bâ</i> 'with'</p> <p><i>bî</i> 'without'</p> <p><i>jöz</i> 'instead of, except'</p> <p><i>barâ-yé</i> 'for'</p> <p><i>tarâf-é</i> 'towards'</p> <p><i>posht-é</i> 'behind'</p> <p><i>dâhkel-é</i> 'inside'</p> <p><i>pîsh-é</i> 'in front of'</p> <p><i>bêin-é</i> 'between'</p> <p><i>bîrûn-é</i> 'outside'</p> <p><i>bedûn-é</i> 'without'</p> <p><i>zîr-é</i> 'under'</p> <p><i>tû-yé</i> 'in, on'</p> |
| <p>(2) a. Lakota (Buechel 1939; Buechel and Manhart 2002)</p> <p><i>ôgna</i> 'in'</p> <p><i>mahél</i> 'in, within'</p> <p><i>ektá</i> 'at, in'</p> <p><i>el</i> 'in, to, unto, on'</p> <p><i>etánhan</i> 'from'</p> <p><i>kicí</i> 'with'</p> <p><i>ob</i> 'with (many)'</p> <p><i>on</i> 'of, with, by means of'</p> | <p>b. Chinese (Li and Thompson 1981)</p> <p><i>zài</i> 'at'</p> <p><i>dào</i> 'to'</p> <p><i>yú</i> 'to, for'</p> <p><i>wǎng</i> 'toward'</p> <p><i>yóu</i> 'from, be up to'</p> <p><i>cóng</i> 'from'</p> <p><i>cháo</i> 'facing'</p> <p><i>chèn</i> 'take advantage of'</p> |

<i>akánl</i> ‘on’	<i>jiù</i> ‘take advantage of’
<i>étkiya</i> ‘towards’	<i>yán</i> ‘along’
<i>ohláteya</i> ‘under, beneath’	<i>guānyu</i> ‘concerning’
<i>agláglá</i> ‘near, at the edge of’	<i>zhìyu</i> ‘with regard to’
<i>kaglá</i> ‘by, near’	<i>jù</i> ‘according to.’
<i>okó</i> ‘between’	<i>gēn</i> ‘with’
<i>ókšan</i> ‘about’	<i>hàn</i> ‘with’
<i>koáktan</i> ‘across, beyond’	<i>hé</i> ‘with’
<i>ópta</i> ‘over, across’	<i>lùn</i> ‘by unit measure’
<i>opáya</i> ‘along’	<i>bèi</i> ‘by’ (passive agent)
<i>égna</i> ‘among’	<i>bǐ</i> ‘as’ (comparative)
<i>ohómni</i> ‘around’	<i>lí</i> ‘apart from’
<i>óhan</i> ‘through’	<i>yòng</i> ‘with’
<i>ohómni</i> ‘around’	<i>wèile</i> ‘for’
<i>akótanhan</i> ‘on the other side of’	<i>gěi</i> ‘for, to’ (benefactive, indirect object)

Furthermore, adpositional systems are often built up compositionally, with explicit distinctions made among source, goal, location, and route, as in the following examples from unrelated languages, both postpositional (Northern Sámi, Finno-Ugric) and prepositional (Zina Kotoko, Chadic).

(3) Northern Sámi (Nickel 1990)

	TO	AT/FROM	ALONG
‘in’	<i>sisá</i>	<i>siste</i>	
‘on’	<i>ala</i>	<i>alde</i>	
‘behind’	<i>duohkai</i>	<i>duohken</i>	<i>duogi</i>
‘under’	<i>vuollai</i>	<i>vuolde</i>	<i>vuoli</i>
‘in front of’	<i>ovdii</i>	<i>ovddas</i>	<i>ovddal</i>
‘beside’	<i>beallai</i>	<i>bealde</i>	<i>beale</i>
‘edge of’	<i>rádjai</i>	<i>rájis</i>	<i>ráji</i>

(4) Zina Kotoko (Holmberg 2002)

	BE AT	TO	HAPPEN AT/FROM
‘in’	<i>a jí</i>	<i>(ná) jí</i>	<i>má jí</i>
‘on’	<i>a gmá</i>	<i>(ná) gmá</i>	<i>má gmá</i>
‘behind’	<i>a lyá</i>	<i>(ná) lyá</i>	<i>má lyá</i>
‘under’	<i>a mwá</i>	<i>(ná) mwá</i>	<i>má mwá</i>
‘near (person)’	<i>a ské</i>	<i>(ná) ské</i>	<i>má ské</i>
‘near (thing)’	<i>a zwa</i>	<i>(ná) zwa</i>	<i>má zwa</i>
‘in front’	<i>a fká</i>	<i>(ná) fká</i>	<i>má fká</i>
‘among’	<i>a lwá</i>	<i>(ná) lwá</i>	<i>má lwá</i>

Also arranged along these lines are ‘local’ case systems, where the adpositional meanings are expressed by suffixes on the noun (examples here from Lezgian,

a Nakho-Daghestanian language; conceivably, these suffixes are phonologically reduced postpositions, in which case they do not constitute a third type).

(5) Lezgian (Haspelmath 1993)

	AT	TO	FROM
'in'	- <i>0</i>	- <i>di</i>	- <i>aj</i>
'on'	- <i>l</i>	- <i>l -di</i>	- <i>l -aj</i>
'at'	- <i>w</i>	- <i>w -di</i>	- <i>w -aj</i>
'behind'	- <i>qh</i>	- <i>qh -di</i>	- <i>qh -aj</i>
'under'	- <i>k</i>	- <i>k -di</i>	- <i>k -aj</i>

As van Riemsdijk and Huybregts (2002) point out, a consistent feature of all such systems is that the determination of Place ('in,' 'under,' etc.) is closer to the DP, or lower in the functional hierarchy, than the expression of Path ('to,' 'from,' 'via'), as in Jackendoff's (1990) conceptual structures; in a prepositional language like Zina Kotoko, the Path element occurs first ('to under the bed'), and in a suffixal language like Lezgian, it occurs last ('bed-under-to'); even in Northern Sámi, this organization can be discerned, as the expression of Path can be understood as an inflection of the Place head (originally a local case inflection on a noun, as in Lezgian) (see also van Riemsdijk 1990, Koopman 2000, Zeller 2001, den Dikken 2003, Svenonius to appear on the extended projection of P).

2.2 Identifying P in different languages

Of course, there is always the hazard when comparing different languages that one is simply seeing categories that one expects to see. What if, for example, the Chinese words identified as prepositions in Section 2.1 are really verbs, or the Northern Sámi words identified in Section 2.1 as postpositions are really nouns, which have been classified as adpositions because they translate English adpositions? What evidence is there that the languages in questions have a distinct *category* P?

Such questions must be answered on a case-by-case basis, using language-internal diagnostics. Below I discuss the Chinese and Northern Sámi examples in turn, but first set the stage with a brief discussion of English.

2.2.1 English

In English, there are various indications that P is a separate category from N, V, and A (see Emonds 1985). For one thing, there are constructions which seem to require a PP, for example the verb *dart*, as in (6), or the 'PP *with* DP' construction in (7).

- (6) a. The bird darted into traffic.
 b. The dog darted after the cat.
 c. The cat darted up the tree.
 d. *The cat darted furtively.

- (7) a. Into the dungeon with those prisoners!
- b. Back to England with those hooligans!
- c. *Shackled with those prisoners!

In addition, there are modifiers, such as *right*, which select P and not other categories (there are dialects in which *right* is used with a broader range of categories, and for which (8d) is grammatical).

- (8) a. right into traffic
- b. right back to England
- c. right up the tree
- d. *right furtively
- e. *right shackled

Prepositions in English differ from verbs in not taking tense or aspect morphology (**overing*, **overed*), though some verbs have been coined from prepositions (*down*, *downed* ‘swallow’); and prepositions differ from nouns in not appearing with plural morphology (**intos*), though again nouns may be coined from prepositions (e.g. *an out* in baseball).

In fact, P appears to be an open class in English, in the sense that new members are being added. Words like *regarding* and *concerning* are now used with prepositional syntax, though they are not spatial and therefore do not appear in the ‘PP with DP’ construction, and do not appear with *right*. To see their special syntactic status it is necessary to compare them more closely to verbs (the following argument is based on one presented in Huddleston and Pullum 2002).

Verbal predicates in English can be used as adjuncts, in Examples like (9). In this use, there is obligatory control of the implicit subject of the adjunct by the most prominent possible controller in the main clause, ordinarily the subject.

- (9) a. Running across the field, Patricia stepped on a mouse.
- b. Aiming at the president, Vera shot a bodyguard.
- c. Following the ambassador, Jane captured a spy.

In the examples in (9), only the subject can be a controller – Patricia must have been running, Vera aiming, and Jane following.¹ If there is no appropriate controller, the adjuncts are impossible.

- (10) a. *Running across the field, the grass was alive with mice.
- b. *Aiming at the president, it was likely there would be an assassin.
- c. *Following the ambassador, the streets were narrow and winding.

1. Setting aside irrelevant constructions in which object-controlled VP-internal material is fronted, e.g. with perception verbs, which may be acceptable for some speakers.

- (i) a. Tanya saw a snake slithering across the field.
- b. Slithering across the field, Tanya saw a snake.

The controller for prepositional phrases, on the other hand, need not be the subject. In fact, PPs often seem to be predicated of the event itself, in a sense (cf. Davidson 1967, Parsons 1990).

- (11) a. Across the field, Natasha could see a band playing.
- b. With the presence of the president, it was likely that there would be assassins.
- c. After the ceremony, wine and cheese were served.

Based on this observation, we can conclude that such words as *regarding*, *owing*, *concerning*, and also *following* (in the sense ‘after’) display prepositional syntax.

- (12) a. Owing to the earthquake, the grass was alive with mice.
- b. Concerning the president, it was likely that there would be assassins.
- c. Following the building boom, the streets were narrow and winding.

Since P does not otherwise appear with verbal aspectual morphology, it seems most likely that these new additions to the category P do not still contain the verbal *-ing* morpheme observed in (9). Possibly, *-ing* has been reanalyzed as a kind of degree head, since prepositions ending in *-ing* do not combine with *right* (**right following the building boom*; cf. *right after the building boom*).

An important lesson from the English case is that words may belong to several different categories, as *down* has been used to coin both noun and verb from its prepositional origins, and *following* is used as a preposition in addition to being a verb. Another is that language-specific tests are necessary to determine category membership.

2.2.2 Chinese

In tenseless serial verb languages like Chinese, it can be difficult to distinguish between verbs and prepositions, so that for example *yòng* in (13) might be analyzed as heading a prepositional phrase ‘with a brush’ or heading a VP in a serial verb construction, ‘use a brush’.²

- (13) Wǒ yòng máobǐ xiě zì.
I use/with brush write character
‘I use a brush to write characters.’ / ‘I write characters with a brush.’

For Chinese, Chao (1968) and Li and Thompson (1974, 1981) have argued for a category of preposition based on differing behavior of certain words, for example the fact that those words resist combination with aspectual particles like *le* and *zhe*.

- (14) Wǒ gěi (*zhe) tā xiě xìn.
I to DUR 3SG write letter
‘I am writing a letter to him/her.’

2. All examples in this subsection are Mandarin Chinese and are taken from Li and Thompson (1981) unless otherwise noted. I have also used Chao (1968), Po-Ching and Rimmington (1997), and Po-Ching and Rimmington (2004) for information.

Ordinary verbs regularly take *zhe*, so *gěi* is different from an ordinary verb, and in a way that causes it to resemble the adpositions of other languages. Since its use and meaning contribution are also similar, Li and Thompson conclude that the category P exists in Chinese though many of its members are ambiguously verbs (they are often referred to as ‘coverbs’). For example, *dào* in (15a) is a verb, because it appears with an aspect marker, but in (15b) the same word functions as a preposition.

- (15) a. Wǒmen dào le Xiānggǎng.
 we arrive PERF Hong.Kong
 ‘We have arrived in Hong Kong.’
 b. Tā dào Lúndān qù le.
 3SG to London go PERF
 ‘He/She has gone to London.’

Just as with English, there are Chinese prepositions with vestigial aspect morphology, for example *wèile* ‘for’ and *chúle* ‘except’, which contain the perfective morpheme *-le* historically, but which no longer have any perfective meaning (Li and Thompson 1981: 362).

An examination of the list of Chinese prepositions in (2c) reveals that many of the spatial relations familiar from English prepositions are absent, for example up, down, behind, below, and so on. In Chinese, these notions tend to be expressed by material following the DP, boldfaced in (16).

- (16) a. Tāmen zài fángzi hòumian xiāli diànshìjī.
 they at house **behind** repair television
 ‘They repair televisions behind their house.’
 b. Wǒ bǎ qiānbǐ chā zài píngzi lǐtōu.
 I BA pencil insert at vase **in**
 ‘I put the pencils in the vase.’

Though they are in some sense nominal, these elements arguably constitute a distinct class of postpositions. They include words for ‘above’ (or ‘top’), ‘below’ (or ‘bottom’), ‘inside’, ‘outside’, ‘in front of’, ‘behind’, ‘left’, ‘right’, and so on (*shàng*, *xià*, *lǐ*, *wài*, *qián*, *hòu*, *zuǒ*-, and *yòu*-, respectively) and often occur with a special set of suffixes (see e.g. Po-Ching and Rimmington 2004: 124ff.). These postpositions apparently form a closer bond with the associated DP than do the prepositions, for example the postposition may incorporate into the verb.

- (17) a. Wǒ fang-le yī-xie shu zai zhuozi-shang.
 I place-PERF one-CLASS book at table-TOP
 ‘I put some books on the table.’
 b. Lǐ Sī ba zheī-ben shu fang-zai-le
 Lǐ Sī BA this-CLASS book place-at-PERF
 zhuozi-shang.
 table-top

‘Li Si put this book on the table.’
(Chinese; Sybesma 1999)³

This means that Chinese order is the inverse of German, which has circumpositions in which the preposition forms a closer bond with the DP than does the postposition (e.g. *[[auf mich] zu]* ‘towards me’, van Riemsdijk 1990). In both cases, the lower element might be called a Place head, the higher one a Path head, but for the exposition here I will continue to refer vaguely to all members of the extended projection of the adposition as P until Section 5.

2.2.3 Northern Sámi

For Northern Sámi, as with many other languages, the issue is that many postpositional elements are at least historically nouns with ‘local’ case-marking.⁴ Sámi has six cases, marked by a complex but regular combination of suffixation, diphthong simplification, and consonant gradation. A few examples of the *i*-stem paradigm are given in (18) (only singular forms are shown).

(18)		‘fish’	‘place’	‘space behind’
	NOM	guolli	sadji	duohki
	ACC	guoli	saji	duogi
	ILL	guollái	sadjái	duohkái
	LOC	guolis	sajis	duogis
	COM	guliin	sajiin	dugiin
	ESS	guollin	sadjin	duohkin

The forms may be compared to the postpositional forms in the chart in (3) in section 2.1; generally, the TO form is originally the illative, the AT/FROM form is occasionally the locative, and the VIA form is the accusative. The local cases illative and locative can be used in expressions of direction, quite generally.

- (19) a. Mun manan vissui.
I go house.ILL
‘I go into the house.’
b. Mun boadán viesus.
I come house.LOC
‘I come out of the house.’

3. I retain Sybesma’s glosses and orthographic conventions here; he represents what I am calling DP-postpositional sequences as N-N compounds, writing *shàng* as *-shang* and glossing it as ‘top’; Li and Thompson (1981) generally gloss it as ‘on.’

4. All examples in this subsection are Northern Sámi and are from Nickel (1990) unless otherwise noted. I have also used Sammallahti (1998) and other materials. Thanks very much to Berit Anne Bals, Marit Julien, and Kristine Bentzen for discussion.

The accusative form can be used as a genitive attribute (as in (20a)), and can also be used to express paths (20b).⁵

- (20) a. Áhči biila lea alit.
father.ACC car is blue
'Father's car is blue.'
- b. Máret bodii dán geainnu.
Marit came this.ACC way.ACC
'Marit came this way.'

Thus, the following examples might be interpreted as involving nouns, rather than postpositions, as suggested by the glosses and translations here.

- (21) a. Heasta ruohtai viesu duohkai.
horse ran house.ACC space.behind.ILL
'The horse ran to the space in back of the house.'
- b. Dat ruohtai viesu duogi.
it ran house.ACC space.behind.ACC
'It ran along the space in back of the house.'

Alternatively, we could identify *duohkai* and *duogi* as postpositions, as suggested by the glosses and translations below.

- (22) a. Heasta ruohtai viesu duohkai.
horse ran house.ACC to.behind
'The horse ran (to) behind the house.'
- b. Dat ruohtai viesu duogi.
it ran house.ACC via.behind
'It ran (along) behind the house.'

There are several indications that the latter analysis is more correct than the former. For one thing, there are phonological differences; compare the postpositional *vuolde* 'at or from beneath,' illustrated in (23b), with the nominal forms in the case table in (18) (see Sammallahti 1998: 67 for remarks on the historical development of *vuolde*).⁶

5. Sámi grammars such as Nickel (1990) regularly identify this morphological form as accusative/genitive, and distinguish between 'accusative' uses and 'genitive' uses. Since there is never any morphological difference, I call both sets of uses accusative.

6. In my examples I have also preserved from Nickel (1990) an orthographic distinction between the postpositional forms *vuollai* and *duohkai* and the illative case forms *vuollái* and *duohkái*, though speakers I have consulted do not pronounce them differently; possibly because the true nominal forms with long vowels are archaic, see below.

- (23) a. Bija daid beavddi vuollai!
put those table.ACC to.under
‘Put those under the table!’
b. Dat lea beavddi vuolde.
it is table.ACC at.under
‘It is under the table.’
c. Johka golgá eatnan vuoli muhtun saji.
river runs earth.ACC via.under some places

Another indication that the postpositions are no longer nouns is that their meanings have diverged. For example, *vuolli* does not generally appear as a noun in modern Northern Sámi, except in compounds, or with the specialized meaning ‘lower part of a river’.

Furthermore, many of the adpositions have acquired meanings that the corresponding nouns do not have, for example *duohkai* also has the meaning ‘in [someone’s] control’, for example of money or authority.

- (24) a. Váldde daid ruđaid duohká-sat.
take those monies to.behind-2SG.POSS
‘Take the money into your possession (for safekeeping).’
b. Dat čievččastadje buot hoavdda duohkai.
they kicked everything boss to.behind
‘They left it up to the boss to decide everything.’

Syntactic evidence can be brought to bear as well, for example postpositions cannot be modified by adjectives, in contrast to nouns.

- (25) a. Dat ruohtai viesu (*sevdnjes) duohkai.
it ran house dark to.behind
‘It ran (*dark) behind the house.’
(Northern Sámi; thanks to Marit Julien)

The grammaticization from noun to adposition is a common one, and is the source of some adpositional elements in English, including *instead of*, from old noun *stead* meaning ‘place’. A perfectly parallel example can be observed in Northern Sámi as well, as *sadji* ‘place’, used literally as a noun in (23c), has come to mean ‘instead’ when used as a postposition, as illustrated in (26).

The example also provides a minimal pair, since an adjective disambiguates the postpositional from the nominal meaning.

- (26) a. Don čohkkát mu sajis.
you sit me place.LOC/at.place
‘You’re sitting in my place.’ or ‘You’re sitting instead of me.’
b. Don čohkkát mu dábálaš sajis
you sit me usual place.LOC

‘You’re sitting in my usual place.’
 (Northern Sámi; thanks to Berit Anne Bals)

The verb *čohkkát* would most naturally be interpreted in the second reading in (26a) as, for example, sitting on a committee.

Thus, on the basis of general conventionalized use, distinct semantic meanings, divergent syntactic properties, and special morphological forms, we can distinguish a class of Northern Sámi adpositions which are distinct from nouns, even though the nominal local case marking system remains relatively transparent on many of these postpositions (in addition, nominal possessive marking remains compatible with some adpositions, as seen in Example (24a)).

2.3 Cross-linguistic generalizations

Thus, we find that many unrelated languages have a set of words for spatial relations with syntactic properties distinct from those of nouns or verbs, and so we can tentatively identify these words as belonging to a category P. To claim that the category P has some cross-linguistic substance, we must show that some features are shared across languages. Some typical properties of these adpositions are listed in (27), and discussed in turn.

- (27) Typical properties of adpositions
- a. Express binary relations between entities (including events)
 - b. Form a syntactic constituent with a DP complement
 - c. C-select properties of the complement
 - d. S-select properties of the complement
 - e. Project XPs which function as predicate or sentential adjuncts
 - f. Do not combine with tense or aspect morphology

Quality (27a) can be observed in the examples given in Section 2.1 of adpositions from Lakota, Persian, ‘O’odham, and Chinese, many of which are fundamentally spatial. Non-spatial examples can often be seen as metaphorical extensions of spatial meanings, for example *in my opinion*, *in time*, *in mind*, and so on (cf. Section 4 below). Other non-spatial adpositions express causal or topical relations, for example *regarding*, *despite*, and so on, in which the complement is often a reason, topic, or other cognitively prominent factor for which P expresses a relation to the event or proposition.

There is a significant class of uses of P which do not clearly express a meaningful relation; primary among these in English is *of*, which is often taken to be a case marker. I return to these grammatical prepositions in Section 4.

Quality (27b) is independent of (27a), since even grammatical uses of P form constituents with their DP complements; this can be seen using language-specific displacement tests. For example, in ‘O’odham, the auxiliary must appear in second

position, so the fact that a DP-P sequence can appear before the auxiliary is evidence that DP and P form a constituent.⁷

- (28) a. Kegcid 'o g nalaş g 'ali we:hejed g Husi.
clean AUX the orange the child for the Joe
'Joe is cleaning the orange for the child.'
- b. 'ali we:hejed kegcid 'o g nalaş g Husi.
child for clean AUX the orange the Joe
'Joe is cleaning the orange for the child.'
- (O'odham; Zepeda 1983)

C-selection is the determination of syntactic conditions on a dependent. C-selection can be argued to hold only between a head and its complement, not a head and its specifiers or adjuncts (Svenonius 1994). For example, a verb may determine idiosyncratic case on its internal arguments, but not its external arguments.⁸ Similarly, a verb may determine that its internal arguments appear with a particular preposition, or that its clausal complements are finite or non-finite, but an individual verb can never make such demands on its external arguments or adjuncts. So it is with adpositions. Adpositions quite commonly determine the case of a complement, for example in the Russian and Icelandic examples in (29). There seems to be a certain degree of arbitrariness here; for example, 'out of' patterns with 'without' in Russian, against 'towards', but in Icelandic 'out of' patterns with 'towards' and against 'without'.

- | | | | | |
|------|------------------------|-----------|------------------------|---------|
| (29) | Russian | | Icelandic | |
| | <i>k</i> 'towards' | DAT | <i>mót</i> 'towards' | DAT |
| | <i>iz</i> 'out of' | GEN | <i>úr</i> 'out of' | DAT |
| | <i>pod</i> 'under' | INSTR/ACC | <i>undir</i> 'under' | DAT/ACC |
| | <i>meždu</i> 'between' | INSTR | <i>milli</i> 'between' | GEN |
| | <i>bez</i> 'without' | GEN | <i>án</i> 'without' | GEN |

Adpositions can also determine the category of a complement, following Emonds (1985), for example *during* takes a DP, but not a TP, whereas *while* takes a TP (or perhaps a CP), but not a DP (this is one kind of deviation from tendency (27b)).

- (30) a. during the play
b. *during you slept

7. The omission of the determiner *g* from the fronted PP is a systematic fact of O'odham syntax.

8. This requires a few qualifications. Icelandic is famous for its quirky subjects, but quirky subjects are virtually always experiencers (Jónsson 2003) or internal arguments promoted to subject position (Sigurðsson 1989). I assume that dative experiencers are dative-marked systematically, rather than by lexical stipulation. Similarly, many languages have ergative case-marking on external arguments, but this not determined verb-by-verb but for a class of constructions, thus is not a matter of c-selection by individual verbs.

- c. *while the play
- d. while you slept

The selection by some English prepositions of *of* may be understood in either of these two ways: either *in* takes objective case while *out* takes the so-called *of*-genitive, so that (31) illustrates c-selection for case, or else *in* takes a DP complement while *out* takes a PP, so that (31) illustrates c-selection for category.

- (31) a. in the house
 b. *in of the house
 c. *out the house
 d. out of the house

In sum, P typically c-selects its complement, but this can only be demonstrated using language-specific diagnostics of c-selection.

Quality (27d) is the s-selection by P for its complement. S-selection is semantic selection, and is usually understood to hold of all the arguments of a head, not just its complements; for example, a verb may not determine the category of its subject (c-selection), but may determine that the subject be animate (s-selection). In this context I am interested in the s-selection by P for its complement; s-selection frequently surfaces in the form of presuppositions. For example, *in* presupposes that its complement be a container, and is infelicitous when the complement is not container-like. Being a presupposition, the requirement is preserved under negation (#*The cat sat in the mat* is odd in the same way as #*The cat didn't sit in the mat*). Similarly, *among* takes a complement which is complex, *between* takes a complement which consists of two parts, *inside* takes a complement which has 'sides,' and so on (see Svenonius 2006).

Patterns may be discerned cross-linguistically regarding what sorts of qualities of the complement are s-selected by an adposition; mainly they have to do with shape, as with *between* and so on, or with composition, such as being water, or earth, and so on, or animacy, as in the Zina Kotoko words for 'near' (see (4)) or in the 'O'odham example here, where *ba:šo* can only be used with non-humans, and *ba'ic* is used with humans.

- (32) a. 'am ki: ba:šo
 there house in.front.of
 'in front of the house'
 b. 'am Mali:ya ba'ic
 there Maria in.front.of
 'in front of Maria'
 ('O'odham; Zepeda 1983)

Quality (27e) is the property of projecting an XP constituent (i.e. a PP) which functions as a predicate adjunct. In fact, it is cross-linguistically typical of PPs that they form adjuncts (as well as complements) to projections of both verbs and nouns (cf. van Riemsdijk 1998). In this they contrast with DPs and VPs, which do not so freely form adjuncts.

Finally, we turn to quality (27f), namely the quality that adpositions do not combine with tense or aspect morphology. This might be universal, but on the other hand it might simply be definitional; if an element combines with tense or aspect morphology, we call it a verb. This has been illustrated above with Chinese. Still, I believe it to be a significant generalization, and return to it in Section 5.

3. Figure and Ground

3.1 Adposition and Ground

I discussed in Section 2.2 the fact that P often forms a constituent with a DP, whose properties it controls by c-selection and s-selection in a way reminiscent of verbs and their complements. I did not, however, discuss the thematic character of the complement, which turns out to be strikingly limited.

Most, and probably all, spatial adpositions can be characterized as asymmetric relations between a Figure and a Ground, following Talmy (1978, 2000a). The Figure is the entity, object, or substance which is located or in motion, and the Ground is the location, object, or substance with respect to which the Figure is located.

(33) Talmy (2000a: 312)

The Figure is a moving or conceptually movable entity whose path, site, or orientation is conceived as a variable, the particular value of which is the relevant issue.

The Ground is a reference entity, one that has a stationary setting relative to a reference frame, with respect to which the Figure's path, site, or orientation is characterized.

In the following examples, the complement of the preposition is always the Ground, while the Figure is expressed by the direct object of the verb.

- (34) a. Max stuck his finger in his nose.
 b. We couldn't fish the frog out of the punch.
 c. The kids put decorations on the tree.
 d. The monkey pulled burrs from the sheep's fleece.
 e. The sheep chased the cat up a tree.
 f. We dropped a body down the well.

This pattern is not accidental; it is strikingly robust cross-linguistically. There are no reverse Ground-Figure adpositions. For example, there are no prepositions which would make it possible to describe the situations referred to in (34) with the Ground as the object of the verb, and the Figure as the complement of the preposition, as illustrated in (35) (all of these sentences are grammatical, but cannot be used to describe the corresponding situations in (34)).

- (35) a. #Max stuck his nose around his finger.
 b. #We couldn't fish the punch without the frog.
 c. #The kids put the tree among decorations.
 d. #The monkey pulled the sheep's fleece from burrs.
 e. #The sheep chased a tree under the cat.
 f. #We dropped the well above a body.

Of course, there are situations which can be described with either of two entities cast in each of the roles, for example when both entities can equally easily be seen as providing a location for the other.

- (36) a. The bridge is above the river.
 b. The river is below the bridge.

But there is a clear difference in the way the situation is framed in these two examples. Changing the example so that the arguments are more asymmetric in our model of the world nearly forces the asymmetry to be reflected linguistically (see Talmy 2000a for extensive discussion).

- (37) a. The mosquito is above your left ear.
 b. #Your left ear is below the mosquito.

I propose, therefore, the following condition on complements of P.

- (38) P never introduces a Figure complement

The cognitive grammar literature regularly notices the Figure-Ground asymmetry for adpositions, at least implicitly, but tends to treat it as a tendency (see for example the papers in Zelinsky-Wibbelt 1993), as does the cognitive science literature (e.g. Landau and Jackendoff 1993: 224 call the Figure-Ground orientation "the canonical form" for prepositional constructions). There are certainly cases in which an object in motion is referred to by a prepositional complement, for example in the famous spray-load alternations.⁹

- (39) a. We sprayed tomato juice on the dog.
 b. We sprayed the dog with tomato juice.
 c. We loaded seal meat onto the sled.
 d. We loaded the sled with seal meat.

9. Talmy (2000a: 333ff.), too, observes that the complement of P is usually a Ground, but argues specifically that *with* and *of* introduce Figures, contra (38), in examples like the following.

- (i) a. The room slowly filled with smoke.
 b. I slowly drained the fuel tank of gasoline.

I discuss *with* here; *of* is briefly discussed in §4.

Certainly, in (39a), *tomato juice* is the Figure and *the dog* is the Ground, by (33). Since (40b) can be used to describe the same scene, it would appear that *with* there introduces a Figure, contradicting (38). However, any Figure-like entailments do not come from *with*, which can introduce instruments, manners, accoutrements, or other accompaniments.

- (40) a. We sprayed the dog with a fire extinguisher.
- b. We sprayed the dog with glee.
- c. We sprayed the dog with raincoats to protect us from spatter.
- d. We sprayed the dog with an audience of boyscouts.

Analogous comments apply to (39d). In contrast, *on* in (39a) (and *onto* in (39c)) introduce a Ground specifically. This is true even in locative and temporal cases like those in (41a) and (41b), and arguably even in abstract cases like that in (41c).

- (41) a. We sprayed tomato juice on the lawn.
- b. We sprayed tomato juice on Labor Day.
- c. We sprayed tomato juice on the grounds that it would make the dog smell good.

This is true regardless of the verb; notice that the possibility of interpreting the complement of *with* as being in motion in (39b) and (39d) is very much dependent on the verb; that reading does not arise with different kinds of verbs.

- (42) a. We left the dog with tomato juice.
- b. We pampered the dog with tomato juice.
- c. We advertised the dog with tomato juice.
- d. We fattened the dog with tomato juice.

Though it seems safe to conclude that *with* is not the inverse Ground-Figure counterpart of *on*, this does not completely resolve the odd status of *with*, which does give rise to apparent Ground-Figure inversions in expressions like *a pot with a lid*. Harley (1995) discusses the similarity of *with* to the verb *have*; if Kayne's (1993) decomposition of *have* (into *be* combined with *to*) could be extended to *with*, then it might be that *a lid* in that expression is in fact a Figure, but a Figure of an abstract version of *to* embedded under *with*, as suggested in the following examples (compare Amritavalli's (this volume) discussion of examples like (43a) and (44a)).

- (43) a. There is a lid to the pot.
- b. We fit a lid to the pot.
- c. BE [a lid [TO the pot]]
- (44) a. The pot has a lid.
- b. We fit the pot with a lid.
- c. the pot TO-BE [a lid [t_{TO} $t_{the\ pot}$]]

This is consistent with the fact that *with* appears with small clauses more generally (*With Laura dead, the cops will be looking for us*). Consider also that the apparent Figure-Ground reversal in *a pot with a lid* allows an overt *to*-phrase in *a pot with a lid to it*.

Thus, despite an apparent challenge from *with*, it seems that (45) can be maintained, certainly for clearly spatial P.

- (45) The complement of (spatial) P is a Ground

I suggest a stronger version of (38) and (45) in Section 4.

3.2 Particles

Having established a strong correlation between the syntactic complement of P and an interpretation as a Ground, in this section I discuss the other argument of P, namely the Figure. I focus on particles, since they frequently introduce Figures, but hasten to point out that the correlation between Figure (according to Talmy's definition) and Particle (according to Emonds' definition) is not one-to-one. Adpositions introduce Figures as well, most clearly in constructions like *sneeze the napkin off the table*, where *off* is not a particle but a preposition. Furthermore, particles may introduce Grounds, as I discussed in Svenonius (2003) (i.e. there are 'unaccusative' particles, in expressions like *fill the hole in*). However, in the simplest case, the single overt DP argument of a particle is a Figure.

Particles share with adpositions all the characteristics which do not specifically refer to complements, namely they typically express relations (27a), though with an abstract or implicit Ground, they project PPs which adjoin to various categories (27e), and they do not combine with tense or aspect morphology (27f). Other similarities (and differences) are discussed in Sections 3.2.1–3.2.3.

3.2.1 Particle and category

Particles, like English *up*, *down*, *off*, *out*, *away* and so on, though often called adverbs in traditional grammars, are simply adpositions without complements (following Emonds 1972), as indicated by the distributional tests that I reviewed in Section 2.2; for example, particles may be complements to verbs like *dart*, may appear in the 'PP *with* DP' construction, and may be modified by *right*.

- (46) a. The cat darted out.
b. Off with his head!
c. They came right down.

Particle is then not a distinct category, but a kind of P with a particular c-selectional frame. A given P may be a particle always (like *upstairs*) or sometimes (like *up*) or never (like *at*), depending on its own lexical properties.

Many of the world's languages have words that translate into or approximate English particles.

- (47) a. Péter nem olvastz óket fel.
 Peter not read them up
 'Peter didn't read them out.'
 (Hungarian, É. Kiss 2002: 57)
- b. Phúcè vā thŋ lò né hi.
 child throw up stone at house
 'The child threw stones up at the house.'
 (Eastern Kayah Li; Solnit 1997: 168)
- c. P'anśá kiŋ hékta-wap'a-taŋhaŋ ékigle yo.
 suitcase the back-nearby-from put IMPERATIVE
 'Put your suitcase in the back.'
 (Lakota, Buechel 1939: 194)

It is not always clear that these elements belong to the same category as the adpositions of the individual languages in question. In Hungarian, there is substantial overlap between the postpositional class and the class of particles or 'co-verbs' (see É. Kiss 2002, Rounds 2001), and the abstract meanings that they take on in conjunction with verbs underscore their resemblance to English particles. Eastern Kayah Li, a Tibeto-Burman language, raises questions similar to those surrounding the Chinese examples, as most of the particle-like words also occur as verbs (Solnit glosses *thŋ* as 'ascend'). The Lakota example shown here is complex, arguably a PP including an incorporated noun *hekta* 'that which is behind' (gloss based partly on Buechel 1939 and partly on Buechel and Manhart 2002).

In other cases the category of particles is more clearly P. In Scottish Gaelic and Malay, for example, the same elements which appear as prepositions can also sometimes appear without DP complements in constructions very similar to the Germanic verb-particle construction (on Scottish Gaelic see also Ramchand and Svenonius 2002).

- (48) a. Chuir mi an coire air a'bhord.
 put I the kettle on the.table
 'I put the kettle on the table.'
- b. Chuir mi an coire air.
 put I the kettle on
 'I put the kettle on'
 (Scottish Gaelic; thanks to Gillian Ramchand)
- (49) a. Ahmad membawa lampu itu ke bawah tangga.
 Ahmad brought lamp the to down stairs
 'Ahmad brought the lamp downstairs.'

- b. Ahmad membawa lampu itu ke bawah.
 Ahmad brought lamp the to down
 ‘Ahmad brought the lamp down’
 (Malay; (48a) thanks to Fahiza bt Basir, (48b) from Salleh 1992)

Frequently, particles and adpositions are distinct; for example where English has simply *in*, Norwegian has *inn* as a particle and *i* as a preposition (cf. German *ein* and *in*). In the extreme, one might find fully distinct classes of particles and adpositions, though they might still both be subtypes of a category P. If a language had no cases of ambiguously transitive or intransitive verbs, we could still identify a category of verb including both the intransitive and transitive members.

Chinese may be closer to the extreme case, as its prepositions almost invariably require overt complements, while there are other elements which might be identified as particles (e.g. *jìn* ‘in’ and *chā* ‘out’, often combined with direction indicators *lái* and *qù*; see e.g. Po-Ching and Rimmington 2004: 131ff.). One property that Chinese particles share with prepositions is the possibility of incorporation. Compare (50b) below with (17b) in Section 2.2.2 above.

- (50) a. Fúwùyuán tí le yā zhā xiāngzi jìn-lai.
 attendant bring PERF one CLASS trunk into-come
 ‘The attendant brought a trunk in.’
 b. Fúwùyuán tí jìn-lai le yā zhā xiāngzi.
 attendant bring into-come PERF one CLASS trunk
 ‘The attendant brought in a trunk.’
 (Chinese; Po-Ching and Rimmington 2004)

A few of these particles are identical to postpositions (at least *shàng* ‘up’ and *xià* ‘down’). A fuller investigation of Chinese particles and their relationship to the category P is unfortunately beyond the scope of this study; note, however, that deictic elements similar to Chinese *lái* ‘toward the speaker’ and *qù* ‘away from the speaker’ are very commonly integrated into adpositional systems cross-linguistically.

3.2.2 *Particles and constituency*

I claimed in Section 3.1 that P never introduces a Figure complement, but here in Section 3.2 I have been discussing the introduction of Figures by P elements. It is important, therefore, to show that such Figures are not the complements of P. One indication of this is the looser constituency observed between P and its Figure argument, compared with P and the Ground.

Of course, a particle may form a constituent with its sole argument, as any predicate might, as illustrated in the series of small clauses in (51).

- (51) jo un da jing dat kladderdaatsch,
well and then went that crash-bang
Heck **op**, Klaus **eren**, Heck **zo**, Auto **fott**
hedge **open** Klaus **inside** hedge **closed** car away
‘Well and then it went crash-bang; hedge open, Klaus inside, hedge closed, car gone.’
(Cologne dialect of German; Bhatt and Lindlar 1998)

However, such constituents do not match the tight bond formed between P and its complement. This can be seen, for example, in the relative freedom of placement of a Figure with respect to P. Most languages can be said to prohibit adposition stranding, or to allow it only under very narrow circumstances, but this does not apply to Figure arguments.

For example, many languages are like Chinese (cf. (50)) in allowing a Figure argument to alternate in order with a particle, as illustrated here (compare the word order here with (48b) and (49b) in the previous subsection).

- (52) Chuir mi **air** an coire.
put I **on** the kettle
‘I put the kettle on.’
(Scottish Gaelic; thanks to Gillian Ramchand)
- (53) Ahmad membawa **ke bawah** lampu itu.
Ahmad brought **to down** lamp the
‘Ahmad brought the lamp down’ (Malay; Salleh 1992)

Reordering of P and Ground are not unknown, for example ‘O’odham allows it (Zepeda 1983), and Finnish has a few adpositions which allow either order, such as that in (54a), but far more common are rigid pre- and post-positions, as illustrated in (54b).

- (54) a. seinää **päin** **päin** seinää
wall **into** **into** wall
‘into the wall’ ‘into the wall’
- b. talon **edessä** **??edessä** talon
house **in.front.of** **in.front.of** house
‘in front of the house’ (Finnish; Manninen 2003)

The rigid ordering which is typical of P and its Ground argument contrasts with the looser relation between P and its Figure argument; the particle shift pattern seen in (52–53) is common, though there is great variation (even among closely related languages; Icelandic and Norwegian have English-like particle shift, while Swedish and Danish do not, cf. Taraldsen 1983, Svenonius 1996a,b).

3.2.3 *Particles and c-selection*

Recall from Section 3.1 that P exerts c-selectional restrictions on its Ground. The same P does not also exert c-selectional restrictions on its Figure. For example,

though the case of a Ground DP complement is quite commonly determined by the selecting P, the case of the Figure arguably never is. In Icelandic, verbs commonly c-select for dative or accusative complements.

- (55) a. Við erum að bera blöð.
 we are at carry newspapers.ACC
 ‘We are carrying newspapers.’
 b. Hann fylgdi mér á stoppistöðina.
 he followed me.DAT to the.bus.stop
 ‘He accompanied me to the bus stop.’ (Icelandic)

The case determined by the verb tends to be preserved in verb-particle constructions, in the great majority of examples, irrespective of particle shift.¹⁰

- (56) a. Við erum að bera blöð út.
 we are at carry newspapers.ACC out
 ‘We are delivering newspapers.’
 b. Við erum að bera út blöð.
 we are at carry out newspapers.ACC
 ‘We are delivering newspapers.’ (Icelandic)
- (57) a. Hann fylgdi málinu fram.
 he followed the.goal.DAT forth
 ‘He pursued the goal.’
 b. Hann fylgdi fram málinu.
 he followed forth the.goal.DAT
 ‘He pursued the goal.’ (Icelandic)

Case assignment in Icelandic is sensitive to Aktionsart (Svenonius 2002); since particles can change the Aktionsart of the verb phrase they appear in, it is to be expected that there are examples in Icelandic where the verb and particle together assign a different case from that of the verb by itself.

- (58) a. Ég lokaði dyrunum.
 I shut the.doors.DAT
 ‘I shut the door.’
 b. Ég lokaði hundinn inni.
 I shut the.dog.ACC inside
 ‘I shut the dog inside.’ (Icelandic)

10. To the extent that *út* and *fram* are used as prepositions, it is with the accusative: *út dalinn*, ‘down the valley, *fram dalinn* ‘up the valley,’ though far more common are PP complements, *fram á nes* ‘out onto [the] point,’ *út um gluggann* ‘out of the window.’ Interactions of case and particles in Icelandic are discussed more fully in Svenonius (2001).

However, the particle never determines the case of the Figure all by itself, the way a preposition may idiosyncratically determine a particular case on its DP Ground complement.¹¹

The lack of c-selectional influence by the particle on the Figure can also be illustrated in English, in terms of category. Recall from Section 2.2 (in particular Example (30) there) that P may determine whether its complement is DP, PP, TP, or whether there is no complement at all. In contrast, no P can exert such influence over its Figure. As Figures are subjectlike, they are usually DP, but they may be CP, as illustrated in (59).

- (59) a. We figured out that the answer was five.
b. We shouted out that the answer was four.

These are clearly particle verbs with a metaphorically extended Figure-Ground semantics (*We figured out the answer* means ‘we figured, such that the answer became “out”, i.e. known’). However, there are no particle verbs which *require* a CP Figure, nor are there particle verbs that forbid them, except insofar as their meanings are incompatible with the propositional content expressed by a CP, which brings us to the question of s-selection.

3.2.4 *Particles and s-selection*

As I mentioned in Section 2.2, though a verb cannot c-select properties of its subject, it may place s-selectional restrictions on the subject. This can be seen by comparing, for example, the senses of *run* which are possible with animate and inanimate subjects.

- (60) a. George ran. (= ‘moved quickly on legs’)
b. The refrigerator ran. (= ‘functioned, as an appliance’)

The word *run* cannot be used to express that an animate being is functioning normally, nor to express that an appliance moves quickly on its legs (not even, for example, if it bounced out of the back of a moving truck). Of course, if we refer to a person as if he or she were inanimate, then the ‘functioning’ meaning becomes available, and if we tell a story in which a machine is animate, then the ‘move quickly’ meaning is possible.

11. Maling (2001) notes a number of dative-taking particle verbs in Icelandic with the particle *saman* ‘together.’ This bears investigating as it looks like a counterexample to my claim that the particle cannot c-select a particular case on a Figure argument. I will assume, in the meantime, that the dative there is the result of *saman* having a systematic effect on the Aktionsart of the verb phrases it enters.

- (61) a. George's body seems to be running smoothly, but his mind keeps malfunctioning.
 b. With a wave of his wand, the wizard soon had the refrigerator running around the kitchen, playing a pick-up game of touch football with the other appliances.

Particles make the same kinds of distinctions among their Figures.

- (62) a. Jacob is away. (= 'out of town')
 b. Monica is over. (= 'visiting')

These meanings are not possible with inanimate subjects, except insofar as inanimates can be anthropomorphized or otherwise understood as animate. For example, if a book has been lent through interlibrary loan, it is not natural to describe the situation at the lending library by saying that the book is *away*, nor at the borrowing library that the book is *over*. Full PPs may be used, in which case the idiomatic meaning of the particle is not invoked (*the book is away from Tromsø at the moment; the book is over here*).

In general, it seems that the degree of influence that P has over its Figure, when that is expressed as a DP, is similar to the degree of influence a verb has over its external argument. There are, perhaps, better examples of s-selection in the verbal domain, for example the verb *straddle* requires a bifurcate Figure (*Budapest straddles the Danube*), and although *between* requires a bifurcate Ground, I do not know of an adposition which places that sort of shape constraint on its Figure (cf. Landau and Jackendoff's 1993: 226 imaginary preposition *betwaft*). As Talmy (2000a: 315–316) puts it, the Figure is typically treated as "pointlike". However, this might simply be due to the richer inventory of verbs as opposed to prepositions. I return to the s-selectional question in Section 5.

4. Non-spatial P

I have concentrated so far on spatial P, though non-spatial examples have come up at several points. A few remarks specifically about non-spatial P are in order.

4.1 Metaphorical extensions of spatial P

Some languages have a great assortment of non-spatial adpositions. Many of them can be understood as straightforward metaphorical extensions of spatial P, so that the Figure-Ground dichotomy can be applied.

Talmy (2000a) argues at length that clause-taking P in English (what traditional grammars call 'subordinating conjunctions'; cf. Huddleston and Pullum 2002 for

discussion) like *because*, *despite*, *while* and so on take Ground complements, essentially as sketched in (63) (cf. Talmy 2000a, Ch. 6).

- (63) a. [_{Figure} I took care] in [_{Ground} drying the cups]
b. [_{Figure} She went home] after [_{Ground} stopping at the store]
c. [_{Figure} They stayed home] because [_{Ground} they were feeling tired]

To take another example, there are a number of P elements which seem to introduce experiencers, including in English benefactive *for*, malefactive *on*, and a perceptual experiential *to*.

- (64) a. She lied for him.
b. My car broke down on me.
c. To most people, this is just an ordinary cookie.

Possibly, P in (64) assigns a role distinct from Ground, that of Experiencer, which is compatible with the weaker statement made in Section 3.1, (38) (P never introduces a Figure), but gives up the stronger Statement (45) (P always introduces a Ground).

It is possible to imagine that the experiencer in each of these cases is a Ground in some extended sense of the term; to put it in Talmy's terms (cf. (33) in Section 3.1) would require, for example, the event of lying in (64a) to be a "conceptually movable entity" which is "oriented" relative to the complement of the preposition.

Similar extensions of spatial relations have been pursued at length in the cognitive grammar literature. There is no space here to detail those discussions, far less to resolve the issues, though obviously the temptation is to strengthen the generalizations made in Section 3.1 to something like (65).

- (65) a. The internal argument of P is a Ground.
b. The external argument of P is a Figure.

The danger in such an approach is that it becomes more difficult to maintain the strong predictive character of the generalizations. I will leave (65) as an hypothesis, rather than a conclusion, and turn to a brief discussion of so-called grammatical P.

4.2 Grammatical P

In Section 3.1, I briefly discussed spray-load *with* and argued that rather than introducing a Figure complement, it introduced a DP whose interpretation came from other aspects of the structure. In this it can be compared to passive *by*; whether the complement of *by* is interpreted as an agent, a causer, an instrument, an experiencer, or a location is dependent on the verb, suggesting that the preposition does not actually assign these thematic roles.

- (66) a. Lila was investigated by the CIA.
 b. The window was broken by the storm.
 c. This bread can't be cut by an ordinary knife.
 d. This movie is liked by Tolkien fans.
 e. The house is surrounded by trees.

One way to deal with adpositions of this type is to suppose that the DP in question is not originally a complement of the adposition but is an argument of the verb, with the adposition being introduced separately (cf. Kayne 2004, Cinque 2002, Collins 2004, where certain Ps are introduced outside VP; or Pesetsky and Torrego 2004, in which certain Ps are introduced inside DP).

These might be characterized as case-assigning or functional prepositions. The clearest case might be the complementizer and preposition *for*, which is standardly assumed (since Rosenbaum 1968 and Bresnan 1970) not to take the DP following it as a complement, in constructions like the following.

- (67) a. They hoped for the French cyclist to win.
 b. They demanded for Kjell Magne to be examined by a specialist.
 c. They arranged for there to be more sensational pictures.

The diagnostics applied in Emonds (1985) to identify the category P do not generally help in identifying such grammatical prepositions as members of the same category as the more contentful spatial prepositions. It hardly makes sense to ask if a grammatical preposition can head the complement of *dart* or appear in the 'DP with PP' construction. As for modification by words like *right*, this generally fails when a PP is of the 'grammatical' sort discussed here.

- (68) a. We filled the bucket (*right) with fish.
 b. Polly was investigated (*right) by the CIA.
 c. They hoped (*right) for the French cyclist to win.

The separation of P into functional and lexical types has been proposed many times (for example Bresnan 1982, van Riemsdijk 1990, Starke 1993, Yadoff 1999, van Eynde 2004). However, even the most lexical members are somehow 'less lexical' than the clear lexical categories N and A. A likely scenario is that rather fine distinctions will ultimately have to be made among different subsorts of P, with generalizations like (65) only being relevant for the most contentful ones. At the extreme end of the scale, formatives with no descriptive content whatsoever may cease to be adpositions altogether and become case markers.

4.3 Case markers

The English preposition *of* is often characterized as a case-marker, rather than a true preposition, for example when it marks the complements of nominals. In many

languages, it can be difficult to distinguish case markers from adpositions. Here I take a specific example, that of Spanish, in which it can be argued that what was historically an adposition has developed into a case marker.

- (69) a. Ana levantó a un niño.
 Ana lifted to a child
 'Ana lifted a child.'
- b. El soldado emborrachó a varios colegas.
 the soldier made.drunk to several friends
 'The soldier got several friends drunk.'
 (Spanish; Torrego 1998)

If *a* in (69) is a preposition, as glossed here, then the complement of *P* is not always a Ground; worse yet, in (69a) the DP following *a* is fairly clearly a Figure. However, although there are complex conditions on the distribution of *a* (see Torrego 1998), it does not seem to contribute thematic information to the object that it appears with, that being determined entirely by the verb. Furthermore, it displays some behavior which is more consistent with the cross-linguistic behavior of case-markers than of adpositions, for example there are contexts where a direct object cannot bear the overt marker *a* in the presence of a selected dative argument marked with *a*, as in (70b) (the dative *a* is fused with the definite article in (70b)).

- (70) a. Describe a un maestro de Zen!
 describe to a master of Zen
 'Describe a Zen master!'
- b. Describieron (*a) un maestro de Zen al papa.
 described to a master of Zen to.the Pope
 'They described a Zen master to the Pope.'
 (Spanish; Torrego 1998)

Another piece of evidence that *a* preceding a direct object is not a true preposition is that such a direct object may control a depictive, in contrast to complements of *P*.

- (71) a. Juan la encontró a ella (borracha).
 Juan 3SG.ACC met to her drunk.FEM
 'Juan met her_i (drunk_i).'
- b. Juan le habló a ella (*borracha).
 Juan 3SG.DAT spoke to her drunk.FEM
 'Juan spoke to her_i (*drunk_i).'
 (Spanish; Bresnan 1982)

Similar remarks apply to the Semitic accusative marker (e.g. Hebrew *et*-, see Khan 1984). I return to the effects of adpositions on verbal complements in Section 5. In the

meantime I assume that the Figure-Ground generalizations hold for grammatical P at least in the weak form: No P introduces a Figure argument ((39) in Section 3.1); but given that there is so little thematic content to the relation between grammatical P and its complement, it may be pointless to extend the strong hypotheses in (65) in Section 4.1. to grammatical P (i.e. the internal argument is a Ground, the external argument is a Figure).

Furthermore, I assume that case markers are not P, so that for them the Figure-Ground generalizations do not hold at all: a Figure may be case-marked, so if, for example, Spanish *a* or Hebrew *et-* is a case-marker, we should not be surprised to find it marking Figure arguments.

5. Adpositions and verbs

In this section I discuss the argument structure of V, which, though far more complex, is actually better understood than that of P. I suggest that one of the basic conclusions about the syntax of the verb phrase should be extended to the adpositional phrase, namely the Split-V hypothesis. I suggested this on the basis of purely Germanic-internal considerations in Svenonius (2003), but here the arguments are first broadened and then refined.

5.1 Split-V and Split-P

Thematic hierarchies such as those of Jackendoff (1972) and related work are designed primarily to capture certain overwhelming tendencies in argument structure. Thematic information such as which argument is a causer or an undergoer of a process determines which argument is projected as the subject and which is projected as the direct object. The hierarchies were developed on the basis of the fact that just about any argument may surface as a subject as long as there is nothing higher, something which suggests that every theta-role has a position only relative to other theta-roles in the same predicate; but surface syntax conceals a basic split between external and internal arguments (Williams 1994). Causers are never internal arguments, no matter what else happens, and external arguments are arguably never undergoers of processes (though this is less clear).

The basic and important split between external and internal arguments is captured in the split-V hypothesis (Hale and Keyser 1993, Kratzer 1994, 1996, Harley 1995, Travis 2000), which suggests that the initiating or causing stage of an event is represented by a separate syntactic projection, the projection of a light verb head *v*. Causers, Agents, and other external arguments are then arguments of *v*, while undergoers of processes are arguments of V, the complement of *v*.

I suggest that the same considerations that led to the Split-V compel us to adopt a Split-P. The Figure-Ground asymmetry documented in Section 3 is quite robust, and is neatly captured by assuming that the Ground, an argument of P, is within the syntactic sphere of influence of the adposition, just as the Theme or Patient argument is within the syntactic sphere of influence of the verb; while the Figure, an argument of *p*, is outside that sphere of influence – external to it – and moves into the higher syntactic domain for licensing, just as the Agent moves into the T domain for nominative case.¹²

I used Pesetsky's (1982) term *s-selection* in Section 2.2 to refer to the selection for semantic characteristics of the Ground by P, and in Section 3.2 to refer to the selection for semantic characteristics of the Figure by the particle. In the former case, Grounds were specified as containers, surfaces, bifurcate, water, the ground, human or non-human, and so forth. In the latter case, Figures were specified as animate or inanimate. If *s-selection* holds of the Figure as well as of the Ground, then one might ask why there are not equally rich *s-selectional* restrictions on both (recall the discussion in Section 3.2.4 of the verb *straddle*).¹³

The usual pattern for the verbal complex is that there is a large number of members of category V, with rich encyclopedic content and detailed sets of entailments over the internal argument, and a small number of members of category *v*, with very little encyclopedic content (e.g. simply the difference between Agent and Causer, or some other Aktionsart distinction). This is true both of those accounts which posit a *v* with no phonological manifestation for languages like English and for accounts in which some overt morphology is identified with *v*, for example Austronesian transitivity affixes (Travis 2000), transitivity suffixes in Ulwa and other North American languages (Hale and Keyser 2002), Persian light verbs (Megerdooomian 2002), Hebrew verb templates (Arad 1998, Doron 2003), Slavic theme vowels (Jabłońska 2004), and so on; in each case, the total inventory of *v* is relatively small while the inventory of heads which can function as the lexical complement of *v* is very large.

12. The chief exception to this pattern in the verbal domain is the one seen in ergative constructions, where the external argument appears to receive ergative case relatively low, leaving the internal argument to seek nominative case higher up; the situation is vaguely similar to the one I sketched for *with* in §3.1.

13. Some languages have morphemes which place shape restrictions on Figure arguments (cf. Talmy 2000b), but it is not clear what relationship they bear to the category P. In general, specific *s-selectional* restrictions over the external argument are not assumed to characterize specific members of the category *v*, so since I am pursuing a general analogy between *v* and *p*, I will not discuss these Figure-conflating morphemes here.

Thus, it might be expected that languages would have relatively small numbers of *p* elements. However, *s*-selectional properties of the Figure may not be the whole story. The uses of *P* that I have focused on in discussing the properties of the Figure is the one seen with verbs of directed motion (*spray paint on the wall*) and with simple copular predications (*The paint is on the wall*). These are, however, not the most common uses of adpositional constructions cross-linguistically; in fact, some languages do not even allow them. Talmy (2000b) discusses the differing degrees to which languages create directed motion constructions using PPs. Baker (1996) argues that in Mohawk, PP may not take a subject directly, pointing out that despite the otherwise rich and obligatory agreement in the language, a PP cannot agree with a Figure (in (72), *Sak* is masculine, yet the PP can only take a neuter agreement prefix).

- (72) a. Ka-nakt-óku wa-hi-ya't-áhset-e' ne Sak.
 NsgS-bed-under FACT-1sgS.MSGO-body-hide-PUNCT NE Sak
 'I hid Sak under the bed.'
- b. *Ra-nakt-óku wa-hi-ya't-áhset-e' ne Sak.
 MSGS-bed-under FACT-1sgS.MSGO-body-hide-PUNCT NE Sak
 (Mohawk; Baker 1996: 399, 402)

Rather, the most basic use of adpositional constructions appears to be as VP or sentence modifier. In such cases, there is no DP Figure; rather, the event stands in as the external argument of the relation, as discussed briefly in Section 2.2 (in fact, the agreement prefix on the Mohawk PP in (72a) suggests that *something* is functioning as its external argument, just not the DP object of the verb).

The question then arises how PP (the capital *P*-plus-Ground constituent) is related to the larger structures in which it finds itself. Plausibly, *p* is a kind of predicator (cf. Bowers 1993) which links *P* to another category. English, then, would have developed a *p* which can take a Figure DP argument directly, whereas Mohawk might not have. Another type of *p* would allow PPs to function as nominal modifiers; as far as I can tell, Chinese prepositional phrases do not do this, suggesting that *p* is also not universally available.

The properties usually ascribed to different *v* heads can broadly be characterized as having to do with Aktionsarten or inner aspects, including the difference between internally and externally caused events. The closest analogy in the adpositional domain would be the difference between Paths and Places, that is, the directional versus locational use of PPs. This would in turn suggest that the Path heads observed in Section 2 are manifestations of *p*, as are some uses of English words like *to* and *from*.

5.2 Arguments of V

Some verbs have argument structures resembling that of P; compare the sentences here.

- (73) a. There is smoke in the lavvo.
b. Smoke filled the lavvo.
- (74) a. The pressure went out of the bag.
b. The pressure escaped the bag.
- (75) a. Mashed cans and broken bottles were all over the field.
b. Mashed cans and broken bottles covered the field.
- (76) a. The cat went up the tree.
b. The cat ascended the tree.
- (77) a. There was a tuft of pink hair on his head.
b. A tuft of pink hair crowned his head.
- (78) a. Madeleine went from the scene.
b. Madeleine left the scene.

However, there are also many verbs with argument structures which seem to be quite impossible for adpositions. For example, there are no adpositional counterparts to verbs with 'Location' subjects, such as the following.

- (79) a. The book contains six chapters.
b. A table supported the lamp.
c. The cabin housed a whole troop.
d. The bucket oozes slime.

The notional counterparts of *support* and *contain* in the prepositional realm would be the inverses of *on* and *in* respectively, so these sorts of verbs come close to reversing the Figure-Ground relations. Conceivably, they involve inversions of the type countenanced for *with* in Section 3.1; they seem to be fairly unusual.

Quite systematically, on the other hand, verbal internal arguments may be themes of directed motion, as in (80).

- (80) a. May threw the radio.
b. She dropped the light switch.
c. They brought the evidence.
d. We catapulted an igloo.

Here, the subject is not a Location, but a Causer or Agent. These verbs might be thought of as containing a covert particle (as in Hoekstra 1988), so that the VP-internal argument is the external argument of a covert particle.

Another typical kind of internal argument for verbs which is not found as an argument of an adposition is the incremental theme of a change of state verb,

where the theme is asserted to undergo a change of state over the run time of the event, as in (81).

- (81) a. May melted the radio.
 b. She painted the light switch.
 c. They destroyed the evidence.
 d. We built an igloo.

In these cases, the additional possibilities involve a notion of change in some property of the object. Such entailments of change are often eliminated when an adposition is added, for example in the conative construction.

- (82) a. The donkey ate the saddle (≡saddle is gone)
 b. The donkey ate at the saddle (≠ saddle is gone)
 c. Svetoslav cut the rope (≡ rope is severed)
 d. Svetoslav cut at the rope (≠ rope is severed)

A fundamental difference between an accusative direct object and an oblique is that the accusative is in some sense the measure of the event, whereas the oblique is not. For example, (83a) is felicitous even if the truck could hold 300 crates of beer, as the direct object *a crate* is appropriately affected; but in the same context, (83b) is infelicitous, because the direct object *the truck* is not sufficiently affected (context can improve it of course, for example if it is a very precious crate of beer, or if the point is that Catherine is being wasteful of resources).

- (83) a. Catherine loaded a crate of beer onto the truck.
 b. #Catherine loaded the truck with a crate of beer.

Much work has centered on the ways in which an event formally maps onto a direct object, or onto some salient property of the object (Krifka 1992, 1998, Tenny 1994, Ramchand 1997, Hay et al. 1999, Borer 2004, Rothstein 2004, Kratzer 2004).

With directional adpositional complements, there is also a mapping, of the event onto a Path. A typical Path-denoting PP determines a Path with the Ground as a single anchor point, so that there is no mapping of the event to the Ground itself.

- (84) a. Sal stretched the tape to the window.
 b. Christine sprayed paint on the wall.

However, if the meaning of the adposition is such that the physical extent of the Ground maps onto the extent of the Path, then the Ground may be indirectly mapped onto the event, via the Path.

- (85) a. Sal stretched the tape across the window.
 b. Christine sprayed paint all over the wall.

In (84a), the window is simply treated as a point (the endpoint of the Path), but in (85a), the width dimension of the window is mapped to the Path, which is mapped to the event. Similarly, in (84b) only contact is necessary, but in (85b) the extent of the wall determines the completeness of the event.

The conative construction exhibited in (82) is then rather similar to the constructions in (84); the Ground is embedded under *at*, which returns only a point-like space, making it impossible to map the event to the Ground.

Thus, it is not strictly true that adpositional complements cannot undergo change like the complements of the verbs in (81); but in order for there to be an entailment of change, there has to be a mapping to an event. Mapping to events is closely connected to case, and a DP can only have one case. If it receives case from an adposition, it will not also receive case from the verb, and so can only participate in mapping to the event indirectly, via a possible Path structure.

5.3 Ground in motion

There are a few rare cases in which a complement of P is understood to be in motion, by virtue of the meaning of P itself, for example in the examples here, from Nikanne (2003).

- (86) a. Buick on Volvon edellä.
Buick is Volvo in.front.of.moving.Ground
'The Buick is driving such that it stays in front of the Volvo.'
- b. Buick on Volvon edessä.
Buick is Volvo in.front.of
'The Buick is in front of the Volvo.'
(Finnish; Nikanne 2003)
- (87) a. Buick on Volvon perässä.
Buick is Volvo behind.moving.Ground
'The Buick is following behind the Volvo.'
- b. Buick on Volvon takana.
Buick is Volvo behind
'The Buick is behind the Volvo.'
(Finnish; Nikanne 2003)

As Nikanne demonstrates, the postpositions in (86a) and (87a) are used only when the Ground is in motion, while the postpositions in (86b) and (87b) are neutral. At first, this would appear to make these postpositions more like verbs of directed motion of the type in (80). However, the implications of motion here are presuppositional, more like the s-selectional restrictions discussed in Section 2.3, where adpositions were shown to presuppose of their Grounds that they be water, or containers, and so on. In (86a) and (87a), motion is presupposed, as can be seen when such examples are negated.

- (88) a. Buick ei ole Volvon edellä.
 Buick NEG be Volvo in.front.of.moving.Ground
 ‘The Buick isn’t driving such that it stays in front of the Volvo.’
 b. Buick ei ole Volvon perässä.
 Buick NEG be Volvo behind.moving.Ground
 ‘The Buick isn’t following behind the Volvo.’
 (Finnish; thanks to Elina Halttunen)

Here, the implication of movement remains, unlike the case with verbs of directed motion (for example *May didn’t throw the radio* does not imply that the radio moved). Thus, the generalization (38), that the complement of P is never a Figure, can be upheld, as the Figure in these examples is still clearly the Buick—in fact, these examples are even consistent with the stronger (65).

5.4 Tense versus specifiers

In suggesting that P and V decompose in similar ways, so that the external argument of either is introduced by a separate, ‘light’ head, I have undone what Baker (2003) proposed as the most fundamental distinction between V and P, namely the distinctive property of the latter that it take a specifier (cf. also Hale and Keyser 1991, 2002, who proposed exactly the reverse, for languages like English).

Baker argues at length that V takes a specifier, citing EPP (obligatory ‘subject condition’) effects, and suggesting that these cannot be due to Tense as they are manifested in small clauses. However, there are reasons to question these conclusions. First, EPP effects show up in small clause contexts even with non-verbal categories (e.g. in *We made *(it) obvious that we wanted to leave*), so the argument that V induces EPP there is not uncontroversial. Furthermore, there are good reasons to assume some functional structure in small clauses anyway (e.g. the predicate is a maximal projection, as noted by Williams 1983: *How obvious did you make it?*). Second, there appears to be substantial variation in the way EPP is manifested cross-linguistically, something which is expected if it is a property of a functional category, but not if it is a property of a lexical category (for example, EPP is satisfied by null elements like trace in English, but apparently not in Vata (Koopman 1984); Icelandic also shows signs of a phonological EPP (Holmberg 2000); EPP appears to be absent in Irish (McCloskey 1996); EPP is arguably active in C in Dutch and German, in T in English, and in both in Mainland Scandinavian (Roberts and Roussou 2002)).

Baker, in arguing that PP does not have a specifier, points out that PP is not easily used as a predicate, in many languages, in contrast to VP; but on the assumptions proposed here, that follows if PP cannot be bound by Tense and therefore cannot be the complement to T.

Baker observes the correlation between verbs and tense, but attempts to derive it indirectly, through the language-specific stipulation stated in (89).

- (89) “(In certain languages, certain) tense must attach to a lexical category”
(Baker 2003: 50)

The idea is that categories A and N, which cannot have specifiers, must combine with a predicative head in order to project subjects. This predicative head intervenes between T and the lexical head, preventing the two from combining directly, in violation of (89). The verb, which can project an external argument in a specifier, need not combine with a predicative head, and is therefore able to combine with Tense directly.

Baker assumes that P is a functional category, so that in order for it to combine with T, some lexical head (e.g. a verb) must be inserted.

I find (89) unsatisfying. It makes the false prediction, for example, that A and N should easily combine with tense when they do not have subjects. Furthermore, (89) does not seem to follow from anything. If (89) were correct, then T morphemes should not attach outside, for example, Aspect morphemes, but T attaching outside Aspect is quite common cross-linguistically (cf. Bybee 1985, Julien 2002).

A closer approximation to the cross-linguistic facts would appear to be (90).

- (90) a. Tense/Aspect must bind a variable *e*
b. The variable *e* must be bound by Tense/Aspect
c. All V bear *e*
d. No P bears *e*

The absence of adpositions carrying entailments of change over their complements, except in conjunction with verbs, would be linked to the fact that adpositions are unable to introduce a variable with the sufficient temporal dimension.

Baker (2003) considers and rejects the idea that verbs are distinct from other categories in bearing a neo-Davidsonian event variable (cf. e.g. Parsons 1990), pointing out that neo-Davidsonian variables are often postulated for other categories, and are sometimes argued to be absent from certain verbs. The real test between (89) and (90) would be to determine what other properties can be correlated with *e*, and whether they can be demonstrated to also correlate with the possibility of being tensed. That being a whole new topic, I must set it aside for the time being.

6. Conclusion

I have discussed some very general characteristics of the class of adpositions cross-linguistically, and the closely related class of spatial particles. I have argued that the argument structure they introduce is subject to some very strong generalizations

in terms of Figure and Ground, and that these generalizations can be captured by splitting the category into at least two parts: *P*, the Ground-introducing element, which expresses a spatial relation, and *p*, the Figure-introducing element, which is a predicator and allows PP to be predicated of other material. The nature of *p* can be seen in the type of Figure it permits, with the possibility of DP, NP, and VP Figures varying somewhat cross-linguistically.

Landau and Jackendoff (1993) discuss some differences between adpositions and nouns, concluding that such differences stem from a deep fact about human cognition. Baker (2003) proposes a formal property of nouns (identity criteria), which would serve to distinguish them from adpositions. Here, I focus more on differences between adpositions and verbs, especially regarding the wider range of arguments verbs may introduce. I speculate that this might partly be due to the richer lexical content of verbs, but also to the richer event structure borne by verbs, a kind of event structure which interacts directly with temporal and aspectual operators, providing a contrast to adpositions.

Abbreviations

1 first person, 3 third person, ACC accusative, AUX auxiliary, BA gloss for Chinese *ba*, CLASS classifier, COM comitative, DAT dative, DUR durative, ESS essive, FACT factual, FEM feminine, Fig Figure, GEN genitive, ILL illative, INSTR instrumental, LOC locative, M masculine, N neuter, NE gloss for Mohawk *ne*, NEG negation, NOM nominative, O object, PERF perfective, PL plural, POSS possessive, S subject, SG singular.

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Argument structure and aspect

The case of two imperfectives in Malayalam

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We look at the two imperfective constructions in Malayalam and show how a rich *v* tier can account for differences between them. The *-ukayaaṇṭ* imperfective is actually a reduced (pseudo)cleft construction (following Mohanan and Mohanan's 1999 analysis of *aaṇṭ* in non-equative constructions). The auxiliary *aaṇṭ* is the focus marker. The reduced material is a tier of *v*, phonetically manifested as the *cey* 'do' in transitive/causative constructions and an eventive *v* 'occur' in unaccusatives (cf. Marantz 1997). The *-unnunṭ* construction (the other imperfective) has neither eventive nor agentive *v*. The auxiliary *unṭ* is an existential operator and it asserts the existence of an event. *unṭ* heads the EventP (Harley 1995). Facts from adverb syntax also support the analysis of the *-ukayaaṇṭ* construction as focus.

1. Introduction*

In this paper we look at the VP shell in Malayalam and show how a fine-grained tier of little *vs* would enable us to capture the apparent idiosyncrasies exhibited by the two imperfective constructions in Malayalam. The two imperfective constructions in Malayalam are:

- The *-ukayaaṇṭ* construction, where the main verb takes the *-uka* suffix and the auxiliary is *aaṇṭ* (the equative copula).
- The *-unnunṭ* construction, where the main verb takes the imperfective *-unnu* suffix and the auxiliary is *unṭ* (the existential copula).

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The *-ukayaaṇṇ* construction is essentially progressive. Its occurrence is restricted in that it cannot occur with middles and statives, while the *-unnunṭ* construction has no such restriction. The *-ukayaaṇṇ* construction occurs in experiencer constructions only under certain conditions. The progressive/non-progressive opposition alone, we argue, cannot account for all the distinctions that these two constructions exhibit. We make the following claims:

- The *-ukayaaṇṇ* construction should be treated as a reduced (pseudo-) cleft construction, in a similar vein to Mohanan and Mohanan's (1999) (henceforth M&M) analysis of the non-equative constructions involving the copular verb *aaṇṇ*.
- The reduced part in the *-ukayaaṇṇ* construction is
 - either an agentive little *v* (cf. Marantz 1997) whose overt realization is the verb *cey* 'do' and which occurs in transitive/causative and ergative constructions,
 - or an eventive little *v* whose overt realization is *unṭaakuka/samhbavikkuka* 'happen'/'occur' which occurs in unaccusatives and with experiencer verbs.
- Unlike M&M (who are noncommittal about the status of *aaṇṇ*), we claim that *aaṇṇ* is a focus marker (which occurs in *Foc*⁰) and illustrate the presupposition effect that the *-ukayaaṇṇ* construction gives rise to.
- *unṭ*, which, on the other hand, is the existential copula, has no focus effect, but asserts the existence of the event.

This paper is organized as follows: In Section 2 we look at the two imperfective constructions in Malayalam and show that the *-ukayaaṇṇ* construction has to be analysed as comprising a little *v*, *cey* 'do', which is responsible for the agentive reading of its subject. This would account for its ungrammaticality in middles and stative constructions. In Section 3 we look at M&M's analysis of *aaṇṇ* 'be' in the non-equative constructions and in Section 3.1 we show that same kind of generalizations hold for the *-ukayaaṇṇ* construction as well. In Section 4 we account for the occurrence of *-ukayaaṇṇ* in unaccusatives by arguing for an eventive *v*. We also present the syntactic structures for the constructions in question. In Section 4.1 we contrast the *-ukayaaṇṇ* construction with the other imperfective *-unnunṭ*. In Section 5 we show how adverbial syntax supports our analysis of the *-ukayaaṇṇ* construction as a focus construction. Section 6 summarises the paper.

2. The two imperfectives

There are two constructions in Malayalam that translate as the present progressive in English: (a) the *-ukayaaṇṇ* construction, which is formed by the infinitival (*-uka*) form of the main verb and the auxiliary verb *aaṇṇ* (which is the equative copula)

and (b) the *unnunṭə* construction: formed by the imperfective *-unnu* form and *unṭə* (which is also the existential copula). These two forms are exemplified in (1) below.

- (1) a. kuṭṭiuraṇṇ-uka aaṇə
 child sleep-INF BE
 ‘The child is sleeping.’
 b. kuṭṭiuraṇṇ-unn unṭə
 child sleep-IMPERF BE
 ‘The child is sleeping.’

Though Asher and Kumari (1997) say that there is no major distinction between these two forms, Hany Babu and Madhavan (2002) (henceforth HB&M) have shown that the *-ukayaṇṇə* construction is essentially progressive in that stative verbs cannot occur in this form, unlike the *-unnunṭə* form, as shown in (2) below.

- (2) a. maṇjudiliipan-e sneehikk-unn-unṭə
 Manju Dileepan-ACC love-IMPERF-BE
 ‘Manju loves Dileepan.’
 b. *maṇju diliipan-e sneehikk-uka-aaṇə
 Manju Dileepan-ACC love-INF-BE
 ‘Manju is loving Dileepan.’

HB&M also noted the following kind of contrast where the *-ukayaṇṇə* construction could not occur in certain constructions (which we would now call middles), while the *-unnunṭə* construction had no such restriction.

- (3) a. *ii peena ezhut-uka-aaṇə
 this pen write-INF-BE
 b. ii peena ezhut-unn-unṭə
 this pen write-IMPERF-BE
 ‘This pen is writing/This pen writes.’
 (4) a. *ente waaccə naṭakk-uka aaṇə
 my watch walk-INF BE
 b. ente waaccə naṭakk-unn-unṭə
 my watch walk-IMPERF-BE
 ‘My watch is working.’

It should be noted that both these verbs, when they have an agentive subject, do occur with the *-ukayaṇṇə* form.

- (5) a. ayaalṭ katha ezhut-uka-aaṇə
 he story write-INF-BE
 ‘He is writing a story.’
 b. awar naṭakk-uka aaṇə
 they walk-INF BE
 ‘They are walking.’

In this paper, we would like to present one more class of verbs that cannot occur with the *-ukayaaṇṇ* form, namely experiencer verbs. Malayalam, like several other South Asian languages, has a class of verbs that are broadly called experiencer verbs. Although they are not stative verbs, this class of verbs cannot occur in the *-ukayaaṇṇ* construction, but are free to occur in the *-unnunṇṭa* construction:

- (6) a. *enikkə tala weedanikkuka aaṇṇ
 I-DAT head pain-INF BE
 Intended: 'My head is aching.'
 b. enikkə tala weedanikk-unn unṇṭa
 I-DAT head pain-INF BE
 'My head is aching.'

The data in (3), (4) and (5) above seem to indicate that the *-ukayaaṇṇ* construction is possible only when there is an agentive subject. Thus, (3a) and (4a) are ungrammatical because there is no agent in them, but (5) is okay since there is an agent. But experiencer verbs can occur in the *-ukayaaṇṇ* construction under certain conditions. Consider (7) below.

- (7) atin-te maṇam keekkuṁ-pool enikkə tala weedanikkuka aaṇṇ
 that-GEN smell hear-when I-DAT head ach-INF BE
 'My head aches when I get its smell.'

Note that (7) is not interpreted as progressive. Another context in which there is no agentivity involved is given in (8) below,

- (8) a. awiṭe paṇi naṭakk-uka aaṇṇ
 there work walk-INF BE
 'Work is going on there.'
 b. waatil (tanne) aṭay-uka aaṇṇ
 door (itself) close-INF BE
 'The door is closing (by itself).'

Unarguably, neither of these sentences have agentive subject, but still the *-ukayaaṇṇ* construction is possible. The verbs in (8) belong to the unaccusative/ergative class. This is demonstrable in the way they alternate with their transitive/causative counterparts:

- (9) a. awiṭe awar paṇi naṭa-tt-uka aaṇṇ
 there they work walk-CAUS-INF BE
 'They are managing work over there.'
 b. awar waatil aṭay-kk-uka aaṇṇ
 they door close-CAUS-INF BE
 'They are closing the door.'

We can explain this contrast if we assume that unaccusatives and transitive/unergatives are selected by different types of little *v*s. The little *v* in the case of a transitive/unergative assigns agentive role to the subject, whereas the one that selects unaccusatives doesn't assign an agentive role to the subject. Thus, a sentence like (1a) above (repeated below as (10a)) would have a little *v* which is actually the verb 'do', namely *cey*. We assign to it the structure in (10b), where *kutti* 'the child' occurs as the subject of the verb *cey* 'do':

- (10) a. *kutti uraŋŋ-uka aaŋə*
 child sleep-INF BE
 'The child is sleeping.'
 b. *kutti cey [uraŋŋ-uka aaŋə]*
 child do sleep-INF BE

We argue that constructions in which the subject is not agentive are infelicitous in the *-ukayaana* construction, as the subject is necessarily assigned agentive role. The structure of (3) and (4), repeated here as (11), is as in (12) below, where *ii peena* 'this pen' and *ente waaccə* 'my watch' occur as the subject of the little *v cey* 'do':

- (11) a. **ii peena ezhut-uka-aaŋə*
 this pen write-INF-BE
 b. **ente waaccə naTak-uka aaŋə*
 my watch walk-INF BE
 (12) a. *ii peena cey [ezhut-uka-aaŋə]*
 this pen do write-INF-BE
 b. *ente waaccə cey [naTak-uka aaŋə]*
 my watch do walk-INF BE

This gives the incongruous reading in which *the pen* and *the watch* are assigned agentive roles. The crucial difference between the transitive/unergative construction and the unaccusatives is in the choice of the type of *v*. The former class has the agentive *v*, whereas the latter class has, what we would call, an eventive *v*, which we shall look at more closely below. But before we go on to do that, we shall provide further supportive evidence for the existence of the verb *cey* 'do' in the *-ukayaana* construction.

3. Mohanan and Mohanan's analysis of *aaŋə* constructions

M&M identify two types of constructions in which *aaŋə* alternates with *uŋtə*, namely the locative and the dative constructions:

- (13) a. *aanakkə pani uŋtə*
 elephant-D fever-N BE-PR
 'The elephant has a fever.'

- b. *aanakkə pani aaṇə*
 elephant-D fever-N BE-PR
 'The elephant has a fever.' (What the elephant has is a fever.)
- (14) a. *fridge-il kaappi uṇṭə*
 fridge-L coffee-N BE-PR
 'There is coffee in the fridge.'
- b. *fridge-il kaappi aaṇə*
 fridge-L coffee-N BE-PR
 'Coffee is what is in the fridge (and not something else).'

M&M convincingly show that the *aaṇə* construction in both these instances is a focus construction and that the *uṇṭə* construction is the neutral construction. The argument that M&M provide is that the *aaṇə* construction gives rise to a presupposition, which is typical of focus constructions. Thus, (13b) presupposes that there is something wrong with the elephant and (14b) presupposes that there is something in the fridge. The (a) sentences in both these cases lack the presupposition reading. This becomes evident if we look at the negative and interrogative counterparts of (13) and (14).

- (15) a. *aanakkə pani alla*
 elephant-D fever-N BE.NEGPR
 'The elephant doesn't have fever (but has something else).'
- b. *aanakkə pani aaṇ-oo*
 elephant-D fever-N BE-QPR
 'Does the elephant have a fever (or is it something else)?'
- (16) a. *fridge-il kaappi alla*
 fridge-L coffee-N BE.NEGPR
 'Coffee is not what is in the fridge (but something else).'
- b. *fridge-il kaappi aaṇ-oo*
 fridge-L coffee-N BE-QPR
 'Is it coffee in the fridge (or something else)?'

Thus in (15) there is a presupposition that the elephant has some illness and in (16) there is a presupposition that there is something in the fridge. M&M capitalize on the occurrence of the verb *aaṇə*, which also occurs in the cleft constructions in Malayalam, and they go on to argue that the *aaṇə* constructions in these cases is actually a reduced cleft construction. A typical cleft construction is exemplified in (17) (from M&M).

- (17) a. *eli puuccakkə pustakam ayaccu*
 mouse-N cat-D book-N send-PAST
 'The mouse sent a book to the cat.'

- b. eli puucakkə pustakam-aanə ayacc-atə
 mouse-N cat-D book-N-BE-PR send-IT
 ‘It was a book that the mouse sent to the cat.’

In the cleft construction in (17b) we see that *aanə* occurs along with the cleft focus *pustakam* ‘book’ and the lexical verb occurs in a nominalized form. In the case of the constructions in which *aanə* alternates with *untə* (as shown in (13) and (14) above), M&M argue that the lexical verb, which is the existential verb *untə* itself, has elided, giving us the reduced cleft construction. The full versions of (13b) and (14b), thus, would be:

- (18) a. aanakkə pani aanə u[latə
 elephant-D fever-N BE-PR BE-IT
 ‘The elephant has a fever.’ (What the elephant has is a fever.)
 b. fridge-il kaappi aanə u[latə
 fridge-L coffee-N BE-PR BE-IT
 ‘Coffee is what is in the fridge (and not something else).’

In both cases the existential verb *untə*, which occurs in its nominalized form *u[latə*, is elided. This would thus explain the presupposition reading as the negative and the interrogative counterparts of (18) would have the following full versions:

- (19) a. fridge-il kaappi alla u[latə
 fridge-L coffee-N NEG.BE-PR BE-IT
 ‘Coffee is not what is in the fridge (but something else).’
 b. fridge-il kaappi aan-oo u[latə
 fridge-L coffee-N BE-PR-Q BE-IT
 ‘Is it coffee in the fridge (or something else)?’

Although we basically adopt M&M’s analysis wholesale, we would like to make a proviso that there is, all the same, a crucial distinction between the full-cleft and the reduced cleft versions in that the reduced cleft version can have presentation focus, which the full cleft cannot have. For instance, consider the contrast between the following:¹

- (20) a. innə ezhunnellippə naṭakk-illa, aanakkə pani aanə
 today procession take.place-NEG elephant-D fever BE
 ‘Today the procession won’t take place, (because) the elephant has fever.’

1. The authors would like to thank K.A. Jayaseelan for bringing this kind of contrast to their attention.

- b. *... aanakkə pani aaŋə u||atə
 elephant-D fever BE BE-NOM
 ‘... because what the elephant has is fever.’

Thus, though the full cleft is infelicitous in such a context, the reduced cleft is perfectly fine. This can be attributed to the fact that the reduced cleft can have what is called presentational focus, while the focus is on the predicate in the case of the full cleft. This becomes all the more comparable if we compare the affirmative construction involving *aaŋə* and the negative constructions involving *alla*, which is the negative counterpart of *aaŋə*. While the *aaŋə* constructions can have presentational focus, *alla* can only have contrastive (cleft like) focus. Consider the following:

- (21) innə ezhunne||ippə naŋakk-um,
 today procession take.place-MOD
 aanakkə pani illa/*alla
 elephant-D fever BE.NEG
 ‘Today the procession will take place, the elephant does not have fever.’

What is reported here is that the procession will take place as everything is in order, i.e. the elephant is not suffering from fever. The whole proposition has to get presentational focus, and, as we can see, *alla*, the negative counterpart of *aaŋə*, is not possible here, but one has to use *illa* to mark negation. Negation with *alla* in this context would carry the presupposition that the elephant is suffering from some other ailment. In the next section we shall look at this presuppositional reading more closely.

3.1 The presupposition effect in the *-ukayaŋə* construction

We would like to show that the *-ukayaŋə* construction also has the same kind of presupposition reading as the copular *aaŋə* construction. This would mean that the *-ukayaŋə* construction has to be treated as a focus construction. Let us take a look at the negative and interrogative equivalents of (1a) repeated here.

- (22) a. kuŋŋi uraŋŋ-uka aaŋə
 child sleep-INF BE
 ‘The child is sleeping.’
 b. kuŋŋi uraŋŋ-uka alla
 child sleep-INF BE.NEG
 ‘The child is not sleeping (but is doing something else).’
 c. kuŋŋi uraŋŋ-uka aaŋ-oo
 child sleep-INF BE-Q
 ‘Is the child sleeping (or doing something else)?’

All the three sentences in (22) presuppose that the child is doing something. In Section 1 above, we argued for the existence of an agentive *ν cey* ‘do’ in the *-ukayaaṇə* construction. Now we are in a position to give content to that idea by saying that the *-ukayaaṇə* construction actually is a reduced cleft construction, the full version being the one in which the *ν cey* is phonetically realized. The full version of (22) would be as in (23) below, which would explain the presupposition reading that the affirmative sentence has:

- (23) a. *kuṭṭi uraṇṇ-uka aaṇə ceyy-unṇ-atə*
 child sleep-INF BE do-IMPERF-NOM
 ‘What the child is doing is sleeping.’
 b. *kuṭṭi uraṇṇ-uka alla ceyy-unṇ-atə*
 child sleep-INF BE.NEG do-IMPERF-NOM
 ‘It is not sleeping that the child does.’
 c. *kuṭṭi uraṇṇ-uka aaṇoo ceyy-unṇ-atə*
 child sleep-INF BE-Q do-IMPERF-NOM
 ‘Is it sleeping that the child does?’

We hope to have proved conclusively that the *-ukayaaṇə* construction is a focus construction, namely a reduced cleft construction and that there is an agentive *ν cey* that assigns agentive role to the subject, which is realized fully in the full-cleft construction. However, it should be noted that we have already pointed out in Section 2.1 above that the reduced cleft and the full-cleft versions differ in terms of information structure. Our analysis also shows that treating the *-ukayaaṇə* construction as progressive would not account for the presupposition effect.

4. Unaccusatives and eventive *ν*

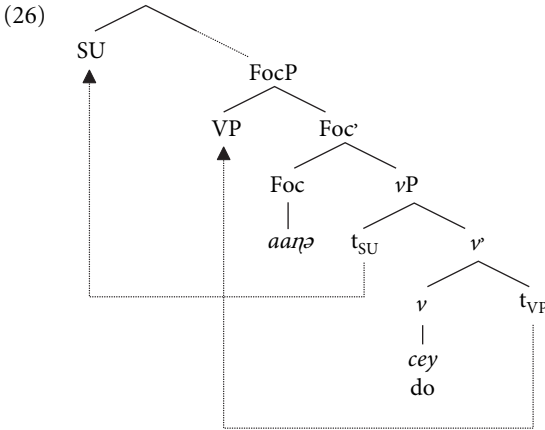
In Section 1 above we said that unaccusatives differ from the transitive/unergative construction in the choice of *ν*. While the latter class are selected by the *ν cey* ‘do’, which assigns agentive role to the subject, unaccusatives are chosen by an eventive *ν*. This *ν*, we argue, is not capable of assigning an agentive role to the subject. Let us assume that this *ν* is akin to the verb ‘occur’. The full version of an unaccusative construction would look something like this:

- (24) *awiṭe paṇi naṭakk-uka aaṇə sambhavikk-unṇ-atə*
 there work walk-INF BE happen-IMPERF-NOM
 ‘What is happening there is that work is going on.’

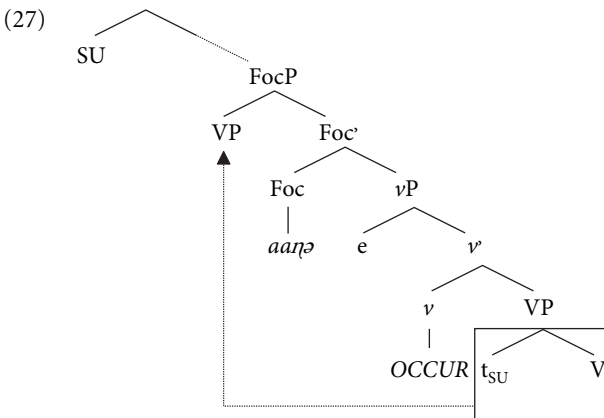
We would say unaccusatives are characterized by the event verb *sambhavikkuka* ‘to happen/occur’. The same can be said about the experiencer verb constructions. Thus the reduced cleft version of (7) above is given below.

- (25) atinte maṇam keekkum-poo| enikkə tala weedanikkuka aaṇə
 that-GEN smell hear-when I-DAT head ach-INF BE
 ‘(What happens) when I get its smell (is that) my head aches.’

What happens structurally is similar in that there is a shell of ν in both the constructions. In the case of transitive/unergatives the subject will be generated in Spec, ν P as shown in (26) below. We assume that the subject will then move to the specifier of a higher functional projection for structural reasons like checking. (We would, however, remain noncommittal about the nature of this higher functional node.) The remnant VP will then move to Spec,FocP.



In the case of unaccusatives, the Spec, ν P slot is unavailable for the subject, and hence it moves out directly from the VP internal position in which it is generated. The ν *sambhavikkuka* ‘occur’ will take an event argument in Spec, ν P. This is shown in (27) below.



The Spec,VP slot, in which the subject of the unaccusative is generated, is available only for themes. The event argument e occurs in Spec, ν P. So the difference between transitive/unergatives and unaccusatives is mainly in terms of the nature of the ν . The former have the agentive ν and the subject occurs in its specifier position. The latter have the eventive ν and the subject occurs in the specifier of the VP.

It should be noted that the VP moves on to the focus position in the unaccusative construction as well. The focus property of unaccusatives can be illustrated by the fact that the presupposition is retained in the case of negative and interrogative constructions just as in the case of the transitive/unergative constructions.

- (28) a. awiṭe paṇi naṭakk-uka alla
 there work walk-INF BE.NEG
 ‘(It is not) work (that) is going on there.’
 b. awiṭe paṇi naṭakk-uka aaṇ-oo
 there work walk-INF BE-Q
 (Is it) work (that) is going on there?’

(28a) implies that something other than work is going on there. The case of (28b) is a little different. It does indeed have the kind of reduced cleft reading. But as we mentioned earlier, it can also be used in an out-of-the-blue context in which the interlocutor might not imply that something is happening, but might be interested just to know whether work is going on there.

4.1 The contrast between the *-ukayaanaṭa* and the *-unnunṭa* constructions

Unlike the *-ukayaanaṭa* construction, the *-unnunṭa* construction does not have an agentive ν . The auxiliary verb *unṭa*, we argue, would head the EventP (a la Harley 1995). *unṭa*, thus, would assert the existence of an event. It should be noted that this is distinct from the eventive ν that we posited in the case of unaccusatives. The specifier of Harley’s EventP hosts the subject, which gets agentive reading, while *unṭa* for us is an event verb itself. This fits into the scheme of things, since *unṭa* after all *is* the existential operator. We can translate this as in (29).

- (29) $\exists e$ [sleep (e) & SUBJ (k, e)]
 ‘There is an event of sleeping and the child is the subject of that event’

In the case of transitive/causative and unergative verbs, the NP generated in Spec,EventP gets interpreted as the agent of the event, as argued by Harley (1995). In unaccusatives the subject is generated internal to the VP shell. Thus, the *-unnunṭa* construction is free to occur with the transitive/causative and unergative class as well as with the unaccusative class of verbs.

5. Manner adverbs: Further evidence for a focus effect

HB&M (2002) have pointed out a contrast between the *-unnun̄tə* imperfective and the *-ukayaan̄ə* progressive. It was observed that while the former construction allows modification by manner adverbs, the latter construction generally resisted it, as shown below.

- (30) a. omana nannaayi paaṭ-unn-un̄tə
 Omana well sing-IMPERF-BE
 ‘Omana is singing well.’
 b. omana (*nannaayi) paaṭ-uka-yaan̄ə
 Omana(*well) sing-INF-BE
 ‘Omana is singing (*well).’

HB&M noted a correlation between the agentivity of the subject and modification by manner adverbs. It was also noted that a manner adverb could be forced even when there is another adverb such as *karutikkuuṭṭi* ‘deliberately’ that asserts the agentivity of the subject as in (31).

- (31) kuṭṭi karutikkuuṭṭi moosamaayi paṭhikk-uka aan̄ə
 child deliberately badly study-IMPERF-BE
 ‘The child is deliberately studying badly.’

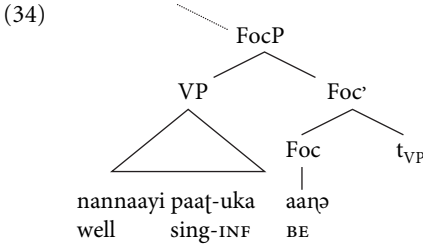
However, there was no explanation offered for these facts other than the mention to the correlation with the agentive subject. (31) was noted to be an exception as it allowed modification by manner adverbs even though the subject was agentive. We would like to attempt an explanation for the above phenomenon, once again by capitalizing on a parallel between the *aan̄ə* copular construction and the *-ukayaan̄ə* construction. M&M have noted the following phenomenon.

- (32) a. *anikkə kuṭṭi aan̄ə
 Ani-D child-N BE-PR
 Intended: ‘Ani has a child.’
 b. anikkə kuṭṭi un̄tə
 Ani-D child-N BE-PR
 Intended: ‘Ani has a child.’
 (33) a. anikkə peṇkuṭṭi aan̄ə
 Ani-D girl.child-N BE-PR
 ‘Ani has a daughter.’ (What Ani has is a daughter.)
 b. anikkə peṇkuṭṭi un̄tə
 Ani-D girl.child-N BE-PR
 ‘Ani has a daughter.’

Although the nominal *kuṭṭi* ‘child’ is unacceptable with the copula *aan̄ə*, the nominal *peṇkuṭṭi* ‘daughter’ is acceptable. M&M explain this contrast by taking resort to

the cleft-focus analysis of the *aanə* construction. They say that there is “an implicit contrast (between a girl child and a boy child)” that justifies special meaning of the cleft focus in (33); whereas no such contrast is available in (32), which makes it infelicitous.

Our claim is that the same focus effect is responsible for the unacceptability of the manner adverb in (30b) above. That is to say, the phrase *nannaayi paaŋ-uka* ‘sing well’, we claim, moves to Spec,FocP; but it does not lend itself to focussing, since there is no background set available, with which it can contrast.



There are two points that need explication here: (i) why is it necessary that the adverb *nannaayi* has to move to Spec,FocP along with the VP; (ii) why is *nannaayi paaŋ-uka* ‘to sing well’ an infelicitous focus. The first question has a principled answer within syntax, while the answer to the second question is a matter of pragmatics. That is to say, what makes it necessary that the adverb *nannaayi* ‘well’ should move to Spec,FocP is, of course, syntax, as it is generated within the VP. But *nannaayi paaŋ-uka* is not a felicitous focus as it does not offer a background set with which it can readily contrast, just as having an offspring does not offer a readily available background set of things with which it can contrast. On the other hand, having a daughter offers a ready contrast with having a son. It is not syntax, but it is pragmatics that makes *nannaayi paaŋ-uka* a bad focus. And as we would expect, one can indeed force *nannaayi paaŋ-uka* ‘to sing well’ to be the focus when there is another focus as in (35).

- (35) innə awan AADYAMAAYI nannaayi paaŋ-uka-yaanə
 today he FIRST.TIME well sing-INF-BE
 ‘He is singing well today for the FIRST TIME.’

5.1 The position of adverbs

Following Cinque’s (1999) work, the syntax of adverbs is no longer a topic to be brushed aside. We have seen from the above discussion that an adverb like *nannaayi* ‘well’ is felicitous in the *-ukayaanə* construction only if it is warranted in a focus construction or if there is another focus. The syntactic import of this is that *nannaayi* is an adverb that has to necessarily occur within the VP shell.

An adverb like *nannaayi* allows only bare incorporated nominal arguments to follow it. Bare nominals can precede *nannaayi* only if they get a contrastive focus reading. DP objects, on the other hand, cannot follow *nannaayi*, but have to necessarily precede it.

- (36) a. booban nannaayi paattə paat-um
 Boban well song sing-MOD
 'Boban sings (songs) well.'
- b. booban paattə nannaayi paat-um
 Boban song well sing-MOD
 'Boban sings (songs) well (but . . .).'
- (37) a. *booban nannaayi aa paattə paati
 Boban well that song sing-PAST
- b. booban aa paattə nannaayi paati
 Boban that song well sing-PAST
 'Boban sang that song well.'

As shown in (36), the neutral position of the bare nominal is after the adverbial *nannaayi*, and it gets a contrastive focus reading when it precedes the adverbial. (37) shows that a definite DP like *aa paattə* 'that song' can only precede the manner adverb. We shall take adverbs like *nannaayi* as marking the edge of the VP. The ungrammaticality of (37a) is attributable to the requirement that definite DPs should vacate the VP shell in overt syntax in Malayalam. Bare nominals vacate the VP only if they get a contrastive reading.²

HB&M (2002) also noted that manner adverbs seem to be possible with unaccusatives as shown in (38) below.

- (38) awiṭe paṇi (uṣaaraayi) naṭakk-uka-yaanə
 there work (energetically) walk-INF-aux
 'Work is going on very well there.'

HB&M assumed that the difference was attributable to the fact that the subject is not agentive in unaccusatives. However, we claim that unlike adverbs of the *nannaayi* class, *uṣaaraayi* does not mark the edge of the VP. That is to say, an adverb like *nannaayi*, as we saw, is an adverb that cannot leave the VP shell, whereas an adverb like *uṣaaraayi* can leave the VP shell. This can be shown by the fact that *uṣaaraayi* seems to belong to the class of adverbs that Cinque calls adverbs of setting. The test for this is again the relative ordering of definite DPs with respect to the adverb. In (37a) (repeated below), we saw that *nannaayi* cannot precede

2. Leaving the VP shell, however, is not a prerequisite for getting a contrastive reading. See also Dayal 2001.

a definite DP. But we can see that *uṣaaraayi* can either precede or follow the definite DP:

- (39) a. *booban nannaayi aa paaṭṭə paaṭi
 Boban well that song sing-PAST
 Intended: ‘Boban sang that song well.’
 b. booban aa paaṭṭə uṣaaraayi paaṭi
 Boban that song energetically sing-PAST
 ‘Boban sang that song energetically.’
 c. booban uṣaaraayi aa paaṭṭə paaṭi
 Boban energetically that song sing-PAST
 ‘Boban sang that song energetically.’

We take this as an indication of the fact that *uṣaaraayi* can leave the VP shell unlike *nannaayi*. This would mean that in a construction like (38) above the adverb is not (necessarily) in the focus position.

Another factor which is supportive of this distinction between *uṣaaraayi* and *nannaayi* is that the former has a subject-oriented interpretation that the latter lacks. Thus, a finer distinction that one can draw between (39b) and (39c) is that in the latter the adverb occurs outside the VP shell and it can be interpreted as modifying the subject.

6. Summary

We can summarize our claims as follows:

- The *-ukayaanaṇə* construction is a focus construction – a reduced cleft construction to be precise (cf. Mohanan and Mohanan’s 1999 analysis of *anaṇə* in constructions involving locatives and dative NPs).
- *anaṇə* is the focus particle and it occurs in Foc⁰ (contra Jayaseelan 2000).
- There is remnant VP movement to Spec,FocP, which is generated above the VP shell as argued by Jayaseelan (1996).
- *anaṇə* can also have presentational focus unlike its negative counterpart *alla*.

In this paper we have

- argued for the existence of two different types of *vs* in the case of transitive/ unergative and unaccusative constructions.
 - In the former case, the *v* is *cey*, a ‘do’ verb, and it assigns agentive role to the subject.
 - In the latter case, the *v* is an eventive verb.

- showed how adverbial syntax provides evidence for the clause structure.
- showed that the *nannaayi* class of adverbs is not able to leave the VP shell, while the *uṣaaraayi* class of adverbs can leave the VP shell.

We have also shown that the alternative of analysing the *-ukayaaṇa* construction as just the progressive would not account for the focus-presupposition effect. The non-focus analysis of *-ukayaaṇa* would not also explain the peculiar behaviour of manner adverbs. We also hope to have shown conclusively that there have to be (at least two) different types of little *vs.* Another important result of our analysis is that we make a distinction between the affirmative *aaṇa* and its negative counterpart *alla*. While *alla* is always the cleft focus, *aaṇa* can also be used in presentation focus contexts.

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Argument features, clausal structure and the computation

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This paper claims that case is vP-internally interpretable and that high NP-movement is driven by (minimally) two other ‘forces’: Person checking in a position higher than Tense, and EPP (Fin) checking in a still higher position, ‘Spec,IP’. This is evidenced by ‘low’ nominatives, quirky agreement, Stylistic Fronting and expletive-distribution. Another central claim of the paper is that grammar *interprets* event features in relation to speech features. In particular, Person drives NP-movement because it computes event participants (cased θ -roles) in relation to speech participants, much as Tense links event time to speech time. As evidenced by both tense interpretation and pronoun interpretation, the finite clause is a Speech Phrase, SP, containing *syntactic* speech features.

1. Introduction

The Argument Structure conference in New Delhi was a great opportunity for me to present my thoughts on argument features and clausal structure as they have developed over the years. It all began with my studies of case in Icelandic almost twenty years ago. Narrow as these studies were, they soon revealed, at least to me, that the standard GB approach to the correlation between case, EPP, NP-movement and clausal structure was somehow quite off the track, but simultaneously very insightful, contradictory as that may seem. What is it that we are missing? – That has always been the tantalizing question. The Delhi conference gave me a new and a very welcome incitement to explore it.

I have decided to keep the ‘historical dimension’ of the paper, starting out by reviewing my central reasons for rejecting or at least ‘radically modifying’ the standard approach to case and the clausal derivation/computation, as it has developed from Chomsky (1981) to Chomsky (2001). In *Lectures on Government and Binding* (1981), Chomsky assumed a direct relationship between nominative case and NP-movement to Spec,IP (and EPP). Largely in view of facts from Icelandic, he revised his ideas in *Minimal Inquiries* (2000) and further in *Derivation by Phase* (2001), suggesting that the correlation between nominative case and NP-movement/EPP

is only indirect, ultimately boiling down to matching and subsequent elimination of uninterpretable features. I argue that both approaches are off the track. First, the structural cases are licensed vP-internally and are in fact interpretable, in a sense; more generally, syntax does not operate with uninterpretable features. It follows that case does *not* drive the computation, neither directly nor indirectly. Second, however, so-called quirky agreement suggests that the computation is at least partially driven by matching of ϕ -features, in particular Person. That is, Person has to some extent the status that has commonly been attributed to case.

This is the background presented in Sections 2 and 3. In the remainder of the paper, Sections 4 and 5, I develop a theory of the syntactic computation that accords with these results. In particular, I claim that grammar computes or interprets event features in relation to speech features. In addition, I develop a novel approach to clausal architecture, accounting for the central status of Tense and Person in language as features that relate events to speech and are thus fundamental components of the displacement property (or the computational property) of language.

2. Background: Case is not a driving force – Person and EPP are

As is well-known, Icelandic has a wide range of constructions with ‘quirky subjects’, that is to say, DPs that are dative (common), accusative (less common) or genitive (rare), but are nonetheless syntactic subjects. A few examples are given in (1); the nominatives in (1d,e) are syntactic objects.

- (1) a. **Hana** þyrstir.
her.ACC thirsts
‘She is thirsty.’
b. **Hana** vantaði peninga.
her.ACC lacked money.ACC
‘She lacked money.’
c. **Henni** var óglatt.
her.DAT was nauseated
‘She was nauseated.’
d. **Henni** líkuðu hestarnir.
her.DAT liked horses.the.NOM
‘She liked the horses.’
e. **Henni** voru gefnar bækurnar.
her.DAT were given books.the.NOM
‘She was given the books.’
f. **Hennar** var saknað.
her.GEN was missed
‘She was missed (by someone).’

Nominative is by far the most common subject case in Icelandic (see Barðdal 2001). However, in all these (and most comparable) examples, the nominative form *hún* ‘she’ is entirely out of the question. Avery Andrews (1976) was the first to argue that Icelandic ‘quirks’ do not only have the semantics of subjects (as the ‘most prominent’ argument), but do in fact behave *syntactically* like regular, nominative subjects with respect to a host of phenomena, including reflexivization, subject gaps (in PRO infinitives and in Conjunction Reduction), subject-to-subject raising, ECM, and so on (thereby differing from similar arguments in many other languages, e.g. German). Another seminal study, largely within the LFG framework, is that of Zaenen et al. (1985).

In my dissertation (Sigurðsson 1989), I studied the impact of the Icelandic ‘quirky phenomenon’ for standard Government and Binding theory. The problems turned out to be truly damaging for the central idea that NP-movement is case-driven, applies ‘in order for’ the subject to be successfully marked for nominative case. I believe it is fair to say that I demonstrated that Icelandic non-nominative subjects undergo NP-movement in exactly the same manner as do nominative subjects in the language (see also Sigurðsson 1992, 2000, 2003a). In contrast, this has never been demonstrated beyond doubt for similar arguments in many other languages, such as German and Russian (see the discussion in Haeberli 2002, Sigurðsson 2002; see also, e.g., Masullo 1992 on clitics in Spanish).

The obvious way out was of course to analyze Icelandic quirky subjects as carrying invisible nominative case ‘on top of’ their inherent case (as in e.g. Belletti 1988, Jónsson 1996, Chomsky 2001). This is a priori not an implausible idea at all (see the discussion in Sigurðsson in press). However, it is refuted by two very robust facts: First, quirky subjects do not interfere with or ‘absorb’ nominative case: as seen in examples like (1d,e), dative subjects of many predicates allow cooccurring nominative objects. Second, many languages allow deeply embedded nominatives that do not enter into any visible relation with Tense.

Consider the Dat-Nom construction, as in (1d,e) and in (2) below:

- (2) a. Henni mundu hafa leiðst strákarnir.
her.DAT would.3PL have bored boys.the.NOM
b. Okkur mundu ekki hafa líkað þessar
us.DAT would.3PL not have liked these
athugasemdir.
comments.NOM

The mere fact that predicates like *leiðast* ‘find boring’ and *líka* ‘like’ take nominative objects shows that the dative subjects do not ‘absorb’ morphological nominative case (in contrast to dative subjects in Tamil and many dative subjects in Faroese, as discussed in Sigurðsson 2003a, in press, and the references cited there; see also

Jonas 2003 on Faroese). Second, the fact that the nominatives in (2) trigger plural agreement of the finite verb, suggests that these nominatives are structural.¹

Largely on the basis of Icelandic facts of this and related sorts, Chomsky gave up the idea that case is directly responsible for NP-movement and EPP. He contends that “structural Case is demoted in significance” (2000: 127) and that “Case assignment is divorced from movement” (2001: 17). Nonetheless, he explores the idea that there is an indirect correlation between case and NP-movement. T(ense), in his view (2000, 2001) probes for the interpretable ϕ -features of a nominative DP and, subsequently, the EPP feature of T attracts the DP.²

However, even this much weaker understanding of the interaction of Tense, case and EPP meets problems (see Sigurðsson 2000, 2003a, in press, for discussion). One of the more serious ones is the plain fact that ‘low’ nominatives, that do not have any visible relation with Tense, are abundantly manifested cross-linguistically (see e.g. Menching on the Romance languages).³ Thus, the Icelandic Dat-Nom constructions in (2) above are easily embedded in both ECM infinitives and in PRO infinitives (where PRO is dative):

- (3) a. Við töldum [henni hafa leiðst
we believed.1PL her.DAT have found-boring
strákarnir/*strákana].
boys.the.NOM/*ACC
‘We believed her to have found the boys boring.’
b. Hana langaði ekki til [að leiðast þeir/*þá].
her.A longed.3SG not for to bore they.NOM/*ACC
‘She did not want to find them boring.’

1. In Sigurðsson (1996), I suggested that nominatives of this sort might be lexical, an idea that was clearly on the wrong track (as also pointed out in Boeckx 2003).

2. For a closely related, albeit a somewhat different approach, see Pesetsky and Torrego (2001).

3. In addition, there are other types or instances of nominatives that do not relate to Tense, such as predicative DPs, left and right dislocated DPs, DPs in isolation, vocative DPs, and so on. However, these are not as unequivocally and centrally problematic as nominative arguments in infinitives. A subtype of such infinitives that is truly problematic is negative Icelandic infinitives (with pleading force) that allow overt, contrastively focussed nominative subjects:

- (i) Ekki þú/*YKKUR fara líka!
not you.NOM/*ACC leave too
‘Please, don’t YOU leave too.’

This type has gone unnoticed in the linguistic literature, as far as I know. It is frowned upon by many ‘language friends’ (that is what they believe themselves to be), but it is perfect for me and most other native speakers I have asked.

As seen, there is no agreement relation between the finite matrix verb and the downstairs nominatives in examples of this sort.⁴

Chomsky's ideas on case, EPP and related phenomena basically aim at furthering our understanding of the classical 'nexus' problem of how subjects relate to predicates (Jespersen 1924 and many others). Let us refer to this relation as the *DP-Infl Connection*. There is of course no question that this connection usually triggers an agreement correlation between the finite verb complex and *nominative* subjects in languages like Icelandic, French, etc. However, the Icelandic facts illustrate that nominative case is *not* an essential element of the DP-Infl Connection. First, as we have seen, non-nominatives may enter this connection, and, second, nominative case is licensed deeply embedded, that is, outside and unrelated to the DP-Infl Connection. Inasmuch as nominative case may be present in the DP-Infl Connection, its presence in Spec,IP is *not* a causal factor – it is instead a *consequence* of the causal factors.

Two very important questions arise:

- A. What, then, *are* the causal factors of the DP-Infl Connection?
- B. Where and how is nominative case licensed, and what is its function?

I shall address Question B in the next section, dealing with Question A in the remainder of this one.

As we have seen, Icelandic quirky subjects do not interfere with or absorb nominative case. However, they *do* interfere with the matching of *another* feature, namely *Person*. This is illustrated by the agreement asymmetry between 3p on one hand and 1/2p on the other hand in Dat-Nom constructions as in (4) (see the description in Sigurðsson 1990–91, 1996, and the discussion in Boeckx 2000, 2001, 2003, Sigurðsson 2004):

- (4) a. Honum **mundu** alltaf líka þeir. OK
 him.DAT would.3PL always like they.NOM
 'He would always like them.'
- b. *Honum **munduð** alltaf líka þið. *!
 him.DAT would.2PL always like you.NOM.PL
- c. *Honum **mundum** alltaf líka við. *!
 him.DAT would.1PL always like we.NOM

First and second person agreement with the nominative object is sharply ungrammatical, (4b,c), whereas the third person nominative in (4a) triggers plural agreement

4. Such examples exist, however. That is to say, certain nominatives in infinitival complements can agree in number with the matrix verb. However, these examples are of a different nature, irrelevant here (but for a discussion, see Sigurðsson 1996, 2004).

of the verb. Strikingly, this agreement asymmetry is not found in many other languages that have Dat-Nom constructions, for instance German, as illustrated below:

- (5) a. Ihm würden sie immer gefallen. OK
 him.DAT would.3PL they.NOM always like
 b. Ihm würdet ihr immer gefallen. OK!
 him.DAT would.2PL you.NOM always like
 c. Ihm würden wir immer gefallen. OK!
 him.DAT would.1PL we.NOM always like

As I have argued elsewhere (Sigurðsson 2000 and subsequent), facts of this sort suggest that the Infl complex of the clause splits into at least Pers(on), Num(ber) and T(ense) (see further Section 4.1). If so, the clauses in (4)–(5) have roughly the structure in (6), at the relevant level of representation:⁵

- (6) [_{CP} C ... [_{IP=PersP} Pers [_{NumP} Num ... [_{VP} ... DAT ... NOM ...

In Sigurðsson (2004) it is argued that the Icelandic dative matches Pers, by raising into its immediate c-command or feature matching domain, that is to say into Edge, NumP.⁶ This yields the structure in (7):

- (7) [_{CP} C ... [_{IP} Pers [_{NumP} DAT, Num ... [_{VP} ... ~~DAT~~ ... NOM ...
-

As indicated by the feature matching paths, the dative is free to locally match Pers. Simultaneously, having been raised, the dative does not intervene between Num and the nominative object, and they may accordingly agree. This accounts for the grammaticality of (4a): Pers ‘agrees silently’ with the dative (third person being an unspecified person or ‘no’ person), and Num agrees (with only the number of) the nominative object.⁷ In contrast, Pers cannot agree with the nominative object

5. I am using X'-theoretic conventions for expository ease only. X'-theoretic notions are theoretical artifacts that should be dispensed with (see Section 3.2 and the references there).

6. Feature matching is a c-command or an Agree relation (as in Chomsky 2000, 2001), not a Spec-Head relation. For a thorough discussion, see Sigurðsson 2004. Usually it is local, taking place under immediate c-command. That is, a lexical matcher $X\alpha Y$ must usually move into the vicinity of the functional category α being matched, where α immediately c-commands $X\alpha Y$. There are well-known exceptions, but they are arguably subsumed under Matching Minimality as defined in (34) below.

7. Quirky agreement (in the sense of Boeckx 2000) is always morphologically third person singular. On the question of why ‘true’ or overt person agreement is impossible, see Sigurðsson 2003a.

since it is already engaged in a matching relation with the dative. Hence, the ungrammaticality of (4b,c).⁸

Not only does the dative match Person in Icelandic, it subsequently moves on to Edge,IP ('Spec,IP'), where it matches the EPP feature as well. In German, on the other hand, non-nominatives cannot match Person, and are hence blocked by economy from raising to Edge,NumP (where they would have 'no business'). Instead, they raise directly to the EPP position, Edge,IP:

- (8) [_{CP} C ... [_{IP} DAT, Pers [_{NumP} Num ... [_{DAT} ... NOM ...]]]]

Accordingly, the dative does not intervene between Pers and the nominative, and hence both Pers and Num are free to agree with nominative, as in (5b,c).

Icelandic Stylistic Fronting (SF) is a much discussed process that fronts various elements into Edge,IP (see Holmberg 2000 and the references there). It offers interesting evidence that matching of the EPP feature is an independent requirement, distinct from person matching. The evidence in question has to do with *Maling's Generalization*, namely the observation of Maling (1980) that SF is conditioned by a 'subject gap', cannot apply in the presence of a regular overt subject. Consider the examples in (9). In (9a) the participle *talað* 'talked' may be fronted, in the absence of an overt regular subject. In the presence of a regular subject, as in (9b,c), fronting of the participle is excluded (for convenience the copy is shown as a dash here):

- (9) a. Þetta er mál [sem talað hefur verið__um].
 this is matter that talked has.3sg been about
 'This is a matter that has been discussed.'
 b. *Þetta er mál [sem talað hann hefur__um].
 this is matter that talked he has.3sg about
 c. *Þetta er mál [sem talað hefur hann__um].
 this is matter that talked has.3sg he about

8. For a discussion of these complex issues, see Sigurðsson (1996), (2004), and the references cited there (where, among other things, it is shown that the person restriction is only found in the presence of an 'intervener' (either a quirky or a regular subject). Notice that nominative first and second person subjects match Num prior to DP-raising (the matching process not being blocked by any intervening dative), as well as Pers after DP-raising to Edge,NumP. On the other hand, dative subjects in Dat-Nom constructions do not generally null-agree with Num (resulting in a 'singular' or a 'null-number' form; however, this is an option for some speakers, it seems). This suggests that getting the status of a quirky subject in these constructions (generally) involves a permutation or a 'passivization' process, raising the dative across the nominative (see Platzack 1999 for a relevant discussion of the NOM-DAT vs. DAT-NOM alternation). Ergativity might be analyzed along similar lines, but I am not in a position to pursue the issue, interesting as it is.

- d. Þetta er mál [sem hann hefur talað um].
 this is matter that he has.3SG talked about
 ‘This is a matter that he has talked about.’

Stylistic Fronting applies to the closest possible candidate (in a sense explicated by Holmberg 2000), moving it to Edge,IP. In the presence of a regular (nominative or quirky) subject that has moved to Edge,NumP, where it matches Person, the subject itself is the closest possible candidate, thus being stylistically fronted from Edge,NumP to Edge,IP. In the absence of a subject, on the other hand, lower categories, like the participle in (9a), may front into Edge,IP without violating the Minimal Link Condition (MLC, cf. Chomsky 2001: 16):⁹

- (10) a. $^{ok}[_{CP} C \dots [_{IP} SF \dots [_{NumP} \emptyset \dots$ cf. (9a)
 b. $^*[_{CP} C \dots [_{IP} SF \dots [_{NumP} SUBJ \dots$ cf. (9b,c)
 c. $^{ok}[_{CP} C \dots [_{IP} SF = SUBJ \dots [_{NumP} ~~SUBJ~~ \dots$ cf. (9d)

‘High’ NP-movement of subjects (nominative or quirky), then, involves at least two distinct steps, movement into the vicinity of Pers, for person matching, and further movement from there into the vicinity of C, for matching of the EPP feature.¹⁰

Scandinavian expletives offer a similar kind of evidence in favor of splitting between EPP and person matching. The evidence comes from the fact that Mainland Scandinavian expletives ‘invert’ with the finite verb in the same way as regular subjects, whereas Icelandic expletives can only show up clause-initially (Thráinsson 1979, see also, e.g., Platzack 1987, among very many others):

- (11) a. Det blev skjutet tre älgar igår. *Swedish*
 it.N.SG was shot.N.SG three mooses yesterday
 ‘There were three mooses shot yesterday.’
 b. Igår blev *(det) skjutet tre älgar.
 yesterday was (it) shot three moose
 c. Blev *(det) skjutet tre älgar igår?
 was (it) shot three moose yesterday
- (12) a. Það voru skotnir hvalir *Icelandic*
 it were.3PL shot.NOM.PL.M whales.NOM.PL.M
 í gær.
 yesterday

9. In passing, notice that this simply escapes the problem, inherent to many analyses of Stylistic Fronting, of having Spec,IP doubly occupied in subject extraction clauses, by both a subject trace/copy and a stylistically fronted element (cf. Bošković 2003, who also distinguishes between the SF-position and the ‘subject position’).

10. As will be discussed in Section 3.2, the C-category containing the EPP-feature is by necessity non-lexicalized in main clauses.

- b. Í gær voru (*það) skotnir hvalir.
yesterday were (it) shot whales
- c. Voru (*það) skotnir hvalir í gær?
were (it) shot whales yesterday

As seen, the Swedish expletive is obligatory, whereas the Icelandic one is excluded from a post-verbal position.¹¹ Notice also that the neuter singular expletive controls participle agreement in Swedish (as indicated), whereas it has no agreement effects in Icelandic (where both the finite verb and the participle agree with the low nominative *hvalir* 'whales').

Also in subordinate clauses, the Icelandic expletive may only show up clause-initially:

- (13) a. ...að það voru skotnir hvalir í gær.
... that it were shot whales yesterday
- b. ...að í gær voru (*það) skotnir hvalir.
... that yesterday were (it) shot whales

We have an account of these facts if the Swedish expletive is like a normal subject in matching Person (after having matched Number) and then moving on into the vicinity of C, to also match the EPP feature, whereas the Icelandic expletive is like the German datives in (5) above in being unable to match person, thus moving directly into the vicinity of C, where it matches only the EPP feature.

On the present approach, then, 'to be a subject' is to match certain features, most importantly the Person feature and potentially also other ϕ -features and the EPP feature. We might wonder what the nature of the EPP feature is, and I shall return to that issue. However, at this stage of the discussion the important generalization is: Person and potentially also EPP are the driving forces behind the DP-Infl Connection. Nominative case is not a causal factor of the DP-Infl Connection.

In the remainder of this paper I shall try to develop some understanding of why this is so. First (Section 3), what is the nature and function of structural case? Second (Section 4), why are Person and EPP, as opposed to case, driving forces of the computation? As we shall see, these are non-innocent questions, leading to substantial revisions of standard conceptions of the computation and clausal architecture (Sections 4 and 5).

3. The structural cases *are* interpretable

In Chomsky's approach, structural case is *uninterpretable* and must thus delete under matching of ϕ -features (see Chomsky 2001: 6). The ϕ -feature matching or

11. As a matter of fact, Swedish expletive constructions show some variation in this respect, that is, the expletive is sometimes only optional in the post-verbal position (see Falk 1993).

the Agree relation, between T and the nominative DP, in turn, triggers movement of the DP in case T has an EPP feature. Thus, as we noticed above, Chomsky still assumes a correlation between case and NP-movement, albeit only indirectly. In an interview with Belletti and Rizzi he expresses this idea in general terms (2002: 113):

So, the inherent Cases, the ones which are semantically associated, are really not an imperfection: they are marking a semantic relation the interpreter has to know about (like plurality on Nouns). On the other hand, why do we have Nominative and Accusative (or Ergative and Absolutive), what are they doing? They are not interpreted: nouns are interpreted exactly the same way whether they are Nominative or Accusative, and that is like inflectional features on adjectives or verbs: it looks as though they shouldn't be there . . . [but] they are there as perhaps an optimal method of implementing something else that must be there, namely dislocation.

In a sense, it is true, of course, that structural case doesn't alter the interpretation of nouns – nor does inherent case for that matter (Sigurðsson 2003a). In another and a deeper sense, however, this is clearly on the wrong track. The LF features that are so commonly referred to as the abstract 'Cases' do not, of course, have any absolute interpretability, but they do have *relative* interpretability. In that respect these features are similar to, e.g., Tense and Person.

Throughout the generative tradition, there has been a strong trend to mystify case that culminated in Burzio's Generalization, BG (see Burzio 1986: 178), saying that there can be no internal structural case (accusative) unless there is also an external thematic role. The generalization as such is obviously true.¹² In fact it is tautological truth, but the rationale behind it was never made clear. Why should there be a correlation between the external *role* and the internal *case*?

The question is: is there anything at all behind BG that is more interesting than tautological truth in general, say, the truth that my brother is the son of my parents? I believe there is, but Burzio was not 'allowed' to see it at the time, because of the credo that PRO is caseless. Once we accept the fact that PRO (or whatever it boils down to in minimalism) indeed carries case (Sigurðsson 1991), the mystery vanishes, and we realize that BG was a 'historical accident'. The true correlation is not between a role and a case, but between the internal and the external cases, nominative and accusative. It is coined as the *Sibling Correlation* in Sigurðsson (2003a), saying that structural accusative is preconditioned by structural nominative whereas the opposite is not true:

- (14) $(\text{Acc} \rightarrow \text{Nom}) \ \& \ \neg (\text{Nom} \rightarrow \text{Acc})$

12. On a narrow LF understanding of the notion 'structural Case'. There are of course morphological inherent accusatives in, e.g., Icelandic and default accusatives in, e.g., English that do not fall under the scope of BG.

In other words, the relationship between the structural cases is similar to that between a younger and an older sibling, hence the label (there is no younger sibling without an older one, whereas being a first child does not imply having a younger sibling).

What this means is that the structural cases *are* meaningful in relation to each other, that is, nominative vs. accusative may be thought of as features that distinguish between EVENT PARTICIPANTS:

- (15) a. Nominative: 0CASE = EVENT PARTICIPANT₁
 b. Accusative: 1CASE = EVENT PARTICIPANT₂

The ‘digital’ (0 vs. 1) nature of the structural cases is familiar from many other features of language, such as tense, person and binary branching. Plausibly, all linguistic features are binary or digital.

Since the structural cases *are* meaningful or interpretable in relation to each other, it comes as no surprise that we find low nominatives as in (3) above, nor does it come as a surprise that nominative case is not an element of the DP-Infl Connection (except as a consequence of movement, driven by Person or EPP).¹³ The structural cases can be seen as ‘indices’ assigned to θ -roles vP-internally, θ_C , thereby making the roles visible to relations (Move/Agree/Match) with elements outside of vP.

This ‘pure’ or ‘simple’ understanding applies to only the abstract structural cases, that is, to the relevant LF features or relations. The corresponding morphological cases are like other morphological categories in being hybrids, expressing various relations (nominative predicates, accusative DP adverbials, inherent argumental accusatives, and so on). Notice also that the inherent cases are more complex than the structural ones in the sense that they do not only distinguish between event participants but also specify their relation to the event.¹⁴ This accords well with the fact that inherent case-marking is cross-linguistically much less common than is structural case-marking (see Blake 2001: 156ff.).

Many intriguing questions arise. Thus, it seems plausible to assume that Nom and Acc are merged higher than V and then matched by the θ -roles of V, by ‘very low’ NP-movement, so low that it is usually invisible in ‘surface structure’. Possibly, the inherent cases are merged higher than the structural ones (vP-internally, though),

13. As pointed out in Sigurðsson in press, all languages that have been studied in this respect seem to have at least some low nominatives (even English, to a rather limited extent though).

14. That is, they are presumably matched against an ‘extra’ category, most commonly an aspectual one. Vocatives (at least in languages like Latin and Ancient Greek) are evidently matched against a still higher category that belongs to the speech event (presumably the logophoric patient, cf. Section 5).

subsequently being matched by ‘structurally cased’ θ -roles (leading to double ‘case-marking’: [DAT[NOM[θ]]], etc.). Interesting as these issues are, they cannot be dealt with here.

Introducing the notion of (absolutely) uninterpretable features into LF was a dubious step: Why would LF operate with features which the ‘understanding interface’ does not ‘understand’, only to eliminate them? By far the most urgent motivation for taking this step came from the structural cases, it seemed.¹⁵ Having removed that motivation we can contend that there is no such thing as uninterpretable features in LF.

4. Grammar is event–speech matching

The central question that now arises is: *Why* is Person (in combination with other ϕ -features) so important in grammar? The answer I want to suggest is that it is for very much the same reasons as Tense is. Both Person and Tense, I argue, are basic computational elements, computing features of the propositional event in relation to features of the speech situation or the speech event. That is what grammar basically is: a computational device that *interprets* propositional event features in relation to speech features. It is *not* a device that deletes features.

4.1 Clausal architecture I: background

Ever since Chomsky introduced Aux into grammar (1957: 38–39), he has assumed a very ‘slim’ clause structure. Consider the following, incomplete historical sketch:

- | | | | |
|------|----|------------------------|--------------------------------------|
| (16) | a. | Aux | Chomsky 1957, 1965 |
| | b. | Infl | Chomsky 1981 |
| | c. | AgrS – T – AgrO | Chomsky 1991, 1993 |
| | d. | T – v | Chomsky 1995: 355ff., and subsequent |

The system in Chomsky (1991) and (1993) is ‘rich’ in comparison with the other systems suggested by him, but it is truly Spartan in comparison with the system suggested in Cinque (1999) (see also Julien 2002, with minor revisions), with its four mood categories, three tenses, six modalities, fourteen aspects and (spectacularly) single voice:

- | | | | |
|------|-----|------------------|------------------------------------|
| (17) | 1–3 | Mood: | speech act, evaluative, evidential |
| | 4 | Modality: | epistemic |
| | 5–6 | Tense: | past, future |

15. Another one seemed to be provided by uninterpreted agreement features, but such features can be analyzed as PF features, given the approach to Agree developed in Sigurðsson (2004).

7	Mood:	irrealis
8–12	Modality:	necessity, possibility, volitional, obligation, ability/permission
13–16	Aspect:	habitual, repetitive(I), frequentative(I), celerative(I)
17	Tense:	anterior
18–27	Aspect:	terminative, continuative, perfect(?), retrospective, proximative, durative, generic/progressive, prospective, SgCompletive(I), PlCompletive
28	Voice	passive
29–32	Aspect:	celerative(II), SgCompletive(II), repetitive(II), frequentative(I)

Given the (entirely plausible) kind of a research program Cinque pursues, there is in fact robust evidence for *many more* categories than these, that is, even his ‘extravagant’ system is arguably much too modest. Consider for instance some of the categories discussed in Palmer (2001) and even in Nida (1949: 166–169). Consider also two conceptually closely related but nonetheless very different approaches to the left edge of clausal structure, those of Rizzi (1997) and Poletto (2000), sketched in (18):

- (18) a. Rizzi: Force – Top* – Foc – Top* – Fin – Infl
 b. Poletto: Ld – C – Wh – Infl

Obviously, our ideas about universal clausal architecture are tentative and our knowledge of the issue is limited, to say the least. The most interesting question here is not the ‘plain’ matter of fact question of what the universal functional categories are – difficult and important as that question is – but rather the more delicate epistemological question of how we can possibly acquire even only *some* knowledge of the issue. Our methods of deciding what is a possible clause structure and what is not are evidently rather unsophisticated.

Chomsky’s motivation for “eliminating Agr from UG entirely” (1995: 335) was clear enough: morphological agreement does not have any semantic import, hence there are plausibly no complex Agr elements at LF.¹⁶ Evidently, however, he took the wrong turn. Instead of dispensing with Agr, we should split it into its components, minimally Person and Number. Similarly, Chomsky’s ‘Tense’ is merely a convenient cover term for more elements, minimally Tense and Mood. In the working papers version of *Derivation by Phase*, Chomsky (1999, Fn. 14) actually reintroduced Agr, saying that his account in terms of only T and v “should be restated” . . . such that it is “Agr and not T/v that is the locus of ϕ -features, Case, and EPP”. In the final version of that paper, he is less explicit (or more cautious), saying: “For expository purposes, I . . . use T and C as cover terms for a richer array

16. There are, in fact, some cases of agreement expressing systematic meaning-form correlations (cf., e.g., some of the secondary predicate agreement facts discussed in Sigurðsson 2002), but these are clearly an epiphenomenon.

of functional categories . . .” (Chomsky 2001, Fn. 8, see also Chomsky 2002: 123 on ‘cartographic studies’).

In Chomsky’s own view, then, there are more functional clausal categories than just T and v. The question is how we can acquire knowledge of the “richer array of functional categories”. Much as Cinque’s (1999) adverb and word order criteria, morphological criteria may of course be of some help here. Thus, Icelandic offers striking evidence in favor of splitting the classical Infl into Tense, Mood, Number, and Person. This is illustrated in (19) for the plural past tense indicative and subjunctive forms of *fá* ‘get’.¹⁷ The subjunctive marker *-i-* is mostly invisible, but it is sometimes indirectly visible as a palatalization effect on a preceding *-g-* or *-k-*, indicated in spelling by the letter *-j-* (in boldface below); the absence of an overt tense marker (compensated for by Ablaut in the stem) is of course due to the fact that the verb in question is strong:¹⁸

(19)	V	T	M	Num	Pers			
a.	feng	-	-	u	m	=	<i>fengum</i>	(PAST.IND.PL.1)
b.	feng	-	-	u	ð	=	<i>fenguð</i>	(PAST.IND.PL.2)
c.	feng	-	-	u	-	=	<i>fengu</i>	(PAST.IND.PL.3)
d.	feng	-	i	u	m	=	<i>fengjum</i>	(PAST.SUBJ.PL.1)
e.	feng	-	i	u	ð	=	<i>fengjuð</i>	(PAST.SUBJ.PL.2)
f.	feng	-	i	u	-	=	<i>fengju</i>	(PAST.SUBJ.PL.3)

Interesting and suggestive as facts of this sort are, their import is lessened by the fact that they are language-specific. This kind of evidence is obviously not available for English, for instance, nor is it even available for German, in spite of its relatively rich verb morphology and close genetic relationship with Icelandic.

However, the particular split in (19) is obviously not coincidental. It is not a mere accident that Tense, Mood and the ϕ -features all relate to features of the *speech event*, that is, the time/location of speech and the speech participants, primarily the ‘speaker’ (see Giorgi and Pianese 1997 on the speech event; cf. also Bianchi 2001, 2002). This becomes natural on the assumption or hypothesis that grammar adheres to the *Computation Principle* in (20):

- (20) Grammar computes (or interprets) propositional event features in relation to speech event features.

17. Notice that the import of these facts does not rely on any special understanding of verb raising. No matter how we conceive of the correlation between movement and morphology, the facts irrefutably illustrate that Icelandic grammar distinguishes the subcomponents of the classical Infl. That is all that matters here.

18. These facts are discussed in more detail in Sigurðsson (2001), also for the more opaque singular forms.

Schematically, we can express this as follows, where ‘Event’ and ‘Speech’ are shorts for ‘propositional event’ and ‘speech event’, respectively:

$$(21) \quad \text{Event} \boxed{\Leftrightarrow \text{Computation} \Leftrightarrow} \text{Speech}$$

That is, grammatical *features* compute or interpret event features in relation to speech features; $A \leftrightarrow B$ denotes the relation ‘A is computed/interpreted in relation to B’:

$$(22) \quad \text{Event } f \leftrightarrow \text{Grammatical } f \leftrightarrow \text{Speech } f$$

Any regular event feature is computed in relation to a grammatical feature (overt or silent), and the grammatical feature is in turn computed in relation to a speech feature.¹⁹ This is in essence the displacement property of language, that is, the property that makes it possible for humans (as opposed to most or all non-human animals) to communicate about events that are displaced, not present in the speech event (cf. Hockett 1960; Hauser 1997: 211; Di Domenico 2003).

The Reichenbachian approach to tense (Reichenbach 1947) is the only generally acknowledged and well studied instantiation of the Computation Principle (see Hornstein 1990, Giorgi and Pianesi 1997, Cinque 1999, Julien 2001 and many others). The basic Reichenbachian insight is often illustrated with the past perfect, as in (23):

$$(23) \quad \text{John had eaten breakfast (before nine).}$$

The tense reading of examples of this sort is usually analyzed as E_R_S, that is: event time (E) before reference time (R), and reference time, in turn, before speech time (S). In other words, the event of ‘eating breakfast’ happened before the reference time of the grammatical tense (here past), and the time of the grammatical tense was prior to the time of speech.

The event time, thus, is interpreted or valued in relation to the grammatical tense (reference time), which in turn is interpreted in relation to the speech time. We may sketch this as in (24), where E_T is the event time, T is the grammatical tense, and S_T is the speech time:

$$(24) \quad E_T \leftrightarrow T \leftrightarrow S_T$$

This is widely acknowledged, of course (see e.g. Giorgi and Pianesi 1997: 27ff., Cinque 1999: 81ff.). Amazingly, however, another closely related fact has not been generally noticed, namely the fact that Person and other ϕ -features have a parallel

19. A difficult question that I leave open is what counts as a ‘regular’ event feature (and not as an idiosyncratic or an encyclopedic lexical feature).

status as grammatical Tense. That is, these grammatical participant features (P) relate event participants, E_p , and speech participants, S_p :

$$(25) \quad E_p \leftrightarrow P \leftrightarrow S_p$$

Importantly, the inherent speech participants are *not* simply the speaker and the addressee, as commonly assumed. Rather, they are the agent and the patient of speech, i.e. logophorically active vs. passive selves. Consider the very simple examples in (26):

- (26) a. I love you.
 1SG = the speaker = the logophoric agent (and also the ‘loving one’)
 2SG = the addressee = the logophoric patient (and also the ‘loved one’)
 b. John said to me: “I love you.”
 1SG = John = the logophoric agent (and also the ‘loving one’)
 2SG = the speaker = the logophoric patient (and also the ‘loved one’)

As this illustrates, the constant meaning of the personal pronouns is not speaker vs. addressee, but logophoric agent vs. logophoric patient.

Let us refer to these logophoric roles or features as λ -features. As we have seen, the cases ‘index’ or distinguish between event participants at a vP-internal level, that is, event participants are cased θ -roles or θ -features, θ_C . The linking or grammatical function of person and other ϕ -features may thus be sketched as follows:

$$(27) \quad \theta_C \leftrightarrow \phi \leftrightarrow \lambda$$

In feature based syntax, where labelling and X'-theoretic conventions are dispensed with (Collins 2002, see further below), an argument is obviously *not* a ‘position’ nor is it a ‘DP’. rather, it is *a set* of relationally interpreted features (typically matched by a single PF element):

$$(28) \quad \text{‘Argument’} = \{\theta_C \leftrightarrow \phi \leftrightarrow \lambda\}$$

On this understanding, inherent features of the speech event are *not* ‘pragmatic’ (see further Section 4). They are *syntactic*, indispensable elements in LF, crucially entering the computation of every single clause. Linguistic expressions generally have *no truth value* unless they are computed in relation to the speech event and its components.²⁰

The speech event, then, is not outside clausal structure, it is crucially syntactic, and we must revise our ideas of syntax accordingly. There has been a strong trend in linguistics since the 1970s to escape this conclusion, probably for various reasons. Perhaps the simplest and also the most important reason is that incorporating the

20. Tautological truths might be an exception, but it is not obvious to me that they really are.

speech event into clausal structure raises some extremely hard questions, so hard that we do not even seem to have any tools to deal with them. It is high time that we start making some of the tools.

4.2 Clausal architecture II: extensions

The first of our hard questions is, simply, how the inherently silent speech event relates to the audible clause. The plain approach is to assume that any utterance is a Speech Phrase, SP, containing elements of the speech event in its left sphere and dominating the audible clause:

$$(29) \quad [_{SP} \dots [_{IP} \dots$$

Another obvious question is what elements the 'left sphere' of SP contains. Inevitably, it contains basic elements of the minimal speech event, the time and location of speech and the inherent speech participants, that is, the logophoric agent and patient, λ_A and λ_P . In addition, I assume it contains the left sphere elements of the CP or the ForceP in the approach of Rizzi (1997), minimally Force, Top and Fin(iteness).

The time and location of speech may either be thought of as two distinct features, S_T and S_L , or as a single feature, $S_{T/L}$, which would be compatible with the localist view of deictic relations (cf. Lyons 1977: 718ff.). For expository ease I start out by assuming the 'simpler', localist view ($S_{T/L}$), later turning to reasons that suggest that the non-localist, 'split' view (S_T and S_L) is more to the point.

$S_{T/L}$, I take it, is the Fin(iteness) feature of Holmberg and Platzack (1995), Rizzi (1997), Platzack and Rosengren (1998) and others. The minimal, inherent speech event may thus be described as in (30):

$$(30) \quad \text{Speech event} \quad \{S_{T/L} = \text{Fin}, \{\lambda_A, \lambda_P\}\}$$

However, it is clear that the speech event may be EXTENDED so as to incorporate elements from discourse or other elements that are given in the speech situation (see von Stechow 2002 on pronominal salience). Some languages have proximate morphological marking for nominal or adverbial elements of this sort.²¹ Generalizing over all proximate objects as 'Px', we can describe the extended speech event as follows:

$$(31) \quad \text{Extended speech event} \quad \{S_{T/L} = \text{Fin}, \{\lambda_A, \lambda_P\}, \{Px_n, Px_{n+1}, \dots\}\}$$

21. Certain proximate adverbials in Icelandic are marked with a *-na* suffix, Swedish uses 'there' and 'here' in combination with proximate pronouns ('he there', etc.) and similar phenomena are found in e.g. English and German. For a more general and interesting system, see Bickel et al. 1999 on the Maihtili verb inflection system.

Assuming that proximate objects are ‘topics’, we can to an extent unify this idea with the system proposed by Rizzi (1997), as illustrated in (32):

- (32) $[_{SP} \lambda_A \dots \text{Force} \dots \text{Top} \dots S_{T/L} = \text{Fin} [_{IP} \dots \text{Pers} \dots \text{Num} \dots M \dots T \dots$

For simplicity, I do not take the logophoric patient (the ‘addressee’) into account and show only one Top (notwithstanding the fact that a clause may have more than one proximate elements).²²

Only a while ago it would have been tempting to analyze either Force or $S_{T/L} = \text{Fin}$ as a ‘head’ of the ‘speech predicate’, taking the logophoric agent and patient as external and internal arguments, respectively. Also, one would have wanted to see the SP as a ‘maximal projection’ of some ‘head’, say Force (cf. Rizzi 1997) or $S_{T/L} = \text{Fin}$. In feature based syntax, as pursued here, however, X’-theoretic notions like ‘head’, ‘specifier’ and ‘maximal projection’ make no sense. Labelling and X’-theoretic conventions are theoretical artifacts that must be dispensed with (see Starke 2001, Collins 2002).²³ That is:

- (33) *The Feature Principle:*
LF consists of (at least partly) ordered features that are matched in PF by more or less complex material²⁴

Thus, whether a feature is matched by a single ‘word’ or a complex ‘phrase’ is, as such, unimportant. Rather, matching is controlled by minimality:

- (34) *Matching Minimality:*
A category F that merges with the structure X is matched by the closest substructure of X that contains an accessible f , f a potential matcher of F

This does not tell us what is a ‘possible substructure’ and what is not. If remnant movement is an option in grammar, it should plausibly be understood in terms of

22. An obvious possibility to explore is that the facts of clitic placement in for instance Romance languages (cf., e.g., Poletto 2000) are largely due to overt λ -matching, but I am in no position to pursue the issue.

23. Cf. Chomsky (2002: 151): “X-bar theory is, I think, probably wrong”.

24. A central issue that I cannot really discuss here is how the ‘lexicon’ relates to ‘grammar’. Our lexica are clearly the meeting place of universal linguistic features (i.e. LF features in the sense argued for in Sigurðsson 2003b) and of features of other, non-linguistic subsystems of mind (inference, conscious thought, classification, . . .). Problematically, this seems also to apply to an extent to ‘grammar’ in the conventional sense, that is, individual languages ‘grammaticalize’ or ‘conventionalize’ features, such as social class, that would seem to be features of conscious thought rather than part of Universal Grammar (see e.g. Bickel et al. 1999, Chandrasena Premawardhena 2002). Further research might however reveal that conventions of this sort can be analyzed in terms of abstract features of language.

matching minimality. If so, almost anything would count as a ‘possible substructure’ (see Kayne 2003), but I leave the question open here.

As in Chomsky (2000, 2001), feature matching is in a sense ‘anti Spec-head’, that is, it takes place under c-command, where the ‘probe’ looks for a matcher or a ‘goal’ within its c-commanded sister. Arguably, matching is an integrated part of Merge, applying whenever Merge applies (see the discussion in Sigurðsson 2004). It follows that for instance (the IP external) $\text{Fin}/S_{T/L}$ is matched by some element within IP.

A difficult and a much discussed question is whether movement is triggered by matching or by an independent EPP feature. Chomsky opts for the latter analysis, assuming that a probe, for instance T, triggers movement to its left (i.e. into its ‘specifier’) if it is accompanied by an EPP feature (see e.g. Chomsky 2001: 8–9). I take the opposite view here (see also Sigurðsson 2004), assuming that movement is motivated by Merge/Agree: If X is to be merged with a ‘selecting’ F, its edge features must match the requirements of F and this is accomplished by movement of an element containing the matching features to the edge of X.²⁵ Accordingly, a subject or a stylistically fronted element is not attracted to Edge,IP by an EPP feature of an Infl feature like Tense or Person. Rather, movement to Edge,IP is driven by merger of IP with its ‘selector’, $\text{Fin}/S_{T/L}$, that is, an element moves to Edge,IP ‘in order to’ meet the matching requirements of Fin. – Plainly, Fin is the ‘mysterious’ element that triggers EPP effects, such as ‘high’ NP-movement, merger/move of expletives and Stylistic Fronting (recall the discussion of these phenomena in Section 2 and see further the next subsection).

On this approach, sisterhood and matching (under c-command) are the *only* structural relations. There are *no external elements*, that is, so-called ‘specifiers’ and ‘adjuncts’ (which would have moved and/or merged to the left of their selector) are nonexistent. Rather, ‘specifiers’/‘adjuncts’ are ‘internal’ or *to the right* of some selector or ‘mergee’, such as $\text{Fin}/S_{T/L}$. The general picture is sketched in (35), where the square brackets correspond to what we are used to think of as maximal projections:

- (35) ... Selector₁ [_{Selectee1} Edge, Selectee₁, Selector₂ [_{Selectee2} Edge, Selectee₂, ...

A ‘real’ example follows (where IP = PersP, NumP, M(ood)P and TP are X’-theoretic notions, used here for convenience only):

- (36) a. [_{SP} ... Fin [_{IP = PersP} SUBJ, Pers [_{NumP} *SUBJ*, Num [_{MP} *SUBJ*, M [_{TP} *SUBJ*, T ...

25. ‘Selection’ is another term for abstract Agree (Sigurðsson 2004; see also, in somewhat different terms, Frampton and Gutman 2000).

b. The derivation, where ‘+’ denotes ‘merges with’:

- 1 $[_{MP} M [_{TP} SUBJ, T \dots]$
- 2 $[_{MP} SUBJ, M [s_{\overline{A}B}, T \dots]$
- 3 $Num + [_{MP} SUBJ, M [s_{\overline{A}B}, T \dots]$
- 4 $[_{NumP} SUBJ, Num [_{MP} s_{\overline{A}B}, M [s_{\overline{A}B}, T \dots]$
- 5 $Pers + [_{NumP} SUBJ, Num [_{MP} s_{\overline{A}B}, M [s_{\overline{A}B}, T \dots]$
- 6 $[_{PersP} SUBJ, Pers [_{NumP} s_{\overline{A}B}, Num [_{MP} s_{\overline{A}B}, M [s_{\overline{A}B}, T \dots]$
- 7 $Fin + [_{PersP} SUBJ, Pers [_{NumP} s_{\overline{A}B}, Num [_{MP} s_{\overline{A}B}, M [s_{\overline{A}B}, T \dots]$

In 1, the derivation has already come as far as merging M with TP , step 2 involves subject raising to $Edge,MP$, where the subject features can match the requirements of a potential selector, step 3 merges MP with Num , the number value of the subject in $Edge,MP$ matching Num , as required, and so on.

For expository convenience I am assuming that subject raising to the local edge each time takes place prior to the next merger, an approach that has a look-ahead flavor to it (or presupposes a ‘crashing design’ of grammar, but see the discussion in Frampton and Gutman 2002 against such design). Alternatively, merger precedes subject raising, the subject subsequently ‘tucking in’, where it meets the matching requirements of the merged category. Either way, long distance matching (i.e. matching that does not trigger overt movement) needs to be accounted for. It is arguably accommodated by Matching Minimality, as formulated in (34) above, but I shall not pursue the issue here. It will however turn up again (in connection with speech time matching by Tense).

In many cases, even normally, the ‘selector’ or the merged category is a silent feature, as we shall see.

4.3 Evidence: the mysterious First Position Constraint

The distribution of the expletive *það* ‘there, it’ in Icelandic offers interesting evidence in favor of the present approach. As mentioned in Section 2, it is allowed in clause-initial position only:

- (37) a. *Það* hefur verið talað um þetta.
 it has been talked about this
 ‘This has been talked about/discussed.’
 b. Hefur (**það*) verið talað um þetta?
 has (it) been talked about this

Let us refer to this restriction as the *First Position Constraint*, FPC. It has been widely discussed in Scandinavian syntax over the last quarter of a century (Thráinsson 1979, Rögnvaldsson 1984, Platzack 1987, Ottósson 1989, Sigurðsson 1989, Magnússon 1990, Rögnvaldsson and Thráinsson 1990, Kosmeijer 1991, 1993, Falk 1993, Vikner 1995, Holmberg and Platzack 1995, Hróarsdóttir 1998,

Holmberg 2000, and many others). The best known approach to it (Platzack 1987, cf. 1986: 224 ff.) is that the Icelandic expletive differs from expletives in most related languages in being successfully generated (merged) only in Spec,CP, hence never having access to (or being able to move through) Spec,IP. However, if this is true we would not expect *það* to be able to show up in subordinate clauses, contrary to fact:

- (38) a. Ég veit að **það** hefur verið talað um þetta.
I know that it has been talked about this
'I know that this has been talked about/discussed.'
b. Ég veit að um þetta hefur (***það**) verið talað.
I know that about this has (it) been talked

In order to account for these distributional facts, Platzack (1987) proposed the well-known Recursive CP Analysis, claiming that subordinate clauses with *það* have an extra CP-layer. This account may be schematized as follows:

- (39) a. ^{ok}[_{CP} *það* verb [_{IP} ...]
b. ^{ok}[_{CP} að [_{CP} *það* verb [_{IP} ...]
c. ^{*}[_{CP} (X) verb [_{IP} *það* ...]

As seen, this allows *það* in clause initial position in both main and subordinate clauses while correctly excluding it from a clause internal, post-verbal position. However, this predicts that *það* should be found in only those subordinate clauses that can plausibly be analyzed as 'embedded main clauses' (see the discussion in e.g. Platzack 1987, Holmberg and Platzack 1995, Vikner 1995). As demonstrated in great detail by Magnússon (1990), however, this is empirically refuted, even quite robustly so: *það* is allowed in most types of subordinate clauses.²⁶ Three examples follow; as shown, subordinating force elements like *hvort* 'whether', *ef* 'if', *þegar* 'when', etc. allow an optional *að* 'that' (as described in Thráinsson 1980):

- (40) a. Ég veit ekki [hvort (að) **það** hefur verið talað um þetta].
I know not whether (that) it has been talked about this
'I don't know whether this has been discussed.'

26. Basically, it is excluded in 'subject-gapped' clauses, that is, relatives, interrogatives, etc. with a 'subject gap'. As will be discussed shortly, the Icelandic expletive signals that the proposition contains either no participant or only a speech event ABSENT one. In subject-gapped clauses the 'gap' necessarily refers to a participant that is PRESENT in the (extended) subordinate speech event, hence the blocking of the expletive (as opposed to Stylistic Fronting).

- b. Ég verð hissa [ef (að) það hefur verið talað um þetta].
 I will-be surprised if (that) it has been talked about this
- c. Ég verð glaður [þegar (að) það hefur verið talað um þetta].
 I will-be glad when (that) it has been talked about this

In view of the syntactic distribution of *það*, Ottósson (1989) developed an alternative, generalized Spec,IP analysis of *það*, claiming that main clauses with *það* are plain IPs, not CPs:

- (41) a. ${}^{ok}[_{IP} \text{það verb} \dots]$
 b. ${}^{ok}[_{CP} \text{Complementizer } [_{IP} \text{það verb} \dots]]$

The problem with this approach as it stands, however, is that it offers no account of the central distributional fact, namely the First Position Constraint:

- (42) $*[_{CP} (X) \text{ verb } [_{IP} \text{það} \dots]!!]$

If *það* is allowed in a main clause non-verb-second Spec,IP, (41a), and in a subordinate Spec,IP (locally c-commanded by a complementizer in Comp, (41b)), why is it then not allowed in a main clause verb-second Spec,IP (locally c-commanded by a verb in Comp, (42))? It would be ‘equally’ located in Spec,IP in all these cases.

The irrefutable fact that linguists have not been willing or able to appreciate is simple: The *main-clause initial null*, as it were, is like an overt subordinating complementizer in ‘licensing’ *það*. As sketched in (43), we have an account of this, if the complementizer *að* lexicalizes Fin (cf. the analyses in Rizzi 1997, Platzack and Rosengren 1998), whereas Fin in main clauses is empty:

- | | | | | |
|------|-----------------------------|--------------|---------------|----------------------------|
| (43) | | Force | Fin | |
| a. | Main clauses: | Ø | Ø | [<i>það</i> ... |
| b. | Declarative subordination: | Ø | <i>að</i> | [<i>það</i> ... ‘that’ |
| c. | Interrogative subordination | <i>hvort</i> | (<i>að</i>) | [<i>það</i> ... ‘whether’ |
| d. | Conditional subordination: | <i>ef</i> | (<i>að</i>) | [<i>það</i> ... ‘if’ |
| e. | ... | | | |

In all instances, then, *það* merges in or moves to Spec,IP ‘in order’ to match Fin – and we have an account of the mysterious First Position Constraint, after all. The question arises when Force and Fin may be lexicalized and when they may not. Plausibly, these elements are silent by necessity in main clauses (although they are matched by phonological items which they c-command): Plainly, no utterance is possible without being anchored in a silent speech event. This is even true of pragmatic ‘PF shortcuts’ like *Huh?* ($\approx$ e.g. ‘What did you say?’) and *Aha!* ($\approx$ e.g. ‘I told you so!’). The possible interpretations of PF shortcuts of this sort are severely limited, much

more so than one would expect on the basis of mere, non-linguistically limited pragmatics: their meaning largely consists of the meaning of an intonationally matched (and spelled-out) Force plus the meaning of other (silent) elements of the speech event.

While main clauses are interpreted or computed in relation to a *primary* speech event, subordinate clauses are computed in relation to a *secondary* speech event that is *bound* by another event. Two basic possibilities arise: the ‘binder’ may be the primary speech event, or it may be a propositional event.²⁷ In the first case, the subordinate clause is indicative in a language like Icelandic, in the second case it is subjunctive.²⁸

- (44) a. Jón vissi ekki að Pétur fór sama dag.
 John knew not that Peter left.IND same day
 ‘John didn’t know that Peter left/had left the same day.’
 b. Jón vissi ekki að Pétur færi sama dag.
 John knew not that Peter left.SUBJ same day
 ‘John didn’t know that Peter was leaving/would leave the same day.’

In both cases, the past tense *fór/færi* ‘left’ is computed in relation to the secondary speech time of the subordinate clause, S_{T2} , the difference being that S_{T2} has the same value in (44a) as the primary speech time of the main clause, S_{T1} (hence both the event of leaving and the main clause event of knowing are past with respect to S_{T1}), whereas S_{T2} is past with respect to S_{T1} in (44b) but simultaneous as the past main clause event time, that is, to the time of knowing, E_{T1} . Accordingly, the event of leaving in (44b), E_{T2} , gets simultaneous or even future reading with respect to the main clause event time of knowing, E_{T1} (much as the basic present tense often gets future reading in indicative main clauses; for a discussion, see Sigurðsson 1990a). In short, the speech event of subordinate clauses is secondary in the sense that it is anaphoric or dependent on another event, either a superordinate propositional event or the primary speech event. – I will return to secondary speech event binding in Section 5.

27. This is a simplification since it is actually the individual features of a secondary speech event that are bound by individual features of another event (for some initial observations, see Section 5).

28. There are some intriguing differences with respect to the subjunctive/indicative distinction between e.g. German, Icelandic and the Romance languages that I shall not address here. For a more general discussion, see Palmer (2001: 112ff.).

Plausibly, the anaphoric speech event of subordinate clauses differs from the primary speech event in typically being at least partly lexicalized, by ‘speech anaphoric’ complementizers, like *that*. As seen in (43) above, this is what I assume.

Two further interesting issues arise here. The first one is the fact that Stylistic Fronting is like *Það* in also obeying the First Position Constraint (Sigurðsson 1997, Holmberg 2000), in both main and subordinate clauses:

- (45) a. **Talað** hefur verið um þetta.
talked has been about this
‘This has been talked about.’
b. *Hefur **talað** verið um þetta?
has talked been about this
- (46) a. Ég veit að **talað** hefur verið um þetta.
I know that talked has been about this
‘I know that this has been talked about.’
b. *Ég veit að um þetta **talað** hefur verið.
I know that about this talked has been
c. *Ég veit að um þetta hefur **talað** verið.
d. Ég veit að um þetta hefur verið **talað**.

This is accounted for if Stylistic Fronting, like the expletive, matches an EPP feature, roughly as in Holmberg’s (2000) approach, that is, the Fin feature in the present approach.

Another issue that is of interest in this connection is that Icelandic PRO infinitives do not allow any kind of ‘left edge lexicalization’, not even by Stylistic Fronting (SF). Compare the finite clauses in (47) to the non-finite ones in (48):

- (47) a. **Það** var sagt fróðlega frá málfræði.
it was told interestingly about linguistics
‘People/Someone spoke interestingly about linguistics.’
b. **Sagt** var__fróðlega frá málfræði. SF
told was interestingly about linguistics
‘People/Someone spoke interestingly about linguistics.’
- (48) a. Að vera sagt frá málfræði er fróðlegt.
to be told about linguistics is interesting
b. *Að **manni** vera sagt frá málfræði er fróðlegt. /***Manni** að vera . . .
to one.DAT be told about linguistics is interesting
c. *Að **sagt** vera frá málfræði er fróðlegt. /***Sagt** að vera . . . SF

While the ungrammaticality of (48b) might perhaps follow from some extended version of the standard Case account of PRO, the ungrammaticality of (48c) is left unaccounted for under such an approach. If ‘left edge lexicalization’, on the other hand, involves matching of the Fin feature, as in the present approach, then such

matching is plausibly excluded in PRO infinitives and the ungrammaticality of both (48b) and (48c) is accounted for. – See also Platzack and Rosengren (1998) on imperatives.

Non-arbitrary PRO evidently shares a speech event with its controller, whereas a lexicalized subject must be anchored in ‘its own’ speech event (free or bound). The non-lexicalization of PRO follows directly without any reference to case, a highly desirable result in view of the well-known PRO case facts of Icelandic (Sigurðsson 1991).

If this understanding of finiteness phenomena is on the right track, however, Fin may be matched by very heterogeneous kinds of elements:

- (49) Fin (EPP) is matched by:
- a. Ordinary referential subjects (nominative or quirky) in languages like English, Mainland Scandinavian (MSc) and Icelandic.
 - b. Expletive subjects like English *there* and MSc *det*, that is, expletives that are evidently ϕ -feature specified; more exactly, these elements are ϕ -feature specified by default as third person singular, [-1p, -2p; -Pl].
 - c. Expletive non-subjects like Icelandic *Það*, that is, expletives that are entirely un-specified for ϕ -features.
 - d. ‘Quirky’ DPs of the German type, discussed in Section 2.
 - e. Various kinds of stylistically fronted elements in a language like Icelandic: participles, infinitives, adverbs, particles, ... (see Maling 1980, Holmberg 2000).

This might be accommodated if Fin is like other *basic categories*, such as Tense and Person, in being matched by more than one *value*. Recall that Fin in the present approach is $S_{T/L}$, the time and location of speech. Plausibly, the time/location of speech is matched by elements that are either PRESENT (OR HERE/NOW) OR ABSENT in relation to the speech event, [$\pm$ here] in a binary feature system (IN and OUT in the terminology of Di Domenico 2003). If so, the facts in (49) are not as chaotic as they might seem, at first sight. While ordinary 1st and 2nd person subjects as well as (most) definite 3rd person subjects are PRESENT (or ‘IN’) in the (extended) speech event, expletive elements like English *there* and Icelandic *Það* ‘signal’ that the propositional event contains a participant (θ -feature/role) that is ‘speech event ABSENT’ (English *there*) or that it contains no ‘speech event PRESENT participant’ (English *it*, Icelandic *Það*), that is, either only an ABSENT participant or no participant at all.²⁹ Consider (the well-known type of facts in) (50):

- (50) a. *There is a man sitting.
b. There is a man sitting in the garden.

29. It follows from this approach that expletives do have (‘negative’) semantic import and must thus be included in the numeration, contra e.g. Bošković (2002).

The propositional event of sitting is PRESENT with respect to the speech event in (50a), and hence the expletive *there* leads to a contradiction, signalling that this ‘present sitting’ contains a participant that is speech-event ABSENT. In a clause like *I am sitting* or *He is sitting*, this contradiction does not arise, nor does it arise in (50b), where the adverbial *in the garden* explicitly marks the event of sitting as being ABSENT (‘not HERE, but in the garden’) hence compatible with an ABSENT participant.³⁰

As this suggests, propositional events are like participants in being either PRESENT or ABSENT in relation to the speech event. Since Stylistic Fronting usually fronts an element that either wholly or partly lexicalizes the propositional event (main verb participles, infinitives, particles), it seems plausible to assume that it (in e.g. (45a), (46a), (47b)) matches Fin, by fronting an ABSENT ‘event category’. This accords well with the fact that purely temporal auxiliaries, as opposed to e.g. aspectual auxiliaries, cannot usually be stylistically fronted (see Jónsson 1991, Holmberg 2000: 468ff.).³¹

There is a matching hierarchy with respect to Fin, such that referential subjects (PRESENT participant) take precedence over expletives (ABSENT participant or NO participant), which in turn take precedence over Stylistic Fronting (ABSENT event):³²

(51) Referential subject >> Expletive >> Stylistic Fronting

30. An interesting phenomenon is that ‘removed’ tenses do not license clauses like **There was a man sitting*, **There had been a man sitting*, etc. This accords well with Fin(iteness) actually being speech location rather than speech time, an issue I’ll return to shortly.

31. Thus, the temporal *verið* ‘been’ usually resists SF (type **“(the book) that been had read”*), whereas progressive *verið* ‘being’ fronts with ease (type *“(the book) that been was to read”* = ‘that was being read’). – In contrast, fronting of the negation is not obviously subsumed under this understanding of Stylistic Fronting (type *“(the book) that not had been read”*). This suggests that the order Neg-Tense is not due to SF but to absence of verb raising across Neg, a more widespread phenomenon in Icelandic than standardly assumed (see Angantýsson 2001).

32. In addition, there is a more fine-grained hierarchy with respect to Stylistic Fronting as such, as was discovered by Maling (1980). – Notice however that hierarchies of this kind are plausibly ‘unreal’ in the sense that they do not have an independent status but follow from more general principles of grammar, above all the Minimal Link Condition, MLC. Thus, the reason why ordinary subjects take precedence over expletives as EPP-matchers is plausibly that person must be matched (the subject thereby becoming the closest possible candidate for subsequent EPP-matching). Similarly, the reason why the Icelandic expletive takes precedence over SF as an EPP-matcher is arguably that EPP-matching is the sole possible function of the expletive (i.e. not having it match EPP leaves it totally ‘lame’ in the structure, hence excluded by economy). – On this view, it follows that SF should be categorically excluded in languages like the mainland Scandinavian ones, that have expletives that match Number and Person (thereby raising above other potential EPP-matchers in the structure, hence excluding them as EPP-matchers by MLC).

Notice that if an expletive is part of the numeration, Stylistic Fronting becomes impossible:

- (52) a. *Talað* hafði verið__um málið.
talked had been about matter.the
'The matter had been discussed.'
- b. *Það* hafði verið *talað* um málið.
it had been talked about matter.the
'The matter had been discussed.'
- c. **Talað* hafði *það* verið um málið.
talked had it been about matter.the

While the ungrammaticality of (52c) is as expected, the grammaticality of (52b) is interesting. It illustrates that a lexical item like the participle *talað* 'talked' need not match a feature, here Fin (EPP), even though it can do so (as in (52a)). This would seem to contradict the principle of Full Interpretation, "stating that there can be no superfluous symbols in representations" (Chomsky and Lasnik 1995: 27). However, there is another way of looking at this. As mentioned above, both the expletive and stylistically fronted elements have the value [–here]. Thus, while only the expletive matches Fin in (52b), the [–here] value of the participle might be sanctioned by virtue of being in the scope of (or 'agreeing' with) the [–here] value of the expletive. This is speculative, and I leave the issue at that.

Interestingly, Fin cannot usually be matched by Tense:

- (53) *Had John left in anger. /*Would John leave in anger. /*Left John in anger.

Similar cases can be found in other Germanic languages, though, (see Sigurðsson 1990b, Mörsjö 2002, Magnusson 2003), but they are exceptional and always special and should obviously not be accounted for by introducing a generally available option of Fin-matching by Tense.³³

This is surprising on the localist view of temporal deixis, whereas it is to be expected if the time and location of speech are distinct features, S_T and S_L , as sketched below:

- (54) $[_{SP} \lambda_A \dots \text{Force} \dots \text{Top} \dots S_T \dots S_L = \text{Fin} [_{IP} \dots$

33. So-called Narrative Inversion, however, is often described as having the effect of a special 'temporal extension' or 'discourse cohesion', which makes sense if it does involve exceptional Fin-matching by Tense. It is largely or exclusively confined to certain written genres in Icelandic (see Sigurðsson 1990b: 46). On the other hand, most of the Swedish verb-initial orders discussed by Mörsjö (2002) arguably or obviously involve PF deletion (in contrast with the more 'Icelandic-like' Older Swedish examples in Magnusson 2003).

On this view, EPP phenomena involve matching of *speech location*, $S_L = \text{Fin}$, by [$\pm$ here] participants or events.³⁴ Thus, it is not surprising that expletives typically derive from items that denote an ABSENT location (*there*-type expletives) or an ABSENT participant (*it*-type expletives),³⁵ but not from items that denote ABSENT time (*then*-type expletives, as it were).

Notice that the problem of long distance matching, briefly mentioned at the end of Section 4.2, now turns up again: If nothing further happens, IP-internal Tense matches S_T at distance, across $S_L = \text{Fin}$. This is subsumed under Matching Minimality, as formulated in (34) above. Alternatively, Tense raises across S_L into the vicinity of S_T . Raising of another category, into the vicinity of either Force or Top, yields V2 orders.

Even so, the parametric distinctions with respect to Tense raising (VSO vs SVO/SOV, V2 vs non-V2) remain mysterious, and I shall not address them here.

5. Logophoric matching and speech event binding: some initial observations

The present approach raises many intriguing questions that cannot be properly dealt with here. Finally, however, I wish to briefly address logophoric matching and speech event binding, two phenomena that are of central importance in clausal computation but have not received any standard treatment within generative theory.

Logophoric matching of third person participants is not simple identity matching. In a clause like *He hit me*, the subject obviously does not match the logophoric agent, λ_A (or the logophoric patient λ_P) under identity, that is, $He \neq \lambda_A$ (and $He \neq \lambda_P$). The question arises whether there is any necessary relation at all between λ_A (or λ_P) and *He*, that is to say, a relation that is not ‘merely’ pragmatic. In my view, there can be no doubt that there is such a ‘non-pragmatic’ relation. Referring to propositional event participants simply as ‘ θ_C ’ (cased θ -roles) and abstracting away from the complications raised by ‘non-personal’ identificational categories like number, gender and (honorific) class, we get the following matching relations:

- (55) a. $\theta_C = +\lambda_A \rightarrow 1P$
 b. $\theta_C = +\lambda_P \rightarrow 2P$
 c. $\theta_C = -\lambda_A, -\lambda_P \rightarrow 3P$

That is, in a clause like *He hit me*, there is nothing loosely ‘pragmatic’ about the correlation between the third person of the subject pronoun and the inherent logophoric

34. This view accords with the Feature Uniqueness Principle, suggested in Sigurðsson 2000.

35. That is to say inherently ABSENT from the canonical, minimal (non-extended) speech event.

roles (of the minimal speech event). On the contrary, the correlation is a strictly inferential relationship: if the referent of the event role is identical to the referent of λ_A we get 1st person, if it is identical to the referent of λ_p we get 2nd person, otherwise, we get 3rd person. There is of course no question that we are abstracting away from many important phenomena, but there is also no doubt in my mind that this is the ‘instinct’ we should rely on and pursue.

The interaction of person with number and inclusiveness, for example, raises widely discussed problems (see Panagiotidis 2002 and Cysouw 2002 for a recent discussion). The problems are at least partly resolved under the present understanding. *We*, for instance, is obviously not a plural of *I* in the sense that it denotes ‘more than one speaker’ (except perhaps under extremely rare and special circumstances). However, it *is* the plural of *I* in the sense that it denotes more than one potential logophorically active selves: ‘I and others that could be in my footsteps as speakers/thinkers’. Thus *we* can mean ‘I, John, Mary and you’, but it cannot mean ‘I and this book’ and even not ‘I and God’. That is, *we* is not simply augmental, as often assumed; rather the ‘augmented entity’ must be one or more potential logophoric agents.³⁶

Multiple argument feature matching is another even more difficult problem (that has nonetheless raised amazingly little interest).³⁷ It must be the case that not just subjects but all arguments enter into ϕ/λ -matching. Clausal structure, accordingly, contains more than, for example, just one Person feature or ‘head’. Scandinavian Object Shift (cf. Thráinsson 1996, 2001) and the Person Case Constraint, PCC, suggest that the clause may contain at least ‘object Person’, PersO (or Pers₂), in addition to the usual ‘subject Person’, PersS (or Pers₁).

Let us consider this briefly for only the PCC. It says, basically, that if a clause contains both dative and accusative agreement or both a dative and an accusative clitic, then the accusative must be in the third person (see e.g. Bonet 1991, 1994, Boeckx 2000, 2003). The effect of this is often seen in, e.g., Romance clitic constructions, as in the French (56):

- (56) a. Pierre **le** lui donna.
 P. it.ACC him.DAT gave
 ‘Pierre gave it to him.’
 b. *Pierre **te/me** lui donna.
 P. you/me.ACC him.DAT gave

36. The second person is more complex (as seen by e.g. the fact that one can address God by the second person singular but not include him (or ‘it’) in the second person plural), but I shall not detail here.

37. Thanks to Valentina Bianchi for bringing this issue to my attention.

As pointed out by Boeckx (2000), this person/case limitation is reminiscent of the person constraint found in Icelandic Dat-Nom constructions (where the nominative may usually be in only the third person, as we saw in Section 2). Much as the Icelandic agreement facts can be accounted for in terms of minimality with respect to PersS, the PCC in Romance examples like (56) can be accounted for in terms of minimality with respect to PersO, as sketched in (57):

- (57) ...X... PersO ... [_{VP} ... Dat ... Acc ...

On the assumption that 1/2 person accusatives must match PersO (which in turn enters λ -matching), we have a simple MLC account of the blocking effect of the intervening dative. Third person accusatives, on the other hand, might be like the German datives discussed in Section 2 and also like the Icelandic expletive in that they only match an EPP feature ('low EPP' here), indicated as X in (57).

There are evidently heavy restrictions on the number of ϕ/λ -matching computations per clause. If the possibilities were unlimited we would expect the number of possible arguments per clause to be unlimited as well, but this is obviously not the case:

- (58) *Jón mundi hafa selt mér það borgunar þinnar.
John.NOM would have sold me.DAT it.ACC payment.GEN your.GEN

There are more than one conceivable ways of accounting for restrictions of this sort, e.g., in terms of case or in terms of predication event structure. No matter what account one opts for, these restrictions are not surprising in view of the extreme computational complexities that arise with a rising number of participants.³⁸

Yet another relevant issue is how to account for ϕ/λ -matching of non-pronominal arguments. Consider (59):

- (59) Peter said: "Bill loves Hillary".

The object *Hillary* is identified in relation to *Bill* ('the Hillary who is loved by Bill'), who in turn is identified in relation to the logophoric agent *PETER* ('the Bill of Peter's speech'). In all probability, the reference of both *Hillary* and *Bill* shifts if there is a shift of logophoric agent, say from *PETER* to *BUSH*: it does shift except when there is coincidental coreference. Moreover, the reference of *Hillary* probably shifts

38. Subordination and prepositions reduce computational complexity, an intriguing issue that I cannot address here. Let me just point out that this effect should arguably be captured by a *phase* notion applying at LF, not PF. Even so, this must be worked out in more detail, as there are also severe restrictions on subordination and the number of PPs per clause.

if the minimal subject shifts from *Bill* to, say, *George* ('the Hillary who is loved by George'). That is:

- A. All arguments are computed in relation to a logophoric agent, indirectly or directly, and hence their reference shifts when there is a shift of logophoric agent (abstracting away from coincidental coreference).
- B. Non-subjects are computed in relation to both their local subject and the logophoric agent.

These intuitions seem straightforward. In addition, of course, identification of non-pronominal arguments is 'pragmatic' in the sense that it requires knowledge of the clause-external context/world. In contrast to a commonly held view, however, such 'pragmatic identification' is *not* all there is to non-pronominal argument identification or interpretation. Crucially, all arguments are computed clause-internally, in relation to each other and in relation to the speech event components. This should be rather obvious, actually.

As discussed in Section 4.1, examples like (60) illustrate that the inherent speech participants are not simply the speaker and the hearer but rather the logophoric agent versus the logophoric patient, λ_A and λ_P :

- (60) a. I love you.
 b. He said to me: "I love you."

The direct speech in cases like (60b) is anchored in a 'new' speech event, unbound by the main clause speech event, hence the independent pronominal reference of the direct speech (for further discussion, in less technical terms, see Banfield 1982). In contrast, as mentioned in Section 4.3, truly subordinated clauses in many languages involve a *secondary* speech event, *bound* with respect to the primary speech event of the main clause. More accurately, the individual features of a secondary speech event are bound by corresponding (valued) features of the primary speech event; hence the 'pronoun agreement' in cases like (61):

- (61) He said to me that he loved me.

It is rather obvious that the difference between (60b) and (61) cannot be accounted for in terms of 'direct' binding relations between the overt arguments.

The difference is accounted for if the arguments of both the direct speech in (60b) and the subordinate clause in (61) must be matched or interpreted in relation to the silent or 'invisible' logophoric features of their local, embedded speech event. In (61), the logophoric features of the subordinate speech event are bound by the logophoric features of the matrix speech event, hence the 'constant' reference of the pronouns:

- (62) $[_{SP} \{\lambda_A\}_i \dots \{\lambda_P\}_k \dots [_{IP} \dots [_{SP} \{\lambda_A\}_i \dots \{\lambda_P\}_k \dots [_{IP} \dots$

In (60b), on the other hand, the embedded logophoric features are bound by the matrix arguments, hence the ‘shifted’ reference of the pronouns:³⁹

- (63) $[_{SP} \{\lambda_A\}_i \dots \{\lambda_P\}_k \dots [_{IP} \dots \mathbf{he}_j \dots \mathbf{me}_l \dots [_{SP} \{\lambda_A\}_j \dots \{\lambda_P\}_1 \dots [_{IP} \dots$

Notice that the indices in these structures are referential indices, not ‘matching indices’, as it were.⁴⁰ By using indices, however, I’m not committing myself to a representational approach instead of the standard derivational approach. The indices are descriptive tools, used here to highlight plain facts of language that any general linguistic theory has to take into account.

Speech event binding is a highly complex phenomenon, operating separately for different features, a fact that gives support to the present approach to the speech event as being complex, with many subcomponents. For example, as mentioned in Section 4.3 (and as is well known since at least Enç 1987, cf. Reichenbach 1947), the reference time of subordinate clauses, which I take to be a secondary speech time, S_{T_2} , is relative to the time of utterance, that is the matrix speech time, S_{T_1} . Thus S_{T_1} in (61) is prior to S_{T_2} ($>S_{T_2}$), whereas the subordinate event of loving, E_{T_2} , in turn, is either simultaneous or prior to S_{T_2} .⁴¹

- (64) a. $S_{T_1} > S_{T_2} = E_{T_2}$ (love)
b. $S_{T_1} > S_{T_2} > E_{T_2}$ (love)

In addition, of course, S_{T_2} may either precede S_{T_1} or be simultaneous to it. In a clause like *I heard that he loves Mary*, $S_{T_2} = S_{T_1}$, i.e. it is simultaneous to the utterance time, whereas S_{T_2} may be later than the utterance time, $S_{T_2} > S_{T_1}$ (or $S_{T_1} < S_{T_2}$), in e.g. *He will demand of us that we dance*. In addition, the matrix event time, E_{T_2} , may bind the secondary speech time (yielding embedded subjunctives, as we saw in (44b) in Section 4.3 above), but, for simplicity, I am abstracting away from that as well as most other complexities that can arise in secondary speech event binding.

Logophoric long distance reflexivization in languages like Icelandic illustrates still further complexities that can arise in speech event binding. Thus, in a clause like (65), the reflexive *sig*, which is usually strictly clause bounded, may be bound

39. In some languages, e.g. Persian, regular subordinate clauses show the same shift of pronoun reference as does direct speech in languages like English (see Bianchi 2002 and the references there).

40. With the exception of first and second person singular, matching of (or interpretation in relation to) λ -features does not involve or induce referential identity, as we have seen.

41. This latter reading is marginal without a temporal phrase, e.g. ‘a long time ago’.

by the matrix subject (notice that *María* may also be the binder, in which case the clause gets the reading ‘John says that Mary shaves herself’):

- (65) *Jón segir að María raki sig/hann.*
 John says that Mary shaves SELF/him
 ‘John says that Mary shaves him.’

The fact that the reflexive can be bound across a potential binder seems to blatantly violate standard conceptions of locality and the Minimal Link Condition. However, as shown by Thráinsson (e.g. 1990, see also Sigurðsson 1990a), the use of the long distance anaphor reflects on the mind of the matrix subject *Jón*, such that the subordinate event is seen from his point of view, not the plain speaker point of view. This is accounted for if the speech event contains a *point of view feature*, *pow*, that is usually bound by the logophoric agent, but may be bound by a superordinate subject in exactly those environments where long distance reflexivization is possible. If so, the anaphor in (65) is locally bound by an invisible *pow* in the secondary speech event, that feature in turn being bound by the matrix subject:

- (66) $[_{SP} \{ \lambda_A \}_i \dots [_{IP} Jón_k \dots [_{SP} \{ \lambda_A \}_i \dots POW_k \dots [_{IP} María \dots SELF_k$

While both *María* and *Jón* are matched in relation to their local logophoric agent λ_A (as being distinct from it), the anaphor is matched in relation to POW_k .⁴²

Interesting as these issues are, I cannot detail further about them here.⁴³ The preceding initial observations do not, of course, amount to a full-fledged formal theory of logophoric matching and speech event binding. Importantly, however, they illustrate that the program of developing such a theory is not only feasible but also an inevitable step in our quest of further understanding of grammar.

It is true, as pointed out by Chomsky (1992: 102, see also Jenkins 2000: 15ff.) that “the study of everything” is pointless; in fact, it is obviously impossible. However, disregarding logophoric matching and speech event binding is like disregarding the movements of Jupiter’s moons: it blocks our sight, instead of facilitating inquiry.

42. In an approach like that of Kayne (2002), the matrix subject and the anaphor would be merged as a constituent, [*Jón*, *sig*], *Jón* subsequently raising (stranding the anaphor) to match *pow*, then raising further into the matrix clause to match the matrix ‘subject features’.

43. The logophoricity that results from this point of view split is also available in languages like English (cf. e.g. Banfield 1982), the only difference being that Icelandic has ‘grammaticalized’ it by long distance reflexivization. Thus, binding the point of view feature across an intervening argument is a generally available option in language, in apparent violation of minimality. This would seem to suggest that the MLC is at least partly a PF condition, applying more strictly (perhaps only) to lexicalized features – an important and a difficult issue that I cannot go into here.

6. Conclusion

The standard generative theory of abstract Case, clause structure and the computation has provided many research tools for decades. Minimalist inquiries, as pursued here, demonstrate however, that the notion of ‘Case’ was basically a convenient abstraction over ‘the relevant argument features’, much as T and C were “cover terms for a richer array of functional categories” (Chomsky 2001, Fn. 8). The central claims of both Case theory and ‘clausal theory’ were insightful, but the analysis of the features involved was preliminary.

As it turns out, Case is of a limited syntactic importance, “demoted in significance” as Chomsky puts it (2000: 127), whereas Person is a central computational category, mediating between event participants and speech participants, much as Tense links event time to speech time. More generally, the clause can be analyzed as containing three major ‘domains’: the ‘event domain’, the ‘speech domain’, and the ‘grammatical domain’, linking the other two. Using a more familiar kind of syntactic notation, we can refer to these ‘domains’ as the Speech Phrase, the Event Phrase and the Inflectional Phrase, as sketched below:

- (67) $[_{SP} \dots \text{Speech features} \dots [_{IP} \dots \text{Grammatical features} \dots [_{EP} \dots \text{Event features} \dots$

It is one of the major goals of linguistic research to discover what the universal features of each of the three clausal domains are. As a first tentative approximation, I assume that Universal Grammar minimally has the following types of features:

- (68) $[_{SP} \lambda_A \dots \text{Force} \dots \text{Top} \dots S_T \dots S_L [_{IP} \dots \text{Person} \dots \text{Tense} \dots [_{EP} \dots \theta \dots E_T \dots$

Grammar, thus, is a device containing grammatical features that compute or interpret event features in relation to speech features.

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On theta role assignment by feature checking

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Given the dominant role of the generalized syntactic operation of feature checking in contemporary Minimalist theory, the question arises as to whether feature checking is the primary mechanism whereby argument DPs get assigned their rightful theta roles in any syntactic derivation. This paper revisits the proposal, adopted either directly or indirectly in recent literature (Manzini and Roussou 2000, Fanselow 2001), that argument DPs in a sentence get theta roles assigned to them through a checking mechanism for theta features in keeping with the spirit of Minimalist theory (Chomsky 1995, 1999, 2000). It seeks to point out that, while the arguments presented by Fanselow (2001) against the movement analysis of scrambling of argument DPs in German are mostly valid, they do not conclusively establish that such argument DPs are necessarily assigned theta roles through a checking mechanism for theta features. In particular, it is demonstrated in this paper that there are problems with Fanselow's arguments against scrambling as movement based on scrambled DPs as islands for movement and on parasitic gaps, and that, moreover, an account of scrambling as discourse-function-driven movement along the lines of, e.g., Kidwai (2000) has not been taken into account by these arguments against scrambling as movement. Furthermore, the operation Attract proposed by Manzini and Roussou (2000) as being driven by argument DPs and directed at predicates, it is argued, does not need to be based on a feature-checking account of theta-role assignment. Finally, it is pointed out that serious problems with motivating the operation Merge between predicate expressions and argument DPs arise under a feature-checking account of theta role assignment, and that *wh*-movement, in particular, can be accounted for only in costlier terms under such an account. The paper presents additional arguments, in terms of the nature of lexical entries in the lexicon component of the faculty of language (notably with reference to lexical decomposition) and the role of argument structure at LF (the conceptual-intentional interface level), that theta-features – if they exist at all – are features of a very different kind from the usual kind of features that are involved in the operations Move and Agree.

1. Thematic roles in minimalist theory: a problem?*

In recent literature on issues relating to the status of argument DPs under a Minimalist view of language, such as the work of Rita Manzini and Anna Roussou (Manzini and Roussou 2000) and Gisbert Fanselow (Fanselow 2001), it has been proposed that the so-called “assignment” of theta roles to argument DPs is effected through a checking of theta features between the argument DPs and certain kinds of heads. The main purpose here is to revisit this proposal, particularly with reference to the account given by Fanselow (2001), and to reexamine the assumption made by Manzini and Roussou (2000) that a mechanism of theta feature checking is essential to the operation *Attract* that, according to them, is responsible for the occurrence of two successive predicates with a single overt argument DP in control structures.

One way of formulating the need to undertake this revision of theta theory under Minimalist assumptions might be as follows. Principles and Parameters Theory carried over the assumption from the Standard and especially the Extended Standard Theory that predicates semantically select certain kinds of argument noun phrases, and that the information regarding such semantic selection is stored by a native speaker in the lexical entries for, in particular, such (lexical) predicate terms. This was also how, it was assumed, the structural occurrence of the argument noun phrases in different grammatical functions (Subject, Direct Object, etc.) would be encoded in the lexicon. The fact that argument noun phrases would be assigned their rightful thematic roles in accordance with the s-selection (“semantic selection”) specifications at the pre-transformational level of representation called “D-structure” was at the core of what went by the name of the Projection Principle (Chomsky 1981). Movement of an argument noun phrase from its D-structure “ θ -position” to a “non- θ -position” would result in the formation of A-chains headed by the moved argument noun phrase, with a trace at least at the foot of each such chain.

With the emergence of Minimalist theory (Chomsky 1995, 2000), the putting together of derivationally convergent linguistic expressions by the language

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faculty has come to be defined more and more in terms of the basic computational operations Merge, Move, and Agree in the narrow syntax, with the checking of certain core features constituting the heart of these computational operations. The focus has also turned towards providing a “minimalist” account of the derivation of linguistic expressions, and thereby towards a reduction in the number and types of what the earlier theory had taken to be “primitives” belonging essentially to different submodules of the theory: primitives such as Nominative, Genitive, and Accusative Cases (from Case theory); NP and IP/CP as bounding nodes (from the Bounding theory); and, of course, theta roles (from Theta theory). The attempt to account for what has traditionally been termed “theta role assignment” in terms of the core mechanism of feature checking is thus a crucial endeavour in the Minimalist research agenda in linguistic theory.

2. Fanselow’s (2001) arguments against scrambling of argument DPs

The arguments presented by Fanselow (2001) in favor of a base-generated treatment of the so-called “scrambling” of DPs are meant to provide support to a feature checking account of theta role assignment to such DPs. Fanselow’s arguments are the following:

2.1 Floating quantifiers

Since floating quantifiers have been explained in terms of the stranding of a quantifier such as *all* as an outcome of the leftward movement of NPs (as in *the men . . . all . . .* in English or *die Männer . . . alle . . .* in Fanselow’s German examples), according to Fanselow such “movement” of a NP leaving a stranded floating quantifier should be permitted in examples such as (1b) just as it is in examples such as (1a) (his (19b) and (19a), respectively); however, (1b) is not permitted, even though (1a) is.

- (1) a. They seemed [*t* all] to be friendly to us.
- b. *The people were seen [*t* all].

According to Fanselow (citing Mark Baltin), the distribution of the floating quantifier *all* is, additionally, comparable to that of a preverb such as *ever*, which would never form a constituent with a DP. This argument can be accepted on the assumption that the “same” floating quantifier *all* – i.e. the isolated quantifier *all* consistently without any actual movement of a NP away from it – occurs in all of the cases considered by him.

2.2 Parasitic gaps

The argument that scrambling licenses a parasitic gap (cited independently by Sascha Felix and by Hans Bennis and Teun Hoekstra) is examined by Fanselow and found wanting. The model example for such licensing that Fanselow examines is the Example (2a), below, which is the “scrambled” counterpart of the unacceptable (2b):

- (2) a. dass er Maria_i [_{CP} ohne e_i anzuschauen] t_i geküsst hat
 that he Maria without to-look-at kissed has
 ‘that he kissed Maria without looking at her’
 b. *dass er ohne anzuschauen Maria geküsst hat

(2a), according to Fanselow, is not a true example of a parasitic gap, since it is possible with nonreferential DPs such as the “so-called inherent reflexive pronouns” of verbs like *sich kümmern um* ‘to care for’ and *sich beschäftigen* ‘to occupy oneself’. The problem with Fanselow’s illustrative example (here, (3); his (22)) for this claim, however, is that it is not a parasitic gap construction at all:

- (3) dass er *sich* anstatt (*sich*) um Maria zu kümmern mit Büchern beschäftigte
 ‘that he occupied himself with books instead of caring for Maria’

The problem here, however, is that this does not look like a sufficiently conclusive counterexample to invoke, given the optionality of the second *sich*: the very fact that there is no obligatory gap occurring in its place suggests that one is dealing with a different kind of construction from that exemplified by (2a). The alternative analysis that Fanselow proposes for these constructions in terms of conjunction reduction, in which the so-called gap is actually a deleted constituent, does not really challenge the argument that scrambling licenses parasitic gaps *per se*.

2.3 Freezing effects

Fanselow (2001: 413) has the following to say on the “freezing effect” on the displacement of an XP:

When an XP has been scrambled, it is expected to become an island for movement because of the freezing effect that displacement has on XPs in most accounts of barrierhood; see Diesing 1992 or Meinunger 1995 for this point, and for German data that allegedly show that scrambled XPs become islands and thus support the movement analysis of free constituent order. The argument is problematic: phrases preceding their unmarked position tend to be referential topics, and the more referential a phrase is, the less transparent it is for movement (see, e.g. Guéron 1981). Island effects for scrambled XPs may thus reduce to referentiality rather than to positional barrierhood.

It is not clear from the way this argument is presented, however, why it is problematic. It seems plausible that a fronted referential XP would form an island for, e.g. *wh*-movement precisely because it has been fronted as a topic.

However, the “incorrect factual assumptions” that Fanselow accuses the argument of being based on do deserve to be taken seriously: his example (cited from his own earlier work) given as (4) below shows *wh*-extraction out of an object occurring in a so-called “scrambled” position preceding the subject.

- (4) Was_i hätte denn [_{DP, acc} t_i für Aufsätze] selbst Hubert nicht
 what had particle for papers even Hubert not
 rezensieren wollen?
 review wanted
 ‘What kind of paper would even Hubert not have wanted to review?’

Likewise, movement out of a “scrambled” XP-position may be permitted even though the same movement might be impossible out of the XP in its “base” position, as Fanselow illustrates citing work from 1996 by Sigrid Beck and Shin-Sook Kim.

- (5) a. Wen hat [t von den Musikern] fast jeder Student
 who.acc has of the musicians nearly every student
 kennengelernt?
 met
 ‘Which of the musicians has almost every student met?’
 b. *Wen hat fast jeder Student [t von den Musikern] kennengelernt?

2.4 *Wh*-phrases in situ

Fanselow’s criticism of the argument from *wh*-phrases in situ may not stand up to further scrutiny, however, if the apparent “scrambling” of *wh*-phrases in situ is in fact found to be movement of such *wh*-phrases to focused positions, in keeping with the analysis proposed by Bayer and Kornfilt 1994 [REF] and Simpson and Bhattacharya (2003) for Bangla and by Kidwai (2000) for Hindi-Urdu (the last discussed in Section 3 below). Fanselow’s criticism hinges on the fact that while (6a), with *wh*-movement at LF following adjunction, is bad, (6b), with the same happening except that the question word *wem* precedes an indefinite and not a definite DP, is perfectly acceptable:

- (6) a. ?*Wann hat wem der Mann geholfen?
 When has who-DAT the-NOM man helped
 ‘When did the man help whom?’
 b. Wann wurde wem nur ein Held helfen?
 when would who-DAT only a-NOM hero help
 ‘When would only a hero help whom?’

This does not seem to constitute evidence against scrambling *per se* so much as it is evidence that there might be something more going on here in terms of the ordering of focused phrases before a definite versus an indefinite DP.

2.5 Reconstruction

As Fanselow presents this argument: “An object anaphor can precede (and c-command) its subject antecedent . . . This looks like a reconstruction effect relative to a scrambling trace, and it might constitute an argument for scrambling” (Fanselow 2001: 414). However, he points out, this option is restricted to anaphors bound by nominative DPs (an observation made in earlier work by Werner Frey and by Young-Sook Lee and Beatrice Santorini), and he cites the proposal by Shin-Sook Kim and Wolfgang Sternefeld that the nominative DP undergoes LF-movement to [Spec, TP] (as shown in (7e)).

- (7) a. dass [sich [jeder (t) wiedererkannte]]
 that REFL everybody recognized
 ‘that everybody recognized himself’
 b. dass ich den Hans sich im Spiegel zeigte
 that I the-ACC Hans REFL in-the mirror showed
 ‘that I showed Hans himself in the mirror’
 c. *dass ich sich den Hans im Spiegel zeigte
 d. *dass sich ich den Hans im Spiegel zeigte
 e. dass [_{TP} jeder_i [_{VP} sich [_{VP} t_i wiedererkannte]]]

This looks like a plausible criticism, subject of course to an explanation of why (7c) and (7d) would be ruled out by Fanselow’s alternative proposal of base-generated merging of constituents such as *sich* in situ through theta feature checking.

2.6 Quantifier scope

The argument from quantifier scope that Fanselow cites is the following (Fanselow 2001: 415).

When linked to an intonation typical of structures with clause-internal topicalization, clauses are generally scope-ambiguous [according to work from 1998 by Manfred Krifka]. In the absence of such an intonation, a difference between clauses with unmarked and scrambled order can be observed, however: in the former [i.e. clauses with unmarked order], quantifier scope corresponds to surface

c-command . . . while the latter are scope-ambiguous [according to work from 1993 by Werner Frey].

The illustrative examples of this are (8a) and (8b):

- (8) a. dass fast jeder Mann mindestens eine Frau kennt
 that nearly every-NOM man at-least one-ACC woman knows
 ‘that nearly every man knows at least one woman’
 (only $\forall\exists$)
- b. dass mindestens eine Frau fast jeder Mann (t) kennt
 (both $\forall\exists$ and $\exists\forall$)

The scope ambiguity arises in (8b) because the subject both is c-commanded by the object and c-commands a trace of the object. Accordingly, Fanselow points out, one should find such ambiguity also in instances of “scrambling” in which dative and accusative objects occur in positions preceding the subject, thus giving rise to the following order of DPs and traces:

- (9) $DP_{\text{dat}} [\dots DP_{\text{acc}} [\dots t_{\text{dat}} [\dots t_{\text{acc}} \dots]]]$

But, as Fanselow points out, when the *relative* order of the dative and accusative objects are unchanged in the “scrambled” configuration, as in (9), there is no scope ambiguity, as illustrated by the Example (10):

- (10) dass fast jedem Kind mindestens ein Buch nur Hans vorlas
 that nearly each-DAT child at-least one-ACC book only Hans read
 ‘that only Hans read at least one book to nearly every child’
 (only $\forall\exists$)

Fanselow cites additional examples of the same pattern in German with non-ambiguity of scope. This is a criticism that is well-taken, subject to corroboration from the quantifier scope facts to be found in other languages with so-called scrambling.

What is noteworthy is that, despite his detailed arguments against what he calls “A-scrambling” (Fanselow 2001: 405, 433), Fanselow does not explicitly rule out the possibility that at least certain θ -features are interpretable features.

3. The alternative proposal: the head F that attracts an object

However, Fanselow’s alternative proposal to scrambling of DPs as it stands does not adequately account for the actual checking of features for the assignment of thematic roles to DPs, especially to DPs other than direct objects. Fanselow proposes that a head F with a projection immediately below TP is responsible for the

checking of the thematic role of the direct object. To the extent that one can follow Fanselow's rather involved argumentation for this proposal, nothing concrete has been put forward as to how thematic roles are assigned to *other* argument DPs through his proposed mechanism of feature checking against the head F.

4. Scrambling and focus: Kidwai (2000)

Fanselow's (2001) account suffers, moreover, from not taking into account the treatment of scrambling as focus-driven movement by Kidwai (2000) with special reference to Hindi-Urdu. If scrambling is focus-driven movement in at least some languages, it can hardly be described as being universally base-generated. In Bangla, too, as argued by Sengupta (1990), there is considerable evidence that at least certain salient instances of scrambling are explained as movement driven by discourse functions. While Kidwai's (2000) treatment of scrambling differs from Sengupta's in that she distinguishes scrambling quite clearly from topicalization (Kidwai 2000: 39–42), both of their accounts of scrambling raise significant problems for any non-movement account of theta role assignment by means of feature checking.

A core theoretical problem with such an account of theta role assignment is the notion of L-marking, which in Kidwai's formulation (following Josef Bayer and Jacqueline Kornfilt's account) is as follows (Kidwai 2000: 30):

- (11) α L-marks β if and only if α is a lexical category that θ -governs β .

It is not at all clear how any conception of "θ-government" can be retained under a feature-checking account of theta roles, particularly if the checking of theta features occurs in "narrow syntax" under Minimalist assumptions.

From a different theoretical perspective, *viz.* that of Autolexical Theory, the syntax of topicalized and focused constituents in Bangla (Bagchi 1993: Ch. 6) corroborates these accounts of scrambling. The significance of this account of scrambling is that it does not rule out the more traditional alternative to Fanselow's proposal of merging of "scrambled" constituents *in situ* through checking of one or more features, namely, straightforward thematic role assignment to DPs followed by focus-driven scrambling of such DPs, where applicable.

5. "Theta feature" checking and Attract: Manzini and Roussou (2000)

The recent proposal by Manzini and Roussou (2000) that arguments select two successive predicates that they merge with and thereby yield control structures, also makes a strong assumption regarding the checking of theta features. Manzini and

Roussou's proposal, however, differs rather radically from Fanselow's in that, instead of positing a head *F* that checks the features that have the effect of theta role assignment on argument DPs, they postulate a set of interpretable features that drive an operation *Attract* whereby an argument DP merges with one or more (lexical) predicates through the checking of these interpretable features (Manzini and Roussou 2000: 414–415); furthermore, these features are not of the kind that move, but instead achieve the effect of attraction of, e.g. the nonfinite predicates of control structures through certain constraints on their pattern(s) of occurrence.

An assumption that Manzini and Roussou make regarding these features and that they generalize to all features involved in checking, however, seems to be too strong: the assumption is that *ALL* features involved in checking are interpretable. Given that the thematic roles of argument DPs are crucially interpreted at the LF level, while formal features are in general *not* so interpreted, their assumption seems to in fact provide a basis for distinguishing between “theta features” (if one might use such a term) and features that are interpretable in some instances and uninterpretable in others.¹

6. The analysis of theta roles as feature bundles

The proposal that theta roles might be assigned through checking for features has been made in a different theory of generative grammar from the Parametric/Minimalist line of development, prior to the emergence of Minimalist theory, as a matter of fact, by Jan Terje Faarlund (Faarlund 1989/1996). Faarlund has sought to get to the minimal binary semantic features that are required to obtain an optimal array of roles in the thematic hierarchy: briefly, he has proposed the features [$\pm$ agent] and [$\pm$ locus] as distinctive features that can serve to identify (in principle) at least four distinct thematic roles. While Faarlund's two features alone are obviously far from adequate, one might cite them as a beginning attempt that can be taken up and modified and extended under the feature checking proposal for thematic role assignment, if and when the need for such further elaboration in more concrete terms.²

1. I subsume under the term “instances” items such as heads and XPs of certain categories, etc.

2. Faarlund's second feature, *viz.* [$\pm$ locus], is perhaps not substantively altogether accurate, since it runs into problems when one has to distinguish a genuinely non-agentive Theme from a genuine Location, as in a garden-variety sentence like *John put the vase on the floor*: it would be a tall order to try to characterize the DP *the vase* as being [$+$ agent, $+$ locus], as contrasted with the DP *the floor*, which according to Faarlund's analysis would presumably be [$-$ agent, $+$ locus].

Nonetheless, Faarlund (1996) treats these features as being essentially *interpretable* features: they are unlike purely “formal” morphosyntactic features, and that is indeed a major reason why Faarlund places them on a distinct “thematic tier” that interacts with, but is not subsumed by, the logico-semantic module.

The significance of Faarlund’s proposal lies additionally in its being a non-movement-driven explanatory device as to how argument DPs in a syntactic tree receive theta roles. Notice that Fanselow (2001) seeks to do away with a movement account of scrambling in order to motivate theta role assignment to argument DPs directly through Merge (*in situ*, so to speak), as do Manzini and Roussou (2000) for A-movement altogether. It might be instructive to examine Fanselow’s proposal for the derivation of “free constituent order” for German, nonetheless, to see exactly where the problem arises for languages other than German that have expletive subjects. The following preliminary justification is offered by Fanselow (2001: 417) for the merging of argument DPs to yield “free constituent order” in German.

The application of Merge is not constrained by any grammatical principle, so the order in which Merge applies (at the root of a tree) is free. Different linearizations can be generated directly by Merge. The only issue is whether θ -roles can be assigned properly in such a constellation.

Next, he posits the following feature bundle schema for the checking heads V and v (his Example (40)):

- (12) $[[[_{VP} \dots [V\{\{D, \text{acc}, \phi_2\}, \{D, \text{dat}, \phi_3\}\} \dots]] \ v\{D, \phi_1\}] \ T]$

These feature bundles are accounted for by Fanselow as follows:

The lexical verb V specifies Case, ϕ -, and categorial features for its internal arguments, and the external θ -role is linked to ϕ -features and a D -feature of a light verb v . For θ -role assignment, these l -related features must be checked by an argument. L -related features are checked covertly in German. Subjects can always stay in $VP \dots$ and there is no convincing evidence for subject expletives (Haider 1993). Koopman (1995) shows that V does not move to T before LF in Dutch and German. Thus, German T has neither a strong D -feature nor a strong V -feature. This implies that A-movement applies covertly. The covert attraction of a feature f pied-pipes the other features in the set of formal features to which f belongs (but nothing else).

There are at least three problems that one can detect with this account. The first is clearly an empirical one: the occurrence of expletive *it* and *there* in English as two distinct (and largely mutually exclusive) expletives cannot be quite so cavalierly explained away as “non-occurrences” as, it seems, is possible for the so-called “expletive” *es* in German. The second problem is with Fanselow’s conflation of

A-movement with scrambling: the evidence convincingly presented by Kidwai (2000) indicates that not all A-movement can simply be equated, across the board, with scrambling. Third, there is a discrepancy between Fanselow's conclusion that A-movement applies covertly and the mechanism by which the *formal* features that get pied-piped with his feature *f* can themselves get checked: any feature that is a formal feature ought to be checked overtly, not covertly, but it is not at all clear how it can get checked covertly if it is simply pied-piped with a feature *f* that gets checked covertly, i.e. not in the syntactic derivation but only at LF.

In addition to these problems, a fourth rather serious problem remains unaddressed by Fanselow's account, namely, that of how *Wh*-movement, and indeed A'-movement in general, are to be accounted for in terms of a non-movement analysis. Even if it is the case that A'-movement as a whole remains standing, there still remains the problem of accounting for how an A'-moved argument DP, in particular, gets assigned its θ -role: if it is assigned its θ -role prior to undergoing A'-movement, *where* exactly does this assignment take place? Is it inside the VP to which the verb selecting the argument DP belongs? If so, then this makes us fall back on precisely the very same account of θ -role assignement that Fanselow seeks to reject. Is it in the specifier of T? If so, then Fanselow's claim that T carries no D-feature, which forms a crucial premise for his argument, no longer stands. We are therefore back to square one as regards reaching a verdict on theta role assignment by feature checking in accordance with both Manzini and Roussou's (2000) and Fanselow's (2001) accounts.

7. "Theta features" and thematic roles

I now shift to a more ontological perspective on the status of theta features. Theta features, if they exist at all, must necessarily play a consistently significant role in two components of the faculty of language: the lexicon, because they must determine to a significant extent the lexical array selected for a given PF-LF mapping, and the LF interface level itself, because theta features must carry through to this level for full interpretation at this level.³ One can, in fact, unpack the arguments

3. Eric Reuland, in personal communication, has suggested that theta features should be seen as computationally significant features that play a crucial role in "driving" the syntactic derivation forward, so to speak. In my view, there is no incompatibility between such a perspective and the recognition that theta features may have to be recognized as significant for the selection and assignment of thematic roles to argument DPs in the lexicon and at the Conceptual-Intentional (LF) interface.

for the interpretability of theta features further in both conceptual and empirical terms. I enumerate some of these below.

7.1 General s-selection considerations

When a particular lexical array is picked from a language's working lexicon with a view to the computation and convergent interpretation of a syntactically complex expression, it is not at all clear that the picking of the lexical array is sensitive *only* to whether the items in the lexical array are going to fit with one another in terms of their c-selection properties: indeed, it is not clear that the items can be picked so as to be compatible *even* in terms of their c-selection properties. If neither s-selection nor c-selection information play any role in the choice of items for the lexical array, however, we have a problem on our hands: the faculty of language (FL) has to operate with a randomly infinite set of lexical arrays in order to be able to yield up a relatively small number of convergent derivations, since there can be no pre-selection of items in any lexical array so that only coherent chunks of thought are given linguistic shape by FL.

7.2 Lexical selection of compounds

Under the view that no s-selection information really matters as far as the lexicon is concerned, the selection of genuine compounds (such as *killjoy* and *blackbird* in English, or Sanskrit *pītāmbara* '(the) yellow-robed (god, Krishna)' as lexically complete items to send into the syntactic computation becomes a virtual impossibility, since the generation of such compounds in the lexicon itself becomes impossible.

7.3 The Unaccusative Alternation

Without at least a minimum of s-selection information encoded on verbs that display what has been called the Unaccusative Alternation in standard literature (e.g. Levin and Rappaport-Hovav 1995), it becomes impossible to distinguish between the transitive and the unaccusative occurrences of such verbs in the narrow syntax. To see why, consider the Sentences (13a) and (13b):

- (13) a. Your short story reads well.
b. John reads your short story well in class.

Offhand, it is impossible to predict whether the VP projected by the verb *reads* will Merge further with a (transitivizing) *vP*, to yield the structure that will derive (13b) rather than (13a), without at least a minimal amount of s-selection information being available for the lexical item *read(s)*. This is borne out further by the empirical fact that the difference between the uses of the verb *reads* in the two sentences is not purely a structural one but, fine-grainedly, a semantic one as well.

7.4 Motivation for chain formation

If, as Fanselow stipulates, theta-roles are checked *only* at LF and not before, the major motivation for any Minimalist operation such as “Form Chain”, not to mention any notion of syntactic movement, disappears. With such motivation gone, traces of *any* kind, and not just DP-traces, are no longer possible. This goes radically against some of the major evidence for traces, such as *wanna*-contraction, crossover phenomena, and island effects.

7.5 Causatives and theta roles

A major motivation against the “dismemberment” of theta roles into feature bundles comes from the morphosyntax of causatives in languages that possess morphological causatives, e.g. Bangla (see Bagchi and Seely 2002). While it is conceivable that the theta roles taken on by the argument DPs of any non-causative verb and those taken on by the argument DPs of its causative counterpart could simply be accounted for in terms of the checking of theta features, one simply cannot help noticing that this could only be at the cost of losing a rather pervasive generalization to be observed, namely, the systematicity of correspondence between the argument structure associated with a non-causative verb and that associated with its morphological (or even lexical) causative. The same is to be seen in the case of Hindi-Urdu causative alternations, which are morphologically and/or lexically systematic.

Besides Fanselow (2001), however, López (2001) presents a case for the conflation of theta theory and checking theory that merits some consideration. His proposal is based largely on syntactic causatives in Spanish and on the lack of motivation for the splitting of Accusative Case checking and the assignment of a Theme/Patient role to an object DP in modifications to the theory in Chomsky (1981). The proposals for the achievement of the effects of theta role assignment through feature checking reviewed earlier are not inconsistent with the requirement that such features be recognized as features of a distinctive kind. Nonetheless, López (2001) fails to motivate particularly the split between the checking of Nominative Case for a subject DP and the *choice* of θ -roles that is often found to occur for a subject DP across languages.

8. Conclusion

In this paper, I have attempted to examine the proposals put forward in recent literature in favour of a feature checking analysis of thematic roles, or θ -roles, in the Minimalist spirit of reducing the theory of grammar to bare essentials.

Section 2 of the paper has undertaken a detailed examination of Fanselow's arguments against A-scrambling as supportive of the feature checking analysis of thematic roles. Section 3, though brief, has pointed out that an analysis of theta-feature checking in terms of a feature F that attracts an object is not a viable one. In Section 4, it has been pointed out that Fanselow's account suffers from not taking into consideration the detailed argumentation that Kidwai (2000) has presented in favour of treating Scrambling as a distinct kind of movement from NP-movement, *Wh*-movement, Topicalization, and Quantifier Raising. In Section 5, an attempt has been made to relate Manzini and Roussou's (2000) proposal to do away with control and A-movement and control in terms of an operation Attract that would directly merge argument DPs with one or (in the case of control structures) more predicates, and the problems that follow from this proposal are discussed. Section 6 has presented a brief excursus into a significant non-mainstream historical antecedent to the recent proposal for the analysis of theta roles in terms of feature checking, viz., the notion of features on a thematic tier as proposed by Faarlund (1996). Finally in Section 7, arguments have been presented against the complete reduction of thematic roles to purely computational theta-features and in favour of retaining some kind of notion of thematic roles as interpretable complex entities.

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Argument prominence and the nature of superiority violations

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This paper studies the mapping of argument structure into higher parts of the clause and examines the relation of argument structure to *multiple wh-structures* and Superiority phenomena. Superiority effects are commonly assumed to arise when *wh*-movement triggered by the feature-checking requirements of a [+Q] C^0 violates economy restrictions on movement (Shortest Move). The paper, however, points out certain serious difficulties for a purely structural approach to Superiority patterns, and suggests an alternative analysis of the data. First, it is shown that the non-occurrence of Superiority effects in cases of multiple *wh*-fronting in Bangla seems to contradict the fact that pair-list answers to multiple *wh*-questions are expected/required to the same degree as they are in languages with clear *wh*-movement such as English. The obvious question that is raised is how one should reconcile the lack of Superiority effects in a language with the assumption that genuine *wh*-movement nevertheless occurs in the language? The paper shows, re-examining the generalizations about English, that Superiority effects are not the result of a purely structural filter such as Shortest Move but are rather controlled by a variety of factors: animacy distinctions among *wh*-phrases, thematic relations of the *wh*-phrases, stressing and prosodic weight of the *wh*-phrases and referential familiarity of the expected answer to a *wh*-question. Finally, the “Superiority” effects observable in multiple *wh*-sluices in Bangla are attributed to the tendency to copy the argument prominence relation in the non-slucied clause.

1. Introduction

Argument structure understood as the structured relation of a predicate’s arguments to each other, is a set of relations which may sometimes be assumed to be encoded and present *as many as three times* within the structure of a single sentence, in certain special circumstances. Specifically, in the verbal domain, the arguments of a verb may first be structured relative to each other in a particular way in their base positions within the $\nu P/VP$ of a sentence, due to the way that argument structure is initially projected. Secondly, the same arguments may be structured relative to each other in an essentially parallel hierarchical way in higher case/agreement-checking

positions (Spec,TP, Spec,AgrO/ ν P) as the result of attraction to such positions for feature-checking reasons. Thirdly, in languages with *multiple wh-movement*, the effects of argument structure are further argued to be (often) visible in the ordering of raised *wh*-elements, with the arrangement of fronted *wh*-subjects, -objects and -indirect objects directly mirroring the hierarchical structuring of these elements in lower positions in the clause (hence subject DPs are assumed to precede and c-command objects both within the ν P/VP and in their higher case/agreement checking positions, and then again also within raised sequences of *wh*-elements). Such an apparent ‘copying’ of the original argument structure of verbs into higher case/agreement and *wh*-related positions is suggested to be regulated and produced in large part by economy conditions affecting the way that movement is carried out. It is argued that movement to higher positions must always be effected in the shortest possible way, and that a consideration of how the potential launching sites for movement are structurally related to each other will dictate how competing elements can move to higher positions (Chomsky 1995, Pesetsky 2000, Richards 2001). Given such assumptions about the arrangement of arguments in case/agreement and *wh* positions, it becomes clear that verbal argument structure can in theory be observed and studied not only within ν P/VPs but also with reference to post-movement structures which are expected to preserve the original relation of arguments to each other. This paper therefore sets out to examine what the study of various *derived structures* may reveal about underlying argument structure and the mapping of argument structure into higher parts of the clause, and reconsiders, in particular, the assumed relation of argument structure to *multiple wh-structures* and Superiority phenomena.

The specific problem we intend to focus on here is the claim/observation that certain *variation* occurs in the Superiority-type patterns of multiple *wh*-fronting languages, and how this might best be accounted for. For example, Bošković (2002) argues that while Romanian and Bulgarian are languages which exhibit standard Superiority phenomena in all their clause-initial multiple-*wh* sequences, parallel restrictions appear to be absent from similar question forms in Russian, and are only sometimes found in Serbo-Croat. Under the assumption that a multiple-*wh* sequence consisting in a *wh*-subject and a *wh*-object should be ordered $\text{subject}_{\text{WH}} > \text{object}_{\text{WH}}$ due to the principle of Shortest Move applying to the movement process (see Richards 2001 for details), the apparent well-formed occurrence of both $\text{subject}_{\text{WH}} > \text{object}_{\text{WH}}$ and also $\text{object}_{\text{WH}} > \text{subject}_{\text{WH}}$ sequences in languages such as Russian and Serbo-Croat is genuinely puzzling and clearly requires explanation. If it is furthermore assumed that Shortest Move is a universal principle not subject to cross-linguistic variation, there would seem to be three basic ways to attempt to approach the problematic patterns reported in languages such as Russian.

The first of these might be to suggest that the potential variation in fronted *wh*-phrase ordering is actually really a function of variation in the underlying argument structure of a language. Following Kiss's (2002) claim for Hungarian, it might be suggested that certain languages actually have no fixed underlying argument structure and that consequently either the subject or the object of a clause may be generated in a higher ν P/VP internal position and allow for extraction to initial position within a multiple-*wh* string.¹ Though such an approach would allow for an account of the patterns reported in Russian, it is clearly no small step to hypothesize that languages vary as to whether they have fixed argument structure or not, and one consequently might hesitate to accept the possibility of such a dramatic parameter of variation. More concretely, such an account of Russian-type languages might be rejected for the simple reason that it will not generalize successfully to other languages such as Serbo-Croat, where Superiority effects are noted to occur in certain clauses but not others. Bošković (2002) reports that where an interrogative C position is not projected in a clause (as indicated by the absence of the interrogative morpheme *li*), Superiority effects are not found, but where an interrogative C position is projected (and filled with *li*), a strict $\text{subject}_{\text{WH}} > \text{object}_{\text{WH}}$ ordering is imposed. If the absence of Superiority effects really were to be the result of an unfixed argument structure within the ν P/VP, one would have to assume that

1. The basic idea in Shortest Move approaches to Superiority phenomena is as follows. Supposing that both subject and object arguments of a verb are *wh*-elements, the argument which occurs higher in the ν P/VP (in most analyses the subject) will first be selected for movement to Spec,TP to satisfy the EPP features of T. Movement of the higher argument to Spec,TP will be shorter (as it is closer to Spec,TP) than movement of the lower argument, and so will automatically be selected by economy (here, specifically, Shortest Move). From its raised position in Spec,TP such an argument will then be closer to Spec,CP than a second lower *wh*-argument and because of this will be selected (by Shortest Move) for movement to Spec,CP to satisfy the *wh*-feature checking requirement of the [+Q] C. Once this feature-checking requirement has been satisfied by movement of the closest *wh*-phrase to the [+Q] C, it is suggested that other *wh*-elements in multiple *wh*-fronting languages can undergo raising to a clause-initial position, and this will result in such elements following the first-raised *wh*-phrase due to a second economy-driven process of "tucking-in" (Richards 2001) or perhaps due to such elements raising to a somewhat lower position (Rudin 1988). It is therefore critically the closer proximity of the higher ν P/VP internal argument to Spec,TP which gives it the advantage to raise first to Spec,TP and then to Spec,CP, both movements being shorter than potential attraction of the lower argument to Spec,TP and Spec,CP. Supposing one were to adopt the hypothesis that the object argument of a verb could in theory be positioned as the higher ν P/VP-internal argument (in other words follow the suggestion that there might be no fixed structuring of arguments in the ν P/VP in some languages), this would allow for it to be attracted first to Spec,TP and then to Spec,CP and so permit it to legitimately precede a subject *wh*-argument in a fronted string of *wh*-elements.

Serbo-Croat would be a language with both fixed and unfixed ν P/VP-internal argument structure in different instances, and that it would be the presence/absence of an interrogative C position in a clause which would result in the presence/absence of such fixed/free ν P/VP argument structure. As there would not seem to be any obvious, plausible connection between the presence/absence of the C position and fixed/free argument structure, and it is also unattractive to posit the existence of both fixed and free argument structure within the ν P/VPs of a single language, it would seem that some alternative explanation of the absence of Superiority effects in Russian and Serbo-Croat is instead called for.

A second, rather different approach to the problem of cross-linguistic variation in Superiority patterns is proposed in Bošković (2002). Bošković suggests that where a language shows clear Superiority effects (i.e. a strict ordering of *wh*-elements in multiple fronted *wh*-strings, or restrictions on which *wh*-phrase can be raised in languages with overt movement of a single *wh*-phrase), this can be assumed to be genuine *wh*-movement triggered by the feature-checking requirements of a [+Q] C and governed by economy restrictions on movement (i.e. Shortest Move). The [+Q] C attracts the closest *wh*-element to it first, and this results in the presence of a strict ordering of raised *wh*-phrases. Where a language does *not* show any strict ordering in sequences of multiply-fronted *wh*-phrases, it is suggested that these elements do not undergo raising to satisfy an interrogative feature-checking requirement of the [+Q] C, but to satisfy a *focus* feature-checking requirement present in the *wh*-phrases themselves. Because the [+Q] C therefore does not attract any of the *wh*-elements for its own needs/requirements, Shortest Move does not apply to attract the highest *wh*-phrase first, and raising of the various *wh*-phrases is suggested to be able to occur in any order. Variation in Superiority patterns found within a single language such as Serbo-Croat are then suggested to result from variation in the occurrence of a [+Q] C being projected in the language. When a [+Q] C is present, it will attract the closest *wh*-phrase to it first, and Superiority patterns will be observed, but when a [+Q] C is optionally not projected in matrix clauses, *wh*-phrases will simply raise (in any ordering) to satisfy their own focus-feature-checking needs.²

Such an approach to Superiority has a number of very clear merits and offers a principled account of how language-internal and cross-linguistic variation in Superiority might be captured in a uniform way. There are however also certain potentially serious difficulties for such an approach, two of which can be

2. For Bošković, the raising of all secondary *wh*-phrases in languages which do display Superiority is also triggered by their own need to check focus-features, and so raising of the second/third *wh*-phrase in a clause is assumed to be possible in any order. This raising is not conditioned by Shortest Move, which only applies to movement triggered by a head with feature-checking requirements selecting from a range of lower elements which could in theory satisfy that need.

mentioned here. First of all, if the overt raising of *wh*-phrases in Russian (and in Serbo-Croat in clauses without a [+Q] C) were to be for focus feature-checking, one would expect for this focus movement to parallel other instances of focus movement in the language and be possible in any clause (as all clauses otherwise do allow for fronting of a focused constituent). This however turns out not to be true, and the ‘focus’-movement of *wh*-phrases is always obliged to occur to the initial position of a clause which is interpreted as having a [+Q] C. This therefore suggests that what is involved in *wh*-fronting in Russian etc. is not simple movement for focus reasons but *wh*-movement which has to relate a *wh*-phrase to a [+Q] C. Consequently, the suggestion that multiple *wh*-fronting in languages such as Russian do not display Superiority effects because the movement of *wh*-phrases is focus-movement rather than *wh*-movement cannot easily be maintained.³ A second problem for the focus-movement account of *wh*-fronting in Russian-type languages comes from observations made about Hungarian in Toft (2002). Hungarian is similar to Russian in being a language which does not seem to show ordering restrictions on multiple fronted-*wh* sequences, which should lead to the conclusion that *wh*-fronting in Hungarian is simply focus-movement. Toft also points out that in a multiple *wh*-question it is possible for a D-linked *wh*-phrase to remain in situ and not undergo any fronting, as seen in (1) below where the *wh*-phrase *kivel* ‘with whom’ is left in situ:

- (1) Ki jár kivel?
 who goes who.with
 ‘Who is going out with whom?’

Given that the focusing of D-linked *wh*-phrases in clause-initial position is therefore optional in Hungarian, one would expect that it should in fact be possible for *all* the *wh*-phrases in a multiple *wh*-question to remain in situ if all of these elements are D-linked. Remember that the absence of Superiority in multiple fronted-*wh* sequences is taken to indicate that there is no real *wh*-movement in a language and only focus-movement, so if focus-movement is optional when *wh*-phrases are D-linked, all such elements should indeed be free not to undergo focus-fronting. Surprisingly, this turns out *not* to be the case and it is found that at least one *wh*-phrase *always* has to be fronted in Hungarian. If all *wh*-phrases are left in situ, as in (2), the result is clear ungrammaticality, despite the fact that these *wh*-phrases are interpreted as being D-linked:

- (2) *Jár ki kivel?
 goes who who.with

3. Stepanov (1998: 464) suggests that *wh*-phrases in Russian which are overtly fronted for focus reasons also need to be overtly licensed by a [+Q] C. It is hard to see how such a licensing requirement makes “focus”-movement of a *wh*-phrase really any different from *wh*-movement.

This clearly indicates that there is obligatory, regular *wh*-movement of a single *wh*-phrase in Hungarian to satisfy the *wh*-feature checking requirements of the [+Q] head position raised to, just as in English and many other languages. The observation that there are no Superiority effects when multiply fronted *wh*-phrases are ordered in different ways in Hungarian can therefore *not* be suggested to be due to any lack of real *wh*-movement in the language, and Superiority patterns consequently seem to require some other explanation which does not attribute them to the presence vs. absence of “real” *wh*-movement in a language.⁴

Given such concerns with the focus-movement approach to Superiority, a third rather different, possible “reaction” to cross-linguistic variation in Superiority is to return to the actual data reported in such cases and ask whether there may be aspects of the interpretation of these multiple *wh*-strings which have previously been overlooked and which might potentially conspire to cause the differences in acceptability reported. This is how we intend to proceed here, and the way we plan to set about generating a new perspective on Superiority patterns is to first enlarge the field of enquiry beyond European languages to consider Superiority phenomena in a multiple-*wh* fronting language from south Asia – Bengali/Bangla. In the past, the majority of ground-breaking work on Superiority has been based on English, German and Slavic languages, and the latter group of languages have provided all of the key data on Superiority in instances of multiple-*wh* fronting. Here a consideration of Superiority patterns in Bangla will be shown to give rise to certain puzzling questions about Superiority which will naturally call for a thorough re-examination of the patterns reported in English and Slavic languages, and then ultimately result in a rather different view and analysis of Superiority-type phenomena. The structure of the paper is as follows. Section 2 first introduces and examines Superiority phenomena in Bangla and shows how the situation with regard to Superiority in Bangla is rather puzzling and in part recalls unexplained data found in footnotes of papers on Superiority in other languages. Section 3 then reconsiders the pragmatic and semantic interpretation of argument *wh*-phrases cross-linguistically in multiple *wh*-questions and the notion and role of argument prominence in Superiority patterns. Establishing the importance of a general set of discourse and semantic factors at play in the determination of the acceptability

4. Observing similar unacceptability in Serbo-Croat when all *wh*-phrases are left in situ, Bošković suggests that one *wh*-phrase has to undergo fronting to “type” the clause. As there is no indication of how *wh*-fronting for clausal-“typing” and real *wh*-movement might be different or distinguished in any way, the difficulties posed by Hungarian-type patterns cannot be side-lined by simply labelling them as instances of “typing” as opposed to real *wh*-movement (and the raising of a *wh*-phrase for clausal typing purposes has indeed always been assumed to be simple *wh*-movement, see e.g. Cheng (1997)).

of multiple-*wh* strings, Section 4 then returns to see how the patterns in Bangla can be accommodated with the various conclusions of Section 3. Finally Section 5 closes the paper with a summary of the various insights and warnings gained from the body of the paper, and returns to reflect on the question of the degree to which argument ‘prominence’ is reflected in restrictions on multiple-*wh* fronting.

2. *Wh* patterns in Bangla/Bengali

Although Bangla/Bengali has traditionally been thought of as a *wh*-in-situ language, Simpson and Bhattacharya (2003) provide a range of data and argumentation showing that Bangla actually is a language with obligatory overt *wh*-movement in all its question-forms. Such *wh*-movement is frequently heavily disguised by the regular positioning of other presupposed/background material in pre-Comp topic positions, but revealed in restrictions on *wh*-scope and certain apparently optional word order possibilities with complement clauses together with a variety of other evidence. Though the study in Simpson and Bhattacharya (2003) considered only *wh*-questions containing a single *wh*-phrase, multiple *wh*-questions are both possible and common in Bangla and indicate that Bangla is a multiple *wh*-fronting language in which *all* *wh*-phrases present in a question-form have to raise to the [+Q] licensing position in the C-domain. Example (3) first shows that a *wh*-phrase located in an embedded clause in a single *wh*-question has to undergo movement to the matrix clause [+Q] position, and that if the *wh*-phrase does not undergo overt *wh*-movement the result is ungrammaticality. Note that as explained in Simpson and Bhattacharya (2003) it is common for a presupposed subject (*Jon* in (3)) to be positioned in the topic field preceding the [+Q] licensing position.

- (3) a. *Jɔn bhablo [meri bollo [su ki poreche]]?
 John thought Mary said Sue what read
 b. *Jɔn bhablo [meri ki bollo [su poreche]]?
 John thought Mary what said Sue read
 c. Jɔn ki bhablo [meri bollo [su poreche]]?
 John what thought Mary said Sue read
 ‘What did John think Mary said Sue read?’

If we now consider what happens in multiple *wh*-questions where two or more *wh*-phrases are base-generated in an embedded clause (but have matrix clause scope), it is found that all such elements regularly undergo raising to the matrix +Q position, as shown in (4a) and (4b), and it is unacceptable/marginal for a secondary *wh*-phrase to remain in its embedded clause, as indicated in (4c) and (4d). Bangla is therefore a multiple *wh*-fronting language akin to Russian, Bulgarian and

Serbo-Croat, and is not a language in which only a single *wh*-phrase is required to undergo overt *wh*-movement, as in English, German etc.:

- (4) a. tumi ke_i kothay_k bolle [t_i t_k thakbe]?
 you who where said will-live/stay
 'Who did you say will stay where?'
 b. Jon ke_i kothay_k bollo [je t_i meri-ke t_k dekheche]?
 John who where said C Mery-ACC saw
 'Who did John say saw Mary where?'
 c. *tumi ke_i bolle [t_i kothay thakbe]?
 you who think where will-stay
 d. *Jon ke_i bollo [je t_i meri-ke kothay_k dekheche]?
 John who said C Mery-ACC where saw⁵

Given this multiple-*wh* fronting property of Bangla, and given the variation reported in Superiority patterns within multiple-*wh* fronting languages in the Slavic group, a natural question to ask about Bangla is whether and to what degree Superiority effects might manifest themselves in multiple *wh*-questions in the language? If we consider a wide range of patterns involving both single clause and two-clause structures, it seems that Superiority effects are fairly clearly absent from multiple *wh*-questions in Bangla. Example (5) first shows a single clause structure and indicates that the *wh*-phrases can occur in either order, $\text{subject}_{WH} > \text{object}_{WH}$ or $\text{object}_{WH} > \text{subject}_{WH}$.⁶

- (5) a. ke kake dekheche?
 who whom saw
 b. kake ke dekheche?
 whom who saw
 'Who saw whom?'

5. Note that the acceptability judgements here characterize attempts to produce regular multiple *wh*-questions which support pair-list answer-forms. If a secondary *wh*-phrase remains in an embedded clause but is intended to have scope in a higher clause, as e.g. (4c), this may be possible if only a single pair occurs as the answer-form (hence 'John, the university hostel' for (4c)). The degree to which such single-pair-answer questions are acceptable is variable, however, in complicated ways and may depend on the positioning of the secondary *wh*-phrase in the embedded clause. For example, (4d) is unacceptable even if answered with a single-pair, and only becomes acceptable (though still somewhat marginal) if the embedded *wh*-phrase occurs further forward towards the front of the embedded clause, as in (i) below, and not in the position it might generally occur in as a *wh*-phrase preceding the verb (as in (4d):

- (i) ?Jon ke bollo [je kothay meri-ke dekheche]?
 John who said C where Mery-ACC saw
 'Who did John say Mary saw where?' (only single-pair answer possible)

6. Note that Simpson and Bhattacharya (2003) present evidence that overt *wh*-movement also takes place in single clause structures, and not only when a *wh*-phrase with matrix clause scope originates in an embedded clause, hence overt *wh*-movement is assumed to occur also in examples such as (5).

Turning to two clause structures, Examples (6), (7) and (8) show that two *wh*-phrases raised out of the same embedded clause can occur in either order in the matrix Q-position, hence that there are no Superiority effects present in such examples:

- (6) a. *tumi ke_i kothay_k bhabcho [t_i t_k thake]?*
 you who where think lives
 'Who do you think lives where?'
 b. *tumi kothay_k ke_i bhabcho [t_i t_k thake]?*
 you where who think lives
 'Who do you think lives where?'
- (7) a. *tumi ki_k kōkhon_i bhabcho [je je t_i t_k kineche]?*
 you what when think that s/he bought
 'When do you think s/he bought what?'
 b. *tumi kōkhon_i ki_k bhabcho [je je t_i t_k kineche]?*
 you when what think that s/he bought?
 'When do you think s/he bought what?'
- (8) a. *tumi ki_i kēno_k bhabcho [je je t_k t_i kineche]?*
 you what why think that s/he bought
 'Why do you think s/he bought what t?'
 b. *tumi kēno ki bhabcho [je je t_k t_i kineche]?*
 you why what think that s/he bought
 'Why do you think s/he bought what t?'

Finally, Examples (9) and (10) show that if two *wh*-phrases with the same matrix clause scope originate in different clauses, they can occur raised in either order and Superiority effects again do not seem to be present:

- (9) a. *ke_i kothay_k t_i bollo [je je conference-er jomoy t_k thakbe]?*
 who where said [that she conference-GEN time stay.will
 'Who said s/he will stay where during the conference?'
 b. *kothay_k ke_i t_i bollo [je je conference-er jomoy t_k thakbe]?*
 where who said [that s/he conference-GEN time stay.will
 'Who said s/he will stay where during the conference?'
- (10) a. *ke_i kōkhon_k t_i bollo [je bhañon-ṭa t_k juru hōbe]?*
 who when said that lecture-CL will start
 'Who said that the lecture will start when?'
 b. *kōkhon_k ke_i t_i bollo [je bhañon-ṭa t_k juru hōbe]?*
 when who said that lecture-CL will start
 'Who said that the lecture will start when?'

The non-occurrence of Superiority effects in these cases of multiple-*wh* fronting make Bangla appear to look like Russian in the patterning of its multiple *wh*-questions. For a Bošković (2002) type approach, this should require *wh*-fronting in Bangla

to be analysed as focus-movement, as only the focus-movement of *wh*-phrases is assumed not to give rise to Superiority effects. However, as argued in Simpson and Bhattacharya (2003), *wh*-fronting and focus-movement in Bangla show significantly different properties and whereas constituents can be focus-raised in any clause in a multiple clause structure in Bangla, *wh*-phrases must be overtly raised to the clause in which their [+Q] licensing head occurs (hence in Example (3), the *wh*-phrase must be raised to the matrix clause [+Q] position and cannot be simply focus-raised to the intermediate clause focus position where a non-*wh* constituent could indeed be focused). This indicates that *wh*-fronting in Bangla is movement for the licensing of *wh*-features, i.e. *wh*-movement, and not simple focus-movement.

In addition to this, there are further theory-internal reasons for assuming instances of *wh*-fronting in Bangla to be occurrences of *wh*-movement rather than simple focus-movement. Considering certain differences between Russian and other multiple-*wh* fronting languages with regard to the occurrence of pair-list answers in multiple *wh*-questions, Bošković (2002) suggests that if there is no real *wh*-movement to Spec,CP in a language and only focus-raising of *wh*-phrases, pair-list type answers should not be forced to occur when multiple *wh*-questions are used, and it should be possible and natural for a single-pair answer to be given to a multiple *wh*-question. Russian, with only focus-movement in its multiple *wh*-questions is suggested to be a language in which single-pair answers are readily available in multiple *wh*-questions, whereas other Slavic languages such as Romanian and Serbo-Croat (in certain environments) are languages which are argued to have genuine *wh*-movement and to require/strongly favour pair-list answers when multiple *wh*-questions are used. Given such a suggested correlation between (a) real *wh*-movement and forced/strongly-favoured pair-list answers, and (b) focus-movement of *wh*-phrases and readily available single-pair answers to multiple *wh*-questions, the analysis of *wh*-fronting in Bangla as focus-movement to account for the lack of Superiority effects observed in (5–10) would lead one to expect that single-pair answers should be readily available in multiple *wh*-questions. This turns out not to be true, and pair-list answers to multiple *wh*-questions are expected/required to the same degree as they are in languages with clear *wh*-movement such as English. This should therefore indicate that Bangla does have genuine *wh*-movement and not simply focus-raising of its *wh*-phrases. However, if this is so, one might expect there to be restrictions on the ordering of multiple-*wh* sequences, i.e. Superiority effects, yet such effects are absent from the range of examples presented above in (5–10). The obvious question raised by the patterns found here is how one should reconcile the lack of Superiority effects in a language with the assumption that genuine *wh*-movement nevertheless occurs in the language? Some component of existing approaches to Superiority would seem to be in need of re-examination and revision.

A further, interesting complication to the patterning in Bangla is that although Superiority effects are not attested in configurations which might be expected to give rise to them – i.e. the question forms in (5–10) – it turns out that Superiority effects are actually *not* fully absent from Bangla and do indeed show up in two distinct sets of patterns. The first of these is simple multiple *wh*-questions which involve a subject *ke* ‘who’ and an object *ki* ‘what’. As shown in (11), positioning of the object *wh*-phrase before the subject *wh*-phrase results in the clear decrease in acceptability typical of Superiority cases. This degraded status of $\text{what}_{\text{object}} > \text{who}_{\text{subject}}$ becomes even more pronounced if the two *wh*-phrases are separated by time/location adverbials as seen in (12), though separation of the two *wh*-phrases by adverbials does not affect the sequencing $\text{who}_{\text{subject}} > \text{what}_{\text{object}}$. Example (13b) also shows that an object *wh*-phrase can precede and be separated from a subject *wh*-phrase if the object is *kake* ‘whom’ rather than *ki* ‘what’. The degraded cases are therefore specifically where $\text{ki}_{\text{object}}$ ‘what’ precedes $\text{ke}_{\text{subject}}$ ‘who’:

- (11) a. *boi-er dokan-e kal ke ki kinlo?*
book-GEN shop-LOC yesterday who what bought
‘Yesterday, in the bookstore, who bought what?’
b. *?boi-er dokan-e kal ki ke kinlo?*
book-GEN shop-LOC yesterday who what bought
- (12) a. *ke boi-er dokan-e kal ki kinlo?*
who book-GEN shop-LOC yesterday what bought
‘Yesterday, in the bookstore, who bought what?’
b. **ki boi-er dokan-e kal ke kinlo?*
what book-GEN shop-LOC yesterday who bought
- (13) a. *ke kal rate kake dekheche?*
who last night whom saw
‘Who saw whom last night?’
b. *kake kal rate ke dekheche?*
whom last night who saw
‘Who saw whom last night?’

The second set of cases where Superiority effects clearly surface in Bangla is in multiple *wh*-*sluicing* as shown in the (b) examples of (14–16) below. Note that a full range of Superiority effects is found here and the unacceptability of certain multiple-*wh* orderings extends beyond $\text{what}_{\text{object}}/\text{who}_{\text{subject}}$ pairings.

- (14) a. *tumi kichu ek-ṭa kōkhono bhebechile je je*
you some one-CL sometime thought that s/he
kineche, kintu ami jani na ki kōkhon.
bought but I know not what when
Lit. ‘You thought that s/he bought something sometime, but I don’t know what when.’

- b. *tumi kichu ek-*ta* kōkhono bhebechile je je
 you some one-CL sometime thought that s/he
 kineche, kintu ami jani na kōkhon ki.
 bought but I know not when what
- (15) a. tumi kothao kal rate kichu kinecho, kintu
 you somewhere last night something bought, but
 ami jani na kothay ki.
 I know not where what
 Lit. 'Last night you bought something somewhere,
 but I don't know where what.'
- b. ??tumi kothao kal rate kichu kinecho,
 you somewhere last night something bought,
 kintu ami jani na ki kothay.
 but I know not what where
- (16) a. tumi kawke kichu bolle je bacca-*ta* curi
 you someone something told that child-CL stole,
 koreche, kintu ami jani na kake ki.
 done but I know not whom what
 Lit. 'You told someone that the child stole something, but I don't know
 who what.'
- b. *tumi kawke kichu bolle je bacca-*ta* curi
 you someone something told that child-CL stole,
 koreche, kintu ami jani na ki kake.
 done but I know not what whom

How can one make sense of these apparently contradictory patterns in Bangla and the occurrence of Superiority effects in just a subset of the configurations one might expect it to occur in? Bošković (2002) actually does discuss another language with 'mixed' Superiority patterns – Serbo-Croat – and suggests that Superiority effects occur only where an interrogative C is present, and are commonly absent from matrix clauses where the root C position need not be projected and present during the pre-Spell-Out portion of the derivation. *Wh*-fronting in clauses without an interrogative C is therefore classified as focus movement and argued not to be subject to Shortest Move and cause Superiority violations. Though such ideas transposed to Bangla might allow for a hypothetical distinction between Superiority in embedded sluiced clauses, which could be taken to contain an interrogative C/Q position triggering *wh*-movement, and *wh*-fronting to a matrix clause in cases such as (5–10) where no Superiority effects are found and it could be suggested that no C/Q position is projected, the expectation raised by such an approach is that one should also find Superiority effects in embedded clauses which are not sluices, as these would naturally be expected to contain a C/Q position due to being non-root clauses. The C/Q position should then trigger *wh*-movement as in sluices

and cause a strict ordering in multiple-*wh* fronting. This expectation is however not fulfilled, and the Superiority configurations in (5–10) are equally acceptable when occurring in embedded environments as when occurring in matrix clauses:⁷

- (17) a. ami jani na [tumi ki_k $k\acute{o}khon_i$ bhabcho [je je t_i t_k kineche]].
 I don't know you what when think that s/he bought
 'I don't know when you think s/he bought what.'
 b. ami jani na [tumi $k\acute{o}khon_i$ ki_k bhabcho [je je t_i t_k kineche]
 I don't know you when what think that s/he bought?
 'I don't know when you think s/he bought what.'

The problem created by the occurrence of Superiority effects in sluiced clauses but not in non-sluided counterparts is therefore one which arguably cannot be satisfactorily accounted for by a simple distinction between root and embedded clauses with the suggestion that the latter but not the former contain a [+Q]/C position. Furthermore, the idea that Superiority effects might be absent from matrix clauses in Bangla due to the optionality of inserting a Q-head in root clauses will clearly not offer any explanation of the non-sluidice cases of Superiority involving root clause sequences of what_{object} > who_{subject}.

Considering the latter what_{object} > who_{subject} patterns, it is interesting that these stand as being deviant/degraded in Bangla, as similar examples are reported to be deviant in a number of languages which are otherwise suggested to have no Superiority effects, for example Russian (Stepanov 1998) and Hungarian (Toft 2001). Stepanov (1998: 458) notes that:

There is one case, however, where a fixed order of *wh*-phrases is seemingly preferred for many speakers, namely, the subject and the inanimate direct object *wh*, as the following shows:

- (15) a. Kto čto videl?
 who what saw
 'Who saw what?'
 b. ??Čto kto videl?

What is really puzzling about (15) is that it seems to be the only clear instance of the fixed order of *wh*-phrases.

7. Bošković (2002) suggests that certain indirect embedded questions in Serbo-Croat might actually be considered to be root questions with a superficial root clause occurring as an 'adsentential' addition. It is not clear to us how an embedded question could syntactically be combined with such an 'adsentential addition' without the use of the C head regularly used to embed clauses. Furthermore, embedded questions in Bangla show all of the deictic shifts commonly associated with genuinely embedded reported speech/questions, and so the possibility that embedded questions are really matrix-like questions is difficult to maintain.

Toft (2001) similarly points out a single obvious exception to the generalization suggested in the paper that Hungarian does not seem to exhibit Superiority effects. This again, as in Russian, occurs in questions involving an object ‘what’ fronted over a subject ‘who’:

- (18) a. Ki mit lát?
 who what-ACC sees
 ‘Who sees what?’
 b. ??Mit ki lát?
 what-ACC who sees

The recurrence of such a patterning in different languages all of which are suggested not to show Superiority effects in other questions may start to make one a little suspicious, or at least inquisitive about what may be going on here. Is this ‘exceptional’ pattern something to be largely ignored and confined to footnotes or is it a patterning which is potentially revealing and indicative of something important and more central to the nature of Superiority effects? If one keeps the what/who alternation in mind and starts to think about Superiority effects as reported in other languages such as English, it is interesting to discover that the core, introductory cases of Superiority presented in very many discussions of Superiority turn out to make use of sentences involving a pairing of what_{object} and who_{subject}, e.g. Chomsky (1973), Hornstein (1995), Pesetsky (2000). The examples in (19) are from Chomsky’s (1973) original discussion of Superiority, repeated in Pesetsky (2000: 15) as initial motivating data for Superiority. (20) is from Hornstein (1995: 44).

- (19) a. Who bought what?
 b. *What did who buy?
- (20) *What did who say?

In treatments of Superiority in English, what_{object} > who_{subject} pairings are therefore taken to be core, motivating cases of Superiority and commonly provide the critical data on which the generalizations about Superiority are first established and then built from. There is consequently quite a different perception of the status of what_{object} > who_{subject} questions in work on different languages, and significantly different and opposite use appears to be made of their common degraded acceptability. In discussions of English, the striking deviance of what_{object} > who_{subject} examples is taken to be a key, central patterning and is critically used to build up the theory of Superiority and its occurrence in English. In contrast to this, the deviance of similar examples in certain other languages may instead be largely sidelined and a view that Superiority effects are absent from a language may be presented. This situation highlights the fact that one of the most serious problems

facing cross-linguistic studies of Superiority is the difficulty of making (and making use of) comparative judgements about the relative acceptability of multiple *wh*-questions, and how one should interpret delicate data from different languages which seem to point towards different conclusions. If the literature on Superiority and *wh*-questions is scanned, it is furthermore found that there may also be frequent variation in judgements amongst speakers of a single language commenting on that language, and in some cases sharp disagreement over the unacceptability of multiple-*wh* sequences occurring in different orderings. For example, whereas Stepanov (1998) assumes Superiority effects to be absent from Russian if *what/who* pairs are ignored, Zavitnevich-Beaulac (2002) asserts that Superiority phenomena are in fact regularly present in the language, and whereas Superiority effects are argued to occur in a range of configurations in Serbo-Croat in Bošković (2002), this is disputed in Godjevac (2000: 199), which reports that the deviance suggested to occur in Serbo-Croat data presented in Bošković (2002) failed to be detected by other native speakers consulted with.

In an attempt to grapple with the cross-linguistic status of Superiority and gain some further insight into the issue of cross-linguistic *variation* in the acceptability of Superiority configurations, Section 3 of the paper now turns to reconsider cases of Superiority in a language where characterisations of the acceptability of multiple *wh*-questions have been assumed to be solid and informative and used as the foundation for constructing theories of Superiority – English. What will be shown is that the foundations provided by generalizations about English are not as solid as commonly assumed, and that a range of factors which are often not properly controlled for can significantly influence the type of conclusion drawn from a set of data and easily lead to generalizations which are misrepresentative of the full patterning present in a language.

3. *What* > *who* patterns and Superiority in English

As noted above, the most commonly presented examples of Superiority violations in English involve *what*_{object} > *who*_{subject} pairings. Because such pairings are however also found to be deviant in languages characterized as otherwise *not* exhibiting Superiority effects, it would seem that *what*_{object} > *who*_{subject} pairs should *not* be so regularly used in English as prime, baseline exemplification of Superiority, as the unacceptability of such examples might turn out to be independent of the structural/syntactic properties suggested to underlie Superiority phenomena. In what follows here, we will carefully consider the reasons why questions involving *what*_{object} > *who*_{subject} pairs are so commonly deviant and what this may indicate about Superiority violations in general. We will also see what happens when one

tries to control for the range of underlying factors causing the unacceptability of what_{object} > who_{subject} pairs. Anticipating the conclusions a little, it will be shown that once proper controls are indeed used, the acceptability of classic Superiority configurations improves dramatically in English, and it becomes much less clear that there really is any substantial difference between languages such as English where Superiority effects are assumed to occur and languages such as Russian/Hungarian where it is often reported that they are (largely) absent. This we take to be a welcome result, as languages once again turn out to be considerably more uniform than initial characterizations have suggested, and there is no need to assume that languages either might have different argument structures or that *wh*-fronting might occur in significantly different ways to explain the reported variation in Superiority patterns.

In Sections 3.1–3.4, four non-structural types of factors will be identified as commonly contributing to the unacceptability of multiple *wh*-questions and potentially causing “Superiority” effects, as indicated below in (21). Once these interfering factors are controlled for, it will be shown that this also eliminates the deviance of core cases of Superiority, and configurations which would be expected to give rise to ungrammaticality are in fact well-formed and acceptable. The general message to emerge from Section 2 will therefore be that data used to motivate Superiority has often significantly profited from non-structural pragmatic and semantic properties which may independently cause unacceptability in multiple *wh*-questions, and that Superiority effects are ultimately not the result of any blind, purely structural filter such as Shortest Move as is regularly suggested.

- (21) *Factors affecting the acceptability of Superiority configurations*
- (a) animacy distinctions among *wh*-phrases: human/animate vs. inanimate
 - (b) thematic relations of *wh*-phrases: Agent vs. Patient, pragmatic centre of interest of a question and relative salience of the *wh*-phrases present
 - (c) prosodic factors: stressing and prosodic weight of *wh*-phrases, prosodic weight/length of the verb
 - (d) referential familiarity of the expected answer to a *wh*-question

3.1 Animacy distinctions among *wh*-phrases

If we try to identify the properties of what_{object} > who_{subject} questions which seem to cause their general low level of acceptability, a first obvious factor is the distinction in animacy between the two *wh*-phrases. In what_{object} > who_{subject} questions an inanimate *wh*-phrase is raised over an animate, [+human] *wh*-phrase. If one tries to control for this distinction in animacy, the unacceptability of Superiority configurations differs quite clearly from that in what_{object} > who_{subject} questions. For example, if one deliberately selects a verb which can naturally have an inanimate

(cause) DP as its subject, and an animate, [+human] object, it is found that raising of a *wh*-object over a *wh*-subject is in fact quite acceptable, as shown in (22) and (23):

(22) Who did what upset?

(23) Who did what please?

Both (22) and (23) are expected to be unacceptable, as they clearly instantiate Superiority configurations and so should automatically be disallowed by Shortest Move under the assumption that Superiority effects result from economy restrictions on movement. However, both (22) and (23) are quite acceptable. This appears to be due to simple manipulation of the relative animacy of the *wh*-phrases, reversing the animacy patterns found in $\text{what}_{\text{object}} > \text{who}_{\text{subject}}$ questions. It can also be noted that the Superiority configurations in (22) and (23) would seem to be more natural than the alternative forms in (24) and (25) in which there is no violation of Shortest Move and the [+human] object *wh*-phrase is left in situ rather than raised over the *wh*-subject, and (22) and (23) are certainly no lower in acceptability than (24) and (25):

(24) (?)What upset who?

(25) (?) What pleased who?

If Superiority configurations with animacy distinctions that are the opposite to those in $\text{what}_{\text{object}} > \text{who}_{\text{subject}}$ questions occur in embedded questions, this is also found to be quite acceptable:

(26) The complaints department wants to know who what upset.

Finally, if multiple *wh*-questions are manipulated so that there is equal animacy amongst the *wh*-phrases present, the unacceptability characteristic of $\text{what}_{\text{object}} > \text{who}_{\text{subject}}$ questions seems to disappear. In (27) both *wh*-phrases are [+human] and raising of the object *wh*-phrase over the subject *wh*-phrase seems to be fine and not result in any special deviance/ungrammaticality:

(27) So, whom are you claiming that who beat up?

Animacy distinctions and the manipulation of the relative animacy of *wh*-phrases therefore make a significant contribution to the overall acceptability of a multiple *wh*-question. Once the influence of animacy is kept fairly under control, it is no longer obvious that Superiority effects continue to arise, contra the expectations of Shortest Move.

3.2 Thematic relations and empathetic centre of interest

A second observation which can be made about typical instances of $\text{what}_{\text{object}} > \text{who}_{\text{subject}}$ questions presented as examples of Superiority is that the *wh*-subject

frequently instantiates an Agent or an Experiencer theta role acting on/experiencing a Patient/Theme object. If verbs are selected which avoid Agent/Experiencer subjects, such as *have* for example, it appears that the typical deviance of $\text{what}_{\text{object}} > \text{who}_{\text{subject}}$ pairs may be significantly reduced and disappears in examples such as (28) and (29):

- (28) I want to know exactly what who had on him/in his pockets when the alarm went off.
 (29) I want to know exactly what who had access to when the system was broken into last night.

This manipulation of the theta role of the subject may relate to a broader, important factor at play in multiple *wh*-questions, the influence of the primary centre of interest in potential cases of Superiority. It can be suggested that there may frequently be an uneven focus of interest present in pairs of *wh*-phrases and that one *wh*-phrase in multiple *wh*-questions may be accorded a greater degree of interest and speaker/hearer empathy than other *wh*-phrases present. In Kuno (1976) it is argued that subjects are naturally more likely to be centres of speaker/hearer interest/empathy than objects and DPs in other grammatical relations, and this would seem to be syntactically encoded in the regular cross-linguistic linear positioning of subjects before objects. If one assumes that the prominence corresponding to the interpretation of an element as the primary centre of interest in a sentence is regularly maintained in the linear sequencing of *wh*-phrases, it is clearly expected that subject *wh*-phrases will regularly precede object *wh*-phrases and enforce the Superiority pattern of $\text{subject}_{\text{wh}} > \text{object}_{\text{wh}}$ either in raised sequences of *wh*-phrases or in languages with mixed raising and in situ such as English. What a relative prominence approach to multiple *wh*-questions also leads one to expect is that if the centre of interest could be instantiated by an object *wh*-phrase, it should be possible for the object *wh*-phrase to precede a subject *wh*-phrase. With careful choice of verbs, this would seem to be true, and while subjects do indeed seem to be the default, natural centre of interest as suggested in Kuno (1976), especially if [+human] and Agents, certain verbs may allow for an empathy switch to their objects if the object is negatively affected and if the object has some kind of relation to the speaker or hearer. Verbs such as *criticise* may permit this without too much difficulty or unnaturalness, and Example (30) would be quite acceptable uttered in the following context: the speaker has learned that there was criticism of his paper when it was read by the hearer at a recent conference and is (angrily) trying to find out what happened during the question period following reading of the paper:

- (30) So, tell me, what did who criticise? I really want to know!

A similar potential enhancement of the object's status as primary centre of interest occurs with the verb *plagiarise*, where the original author of a work that is

plagiarised is felt to be negatively affected (though this need not be the speaker or hearer), as illustrated in (31):

- (31) Context: a head teacher learns that some student essays contain material copied from other sources and questions his/her colleague:
 “So, what did who plagiarise?”

Alternatively, if the regular imbalance in terms of expected centre of interest between subject and object is balanced a little more evenly via the use of generic *wh*-phrases, again it often becomes possible for the object to be interpreted as a greater potential centre of interest, as shown in (32):

- (32) So, during a trip to Paris, what is what kind of tourist most likely to buy, do you think?

Other particular contexts would also seem to allow for the natural focus of interest to fall on the object without the need for a generic subject or the object to be negatively affected, and in such cases the unacceptability of other object_{wh} > subject_{wh} orders is again quite absent:

- (33) Context: a mother and a child looking at a picture-book; after reading several pages together, the mother closes the book and asks:
 “So, what is who going to say next, do you think?”
- (34) Context: a policeman and an excited individual on a street in central London:
 Individual: “They’re going to blow it up – the ministers’ place, it’ll be terrible, they’ll all die.”
 Policeman: “Stop, stop, stop, tell me slowly now, what is who going to blow up?”
- (35) Context: an investigator taking a statement about some potential criminal activity:
 “Tell me again, right from the start, I’m all confused, what did who buy from you?”

What regularly causes the unacceptability of degraded what_{object} > who_{subject} questions is that the initial *wh*-phrase in a multiple *wh*-question involving a subject and an object *wh*-phrase seems to be interpreted as the primary focus of attention and function in a topic-like way, and a bare *wh*-object ‘what’ is less likely to be a natural centre of interest than an animate Agent subject. It is therefore inappropriate to reposition an object ‘what’ before an animate subject ‘who’ in the majority of cases, unless the context allows for a natural interpretation of an object ‘what’ as the clear centre of interest. Examples such as (19b) and (20) repeated below seem quite ill-formed because it is difficult to interpret the fronted ‘what’ as the topic-like centre of interest of the question.

- (19) b. *What did who buy?
 (20) *What did who say?

What is interesting here is that if an alternative acceptable topic is provided in a multiple *wh*-question, the pragmatic unacceptability of sequences of an inanimate ‘what’ preceding a [+human] ‘who’ are significantly found to disappear. This can be shown to occur in double object constructions and also in embedded questions. Although the positioning of (the equivalent of) inanimate bare ‘what’ before [+human] ‘who’ results in questions often being deviant when ‘what’ occurs as the object and ‘who’ as the subject in Bangla (as originally shown in (11b) and (12b)), if the [+human] ‘who’ instead occurs as the indirect object of a verb, it is quite possible for either order of ‘what’ and ‘who’ to occur:

- (36) a. *tumi kake (kal rate) ki dile?*
 you whom (last night) what gave
 ‘Who did you give what?’
 b. *tumi ki (kal rate) kake dile?*
 you what (last night) whom gave
 ‘What did you give who?’

What arguably occurs in such sentences is that the non-*wh* [+human] Agent subject *tumi* ‘you’ allows itself to be interpreted as the topic of the sentence and this allows the linearly first *wh*-phrase to escape having to qualify as the topic/empathetic centre of interest of the sentence. This therefore makes it possible for the bare *wh*-phrase ‘what’ to either follow or precede the [+human] indirect object ‘who’ and their relative order is not regulated by the need for the linearly first *wh*-element to be construed as more of a focus of interest than the second *wh*-phrase. In simple transitive multiple *wh*-questions where both the subject and the object are *wh*-phrases there is no additional prominent argument that can substitute for the first *wh*-phrase as a natural empathetic centre and topic of the sentence and this forces the linearly first *wh*-element to regularly have to assume this role.⁸

A second example of where the addition of a potential topic-like element allows for a legitimate sequencing of what > who occurs in two-clause structures where the non-*wh*-subject of the higher clause (*tumi* ‘you’ in (37)) is potentially interpreted

8. Similar effects would seem to be observable in Russian. Although what > who sequences are deviant in simple transitive sentences such as (15b), if the what > who sequence is produced in a di-transitive clause where the subject can be interpreted as a natural empathetic anchor of the clause, this allows for inanimate ‘what’ to precede [+human] ‘who’ without the deviance reported in other transitive sentences (data from Stepanov 1988):

- (i) *Čto komu dal Ivan*
 what-ACC who-DAT gave Ivan
 ‘What did Ivan give who?’

as the empathetic centre of the sentence. This allows for the fully acceptable occurrence of what_{object} > who_{subject} to be present in the embedded clause, a sequencing which is otherwise regularly deviant in simple matrix clauses:

- (37) a. tumi [ke ki kineche] bhable?
 you who what bought thought
 ‘Who do you think bought what?’
 b. tumi [ki ke kineche] bhable?
 you what who bought thought
 ‘Who do you think bought what?’

The central problem occurring in what_{object} > who_{subject} questions such as (19b), (20) and their equivalents in Bangla is consequently that there is no other argument present in the same clause which can take up the function of topic/focus of interest and this therefore defaults to the linearly first *wh*-phrase. Where this is bare *ki*/‘what’ there is often little contextual support for its interpretation as the primary centre of interest of the sentence deliberately promoted over the [+human], Agent *ke*/‘who’ and this gives rise to the common degraded status of what_{object} > who_{subject} questions. However, where another argument is present which can function as the empathetic focal point of the sentence as in (36) and (37), this releases *ki*/‘what’ from such a default interpretative duty and the sequencing of ‘what’/*ki* and *ke*/‘who’ appears to be free. Alternatively, if the context in combination with verb choice does support the legitimate interpretation of *ki*/‘what’ as a focal centre as in (30–31), (33–35), this also allows for what_{object} > who_{subject} sequences to surface in a non-deviant way, and initial ‘what’ is interpreted as having the genuine pragmatic prominence its raising over ‘who’ requires.

Finally in this sub-section, we can mention two further, particular contexts which allow for what > who sequences to occur rather naturally – the contexts of quiz show and “immediate recall” questions. Certain aspects of these contexts allow for hearers to interpret a sentence-initial ‘what’ as the primary centre of interest of a multiple *wh*-question with considerable ease and so to accept what > who pairs fairly automatically. For example, (38), (39) and (40) below are all quite natural/acceptable Superiority configurations with ‘what’ preceding ‘who’:

- (38) In the third chapter of *The Port au Prince Adventure*, what did who see rising out of the sea?
 (39) What did which president of the USA say when he was accused of covertly supporting the nationalist movement in Fiji?
 (40) During the third act of *Travels in the Dark Kingdom*, what (interesting/odd thing) did who buy from a sorcerer in Vardar?

Quiz show questions would seem to be able to produce very natural sounding what > who sequences for two basic reasons. First of all, quiz show questions

make the background context of a question very explicit. All questions of course require the assumption of some appropriate background context before they can be judged to be acceptable, and when single/multiple *wh*-questions are somewhat artificially asked/presented 'out of the blue' and isolated without a given context, hearers are themselves obliged to construct appropriate mental contexts and to assess whether the *wh*-questions could legitimately be used in any of these contexts. The less fixed, non-*wh* information there is in a *wh*-question, the more work a hearer will have to do to create a relevant context, and if a hearer is unable to imagine an appropriate setting for the use of a particular question-form, this can lead to the classification of the question as unacceptable. The obvious danger in the assessment of data in such an isolated way is that it relies on the efforts of a hearer to search for an appropriate context for a question, and there may frequently be cases where a hearer fails to identify a potentially legitimate context for a question and thereby misclassifies a question as unacceptable/ungrammatical. What data involving quiz show-type questions does is to lead hearers directly and very explicitly to the context in which the acceptability of a particular multiple *wh*-question should be judged, and so avoid the risk that hearers do not construct this potential context themselves.⁹

Secondly, a property of quiz show questions which is rather different to most other interrogative contexts is that the composer of the question actually knows the answer to the question, and we as hearers are also aware of this fact. The important effect this has on multiple *wh*-questions is that when a *what* > *who* sequencing is attested, as in (38–40), there is an automatic confidence/trust that such a sequencing which presents the object *wh*-phrase as more focal is carried out for a good reason – the composer of the question him/herself knowing the answers to the question is in a legitimate position to guarantee that the answer value of the object *wh*-phrase may be genuinely more interest-worthy than that of the subject. In such a situation, the composer of a question is assumed by hearers to have the 'pragmatic authority' to position an object 'what' before a subject 'who' and the resulting *what* > *who* sequence is likely to be easily acceptable to a hearer. This property of quiz show questions does not cause them to be produced by any special, different syntax, but instead highlights again that what is necessary for the licensing of *what* > *who* sequences is a pragmatic expectation on behalf of the hearer that the element 'what' legitimately corresponds to the central focus of interest in the question. Such an expectation can significantly be guaranteed

9. Quiz show questions therefore restore to isolated questions more of the background context they would normally benefit from in actual discourse. Anyone who has tried to elicit judgements of (particularly multiple) *wh*-question data from non-linguists will know that the latter normally have to be provided with explicit contexts before being able to judge the acceptability of *wh*-question data.

to a considerable extent in the context of quiz show questions, and this allows for forms such as (38–40) to be easy for hearers to accept as fully well-formed.

A second, related kind of context/situation which allows for configurations of Superiority to be relatively easily accepted by hearers are question-forms which can be called “immediate recall questions”. Such a term can be used to refer to questions posed in the experimental scenario in which a video recording is first shown to a group of viewers, and then questions about the contents of the event/story portrayed in the video are asked of the viewers to see how much of the story they are able to recall.

In such a setting, it is again quite legitimate to position an occurrence of ‘what’ before a subject ‘who’. The reason this is allowed seems to be that both speaker and hearer are jointly aware that the answer value corresponding to the object ‘what’ may be of greater interest than that of the subject, as a result of the fact that both speaker and hearer viewed the video recording together. Question forms such as those in (41) and (42) posed about the contents of a film just viewed by a speaker and a hearer are therefore fully acceptable:

- (41) What did who (unexpectedly) announce to the lawyers, when he arrived very late at the meeting?
- (42) What did who hide when he was in the kitchen?

All questions are, of course, ‘recall’ questions, requesting the recalling of some piece of information that has been stored in our minds. In the situation outlined above, though, the recency of the input of the information and the fact that it is information which has been simultaneously absorbed by both speaker and hearer serves to provide a guarantee of the greater focal interest of a bare *wh*-object ‘what’. Again, as with the range of preceding cases presented, such examples show that there is nothing *structurally* ungrammatical in what > who Superiority violations, and that what is important for the acceptance of what > who sequences is the belief that ‘what’ may be a greater natural centre of interest than the subject ‘who’.

3.3 Prosodic factors

Prosodic factors and intonation can also be noted to clearly interact with the acceptability of what_{object} > who_{subject} sequences. The discussion in Sections 3.1 and 3.2 have put forward the idea that raising of an object *wh*-phrase over a subject *wh*-phrase has the effect of signalling that the object should be interpreted as having greater pragmatic prominence than the subject, and that promotion of the object in this way has to be interpreted as naturally justified for it to be acceptable. If an object *wh*-phrase can be accepted as instantiating a potentially greater centre of interest than the subject, the positioning of object before subject will not be perceived as deviant, but if there is no contextual or lexical support for interpretation of the object as naturally more prominent than the subject, then fronting of

the object over the subject is inappropriate and ill-formed for pragmatic reasons. One relevant resource available to speakers as a means to highlight important, prominent information is the use of intonation and stress, and the addition of increased stress to an element can be used either to create salience where none would otherwise be perceived, or to increase the salience of an element already made prominent by other factors such as the position of an element in a particular syntactic structure. A first point which can be made here is that the acceptability of many legitimate $\text{what}_{\text{object}} > \text{who}_{\text{subject}}$ sequences, such as those presented above in Sections 3.1 and 3.2, can be further enhanced by the use of certain intonation contours and frequently by the addition of stress to the initial ‘what’.

Increased stressing of an initial ‘what’ is able to serve as a further guarantee from the speaker that the positioning of an inanimate bare *wh*-object ‘what’ before a [+human], Agent subject ‘who’ is both intentional and a reflection of the prominence (of the object) which the speaker intends to convey to the hearer. Such stressing of an initial ‘what’, as for example might be naturally applied in Example (34), should not be confused with echo question intonation, and is effected to encode an increased level of interest associated with a particular *wh*-element rather than the mishearing of information. It indicates that the prominence accorded to an object ‘what’ in initial position preceding a subject ‘who’ is indeed justified because the object is of greater focal interest than the subject.

What adds in a potential complication to the use of stress to enhance the prominence of a fronted object *wh*-phrase is the fact that object *wh*-phrases will frequently be able to receive stress in a semi-automatic way in sentence-final position (nuclear stress), and the sentence-final position therefore allows the possibility of prominence on an object without the occurrence of any raising over the subject. This might therefore be expected to decrease the motivation for objects to be raised over subjects. Bearing this in mind, a second interesting observation which can be made about $\text{what} > \text{who}$ sequences and intonation is that they are often naturally acceptable if some additional element occurs in sentence-final position and attracts the nuclear stress and its associated prominence as in (43a) and (44a) below. Here if the *wh*-object were to be left in situ and not raised over the subject, it would fail to attract nuclear stress as it would actually not be located in sentence-final position. This is shown in (43b) and (44b). The inability of the object *wh*-phrases to receive prominence in situ via nuclear stress may therefore make their fronting to the sentence-initial position and the prominence assigned to this position more easily acceptable. Certainly the acceptability of (43a) and (44a) is no less than that of (43b) and (44b), and (43b) is actually rather difficult to pronounce if the PP *in Arlington* is assumed to be new, focused information:

- (43) a. I want to know what who found **in Arlington**.
 b. (?)I want to know who found what **in Arlington**.

- (44) a. So, what is who going to say next, do you think?
 b. (?)So, who is going to say what next, do you think?

A further case of essentially the same phenomenon can be suggested to occur when an embedded CP in which *wh*-movement has occurred is itself raised, as in (45) below. Here it turns out to be surprisingly easy to accept the sequencing of what_{object} > who_{subject} even with verbs which otherwise do not readily/naturally allow for what_{object} > who_{subject} sequences. In such cases if the *wh*-object were to be left in situ (as in (46)) and if the raised CP is pronounced without any special pause between it and the remainder of the sentence (i.e. if a normal intonation pattern is given to the whole sentence), the *wh*-object will not receive sentence-final nuclear stress. For this reason, as with (43) and (44) it may make raising of what over who to increase its prominence more readily acceptable:

(45) [_{CP} What who said], I really don't know.

(46) [_{CP} Who said what], I really don't know.

Examples such as (45) also highlight another intonation-related issue relating to acceptable cases of Superiority configurations. It can be noted that (45) and other similar examples allow the contents of the fronted CP to be pronounced more slowly and deliberately than if the CP were not to be fronted, and such a measured, slow intonation pattern functions to increase the acceptability of examples of this type in a very natural way. Similar speech-rate 'speed' effects occur regularly in acceptable cases of Superiority involving what_{object} > who_{subject} and a slower pronunciation of examples such as (34) and (35) repeated below clearly enhances their acceptability:

(34) Stop, stop, stop, tell me slowly now, what is who going to blow up?

(35) Tell me again, right from the start, I'm all confused, what did who buy from you?

Though it is difficult to be fully certain about the ameliorating effect of slow, measured speech in such instances, if increased syllable length is assumed to be a possible manifestation of stress, then lengthening of the pronunciation of *wh*-phrases in acceptable cases of Superiority configuration may be signalling stress in an alternative way to the simple increase of amplitude/loudness or pitch variation.

Prosody and intonation as noted here may therefore play a significant ancillary role in the licensing of prominence to *wh*-phrases in configurations of Superiority and certain contexts and syntactic structures may naturally lend themselves to allowing this intonation where it is needed to encode special prominence on 'what' in initial position.¹⁰

10. The non-echo stressing of *ki* 'what' in Bangla also improves the acceptability of what_{object} > who_{subject} sequences. It can also be noted that in addition to an increase in pitch and loudness, morphological doubling of *ki* into *ki-ki* has a similar effect in improving what_{object} > who_{subject} questions. Such doubling may again perhaps be the addition of stress via an increase in the

3.4 Referential familiarity of expected answers to *wh*-questions

A fourth influential factor affecting the acceptability of what/who Superiority configurations relates to referential familiarity of the answers which a hearer expects might be given to a *wh*-question. If many of the classic examples used to illustrate the unacceptability of what > who sequences such as *What did who buy?* are considered, one can note a potentially significant difference and imbalance in the information status of the anticipated answer-values for the subject and object *wh*-phrases. If such examples are presented out of any context (as is commonly the case), a default interpretative assumption which hearers may regularly make is that the *wh*-object 'what' will correspond to a non-specific indefinite answer-value (i.e. a 'type', such as for example 'a book', 'a pen') and that 'who' will correspond to a definite value (i.e. a familiar individual represented by a name/description, e.g. 'John', 'the father' etc). Especially with verbs such as 'buy', 'give' etc., it may be less common to assume that a prototypical answer-value for a subject *wh*-phrase would be indefinite and that a prototypical answer-value for the object would be definite, e.g. *A man bought the book*, *A woman gave me the pen* etc. Such answer-forms are of course not excluded, but unless a hearer is directed by explicit contextual clues, it can be suggested that there is a *tendency* to mentally project and assume prototypical answers to questions (here of the type definite-subject + indefinite object), and furthermore to make use of this kind of default projected information when asked to judge the acceptability of multiple *wh*-questions.

If it is correct to assume that default expectations are made use of in this way in the absence of context, and if subject 'who' is commonly expected to correspond to a definite individual and object 'what' to a non-specific indefinite (with many verbs), it is not surprising that what_{object} > who_{subject} questions are indeed frequently classified as unacceptable. It is less likely that an indefinite non-specific object will be expected to be of greater focal interest than a definite, specific human subject, and therefore there should be no pragmatic justification for making the object *wh*-phrase more prominent in the sentence by raising it over the subject. This can be compared to the similar ill-formedness of fronting an indefinite non-*wh*-object over a definite subject as in (47):

- (47) ??A book, John bought.

length of the *wh*-phrase. In varieties of English which permit it, a similar effect may be present in the addition of 'all' to raised 'what' as in (i) below. This lengthening of the *wh*-phrase would seem to improve its status in the Superiority configuration:

- (i) What all did who buy?

Examples such as (47) will be regularly judged to be deviant *unless* there is heavy stress on the object and it (and its buying by John) is construed as remarkable in some way, with John not being expected to buy books.¹¹

It can therefore be suggested that an unfair imbalance relating to (expected) information status is commonly hidden in many what > who pairings. When this is controlled for by using verbs which are more frequently associated with definite/specific objects, such as for example 'destroy', 'criticise', this may even up the information status imbalance and allow for what > who sequences to be more easily acceptable, with 'what' being more naturally taken to refer to a specific/definite entity. Concerning the common default interpretation of subject 'who' as corresponding to a definite individual, it is not particularly easy to construct questions in which subject 'who' will be assumed to correspond to an indefinite answer value (i.e. 'a person', 'a man'). However, certain contexts can be found which will allow for this, and clear effects on the acceptability of what > who sequences can be detected. In Example (35) repeated below, it is likely that the answer value for 'who' *will* be expected to correspond to an unfamiliar, indefinite individual, e.g. *a man about 6'2" with a moustache*, and the what > who sequencing is relatively acceptable:

- (35) Context: an investigator taking a statement about some potential criminal activity:
 "Tell me again, right from the start, I'm all confused, what did who buy from you?"

Note also that if we increase the likelihood that the object can be interpreted as the central focal interest of the question, (35) becomes quite acceptable. This can be done by instructing hearers to interpret (35) as being uttered by a concerned investigator in a store selling weapons and armaments. In such a background context, the object 'what' can clearly be expected to correspond to a potentially very significant item (a rifle, explosives etc). This, balanced against the anticipation that the reference of 'who' will be unfamiliar/indefinite, allows for highly acceptable fronting of object 'what' over subject 'who'.¹²

11. An explicit continuation of (47) including an element contrasted with the fronted object may therefore help to increase its acceptability:

(i) A BOOK, John bought, not a motorcycle magazine, can you believe it?

12. Note that it is not always necessary for an object 'what' to be interpreted as referring to a definite entity for a what > who sequence to be acceptable (though this can clearly help). In (35) the answer expected to correspond to 'what' may quite naturally be indefinite (e.g. *a rifle*). If the potential interest value of the object can be assured in some other way (by it being potentially remarkable etc), 'what' can precede 'who' also if indefinite. This is seen further in quiz show-type questions such as (38) repeated below, where the answer to 'what' might well be expected to be indefinite (e.g. 'a giant squid'):

(38) In the third chapter of *The Port au Prince Adventure*, what did who see rising out of the sea?

In the general case, though, it would seem that subject ‘who’ is interpreted as being most likely to refer to a definite individual. The element ‘who’ used as an object (e.g. *Who did you meet/see?*) would in fact also seem to have this property and be construed most commonly as being likely to refer to some familiar individual rather than an indefinite open type, e.g. *a man, a woman*. There is consequently, most arguably, a significant ‘unfair advantage’ present in most $\text{who}_{\text{subject}}/\text{what}_{\text{object}}$ questions which militates against the positioning of ‘what’ before ‘who’ due to expectations relating to the familiarity of answer forms. Object ‘what’ will frequently be interpreted as relating to an indefinite answer value which is less likely to be the obvious, primary centre of empathy/interest of the question, whereas ‘who’ will generally be related to a definite individual value, and so more naturally prominent than other indefinite referents. Attempts at assessing the purely structural effects of Superiority configurations need to take into account this common imbalance in informational status, and ensure that it is evened out and controlled for in a fair way by the careful use of verbs and context.

In discussing the potential role of definiteness in affecting the acceptability of multiple *wh*-questions, it is also necessary to briefly touch on two other subjects which are often related to the syntax of multiple *wh*-questions and Superiority – the notion of D-linking and the occurrence of pair-list answer-form interpretations. If potentially deviant sequences of *what* > *who* are rendered more acceptable when the value corresponding to ‘what’ can more easily be assumed to be a definite, familiar entity (via the use of certain verbs), this might lead to the suggestion that the assumed definiteness of an object ‘what’ results in it being construed as ‘D-linked’, and that D-linking of the object might in some way allow for an interpretative syntax which is different from that in regular questions. Such a possibility can be fairly straightforwardly dismissed, however. The theory of D-linking put forward in Pesetsky (1987) and developed further in Pesetsky (2000) suggests that if an in situ *wh*-phrase is understood as referring to a member of a restricted set of answer values salient in the discourse it will be D-linked and escape the need to undergo raising to a [+Q] Comp in the way that non-D-linked *wh*-phrases have to. In Pesetsky (1987) it was first proposed that in situ D-linked *wh*-elements are simply bound in situ without the need for any raising to Comp, while in Pesetsky (2000) it is argued that feature-movement to Comp occurs with in situ D-linked *wh*-phrases in contrast to the full phrasal movement of non D-linked *wh*-elements. What is now important to highlight here is that the patterns reviewed in Section 3 have all indicated that it is manipulation of the referential prominence of the *wh*-phrase overtly moved to Comp which result in typical Superiority configurations becoming acceptable, and it is not the status of the *wh*-in-situ subject ‘who’ which is being manipulated and being made more referential. In fact the opposite effect has actually been suggested here, and if it is possible for the in situ subject ‘who’

to be construed as unfamiliar and indefinite as in Example (35), this actually will increase the naturalness of fronting a focal 'what' over 'who'. A similar example in which the prominence of an animate *wh*-subject is decreased relative to the object by making it generic and not refer to a specific D-linked individual is seen in (32). The generalization which therefore characterizes the data presented here is that it is more commonly a change in the information status of the moved/raised *object* 'what' which can be shown to impact on the acceptability of Superiority configurations in a positive way, when the focal prominence of the object is increased by various means. As the D-linking hypothesis is concerned with suggesting a special licensing mechanism for *in situ* rather than raised *wh*-elements, the improved acceptability of Superiority configurations resulting from an increase in the referentiality of an overtly raised object 'what' is not something which is to be explained by D-linking. Furthermore, not only is it not necessary for an *in situ* 'who' subject to be D-linked in acceptable what > who sequences, it is also not necessary for the raised what to be D-linked as seen in (35) and also (48) below, where 'what' is free to refer to anything/any of the countless web-pages available on the world wide web:

(48) I want to know exactly what who was viewing when the system crashed.

If the prominence and focality of an object 'what' can be guaranteed by its role in the action described (in (48) having a potential agent-like interpretation as possibly having caused a set of computers to have crashed), then there is no need for it to be D-linked and relate to a restricted, known set of entities assumed in the discourse (though prominent, focal occurrences of 'what' may of course quite often coincide with interpretations where they are construed as familiar and D-linked).

This brings us to consider a second and final point here. If an increase in the referential familiarity and definiteness of a raised object 'what' does in various cases increase the acceptability of what > who sequences, it might be suggested that this is related to a need for multiple pair answers in questions involving more than one *wh*-phrase in English. Rather than attributing the ameliorating effect of 'definiteness' in an initial 'what' to a general increase in its focal prominence as argued here, it might be proposed that the initial *wh*-phrase in a multiple *wh*-question must be taken to relate to a set of definite individuals/be D-linked in order that a pair-list answer form can be computed on the basis of the known membership of answer values for the first *wh*-phrase. Kuno (1982), for example, suggests that the linearly first *wh*-phrase in a multiple *wh*-question functions as a key to provide pairs (or triples) of answers. The membership of the first *wh*-phrase must therefore be known, and hence definite (see also Hornstein 1995 for related discussion).

Concerning this possibility that an initial 'what' in a multiple *wh*-question might have to be construed as referring to a set of definite entities in order to facilitate

necessary pair-list answer forms, the following can be noted. Although it is apparent that multiple pair answer forms seem to be required in many multiple *wh*-questions in English, such as (49) below, it is actually not true that multiple pairs are always required. If the choice of verb is manipulated a little, and a more explicit background context is provided, as in quiz show-type questions, it is found that single pair answer forms to multiple *wh*-questions are in fact often quite natural, as shown in (50).

(49) Who bought what?

(50) In the final scene of the play *Broken Shutter*, who stole what/what did who steal from the owner of the inn?

Once the context provides a clear restriction to a particular time and place, single-pair answer forms are actually not difficult to elicit, as seen again in (51) and (34):¹³

(51) What did Bond give to who in the hallway at 11.05?

(34) Stop, stop, stop, tell me slowly now, what is who going to blow up?

Because an increase in the referential familiarity of answer-forms expected for 'what' in a what > who question which anticipates such a single pair answer may often have a positive effect on its acceptability, it can be suggested that the facilitation of pair list answer forms is *not* the critical factor causing raised 'what' to benefit from a 'definite' interpretation; rather it is the likelihood that definiteness (of anticipated answer-forms) will contribute to the potential focal prominence of a raised 'what' which will help in the fronting of object 'what' in multiple *wh*-questions.

Staying with the issue of pair list answer forms for just a moment longer, certain descriptions of cross-linguistic variation in multiple *wh*-questions have suggested that languages may vary in terms of whether or not their multiple *wh*-questions always require pair-list answer forms or whether they alternatively allow just single-pair answers. In Bošković (2002) such suggested variation is attributed to differences in the fronting of *wh*-phrases: if a language has genuine *wh*-movement to a [+Q]

13. If one is a little inventive, it is also possible to construct multiple *wh*-questions which anticipate a single pair answer in environments which are not typical quiz-show scenarios. What is necessary here is the assumption that an action of a certain type will take place pairing a single individual with an object of a certain type, such as, for example, the removal of money from an ATM machine, and that only one person can carry out the action at a particular time. The multiple *wh*-question in (i) might therefore be asked by a crime scene investigator asking about a specific ATM machine, with the expectation of a single pair answer:

(i) Just before the deceased arrived at the ATM, at 11.05, who withdrew how much money, can you tell me?

C, it is argued it will require pair list answers in multiple *wh*-questions, whereas if a language has only *wh*-“focus” raising, it is expected to freely allow single pair answers in multiple *wh*-questions. Such a clear distinction between languages turns out to be rather questionable, however. On the one hand, English as a language with “genuine” *wh*-movement has been shown to allow for single pair answer forms in appropriate contexts, hence a language characterized as a necessary multiple pair language is actually not so on closer inspection. Conversely, if we consider languages which are described as freely allowing single pair answer forms due to not having any genuine *wh*-movement, the occurrence of single pairs is actually not so free as is perhaps suggested. For example, Russian and Japanese are two languages mentioned in Bošković (2002) as regularly allowing for single pair answers to multiple *wh*-questions. However, a closer inspection of the literature on Russian and Japanese suggests that this is not fully accurate. Concerning Russian, Stepanov (1998: 461) says that a multiple *wh*-question such as (52) can have a single pair list *if asked in an appropriate context*:

- (52) Kto čto kupil?
 who what bought
 ‘Who bought what?’

It is added that the context might be that the speaker is in a store, saw someone buy something but didn’t see who it was nor what was bought and so asks the salesman. In such an explicit context, however, it is also possible to elicit a single pair in English, for example:

- (53) I’m a detective, so please tell me, just now, who bought what, do you know?
 I need to find out badly.

It is therefore far from clear that Russian is any different from English in requiring a specific context before it will allow for single pair answer forms to multiple *wh* questions. The same may be true of Japanese. Although Japanese is referred to in Bošković (2002) as a language which does not force pair list answers, Nishigauchi (1998: 150 fn6) reports that a range of informants found it difficult to accept single pair answers as natural for multiple *wh* questions, and where multiple *wh* phrases occur in the same clause in a *wh* question, these are naturally answered by listing pairs/sets of individuals (Nishigauchi 1999: 127).¹⁴ It may well be, therefore, that

14. A single-pair answer-form is noted to become more natural in Japanese when multiple *wh*-phrases occur in different clauses (Nishigauchi 1999: 128 ex. 19). This would seem to be frequently true of English as well, as in examples such as (i) below, hence Japanese and English may not be so dissimilar in the way that multiple *wh*-questions may be answered with single or multiple pairs.

i. Who did John tell that Mary wants Bill to buy what?

languages do *not* vary in whether they enforce multiple pair answers in multiple *wh* questions or alternatively freely permit single-pair answers, and once the role of context is evenly controlled for, languages may perhaps be quite similar in their tolerance of single pair vs. pair list answers.

4. Bangla sluicing revisited

Section 3 has probed and argued for the importance of a range of factors influencing the linear sequencing of *wh*-phrases in multiple *wh*-questions and the particular effects of such factors in what > who sequences. We were led to consider the latter type of *wh*-combination because of a puzzle present in Bangla and various other languages, where such sequences stand out as being quite pronounced in their unacceptability, though other combinations of *wh*-elements in Superiority configurations appear not to show obvious signs of deviance. When what > who questions were reconsidered in English, this led to the conclusion that such data in English is actually not so clear cut, even though it is often presented as central exemplification of Superiority, and it is not always the case that what > who sequences are unacceptable. In those sequences of what > who which do appear to be unacceptable, it was argued that it is possible to isolate the largely pragmatic factors which are responsible for the deviance, and when such factors are controlled for and balanced/corrected, the result is quite regularly acceptable occurrences of 'what' raised over 'who' in a Superiority configuration. This therefore suggests that 'Superiority violations', i.e. genuinely deviant occurrences of *wh*-elements in a Superiority configuration, are not ungrammatical because of any purely structural syntactic constraint such as the Shortest Move Condition/SMC, but rather due to a range of other factors relating to the relative interpreted prominence of *wh*-phrases in a particular sentence and discourse situation.

Turning back to Bangla now, the deviance of *ki* > *ke* 'what > who' patterns noted in Section 1 is now no longer really a puzzle. What initially seemed to be difficult to understand was why the occurrence of *ki* preceding *ke* appeared to be deviant, yet (a) the unacceptability was not as clearly sharp as judgements given for similar sequences of what > who in English, and (b) other instances of expected Superiority 'violations' such as *kake* > *ke* 'whom_{object} > who_{subject}' were not felt to be deviant. Now that we have examined the patterning in English more closely, we can conclude that the key Superiority data in English is actually a lot more varied in its (un-)acceptability than commonly reported and assumed, and that the initial striking deviance of *ki* > *ke* patterns Bangla is therefore not really an isolated puzzle but rather a reflection of quite general cross-linguistic factors influencing

the acceptability of multiple-*wh* sequences. What_{object} > who_{subject} sequences will stand a heightened chance of being perceived as unacceptable in all languages, and considerably more so than whom_{object} > who_{subject} sequences, yet this unacceptability can also be reduced and eliminated by the manipulation of a number of factors, and, if not carefully controlled for, may often cause a messy blurring of grammaticality judgements.

The second puzzle arising in Bangla which was noted in Section 1 and which we have not focused on since then was the observation of apparent Superiority effects in cases of multiple *wh*-sluicing. An obvious question now is how these patterns might relate to the revised conception of Superiority phenomena developed in Section 3. In brief, what has been argued for in Section 3 is that multiple-*wh* sequences (should) encode the relative prominence of a set of *wh*-phrases and that Superiority “violations” occur when it is pragmatically difficult to accept the relative prominence encoded by the linear ordering of a set of *wh*-phrases in a particular way. The question now is whether an explanation in terms of the notion of prominence is also appropriate for the “Superiority” observed in sluices. We would like to suggest that it *is* in fact quite appropriate and natural, and that the deviance of certain sluiced multiple-*wh* sequences is indeed directly connected with relative argument prominence. What is particularly special about sluices, apart from the common deletion and removal of all non-*wh* material in the sluiced clause, is the occurrence of clear (indefinite) antecedents for the sluiced *wh*-phrases in the non-sluiced clause. For example, the *wh*-phrases *ke* ‘who’ and *ki* ‘what’ in (54) below refer back to the indefinites *keu* ‘someone’ and *kichu* ‘something’ in the matrix, non-sluiced clause:

- (54) a. Mini-ke kal rate keu kichu diyeche,
 Mini-ACC last night someone something gave
 kintu [ke ki]/*[ki ke] ami jani na.
 but who what what who I know not
 Lit: ‘Last night someone gave something to Mini, but I don’t know
 who what.’

The “Superiority” effects observable in multiple *wh*-sluices can be simply attributed to the natural strong tendency to follow and copy the argument prominence relation established and present in the non-sluiced clause by the linear sequencing of the indefinite DPs anteceding the sluiced *wh*-phrases. This is an effect and patterning which has also been observed in non-sluiced *wh*-questions in Serbo-Croat when these are embedded in a discourse sequence with indefinite antecedents for the *wh*-phrases arranged in a particular order, as in (55) below:

- (55) a. Neko je udario nekog.
 somebody is hit someone
 ‘Somebody hit someone.’

- b. Ko koga?
 who whom
 ‘Who (hit) whom?’
- c. ?*Koga ko?
 whom who
- (Stjepanović 1999)

Whereas sequences of $\text{whom}_{\text{object}} > \text{who}_{\text{subject}}$ such as (55c) may otherwise be acceptable in Serbo-Croat, once embedded in a context where there is a clear speaker-determined sequencing of antecedents for the *wh*-phrases, it is found that the sequencing of *wh*-phrases in the question-form has to copy the linear sequencing of the antecedents in the preceding statement.

Such an assumption about the causes of “Superiority effects” in sluices in Bangla also leads to a further clear prediction which can be tested to determine whether the account is essentially on the right track or not. If it is the ordering of elements in the antecedent clause which is responsible for determining the sequencing of *wh*-elements in a sluice, and this occurs through a natural copying of the pragmatic salience assigned to the indefinite antecedents (in their linear ordering) onto the ordering of the *wh*-elements in the sluice, one might expect that a change in the relative order of the indefinite antecedents would allow for a natural change in the order of *wh*-elements. In (54), the legitimate ordering of the *wh*-phrases *subject ke > object ki* in the (raised) sluiced CP mirrors the ordering of *subject keu > object kichu* indefinite antecedents in the preceding clause, and when the opposite ordering is attempted (**ki > ke*) this is unacceptable. If we now attempt to change the order of *keu* and *kichu* in the input, however, it might be expected that the illicit **ki > ke* order of the *wh*-elements in (54) would become acceptable. This prediction is indeed borne out, as shown in (56) below. Example (56b) furthermore shows that once the ordering of the indefinite antecedents is reversed and becomes *kichu > keu*, the original legitimate ordering of the *wh*-elements in the sluice *ki > ke* automatically becomes *unacceptable*. As such an ordering should not violate Superiority conceived of in terms of the Shortest Move Constraint (and (56a) arguably *should*, yet is well-formed), the reversed acceptability of (56a,b) vs. (54) strongly indicates an approach to Superiority which does not attempt to reduce it to a purely structural, and pragmatically blind Attract Closest-type filter:

- (56) a. Mini-ke kichu kal rate keu diyeche,
 Mini-ACC something last night someone gave
 kintu [ki ke] ami jani na.
 but what who I know not
 Lit: ‘Last night someone gave something to Mini, but I don’t know who what.’
- b. *Mini-ke kichu kal rate keu diyeche,
 Mini-ACC something last night someone gave
 kintu [ke ki] ami jani na.
 but who what I know not

The conclusion for Bangla resulting from these patterns is therefore that the occurrence of “Superiority effects” in sluices does not really exhibit any radically different syntactic or pragmatic constraints from those at work in non-sluiced multiple *wh*-questions. Cases of “Superiority” in sluices and other related constructions where there is an explicit input (such as the Serbo-Croat sequence in (55)) are simply instances where the sequencing of multiple *wh*-elements is highly constrained to copy an argument prominence relation established elsewhere in the sentence/adjacent discourse either by strict syntactic rules or by variation in common pragmatic factors such as centre of interest and empathy. The particular salience of the unacceptability of illicit *wh*-sequences in sluiced environments compared to that in (most) other non-sluiced environments is stronger simply because the relative pragmatic prominence of the *wh*-phrases in the former is overtly established by the speaker via the positioning of the indefinite antecedents for the *wh*-phrases in the (non-sluiced) input. Such an explicit sequencing of antecedents has the significant restraining effect that it does not allow for the easy construction of other, alternative background contexts (by a speaker/hearer) as a means to license a different sequencing of the *wh*-elements (via a different assumed relative prominence of the *wh*-phrases).

5. The status of Superiority, and argument prominence

Having considered how the two sets of cases of “Superiority” in Bangla link up with restrictions on multiple-*wh* sequencing more broadly, we are now in a position to reflect back on the progress made in the paper as a whole and assemble some general conclusions about Superiority phenomena and its connection with argument prominence.

The original stated aim of the paper was to consider the potential instantiation of argument structure in sequences of *wh*-elements, both when there are multiple fronted sequences of *wh*-phrases and when one of a set of *wh*-phrases present in a sentence is selected for fronting. The relevant problem which was outlined in the introduction to the paper was how to analyze the cross-linguistic variation which has been reported in restrictions on *wh*-sequencing in multiple *wh*-questions, and what to make of claims that Superiority effects are present in some languages but not in others. It was noted that two possible reactions to such variation may be either to attempt to relate it to fundamental differences in underlying argument structure, or to assume that there are significant differences in the mechanism of *wh*-fronting across languages. However, as both such approaches require the assumption of rather drastic cross-linguistic variation and a number of associated problems, we decided instead to reconsider the data and patterns involved in Superiority phenomena to see if any alternative conclusions might be drawn. This

then led us to consider first the patterns in Bangla in Section 1 and then in English in Section 3. What the combination of this and in particular a reconsideration of key Superiority patterns in English has now indicated is the following.

First of all, there are strong indications that (suggestions of) cross-linguistic variation in multiple-*wh* sequencing in both multiple *wh*-fronting and English-type single *wh*-fronting languages is actually not present and is an artifact of data which is not very carefully controlled for. The linear sequencing of *wh*-elements in single *wh*-fronting and multiple *wh*-fronting languages is therefore quite possibly much more uniform than is sometimes portrayed.

Secondly, a range of factors relating to the pragmatic prominence associated with a *wh*-element and its anticipated answer, as well as prosodic factors, are responsible for constraints on *wh*-sequencing. In prior investigations of Superiority it has been suggested that what critically regulates the raising of *wh*-elements to a [+Q] C is the structural distance of a *wh*-phrase from Comp. As subjects are regularly closer to C than objects, this has been assumed to account for the common linear positioning of *wh*-subjects before *wh*-objects both in multiple *wh*-fronting languages and in English-type languages. However, here it was shown that the data frequently invoked to support such generalizations is often unbalanced and accords a significant pragmatic advantage to *wh*-subjects. Once this inequality is factored out, it appears that the simple distance of a *wh*-element from Comp is actually not important, and any *wh*-element which can be legitimately interpreted as a significant focal centre can also appear as the linearly first raised *wh*-element in a multiple *wh*-question.

Unlike in the mapping of arguments from their theta positions to higher case and agreement positions, it can therefore be concluded that the purely structural condition Shortest Move does *not* seem to play a decisive role in dictating which *wh*-element will occur raised as the first *wh*-phrase in a sentence, and the strength of and confidence in judgements relating to Superiority is consequently quite different to that in other cases which have been suggested to violate Shortest Move, e.g. when an object is attracted to Spec,TP rather than a subject (**The book has the man bought the book.*).

Finally, if it is indeed correct that there is greater uniformity in multiple-*wh* sequencing than sometimes portrayed and there are no fundamental differences in Superiority across languages, there will clearly be no need to posit significant differences in underlying argument structure to account for the 'lack' of Superiority in certain languages. Instead, there is rather an important need to recognize that it is the general focal prominence of arguments which plays the pivotal role in regulating the distribution of *wh*-elements in multiple *wh*-questions and that in both multiple *wh*-fronting languages and English-type languages the linear sequencing of *wh*-phrases may be exclusively determined by pragmatic, semantic and prosodic factors rather than any blind structural constraint such as the SMC.

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Look across

The paradigmatic axis and Bangla causatives

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The standard notions of suppletion and blocking are tried against the data of Bangla causatives and found wanting. The framework of formalist generative grammar that uses these notions are tried against the surprising data of Bangla sarcastic causatives and found wanting. Remedies are suggested along substantivist lines but in a formalist implementation. Look Across, the new device proposed for this purpose, straddles the syntax-pragmatics boundary.

1. Introduction*

One conventional approach to passive and causative sentences employs the notion of process. On that view, causativization and passivization count as processes. Such phenomena play a pivotal role in argument structure studies. So do their specific visualizations, some of which have invested heavily in the process terminology.

There is an unexamined rush to press ahead with developing some of these investments further without reviewing their fundamentals. Pleading for a reversal of this rush, the present paper shows where and why a revisualization of processes, including the decision to open a transderivational window, becomes necessary under direct pressure from intriguing data in the domain of causatives in the Eastern Indo-Aryan language Bangla (a.k.a. Bengali). By the same token, we need to reexamine seriously the lexical and syntactic processes we postulate and the explanatory purposes these devices serve. Questioning the widespread belief that a single-minded

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formalistic pursuit of economical derivations will advance grammatical inquiry, the present paper points up some anomalies in the notions of economy and derivation that have guided this pursuit. These issues can be addressed cogently if the paradigmatic axis is explicitly accepted as a factor in formulations of the operative principles of grammatical theory.

Passives that consist of a passive auxiliary and a main verb complex, as in English, are standardly described by means of devices that are both syntagmatic and located in the syntactic component. These two properties of the prevalent style of description may appear inseparable to some users. This illusion does not survive scrutiny. Consider example (1):

- (1) a. The soup was spilled by Tom.
- b. Tom spilled the soup.

There are two distinct questions to ask about the descriptive devices employed to express crucial regularities concerning active-passive pairs like (1a,b), the component location question (2) and the operative axis question (3):

- (2) Are the properties of a passive sentence provided syntactically or lexically?
- (3) Wherever located in the syntax or the lexicon, does the relevant descriptive device DD operate paradigmatically, establishing a correspondence between a passive sentence uttered on one occasion and an active utterance from another context? Or does DD operate syntagmatically, linking the subject of the passive sentence to the object gap it binds?

Combinations of different answers to (2) and (3) yield four possible models:

(4)	Model	Answer to (2)	Answer to (3)
a.	transformational stucturalism	syntactic	paradigmatic
b.	transformational generativism	syntactic	syntagmatic
c.	paradigmatic lexicalism	lexical	paradigmatic
d.	syntagmatic lexicalism	lexical	syntagmatic

Position (4b), one of the first cards Chomsky (1957) played, was adopted by a community that could instead have chosen position (4a), formulated by Harris (1957). The point of revisiting such an old debate is to recall that even the transformation device had been articulated on the paradigmatic axis as well.

Theory (4c) is to this day often pitted against (4b) as its natural rival. But Chomsky's (1981) reformulation seeking to preserve the core of the transformational generative

description (4b) of the passive defends this core not only against Bresnan's (1980) paradigmatic lexicalism of type (4c) but explicitly also against Koster's (1980) (4d)-type position designated here as syntagmatic lexicalism. Both in 1957 and in 1980–81, then, linguists did in fact formulate both paradigmatic and syntagmatic options. But the lack of conceptual clarity about the paradigmatic axis as a space of inquiry caused a telescoping of issues on those occasions. The lack of clarity obviously had to do with the proliferation of alternative theories underdetermined by the data.

This time, underdetermination is not the problem. There is compelling evidence available for the claim that the paradigmatic dimension plays a role in the grammar of Bangla causatives. This gives morphologists and syntacticians a chance to reexamine with care the criteria that guide our decisions to use specific devices when describing particular types of phenomena. The phenomena of interest have to do with argument structure. We focus here on devices that belong to the broad category of processes.

The term process itself did not become controversial in the debates surrounding (4a–d) in 1957 or 1980–81. Rather strikingly, however, all the options taken seriously as analyses of the passive, summarizable as (4a–d), have been of the process type. Proponents of each option have tended to overstate the case for the exclusive use of their favourite mechanism. Others, seeking to end debates they find pointless, suggest that these theories will turn out to be notational variants expressing some core passivization process in various ways. Stepping back both from the overstatements and the hasty neutrality, it pays to revisit the criteria being used. How do we know which processes to place in the lexicon and which ones in the syntax? After the discussion surrounding (2–4) we must also ask a second question: How do we allocate our phenomena to the syntagmatic and paradigmatic devices at our disposal?

The point is to do better than the anarchic maximalism that has guided much descriptive practice. By maximalism I mean that linguists comfortable with descriptive device DD from grammatical component GC tend to push GC in general and DD in particular as far as these can be made to stretch, arguing that rival theories must bear the burden of proving that GC and DD are inappropriate. This methodology becomes anarchic due to the absence of criteria that can help adjudicate conflicts between maximalisms coming from different starting points.

Consider, for instance, a maximalism that originates at the Sanskrit passive in (5) and one for which its English translation (6) is the prototype:

- (5) odanah pacyate devadattena.
- (6) Rice is being cooked by Devadatta.

The fact that the English passive form *is being cooked* consists of three words compels syntactic inquiry just as naturally as the synthetic character of the Sanskrit passive *pacyate* elicits morphological investigation. From the Sanskritist's point of view, English has a periphrastic passive that whimsically unpacks one word into three, translating the affix into an auxiliary *be*. In the other direction, the Anglicist sees the Sanskrit passive as a product of incorporation, ingeniously compacting what are universally two or more syntactic nodes into what Sanskrit chooses at a language-particular level to implement as a single word.

Are there neutral adjudicators for a clash like this?

The formalisms currently prevalent assure us that there are. Lexical descriptive devices of the kind that (5) naturally elicits strike formalists as being sustainably appropriate only in cases where the active-passive pairings are unpredictable either in letting only a whimsical subset of actives passivize, or in giving a passive a range of meanings often different from that of its active base. The majority of my readers, applying this logic to the case at hand, conclude that (6) is closer to UG than (5), which they are sure instantiates incorporation.

I find, however, that such a justification for the maximalism of syntactic processes at a UG level pushing lexical ones into the tiny corner where exceptionalism arguments can be offered does not survive scrutiny. Let me work this out for the case at hand just to exemplify the type of argumentation needed, not out of intrinsic interest in passivization itself. To revive an old point, if passivization was a pure syntactic process, it would be as automatic as *wh*-movement, which it is not, given familiar unpassivizable actives as *resemble*, *weigh* (in one sense) and *marry* (in one sense). In the other direction, a maximalism of lexical processes alone does not handle passivization adequately either. Given that pleonastics do not easily carry theta-roles, a pure lexicalism has trouble with (7):

- (7) There were known to be likely to be more boys than girls there.

Synthetic passive languages like Sanskrit simply lack examples like (7). This might tempt us to propose that lexical passivization applies in Sanskrit, syntactic passivization in English, and the twain never meet. Such a Whorfian dead end would leave the UG enterprise in disarray, though, and cannot be contemplated. One tentative resolution of such worries might work as follows. For Sanskrit, we make up a lexical passive account that hugs the verb quite closely. In English, we push the account in a direction that places the operative burden less on V and more on a functional head. For concreteness, let this functional head be the passive auxiliary *be* itself; hence the ill-formedness of a version substituting the less bleached alternative auxiliary *got* for *was* in (7). Since by hypothesis the process is still lexical, English now has an analysis of the passive not too distinct from Sanskrit. But the fact that the process focuses mainly on the functional *be* allows (7) in English and

explains its absence in Sanskrit. The goal would be to show that a lexical process focused on a minimally lexical item like *be* has many of the properties of a serious syntactic process like *wh*-movement.

The point of imagining such a redescription exercise is not to launch a programme for redrawing the maps for passives across languages. I am making the point that the overall idea of exceptions getting into the lexicon and rules into the syntax is no longer a simple and widely applicable criterion. The transition from rules to principles must also mean that the question of where to house exceptions stops being what it used to be, as the concept of exception does not survive the demise of rules. We can tentatively adopt some version of the old hunches of what counts as lexical and what as syntactic for our initial draft lexicon and draft syntax. But we must then let those rough drafts push each other into an anti-maximalist realignment whose theoretical flexibility patterns match the real flexibilities we notice on the ground. It is to exemplify the kind of realignment needed that I have sketched in a few details of a reexamination of the proper treatment of the passive.

It should be clear from these remarks that it makes no sense to propose with a straight face that the passive marker *ya* in the Sanskrit verb *pacyate* ‘is being cooked’ be regarded as a separate syntactic element directly equivalent to English *be* and that Sanskrit passives are thus morphologically simplex but syntactically multinodal implementations of material indistinguishable from (6). That kind of syntactic process maximalism has no place in a serious theory of processes that tries to find the right niches for our various descriptive devices.

It follows that grammatical theory needs to make sense of the passive *pacyate* in paradigmatic alignment with its active counterpart *pacati* ‘is cooking’, even though this active verb does not appear at any level of representation as part of the syntactic derivation for (5). This leaves open the question of whether such a lexical operation on the paradigmatic axis should be matched by the syntax of Sanskrit passives also moving on to that dimension, or instead should be complemented by the syntax of passives cleaving to the syntagmatic axis while leaving the paradigmatic work entirely to the morphology. Specific questions of that order cannot be settled in advance, on theoretical grounds. What theory can do is choose defaults. The default for syntax is the use of the syntagmatic axis. For morphological relations between one lexical item and another, the paradigmatic axis is the default. At this level the stereotyped polarization pitting Chomsky’s (4b) against Bresnan’s (4c) does get something right.

I turn now to Bangla causatives, my main arena of inquiry in this paper. My first concern is to explore the properties of certain verbs traditionally seen as irregular causatives and handled by means of suppletion and blocking. I argue that that formalistic approach collapses under the weight of its own internal problems in this domain, leaving the field clear for the substantivism I advocate.

Bangla morphology does, after a fashion, lead us to expect that the verb *jaaooa* ‘to go’ would correspond to a causative *jaaooaano* ‘to cause to go’. This expected *jaaooaano* is indeed not a lexical item in the language. The formalist mainstream in morphosyntax would encourage us to describe this fact along roughly the following lines. The expected regular or transparent form is blocked by a relatively opaque verb like *paatxhaano* ‘to send’, an extremely irregular causative counterpart to *jaaooa* ‘to go’, so very irregular that it needs to be called suppletive. When we try to work out the formalistic logic of this line of inquiry, the description collapses under its own weight, as becomes apparent in the exposition now beginning. In other words, not only does the notion of economy not support formalism, on the contrary the formalistic style of description yields manifestly uneconomical accounts. That collapse leaves the field open for a serious exploration, even by formalists, of such alternatives as the substantivist position I advocate. Readers wishing to understand the perspective that underwrites this critique may consult Dasgupta, Ford, and Singh (2000) for an exposition of substantivist morphology a.k.a. Whole Word Morphology and of substantivist phonology a.k.a. Generative Phonotactics with syntactic and semantic extensions.

The empirical body of this paper is organized as follows. Section 2 introduces basic facts about Bangla causatives in the context of standard (formalistic) assumptions about blocking. Using the particular issue of whether *paatxhaabe* ‘will send’ is a suppletive causative for *jaaobe* ‘will go’ to make the discussion concrete, Section 2 suggests that the standard machinery cannot be operated even on its own terms. Distinguishing between straight causatives and the (not previously reported) sarcastic causative formation in Bangla, Section 3 proposes, along substantivist lines, that the sovereignty of blocking be relativized to paradigmatic and pragmatic considerations. Section 4, which presents and motivates the new paradigmatic device Look Across as part of the substantivist response to this material, points out the possibility of extending this analysis to certain hitherto unreported facts pertaining to the Bangla passive.

2. Blocking and its discontents

I introduce first the basic data of causatives in Bangla and some cases of what is standardly taken to be Blocking. We find causatives such as *kaacaabe* ‘will make (someone) wash’ and *deoaabe* ‘will make (someone) give’ in (8c, d) that match or correspond to such non-causative or base verbs as *kaache* ‘will wash (said of clothes)’ and *debe* ‘will give’ in (8a, b). Base verbs whose stem ends in a consonant

as in (8a) and vowel-ending stem examples like (8b) regularly correspond to causatives that insert *aa* as in (8c) and *aaa* as in (8d). These count as the regular templates for consonant-final and vowel-final stems throughout.

- (8) a. Rinaa dutxo saarxi kaacbe.
 Rina two saris will.wash
 ‘Rina will wash two saris.’
 b. Korim tomaake aalmaari debe.
 Korim you-OBJ cupboard will.give
 ‘Karim will give you a cupboard.’
 c. Jitu Rinaake diye dutxo saarxi kaacaabe
 Jitu Rina-OBJ by two saris will.cause.to.wash
 ‘Jitu will make Rina wash two saris.’
 d. Mahes Korimke diye tomaake aalmaari deoaabe.
 Mahesh Karim-OBJ by you-OBJ cupboard will-cause-to-give
 ‘Mahesh will make Karim give you a cupboard.’

Inquiry in this domain needs to focus on the work that a lexical process and a syntactic process can do in order to handle the relevant general and particular facts. There is said to be a dialect of Bangla, spoken somewhere in West Bengal, often apocryphally reported by mainstream conversationists not seriously interested in the data, in which (8c, d) seem to come out as periphrastics like (9a, b):

- (9) a. Jitu Rinaake diye dutxo saarxi kaacaa karaabe.
 Jitu Rina-OBJ by two saris to-wash will-cause-to-do
 ‘Jitu will make Rina wash two saris.’
 b. Mahes Korimke diye tomaake aalmaari deoa karaabe.
 Mahesh Karim-OBJ by you-OBJ cupboard to-give will-cause-to-do
 ‘Mahesh will make Karim give you a cupboard.’

I find it *a priori* striking that this dialect’s phrasal causative construction apparently displays an auxiliary that is, unlike French or Spanish, not a simplex or light *korbe* ‘will make, will do’, but the heavier form *karaabe* that mainstream Bangla uses as a causative that means ‘will cause to do’. These mysteries will have to wait until linguists gain access to this as yet undescribed dialect. The causatives in standard Bangla and other familiar dialects are never phrasal as in (9a, b) but absolutely always lexical, as in (8c, d). Given the discussion in section 1 (see examples (5–6) there), we need to ask if the facts of the causative system in standard Bangla are messy enough to justify the postulation of a lexical rather than syntactic process.

This direction of inquiry naturally takes us into an examination of irregular members of the causative system. In the context of the history of Indo-Aryan languages whose vowel alternations once marked causativity, examples like the causatives

(11a–c) matching the bases (10a–c) end up being seen as irregular causatives, given the (parenthesized) unacceptability of (8c)-type regular forms in these cases:

- (10) a. Morle to eak baari morbo.
if.die well one time.EMPH will.die
'If I die, well, I'll die only once.'
- b. Gaach theke aamtxaa porxbe.
tree from the.mango will.fall
'The mango will fall from the tree.'
- c. Gaj sojaa colbe, nouko konaakuni.
rook straight will.move, bishop diagonally
'The rook will move straight, the bishop diagonally.'
- (11) a. Praane maarle (*maraale) to eak baari.
life.LOC if.kill well one time.EMPH
maarbe (*maraabe)
will.kill
'If they take my life, well, they'll kill me only once.'
- b. Tumi gaach theke aamtxaa paarxbe (*parxaabe).
you tree from the.mango will.pick
'You will pick the mango from the tree.'
- c. Borun kon gutxitxaa caalbe bhaabche (*calaabe).
Borun which piece will.move is.thinking
'Borun is wondering which piece he'll move.'

It is not just the lack of phonological correspondence generalizability, though, that underpins this irregularity claim. Treating (10c) and (11c) as a straightforward base-causative pair is also made difficult by the existence of another irregular counterpart for (10c). Consider the pair (12–13); note that the senses conveyed in (10c) and in (12) by the supposedly identical base *colbe* are different from each other:

- (12) Esab raastaae gaarxi ato jore colbe naa.
these roads.LOC car so fast will.go not
'Cars won't go so fast on these roads.'
- (13) Esab raastaae tumi ato jore gaarxi caalaabe ki? (*calaabe)
these roads.LOC you so fast car will.drive Q
'Will you drive (cars) so fast on these roads?'

The base *colbe* 'will go, move' has two competing irregular causatives, *caalaabe* 'will-drive' as in (13) and *caalbe* 'will move (tr)' as in (11c). Bagchi and Seely (2002) provide diachronically and lexically sensitive commentary on such double irregularity, also observed with the causatives of *jolbe* 'will burn'. They embed this in a data-rich and insightful study of Bangla causatives.

For our study of lexical and syntactic processes, we need also to revisit the initial idea that causativization derives (11b)'s *paarxbe* 'will pick' from (10b)'s *porxbe* 'will fall'.

What would normally count as a suppletive causative for this base appears in (14), whose *phelbe* ‘will drop’ resembles the base semantically but not phonetically:

- (14) Gaach theke aam tumi phelbe, aami dhorbo.
 tree from mango you will.drop, I will.catch
 ‘You’ll drop mangoes from the tree, I’ll catch them.’

Does it make sense for a causativization process to endow (10b)’s *porxbe* ‘will fall’ with two causatives, the *paarxbe* ‘will pick’ of (11b) and the *phelbe* ‘will drop’ of (14)? Such choices make some sense elsewhere. One might claim that English has two verbs of the form *bear*; that one of them passivizes as *The burden was borne by the chief’s lackeys*; that the passivization process maps the second *bear* on to *A child was born*; and that these irregular forms *borne*, *born* jointly block the transparent **beared*, though more needs to be said. Does it make sense, along those lines, to split *porxbe* ‘will fall’ into two subentries denoting two kinds of falling, which get one causative each? Given the unacceptability of the regular (8c)-type causative *parxaabe* ‘will-make-fall’, is it fair to say that the causatives *paarxbe*, *phelbe* together block this regular *parxaabe*?

If such moves are accepted in principle (example-specific quibbles apart), then by the same token, to turn to the case of *jaaoaa* ‘going’ and *paatxhaano* ‘sending’ that invites special attention because across the world’s languages the locution for ‘send’ seldom looks like a causative of ‘go’, we can postulate a tentative pairing of (15)’s base *jaabe* ‘will go’ with (16)’s suppletive causative *paatxhaabe* ‘will send’ for one lexical subentry for ‘go’. Parallel to this, a distinct subentry for ‘go’ can pair off with (17)’s causative *niye jaabe* ‘will take with (them)’. This initial story says that ‘will send’ and ‘will take with (them)’ together block the morphologically expectable regular causative *jaaoaabe* ‘will cause to go’, its ill-formedness parenthesized at (16), (17). But this analysis turns out to fail.

- (15) Seam kon gaarxite kore stxesane jaabe?
 Shyam which car in station.LOC will.go
 ‘In which car will Shyam go to the station?’
- (16) Seamke oraa kon gaarxite kore stxesane
 Shyam.OBJ they which car.LOC in station.LOC
 paatxhaabe (*jaaoaabe)?
 Will.send (*will.cause.to.go)
 ‘In which car will they send Shyam to the station?’
- (17) Seamke oraa kon gaarxite kore stxesane niye
 Shyam.OBJ they which car in station.LOC take
 jaabe (*stxesane jaaoaabe)?
 AUX (*station.LOC will.cause.to.go)
 ‘In which car will they take Shyam with (them) to the station?’

What I shall call the SSCG analysis, an acronym for Sending Supplants *Causing to Go, fails even within the standard formalistic framework that underwrites the notions of suppletion and unqualified blocking. In the present section I argue that this failure undermines the formalistic framework itself. Section 3 completes this demonstration and Section 4 fashions a substantivist response.

The notion of suppletion that sponsors the SSCG analysis reflects a naive visualization of paradigms, of gaps in them, and of obvious fillers for these gaps. English *go* needs a past. The fact that **goed* is expected and non-occurrent creates a gap in its paradigm. *Went* expresses the meaning one expects **goed* to have had. Ergo, *went* supplants **goed* or is the suppletive past of *go*. What holds for the inflection of *went* carries over to the derivation of *size*, supplanting the expected **bigness*. A critique of SSCG will need to keep in view the core intuition it expresses. For we have to rearticulate the core intuition, not throw its baby out with the refuted theory's bathwater.

We are about to see that even a formalistic standpoint must reject the logic of SSCG and, in the course of working out what follows from this rejection, can no longer keep using the naive notions of paradigms, gaps and fillers as a toolkit for registering lexical observations. The facts move us towards a new respect for paradigmatic locality. Considerations of paradigmatic locality make suppletion look like a sweeping or informal abbreviation for the locality-sensitive mechanisms actually required.

Consider first SSCG's division of labour between *paatxhaabe* 'will send' and *niye jaabe* 'will take with (them)'. These respectively block the subentry for *go* that means 'go alone' and the one for 'go with someone else', as scrutiny of (15–17) shows. (15) is then ambiguous between two lexically distinct senses of *jaabe* 'will go', rather than vague with respect to the range of pragmatically acceptable denotata for the word. Is it acceptable for the theory of paradigms and suppletion to compel a decision to split 'go', lexically, into a going alone and a going with others?

Second, things are even worse. I don't find it obvious that *niye jaabe* 'will take with (them)' uniquely blocks **jaaoaabe* 'will cause to go' on the allegedly distinct 'going with others' reading. Bangla has an equally natural alternative expression, *pouxche debe* 'get (him) there', that can replace (17)'s *niye jaabe* 'will take with (them)':

- (18) Oke oraa kon gaarxite kore stxesane pouxche debe
 him they which car in station.LOC get AUX
 (*stxesane jaaoaabe)?
 (*station.LOC will.cause.to.go)
 'In which car will they get him to the station?'

Formalists accepting the core of SSCG might object to this observation, and claim that in fact (18) lexically corresponds not to *jaabe* ‘will go’ but to the *pouxchobe* ‘will get (there)’ of (19). If they are right, base (15) uniquely matches causative (17), giving base (19) the distinct causative (18) and cancelling my worry:

- (19) O kon gaarxite kore stxesane pouxchobe?
 he which car in station.LOC will.reach
 ‘In which car will he reach the station?’

That objection does not in fact stand. Any native speaker will recall the frequently staged conversation where anxious travellers ask (20), with *jaabo* ‘will go’, and receive reassurance (21), with *pouxche debo* ‘will get (you) there’. Note that in such an exchange the traveller very rarely asks (22), using *pouxchobo* ‘will reach’:

- (20) Ato bhore stxesane jaabo ki kore?
 so early station.LOC will.go how PRT
 ‘How do I go to the station so early?’
 (21) Aamraa tomaake pouxche debo, bhebo naa.
 we you.OBJ get AUX, worry not
 ‘We’ll get you there, don’t worry.’
 (22) Ato bhore stxesane pouxchobo ki kore?
 so early station.LOC will.reach how PRT
 ‘How do I reach the station so early?’

Non-speakers of Bangla may want to be cued into the point at stake here. It is clearly inappropriate to claim for English that *went* is exclusively wedded to the rare *wend* and delinked from the common *go*. I’m saying along the same lines that it is wrong to match the Bangla causative *pouxche debe* of (18) exclusively with the marked intransitive *pouxchobe* ‘will reach’ of (19) and try thereby to delink it from the very unmarked intransitive *jaabe* ‘will go’ of (15).

Summarizing so far, SSCG faces two problems. First, the splitting of the lexical entry for ‘go’ into a subentry for solitude and one for company is counterintuitive and lacks independent justification. Second, the second subentry has no unique causative blocker, but two rivals for that job.

Third, SSCG has trouble with contexts where the plausible causative counterpart to *jaabe* ‘will go’ is *debe* ‘will give’ rather than one of the items seen so far. In (24), with the adverbial *pherot* ‘back’, *paatxhaabo* ‘will send’ is still acceptable, but insinuates some transport factor and, being more marked than *debo* ‘will give’, fails to count as the counterpart to unmarked ‘go’.

- (23) Ei boigulo kaal esechē, aaj pherot jaabe.
 these books yesterday have.come, today back will.go
 ‘These books came here yesterday and will go back today.’

- (24) Ei boigulo kaal enechi, aaj pherot.
 these books yesterday I.have.brought, today back
 debo (paatxhaabo)
 I.will.give (-send)
 'I brought these books yesterday, I'll give (send) them back today.'

But when one takes the variant (26), with the conjunctive participle *phiriye* 'return-CONJ(tr)', only *debo* 'will give' is available, excluding *paatxhaabo* 'will send' entirely:

- (25) Ei boigulo kaal eseche, aaj
 these books yesterday have.come, today
 phire jaabe.
 return.CONJ(INTR) will.go
 'These books came here yesterday and will go back today.'
- (26) Ei boigulo kaal enechi, aaj phiriye
 these books yesterday I've.brought, today return-CONJ(TR)
 debo (*paatxhaabo).
 I'll.give (*-send)
 'I brought these books yesterday, I'll give (*send) them back today.'

Surely a patch-up of SSCG that will let a committee comprising 'send', 'give', and 'escort' co-block the non-occurrent regular causative 'cause-to-go', a patch-up that uses the distinction between solitary and accompanied journeys in one sector and ignores it in another, will strike no formalist as an improvement on SSCG itself. Even on standard assumptions, then, SSCG fails in a way that leaves the formalistic mainstream with no natural alternative account of the non-occurrence of the regular 'cause-to-go' and the distribution of its apparently various blockers.

Readers will react to the observations above on the basis of their own visions about which way linguistics should be moving. For substantivists, these phenomena indicate, to echo the way the point was made in Dasgupta (1977), that a purely syntagmatic grammar that uses only features to manage its lexicon cannot be made to work and that paradigmatic descriptive devices, including in particular lexical affiliation fields in the sense of Dasgupta (1977), have to underwrite a locality-sensitive reexamination of paradigmatic relations in the lexicon. Specifically, to ask for a unique causative counterpart to a particular base is as naive as it is to ask whether the "real" plural for *person* is *persons* or *people*, to ask whether the "real" plural for *brother* is *brethren* or *brothers*, to ask whether these two cases are exactly the same, and other pointless stabs at the surface of the lexicon.

I say this in agreement with and in reinforcement of Bagchi and Seely's (2002) opposition to the morpheme compositionality view of causatives, the framework in which the mainstream accounts of such matters have been embedded. Beyond this shared opposition, I seek further to critique current doctrines of blocking.

Morpheme compositionality treats *kaacaabe* ‘will make (someone) wash’ as containing morphemes in syntactic construction with each other and as thus amounting to a disguised or compacted syntactic structure ‘will make wash’. Suppose, though, that formalism were to abandon that aspect of the conventional theory and adopt a model where *kaacaabe* is grammatically unitary but has features including in particular a causative feature inviting the inference that there is a unique pairing between this verb and a unique counterpart that is non-causative. I still find this an inadequate analysis. Such a description, through the causative feature, would continue to embody the non-local assumption that the relation between the class of causatives and the class of base counterparts is the appropriate format for expressing the specific facts at issue. I disagree.

The present paper offers new material reconfirming my disagreement with the mainstream in this respect. The evidence reviewed above suggests that sweeping devices implying a class to class matching relation between bases and causative counterparts are inadequate precisely because they are paradigmatically nonlocal. We have seen the same lexical element *jaabe* ‘will go’ participating, locally, in distinct paradigmatic relationships with various transitive verbs, ranging from the simplex *paatxhaabe* ‘will send’ and *debe* ‘will go’ to the compound *niye jaabe* ‘will take with (them)’ and *pouxche debe* ‘will get (them) there’. There is no independent motivation for the dubious step of breaking ‘going’ up into three or four ‘subgoings’ so that each lexical subentry can have a formally neat and separate deal with a specific partner suppletively blocking the morphologically expected regular causative **jaaoaabe* ‘will cause to go’.

So far I have only pointed out inadequacies of formalistic descriptive devices as they stand. What is the remedy? What mechanisms can one propose for handling the way various expressions prevent the regular causative **jaaoaabe* ‘will cause to go’ from surfacing? Such mechanisms will have to be formulated in relation to a larger data base than what the present section has made available. For it turns out that, in one type of context, Bangla rather surprisingly reverses its normal lexical behaviour and not only permits this particular transparent causative, but many others that blocking ordinarily blocks. Section 3 discusses this deeper failure of theories of blocking and suppletion as they stand and paves the methodological way for a substantivist response to that deeper, which Section 4 articulates in terms of a new mechanism: Look Across.

3. Sarcastic causatives

In order to see just what is special about the Sarcastic Causative construction in Bangla, it pays to revisit some cases traditionally seen as suppletive causatives, as

in (27–30) below, or as less radically irregular ones, as in (31–33). Each pair of sentences shows the base at (a) and the causative at (b), parenthesizing the regular causatives that are supposedly blocked by the suppletive or irregular forms:

- (27) a. Tarkaaritxaa aasche.
the.vegetable is.coming
'The vegetable is on its way.'
- b. Oraa tarkaaritxaa aanche (*aasaacche).
they the.vegetable are.bringing
'They are bringing the vegetables.'
- (28) a. Kaaxcer baatxi obhaabe porxle to
glass.GEN bowl like.that if.falls PRT
bhaangbei.
will.break.EMPH
'A bowl made of glass, if it falls like that, will of course break.'
- b. Kaaxcer baatxi tumi obhaabe phelle (*parxaale)
glass.GEN bowl you like.that if.drop
to bhaangbei.
PRT will.break.EMPH
'A bowl made of glass, if you drop it like that, will of course break.'
- (29) a. Chaatriraa e ghare thaakuk.
the.girl.students this room.LOC let.stay
'Let the girl students stay in this room.'
- b. Oraa chaatrider e ghare raakhuk (*thaakaak)
they the.girl.students this room.LOC let.keep
'Let them keep the girl students in this room.'
- (30) a. Oder meye chatxaae ghum theke otxhe.
their daughter at.six sleep from gets.up
'Their daughter gets up at six.'
- b. Oraa meyeke chatxaae ghum theke tole (*otxhaae)
they daughter.OBJ at.six sleep from rouse
'They make their daughter get up at six.'
- (31) a. Morle to eak baari morbo.
if.die well one time.EMPH will.die
'If I die, well, I'll die only once.'
- b. Praane maarle (*maraale) to eak baari
life.LOC if.kill well one time.EMPH
maarbe (*maraabe).
will.kill
'If they take my life, well, they'll kill me only once.'
- (32) a. Gaach theke aamtxaa porxbe.
tree from the.mango will.fall
'The mango will fall from the tree.'

- b. Tumi gaach theke aamtxaa paarxbe (*parxaabe).
 you tree from the.mango will.pick
 'You will pick the mango from the tree.'
- (33) a. Esab raastaae gaarxi ato jore colbe naa.
 these roads.LOC car so fast will.go not
 'Cars won't go so fast on these roads.'
- b. Esab raastaae tumi ato jore gaarxi caalaabe ki? (*calaabe).
 these roads.LOC you so fast car will.drive Q
 'Will you drive (cars) so fast on these roads?'

Note that the asterisked forms in the b-examples above are indeed excluded, apart from the case of (30b) where I anticipate hearing from speakers who may disagree (I have never heard *otxhaabe* used in the context of rousing a person from slumber, but there are indeed a few contexts, and conceivably their range is expanding, where the regular *otxhaabe* competes with *tulbe*). Due to this reality the concept of blocking is important, as are attempts to discover its limits. The concept has had a series of successes. Minimalist syntax has adopted its mechanics as the fundamental descriptive device for ruling out uneconomical derivations. Optimalist analyses in morphology and syntax work with nuanced or relativized versions of the Blocking idea. Blocking, as far as it goes, is hard to improve upon. Given its importance for every working linguist, it is crucial to see just how far Blocking goes, and what hitherto poorly understood phenomena lie beyond its limits.

The empirical highlight of this paper, which I now unfold, is the Sarcastic Causative construction in Bangla. This phenomenon exemplifies what lies beyond the domain within which Blocking operates securely. Blocking-based accounts describe the typical facts of (27–33) above along familiar lines. Now, in the pragmatically marked Sarcasm Context in Bangla, the language makes available Sarcastic Causative verbs carrying a sarcasm-heavy intonation contour fragment. These flaunt precisely the regular causative templates that Bangla otherwise seems to take pains to avoid:

- (34) Sabaai caar ghantxaa bose aache, EAKHON tarkaari
 everybody four hours waiting is, NOW vegetable
 aasche? Aasaacchi!
 is.coming? I'm.making.come!
 'Everybody has been waiting for four hours, and now the vegetable is coming, is it? I'll make it come! (= I'll see how it comes!)
- (35) Eatogulo baatxi porxe bhenge giye jaalaalo, etxaa
 so.many bowls falling breaking AUX bothered, this.too
 porxbe bujhi? Parxaacchi!
 Will.fall Q? I'm.making.fall!
 'So many bowls fall, break, and bother me; now this one will fall too, will it? I'll make it fall!'

- (36) Chaatriraa e ghare thaakbe? Thaakaacchi!
 Girl.students this room.LOC will.stay? I'm.making.stay!
 'The girl students will stay in this room, will they? I'll make them stay!'
- (37) Meyetxaa chatxaae ghum theke otxhe? Otxhaacchi!
 The.girl at.six sleep from gets.up? I'm.making.get.up!
 'The girl gets up at six o'clock, does she? I'll make her get up!'
- (38) Tomaar gaarxi esab raastaae cale? Calaacchi!
 your car these roads.LOC go? I'm.making.go!
 'Your car goes on these roads, does it? I'll make it go!'
- (39) Tumi bujhi morbe bhaabcho? Maraacchi!
 you Q will.die are.thinking? I'm.making.die!
 'You think you'll die, do you? I'll make you die!'

Examination of the Sarcastic Causative phenomenon shows two striking facts. On the one hand, there are three major transparency properties it shares with such periphrastic causatives as the phrasal *make him do it* type in English, properties that lexical causatives routinely lack: phonological invariance (the causative mimics the base, modulo wrinkles not relevant here), semantic invariance (the causative ranges over all the uses of the base), and device independence (the device mapping base onto causative is consistent and does not have particular shapes chosen by particular base-causative dyads). In other words, the Sarcastic Causative formation goes as far up the cline from opacity to transparency as a process possibly can. One could thus expect it to belong to the syntax.

But the second striking property of the Bangla Sarcastic Causative is that formally it is always a single, unbroken word. Thus, counterexemplifying theories that rely on Blocking, this formation not only systematically violates Blocking as illustrated above, but, working in the reverse direction, seems to reflect the operation of some fundamental linguistic principle that opposes Blocking and successfully overpowers it.

In a heuristic move that may make it easier to address the issues, I propose the term Counterblocking as a tentative designation for the phenomenon, leaving open the issue of what mechanisms various linguists may wish to devise in their respective frameworks in order to describe it. The example of Counterblocking considered in detail here counteracts morphological blocking in the lexicon. But we know that syntactic Counterblocking also exists. The English Echo Question construction, to recall an example familiar from early generative grammar, illustrates syntactic counterblocking. The *wh*-moved and subject-aux inverted questionformat blocks the a priori less marked option of in situ interrogation in Ordinary sentences of English. What is clearly a pragmatically marked Extraordinary context elicits counterblocking and makes the otherwise blocked variant

surface as an Echo Question. I will briefly present in Section 4 an example of syntactic counterblocking that interacts with argument structure issues, the Bangla Sarcastic Passive.

Reassured that counterblocking is not confined to the lexicon, I return now to the main line of inquiry. In particular, how can an analysis on the one hand let Blocking do its work in (27–33) upstaging the regular causative templates and on the other hand switch on this mysterious Counterblocking only in (34–39)? What system architecture can arrange to unleash this new force in (34–39) but keep it invisible most of the time?

My strategy is to work towards a conceptualization of economy that shows how counterblocking can meet identifiable needs and that thus predicts its occurrence exactly where it is observed. The goal is a theory that will make it economical for blocking to govern ordinary lexical choice and for counterblocking to signal the extraordinary. If the notions crucial in running this economy include pragmatic characterizations of ordinary and extraordinary, then what is operative must be an integral context-based theory of economy rather than a dichotomy of formal linguistic economy relevant to sentence grammar vs. external language use economy at the discourse level.

This line of reasoning is of a piece with the principles of substantivism advocated in Dasgupta, Ford and Singh (2000). On that view the type of economy relevant to linguistic theory is one that gives transparency-maximizing bearings to a unit in the context where that unit is deployed. Substantivism rejects an etymologistic type of economy that seeks original impulses and essences hidden inside opaque formal derivations logically prior to the substantive context where form meets form in actual use. One response might be to revise rather than abandon the doctrine of formalism. If formalists do revise mainstream devices to take on board the facts presented here, however, then the theories will converge at a point closer to substantivism.

In order to make the basic point of this notion of economy maximally accessible, I invite you to take a closer look at the case of syntactic Counterblocking in English touched upon earlier: the Echo Question construction. In ordinary English, questions require *wh*-movement and subject aux-inversion, as in *What did you see?* Universal Grammar makes the in-situ and uninverted option *You saw what?* available in principle, but, to cut a parametric story short, the *wh*-moved and inverted variant blocks that option in the syntactic derivation of ordinary questions in English. However, in extraordinary contexts eliciting Echo Questions, the UG-transparent *wh*-in-situ strategy counterblocks the language-specific *wh*-movement variant and thereby maximizes transparency. Evidently here too, just as in the case of the Bangla Sarcastic Causative, a UG-inspired economy requiring transparency countermands, under pragmatically marked circumstances, a language-particular economy that ordinarily makes the opaque variant block the transparent one.

Let us now focus on the work of formulating the UG-inspired economy principle that requires transparency in such cases. The English Echo Question and the Bangla Sarcastic Causative share one characteristic: cross-utterance dependency at the discourse level. *You saw what?* is understood as echoing a statement such as *You saw X*, where *X* either has not been heard properly or has caused shock or surprise. In example (10) above, the Sarcastic Causative *thaakaacchi* ‘I’m making (them) stay’ (to convey the sense of ‘I’ll see how they stay’) similarly establishes a verb-echoing relation with the utterance *Chaatriraa e ghare thaakbe?* ‘Will girl students stay in this room?’ in the discourse. The matter is obvious in examples where special intonation reinforces the pragmatic markedness of the context. But even other cases of counterblocking, devoid of intonational assistance, make it clear that a pragmatically marked context is crucial. Consider the counterblocking exemplified below. Normally *size* in English blocks *bigness*, as in (40). However, (41) shows that counterblocking can cancel this in a marked context:

- (40) Sandra is not worried by the size/*bigness of the challenge she faces.
 (41) Tim is wasting his breath trying to tell Sandra how big the challenge is. Sandra is not worried by the bigness of the challenge she faces.

The pragmatic markedness of the context in (41) is not extreme, whence the lack of intonational reinforcement. Correspondingly, the counterblocking effect is also weak, a matter to which I return. The point, though, is that even in this case where the pragmatic markedness is not extreme, the counterblocking is associated with a cross-utterance dependency, in particular an echo relation between the ordinarily blocked *bigness* and the use of *how big* in the first utterance of discourse (41).

Gricean maxims provide a tentative account of the facts. Assume, then, that default pragmatic settings switch on the maxims of conversational cooperation. The speaker tries to be brief (the quantity maxim). This involves choosing the most compact expressions her lexicon makes available. Lexically opaque expressions are in some sense more compact than those employing regular or general or transparent devices of the language. Blocking on such a view implements standard Gricean principles at the lexical choice pattern level.

Counterblocking seems to find a way around the compulsion of Blocking by moving into a different mode of access to lexical space. To see this, consider (41) vs. (42):

- (42) Tim is wasting his breath trying to tell Sandra how big the challenge is.
 Sandra is not worried by the size of the challenge she faces.

Of course one can say (42), a normal sentence. Along Gricean lines, saying (41) instead gives us an unusual sentence precisely because the decision to prefer the transparently formed *bigness* in (41) over the standard and opaque *size* mildly violates the maxim of Quantity. (41) thereby invites the inference that the use of

bigness encodes a point. The first utterance contains the expression *how big*. So the listener presumes that the point is that *bigness* refers back to the phrase *how big*. Thus (41)'s use of *bigness* as distinct from (42)'s default use of *size* becomes a case of something in the nature of echo or quotation in relation to the context-setting part of (41), where we are told Tim is calling the challenge *big*. Pragmatic principles handle the fact that *bigness* as a piece of deviance draws the listener's attention to this echo relation.

This account makes Counterblocking parasitic on the normal opaque forms and the standard operation of blocking, from which in these cases there is a perceptible deviation that the listener has to notice in order to understand the intended effect. In the case of Sarcastic Causatives and Echo Questions, the quotation carries special functions like surprise and sarcasm, triggering intonational support. Again, the quasi-quotation effect is produced by systematically using the ordinary formal resources of the language but using them differently, making the traffic between transparency and opacity flow backwards. One is deliberately choosing maximally transparent forms, in some cases (such as (34–39)) making up words that the language otherwise pretends simply cannot exist, to make the point that constitutes sarcasm. The theory of economy has to be modified in such a way that this becomes an economical way to make this point.

What is the point that constitutes sarcasm, linguistically speaking?

In the cases we are considering, the point seems to pertain to presenting, in anger, an image of your causing something not to happen, an image of your stopping something, a picture that you angrily draw or rather scrawl in emphatic disregard of whether real world force configurations in fact give you a credible option of causing or not causing that type of event at all. This aspect of the point becomes clear from examples like causing to sneeze or faint:

- (43) Boktrita dīte utxhe unī aggean haben?
 speech to.deliver rising s/he unconscious will.become?
 Aggean haoaacchi!
 I'm.making.become.unconscious!
 'She rises to speak and swoons, does she? I'll make her swoon!'
- (44) Sofaar nice lukiye tumi haaxcbe? Haaxcaacchi!
 Sofa under hiding you will.sneeze? I'm.making.sneeze!
 'You hide under the sofa and sneeze, do you? I'll make you sneeze!'
- (45) *Ei maslaataxā tomaake haaxcaae.
 this spice you makes.sneeze
 'This spice makes you sneeze.'

The occurrence of (44) with a full-blown causative *haaxcaacchi* 'I'm-making-sneeze' in a language where one cannot even say (45), using that causative in connection

with a spice, indicates that more is at stake than morpho-lexical blocking. Blocking involves competition between lexically available resources to express some meaning, as in *grace* blocking *graciousity*. But what is at stake in the case of causing to sneeze is that the meaning itself is not one that Bangla normally lets you envisage. For the context that elicits ‘This spice makes you sneeze’ in English, Bangla only allows the unaccusative formulation in (46), awkward in English.

- (46) Ei maslaatxaate tomaar haaxci aase
 this spice.LOC you.GEN sneezes come
 ‘Given this spice, you sneeze.’

Technically, it is the unavailability of the ‘making you sneeze’ meaning in ordinary Bangla that stars (45). Inter-speaker variability with respect to the strength of the asterisk on (45) exists but is not the issue. For all speakers, even those for whom (45) is sharply excluded, the sarcastic causative of (44) is fine. These facts suggest that the sarcasm context lets linguistically expressible causation hit targets that the default pragmatic settings of ordinary contexts protect from ordinary causation, including involuntary actions.

I mention these facts not just to enlarge our data base, but in response to the hunch expressed by P. Sailaja (p.c.) that the optimality theory paradigm, having access to the formal device of constraint reranking, might be able to describe Sarcastic Causatives more easily than perspectives that arrange less dynamic competition among forms. But the facts at (43–46) go beyond the scope of the familiar kind of optimality account in terms of inputs and outputs and competition. Counter-blocking as a pragmatic mechanism seems able to license even the expression of meanings that the ordinary settings of the language do not envisage.

By this point in the discussion the heuristic term Counterblocking has begun to outlive its utility, for it is clear that the phenomena do not pertain to the domain of morphological competition where blocking determines certain victories. What the phenomena I have been classifying under counterblocking have in common is that they all involve linguistically significant relations being established paradigmatically, at a discourse level, across utterance boundaries, and in the general case across speaker boundaries. These relations are specifically linguistic in that they can force the morphological and syntactic economies to deviate formally from the way default pragmatic settings normally run them. These paradigmatic discourse facts cannot be “modularized away” and dumped in some cognitive basket formally disconnected from the lexicon and the grammar.

The recognition that grammar cannot wish paradigmatic connections away in order to single-mindedly study the syntagmatic axis can become the starting point for a long term transition to the approach to linguistics known as Substantivism. The basic substantivist move, as Dasgupta, Ford and Singh’s (2000) manifesto stresses,

accords primacy to a linguistic entity's external relations with its partners in the next-larger syntagmatic and paradigmatic domains where the entity is located.

Where formalism recognizes the existence of "morphemes" inside a word and is thus willing to attribute a word's properties to its "morphemic composition", the substantivist view of a word asks above all how the word is related to other words in its construction (the syntagmatic domain immediately containing it) and in its lexical field (the paradigmatic domain that immediately contains the word). Likewise, a formalistic account portrays a sentence in terms of its derivations or its representations (depending on how a particular formalism drives its theory). In contrast, substantivism asks of a clause (with a full sentence as a special case) how it interrelates with its partners in its syntagmatic structure (assuming for concreteness that a full sentence counts as a clause embedded under an illocutionary act) and with its fieldmates in whatever paradigmatic systems it is immediately configured in. The echo-type or quotation-type relations of concern to us thus find a natural niche waiting for them in a substantivist approach to linguistic theory, which views paradigmatic phenomena as a natural component of the integral domain that economy principles must govern.

Resisting as it does the pseudo-parsimonious reduction of paradigmatic relations to syntagmatic features, substantivism finds it natural that sentence to sentence paradigmatic relations should play a role in the lexico-grammatical shaping of words and sentences. Consequently a substantivist approach, working on the paradigmatic dimension, can make sense of the otherwise puzzling fact that something as discourse-bound as Sarcasm underwrites something as lexical as a set of otherwise blocked transparent causatives.

If I do not develop an entirely substantivist account of the Sarcastic Causative facts here, this is to avoid pushing yet another maximalist agenda in the sense of the discussion in section 1. I prefer to confine myself to suggesting, in Section 4, a specific addition to the toolkit of the formalist approach to generative grammar. That addition meets the immediate need and at the same time makes a fundamental concession to substantivist concerns that will enable ordinary formalists to begin to take paradigmatic phenomena on board. The issue of how the substantivist perspective proper can use its machinery to handle Bangla Sarcastic Causatives and related phenomena is best addressed elsewhere. For the same reason, I do not propose in this paper any specific remedies for the descriptive problems highlighted in Section 2.

4. Look across and sarcastic passives

The facts, as usual, underdetermine the kinds of device that a linguistic theory can employ to express them. We seem to be dealing with transderivational facts.

Does that make it appropriate to revive the proposal that the most general linguistic mechanism is the transderivational constraint, with the important special case “rule of grammar” also known as “derivational constraint”? Years of circumspection about the hasty postulation of devices far more powerful than the jobs to be done make such a revival difficult to countenance. But obviously some transderivational machinery is called for. The question is how to limit either the machinery or its use.

My suggestion in the context of the practice of formalist linguistics (in which I, as a substantivist, have some part-time interest) is that we stretch the methodology to the tune of just one new device, so that one speech act may bend in deference to another, real or imagined, speech act:

(47) *Look Across*

A speaker who intends to introduce at point P in her speech act X a direct pointer to point Q in an independent speech act Y can merge an echo of Q at P under some grammatical process GP located at a functional head FH. The subderivation managed by GP, conforming as directly as possible to UG, Looks Across at the reference derivation Y and fills in the blanks in the domain of FH.

To prevent Look Across from subverting all derivations, it will have to be made costly. Let me first unpack the proposal. We can work later on constraining it adequately.

Two cases have been considered so far: the Sarcastic Causative in Bangla and the Echo Question in English. Since (47) applies only to GPs at an FH, I must obviously be proposing that fully transparent causativization in Bangla is indeed a grammatical process and operates at a functional head in the Infl system of clause structure. Having no syntactic machinery for the periphrastic expression of causativization, Bangla uses the lexical or word formation process of causativization for its sarcasm contexts.

The case of the English Echo Question is similar. Consider (48), the example discussed earlier:

(48) You saw WHAT?

WHAT is the pivotal element associated with the FH from which the GP (here interrogation) is being run. Note that the construction does not allow *You saw WHICH OBJECT?* The pivot must itself be a head, never a phrase. In cases like *You saw WHAT in the kitchen?* the pivotal material is still *WHAT*, not *WHAT in the kitchen*. In such a derivation, *in the kitchen* counts as material copied from the reference derivation Y. The blank-filling elements *you* and *saw* are not directly parsed. Given (47), the Look Across derivation X is parasitic on the handling of the reference derivation Y. Thus there is no need for *you* and *saw* to be in syntactically well-identified niches in X. In the zone where Look Across is operative (a zone that may well not extend all over the tree for X, though in a simple case like (48) one is

tempted to say that Look Across is operative over the entire string), the derivation of X can afford to relax and leave the details to Y.

I turn now to a third case. The Sarcastic Passive in Bangla shares with the Sarcastic Causative the property of extending to verbs that normally refrain from undergoing the process. Here is an example which, due to the unaccusative and nonvolitional character of the predicate, would preclude passivization in ordinary contexts. But sarcasm makes it possible:

- (49) Aabaar cupcaap bose parxaa hocche!
 and quietly sitting down is.being.done!
 'One is quietly sitting down, is one!'

Notice that the notion of morphological counterblocking does not apply to passivization at all. For the ordinary passive in Bangla is morphologically speaking fully regular, being periphrastic, and gives the Sarcastic Passive no suppletions or other irregularities to circumvent. But the intonationally special Sarcastic Passive does target the full range of verbs, while the normally intoned regular passive only handles transitives and unergatives, not unaccusatives. This targeting of the full range of verbal expressions, this refusal to look carefully at the inner workings of their argument structure especially when the verbal expression is complex, is a feature that the Sarcastic Passive shares with the Sarcastic Causative.

How can sarcasm can target the periphery of the clause without touching its argument-structural centre and yet form a passive or a causative, which were always taken to be argument structure changing constructions?

This question is best addressed along with another one that I had postponed, the issue of constraining the subversive power of device (47). For a speaker to use a GP bending one speech act to echo or quote or mock another speech act is obviously a discourse-level device and by definition distorts the ways of a regular derivation. The possibility of bending presupposes the norm that ordinary actions are straight. We formalize this at (50):

- (50) Every application of (47) violates the maxim of Manner

Gricean maxims of conversational cooperation will thus ensure that Look Across, pragmatically expensive, elicits special interpretation. This decision seems to me to make an independent tariff barrier in the grammar unnecessary. What the grammar does is make sure, in the details of (47), that only a Grammatical Process can sponsor Look Across in ordinary language. Rigorous work may show that poetry in general or in certain varieties descriptably performs Look Across at points of other sorts. Given such results, parametrization of Look Across becomes one way to describe some differences between prose and poetry. This of course must be left for future research. I mention it only to stress the fact that Look Across happens

precisely when the default economy of ordinary language use is suspended, and that there are degrees of such suspension, ranging from colourful use of what is nonetheless prose all the way to clearly poetic deviation from ordinary norms.

What remains is the task of returning to the lexical process vs. syntactic process dichotomy discussed in Section 1 but neatly sidestepped by the cover term Grammatical Process in Section 4, formulation (47). There seems to be a natural cut here. Look Across based on fully transparent processes exhibits the bizarreness that serves as a diagnostic for the application of (47). In contrast, cases such as the *bigness* of Example (41) in Section 3, which would have to be viewed as a lexical process sponsored application of Look Across if we were to choose to regard the derivation of an abstract noun as a lexical process, do not come out with intonation signalling any quirkiness. How do we characterize the natural cut?

I vote for the specific hypothesis that causativization counts (or, more carefully, that it can count, possibly a language particular option on some parametric continuum) as an instance of inflection, and for the general view that inflection and the syntax form a natural class. “Grammatical Processes” as the term is used in formulation (47) can then be either inflectional, as in the Bangla Sarcastic Causative, or truly syntactic, as in the English Echo Question and the Bangla Sarcastic Passive.

Those who wish to reduce inflection to syntax are welcome to keep trying. They will need to explain why the behaviour of Bangla Passives and Causatives in the ordinary grammar, despite the syntacticness of the passive and the inflectionalness of the causative, is riddled with opaque irregularities while the transparent and obviously neat transderivational phenomena of Sections 3 and 4 manage to bypass all this.

My conjecture is that Look Across is helped out by Universal Grammar. If this is so, Look Across provides a window view of the unmarked settings that UG encourages languages to gravitate towards. Against such a view of transparency, we can begin to measure the opacities in our descriptions, and to ask just what blocking and its newly salient counterforce are doing in the design of language.

Argument structure changing processes are one of the many subdomains where this question will have concrete effects. In the present paper we have seen that thanks to the ad hoc nature of the blank filling device passivization and causativization, acting as they do at a pivotal point high up in the clause structure, can find a way around having to deal in any detail with the arguments if the paradigmatic bypass of Look Across lets them sneak out when the arguments aren’t looking.

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