A Sign of Itself

Paul Ryan

Introduction

The phrase 'a Sign of itself' comes from Charles Peirce.

> But in order that anything should be a Sign it must 'represent' as we say, something else called its Object, although the condition that a sign must be other than its Object is perhaps arbitrary, since, if we insist upon it we must at least make an exception in the case of a Sign that is part of a Sign. Thus nothing prevents an actor who acts a character in an historical drama from carrying as a theatrical 'property' the very relic that that article is supposed merely to represent, such as the crucifix that Bulwer's Richelieu holds up with such an effort in his defiance. On a map of an island laid down upon the soil of that island there must, under all ordinary circumstances, be some position, some point, marked or not, that represents *qua* place on the map the very same point *qua* place on the island . . . we shall, or should, ultimately reach *a Sign of itself* [my emphasis], containing its own explanation

and those of all its significant parts: and according to this explanation each such part has some other part as its Object (Peirce 1931—35: 2.230).

In this paper, I will present a 'Sign of itself' that, I believe, satisfies the. intent of the above statement made by Peirce. For reasons that will become clear, I call this sign a relational circuit. I originated this circuit while working as an artist with video and reading Charles Peirce, Gregory Bateson and Warren McCulloch. Over the past twelve years since I originated the relational circuit, it has proven as valuable to my art work as contrapposto to a Greek sculptor or perspective to a Renaissance painter.

I think the value of the circuit is evident in two art projects, both of which I have presented at the Museum of Modern Art. 1) A relational practice that works for three people the way T'ai Chi or Yoga works for an individual (pp. 123ff.). 2) A design for a television channel dedicated to monitoring the ecology of a particular region and developing consensus about how best to live there (pp. 282ff.). Both the practice and the television ecochannel use the relational circuit as a "figure of regulation," and both use Peirce's phenomenological categories of firstness, secondness and thirdness. The ecochannel also uses the sixty-six fold semiotic array Peirce developed from his categories.

Of course, exposure in the art world does not insure that my claim to have originated a 'Sign of itself' is valid. I originated something. I think it is a sign of itself. Moreover, I think it constitutes the logic of relations that Peirce was after, but failed to get (Murphey: 1961). Is it really a sign of itself? Does it satisfy Peirce's quest for a relational logic? If so, why not argue on logical and scholarly grounds? Why cite the art world at all?

I cite the art world to indicate that I am talking as an artist to scholars. What I am presenting comes out of the phenomenological realm of firstness known as aesthetics. I arrived at the relational circuit by a process Peirce would call abduction. My process of abduction is documented in my video work and my writings. It is the fruit of that abductive process that I am presenting. Whether or not my guess at the riddle constitutes the relational logic Peirce pursued is obviously a matter for Peirce scholars to decide.

My paper will continue in the following order.

I.   Presentation of the Relational Circuit.

II.   Characterization of the Circuit.

III.   Argumentation that the Circuit is a Sign of Itself.

        A.   Consideration of Gödel's Proof

        B.   Consideration of Peirce's Text

IV.   Discussion of the Circuit re Peirce's Philosophic Project.

I. Presentation of the Relational Circuit

Relational Circuit

position in between
second and third | third position | position in between
third and first

second position

first position

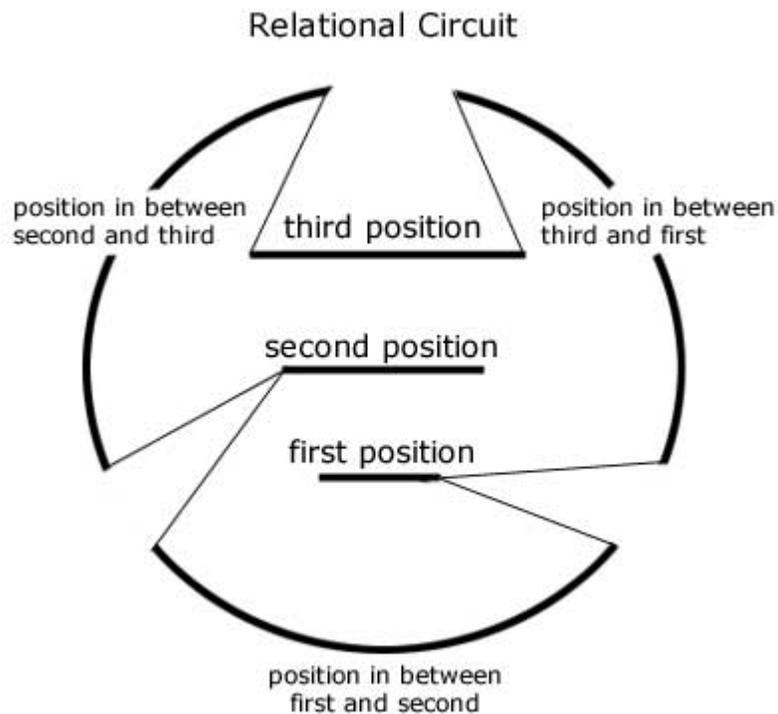position in between
first and second

Figure 1

The two dimensional drawing presented above is a rendering of the three

dimensional form I call a relational circuit. The figure includes parenthetical

markings to expedite the characterization and argumentation that follows.

These markings are not part of the form. The figure results from taking the

relations of position and inclusion that obtain in the topology of a Klein bottle

and developing these relations into a circuit. Respecting the circuit's debt to the

Klein bottle, I have sometimes called it a Kleinform. A Klein bottle has three

related positions: a position neither contained nor containing (the neck of. the bottle), a position containing another position (the body of the bottle), and a position contained (within the body of the bottle). In the Kleinform, these three related positions are developed into a six part circuit with three positions neither contained nor containing (   ), one position contained by two (-), one position that contains and is contained (—), and one position that contains two positions (_). It took me seven years to develop the three-part Klein bottle into a form that satisfied the criteria for a circuit articulated below. Along the way, over a dozen attempts were discarded.

II. Characterization of the Circuit

The statements that follow are based on observation of the form. In Peirce's language, these statements are abstractive observations (Peirce 1931—35: 2.231).

The form is complete. The term "complete" is used here in two senses.

i)   Nothing outside the form is required to make it whole. By contrast, the series of natural numbers is always incomplete. One can always move toward completion by adding another number. Indeed, the sequence of

natural numbers can be embedded in this six-part continuum in sets of six with remainders ad infinitum.

ii)   Nothing outside the form is required to understand its wholeness. The form consists of an empty continuum of six positions. Each position is explained in terms of the other positions in an intransitive way. The form has all the parts necessary to explain itself. No meta-level of explanation is required.

1.   Consistent One

There is but a single form.

2.   Empty

The form is empty. The emptiness itself constitutes the form.

3.   Continuous

The form is a continuum. It is possible to move from within any part of the form to any other part without crossing a boundary.

4.   Bounded

The form is bounded. The boundary limits the continuum.

5. Infinite

    The continuum is infinite. The continuum returns to itself without end.

6. Six-Part

    The form penetrates itself six times. This self penetration yields six

    different positions on the continuum. Each position is part of the

    continuum.

7. Positional

    The differentiation in the form is structured according to differentiation of

    position on the continuum. In contrast to any statement of description,

    differentiation in the form does not correspond to the differentiation

    implicit in the subject/predicate structure of propositions. Hence, the form

    cannot be fully explained in any axiomatic system of propositions. The

    form is positional, not propositional.

8. Unambiguous

    The six positions are unambiguous. There is but one position of firstness

    (-), but one position of secondness (=), and but one position of thirdness

    (_). (For refined observation, thirdness can be described as the position

    surrounding secondness in which a stiff torus can be trapped. All the

    other positions are differentiated by the passage of the continuum

through the thresholds created by the self penetration.) There is only one

position on the continuum between firstness and secondness (- =), only

one position on the continuum between secondness and thirdness (= -),

and only one position on the continuum between thirdness

and firstness.( )

The naming of these positions is not arbitrary. Firstness is a compact,

empty position, free of any other. Secondness has another part of the

form passing through it—something it is up against—the position of

firstness. Thirdness contains both secondness and firstness.

9. Non-Identical

No position in the form is identical with any other position. No two

positions can be equated.

10. Non-Orientable

Assigned direction makes no difference in determining the relative

positions in the form. This can be understood by contrasting the

orientation involved in reading. As a reader, your eyes are moving from

left to right, down the page of print that is in front of you. If you turn 180

degrees, what was in front of you is now behind you, what was on your

left is now on your right. In the conventional understanding of position, if

you change your orientation, you change your referencing system for position. In the form, changes in orientation make no difference in determining relative positions. The form has no center, no front and back, no left and right, and no up and down. The six part differentiation of position holds regardless of orientation.

11. Intransitive

It is possible to understand each position in the continuum without going outside the bounds of the continuum. Each position in turn is explained by two other positions. The position of firstness is the position contained by secondness and thirdness. The position of secondness is contained by thirdness and contains firstness. Thirdness contains both secondness and firstness. Each of the "in between" positions on the handles is explained by reference to two of the three positions of firstness, secondness, and thirdness.

12. Complete

The circuit is one continuum with six positions. There is no position which is also not a position. There is no position which is simultaneously another position, as in the case when two people face each other and what is on one person's right side is simultaneously on the other person's left side. Although secondness simultaneously contains and is contained, the

reference for each relationship is unambiguous. The form is internally

consistent.

13. Relative

The form is absolutely relative. The six positions are completely

determined by each other. To move from one position to another position

is to change relationship to every other position. A difference in position

makes a difference in relationship.

14. Non-Sequential

While it is possible to move sequentially through all six positions, the

positions themselves do not depend on sequence for their identity. The

positions of firstness (F), secondness (S) and thirdness (T) are indifferent

to sequence. You can outline the form on the floor and move through the

continuum in any of the following sequences without altering the positions

themselves. (For simplicity of explanation, I am omitting the in-between

positions.) FST, TSF, STF, SFT, TFS, FTS. In the last example, FTS, what

is indicated is that you can go from firstness to thirdness without passing

through secondness. Firstness and thirdness are contiguous without

reference to secondness. Relative position is detached from sequence.

15. Irreducible

    The form cannot be reduced and maintain its characteristics. For example, the only possible reduction of the figure that remains bounded would be a four part form with one part containing another part and two parts uncontained. However, in such a reduction the two parts uncontained could not be distinguished from one another without going outside the form and referencing the left and right hand side of the viewer. Such outside referencing would violate the non-orientable characteristic of the form.

16. Non-compact

    The figure cannot be reduced to a ball and retain its identifying characteristics. Like the "hole" is integral to the identity of the torus, the three "holes in the handles" are integral to the identity of this form.

17. Heterarchic

    Choices between positions within the form operate according to intransitive preference. That is to say, choices are not constrained by a hierarchy but can operate heterarchically. If I outline the form on the floor and stand in the position of firstness (—), I can move through an "in-between" position (— =) to the position of secondness (=). But once in secondness I am not compelled to move to thirdness (=_), as if there

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was a fixed hierarchy of preference or choice. I can return to firstness (-).

Any position in the form allows this pattern of intransitive preference.

There are always two choices, and no choice compels an irreversible

sequence of hierarchic choice.

18.   Self Corrective

To say that the form is self corrective is to say that it is a circuit. This

characteristic is not self evident by abstractive observation. Rather the

ensemble of characteristics given above must be seen in terms of the

criteria for a circuit. The format I will use to demonstrate that the form is

a circuit proceeds as follows. I will state each criteria and then describe

how the circuit satisfies that criteria by referring to the eighteen

characteristics established above. The six criteria for a circuit, employed

below were established by cybernetic theory and articulated by Gregory

Bateson (1979: pp. 89ff.). Bateson regarded any entity that satisfied

these criteria as a 'unit of mind'.

i)   A mind is an aggregate of interacting parts or components.
       The form has six parts or components.

ii)   The interaction between parts is triggered by difference.

The form is relative. A difference in position makes a difference in relationship. Any interaction between parts takes place in terms of these positional differences. Hence interaction between parts is triggered by difference.

iii)   Mental process require collateral energy.

The form is empty. The form can be likened to a six part zero. It is empty of energy. Processing of differences in the form requires collateral energy.

iv)   Mental processes require circular (or more complex) chains of determination.

The form is a continuum. The continuum is a circular chain determining unambiguous differences.

v)   In mental process, the effects of differences are to be regarded as transformations (i.e., coded versions) of the difference which preceded them.

Each difference in position is, in effect, a transform from the preceding position or positions. This can be made clear by using the television ecochannel cited above as an example. If we map Peirce's

semiotic understanding onto the positions in the relational circuit

we get the following: the sign maps onto firstness, the object onto

secondness and the interpretant onto thirdness. The television

ecochannel provides programming (sign) about the ecology (object)

for the people who live in that ecology (interpretants) so they will

not destroy it (ground of the sign). Differences in the ecology

(object, position of secondness) make differences in the

programming (sign, position of firstness), which make differences in

the interpretation of the ecology interpretant, position of thirdness),

which in turn make differences in the ecology itself, (object,

position of secondness). Each difference in position is, in effect, a

transform from the preceding position.

vi) The description and classification of these processes of

transformation disclose a hierarchy of logical types immanent in the

phenomena.

While the heterarchic form itself cannot be subsumed by a

hierarchy, transformations in the form can be described so as to

disclose a logical typing immanent in the form. Firstness is at a

"lower level" of logical typing than secondness. Secondness is at a

"lower level" then thirdness. Moving from "level" to "level" is a

transformation of relationships.

Now that I have given an extensive characterization of the form and shown how it satisfies the criteria for a circuit, I will now argue that the relational circuit is a 'Sign of itself'.

Argumentation that the Circuit is a Sign of Itself

This section has two parts. The first part discusses the circuit in relation to Gödel's proof. The second part discusses the circuit in relation to the text from Peirce quoted at the beginning of this paper.

A.   Consideration of Gödel's proof

Many mathematicians working to construct a complete and consistent logical system, a sign of itself, were discouraged by the publication of Gödel's proof (Gödel [1931] 1962). Gödel proved that it is impossible to create a complete and consistent set of axioms. The relational circuit avoids being subsumed in the domain of Gödel's proof in two ways: 1) The form is positional, not propositional. 2) The relational circuit is topological, not arithmetic. Each way will be discussed in turn.

1) The form is positional, not propositional.
(Characteristic #7, II above.)

Peirce did develop the categories of firstness, secondness, and thirdness in part from a study of the syllogism. Firstness corresponds to the term, secondness to the proposition and thirdness to the illative if . . . then. But firstness, secondness, and thirdness are categorically more general than the structure of the syllogism. Hence it is possible to move from these general categories back to the structure of the syllogism and derive a conclusion that way. However, this is derivative from the circuit itself. You must first derive the structure of the syllogism and then derive the conclusion. If you stay within the intransitive, heterarchic, relational circuit itself, you cannot reason through the relational circuit and arrive at a logical conclusion. As a non-propositional form, the relational circuit is also formally inconclusive. There is no way to preserve the necessary relationships of position in the circuit and simultaneously draw a necessary conclusion from the circuit. In my opinion, Peirce's definition of mathematics as the science of drawing necessary conclusions, rather than seeing math as drawing necessary relations, was a factor in his failure to develop 'a Sign of itself'.

Because there is no way to derive a conclusion from the circuit itself, this condition precludes the generation of an excludable contradictory proposition. If

I understand it correctly, Gödel's proof exploits the possibility of generating an excludable contradictory proposition from an axiomatic system. If you decide not to generate the excludable proposition, the system is incomplete. If you decide to generate the contradictory proposition, the system is inconsistent. Therefore, any axiomatic system has inherent undecidability. It will either be incomplete or inconsistent. By contrast, the relational circuit is a system that is both complete and consistent (Characteristics #12 and #13, II above).

Because the relational circuit is formally inconclusive, it does not mean that it cannot be used as a figure of regulation for making decisions. The circuit does not suspend you in perpetual undecidability. The brute facts of life do call for decisions. I have developed a procedure for decision-making by consensus based on the circuit. The procedure is an extension of the relational practice called Threeing (See Figure 1) Briefly, the procedure works as follows. In a domain of decision making, each of three people, or multiples of three, takes a subdomain. For example, three editors each take a section of a magazine. Each editor is required to keep the other two informed of his/her decisions. If one of the other editors objects to a decision, convinces the third editor of the objection, and both of these editors convince a predetermined outside party to agree with their objection, these three can override the decision of the one. If these three cannot agree, then the original decision of the one stands. This procedure precludes two against one dynamics and preserves an intransitive

heterarchy of decision making. Decisions develop from the dynamics of
formalized relationships, not from syllogistic reasoning to conclusions. Of
course, the formal relationships can, and should, include reasoned arguments.

2) The form is topological, not arithmetic.

Gödel's proof makes it clear that constructing a sign of itself from arithmetic
units is impossible. The sign of itself presented here is not arithmetic, but
topological. Topology is understood in the sense given the term by Riemann
before the field was subsumed by algebra and set theory. For Riemann,
topological study considered only relations of position and inclusion in
continuous magnitudes. He explicitly excluded measurement. Subsequently,
Peirce explicitly excluded magnitude.

While Peirce was able to free continuity from attributes of magnitude, he was
not able to free the continuum from attributes of sequence. I see this as a
major reason for his failure to arrive at a relational logic. As Murphey reports,
Peirce burdened the ordinal numbers with both expressing relative position and
exemplifying position (Murphey 1961: 284). This cannot be done without
confusion. As long as the ordinals are arranged in a sequence of first, second,
third, etc., there is no clear way to distinguish between each member of the
series and the serial relationship. A confusing duality between relations of

position and examples of position results. Placing firstness as an example in a position expressed as secondness is more confusing than the Abbott and Costello comedy routine "Who's on first?".

Sequential positioning is a consequence of orientation, i.e., assigned direction. The form presented above is non-orientable (Characteristic #10, II above), hence it is also non-sequential (Characteristic #13, II above). The confusing duality of position and example in the use of ordinal numbers is resolved. There is no need to hold a double sequence in mind. Examples can be sequenced through an empty continuum of "ordinal" positions that do not depend on sequence. The positions obtain without orientation, hence without sequence. Once the mind is freed to think positionally without orientation a logic of relationships naturally ensues.

In concluding this section on Gödel, it can be noted that the logic of relationships inherent in the circuit is robust enough to generate a rich semiosis, as in the design for a television channel mentioned above (II, 19, v). This television channel makes use of Peirce's entire sixty-six fold sign classification system by mapping it into the relational circuit (pp. 255ff). As a formal system, the relational circuit combines cybernetics and semiotics. This is nontrivial, albeit non-axiomatic.

B. Consideration of Peirce's text

The relational circuit will now be discussed in relation to the text quoted at the beginning of this paper that calls for 'a Sign of itself'. Of course, presenting argumentation in terms of one abbreviated text only begins the discussion of how the relational circuit relates to the body of Peirce's work. Indeed, by omitting the section of the text that I left out in the quote, I am omitting discussion of the realm of signs that are other than their object. This does not invalidate my basic argument. As demonstrated in the discussion of the ecochannel above (II, 19, v), signs that are other than their objects can be mapped into this 'Sign of itself'.

In the selected text, Peirce makes three points about a 'Sign of itself'. These three points will be reiterated with a discussion of how the relational circuit satisfies each point.

1)   A sign need not be other than its object; a sign can be part of a sign.

The relational circuit is one continuum. There is not an 'other' object. All signing is part with this continuum. The phrase part with rather than part of is more

appropriate for the intransitive character of the continuum. This sign does not designate something else. This sign shows itself.

2) 'The Sign of itself' will contain the explanation of all its significant parts.

According to this explanation, each significant part will have some other significant part as its object.

Two characteristics of the relational circuit, unambiguousness (#8, II, above) and intransitivity (# 11, II, above), insure this part to part explanation. The way Peirce words his statement seems to require that each part have but one other part as its explanation. In the intransitivity of explanation that obtains in the circuit, explanation does not take place in a one-to-one correspondence. Explaining position in this continuum requires that each explained position have not one, but two other parts to explain it. Any one part explanation would fall back on sequence: example, this part is the one that follows that part. Insisting on any one-to-one correspondence for explanation leads right back to the impossibility of working with arithmetic units. I do not think this two part explanation invalidates the relational circuit as a sign of itself, regardless of Peirce's text, since the intransitivity of explanation remains complete and consistent.

It can also be argued that this "parts to part" explanation of positions, in terms of the intransitivity and unambiguousness of the form, is the only possible way to explain the positions qua positions. No other explanation of the relations of position and inclusion within the form appears possible. All other efforts reduce to the absurd. This argument is perhaps the weakest argument for taking the relational circuit as a sign of itself. Someone other than myself may be able to successfully imagine and argue another explanation of position. At the same time, it seems the *reductio ad absurdum* argument must be made in order to invite proper criticism.

3) Peirce also states that the 'Sign of itself' should contain its own explanation.

I interpret this phrase, "containing its own explanation," to refer not to parts explaining other parts, but to the Sign as a whole explaining itself as a whole.

Because the circuit has no more than six parts, it can contain its own explanation. Six is perceptible without counting (McCulloch 1965: 7). The whole form stays within this perceptible limit of six. Differences can be understood without arithmetic units. The perceiving mind can grasp this self differentiating form as a whole, without adding parts to parts. All that need be grasped are the

six positions qua positions. To grasp the positions is to grasp the relations of position. The positions constitute the relations. To grasp the relations of position is to contain "its own explanation." All the form is, is relations of position. If you grasp the relations of position you have grasped the form itself.

In the Stoic term used by Warren McCulloch, I am describing a 'lekton', an event in the mind like a fist in the hand (McCulloch 1965: 390—395). A fist holds all fingers. To grasp the form is to hold all six positions. If the form becomes an event in your mind, you prehend all the relations of position needed for explanation. You prehend the explanation of the form itself, as a whole.

In Peirce's terms, prehension of the circuit is firstness of thirdness. It is iconic of the whole.

4)   Discussion of the circuit re Peirce's philosophical project

It may be useful to end this paper by attempting to state what prehension the relational circuit gives you in terms of Peirce's overall project. What is prehended when you prehend the relational circuit? What do you grasp when you grasp this icon?

The prehension gives you a continuum. Peirce argued that his entire philosophy was based on continuity, i.e., synechism (Murphey 1961: 379).

The prehension gives you correlated positions of firstness, secondness, and thirdness. No position could maintain its identity without the others. Hence the icon gives you a non-degenerate grasp of firstness, secondness, and thirdness. These are Peirce's prime categories. The indexical function derives from secondness. The interpretive function derives from thirdness. This icon is transparent to any indexical function, and any interpretive function that respects that indexing. Both the indexing and the interpreting are pictured in the icon. Using Peirce's terminology, I can say that this icon prescinds from indexing and interpretation, but it is not severed from these functions. Hence it is not degenerate. A supporting argument for non-degeneracy comes from cybernetics. Because the icon satisfies the criteria for a circuit, it is a "unit of mind," As a unit of mind it has thirdness, it combines differences in a non-degenerate way.

The prehension of this continuum of prime categories is given topologically, i.e., mathematically. This means that the prehension gives you the possibility of knowing whatever is knowable in the categories of firstness, secondness and thirdness. Peirce argued that there are no worlds which are not knowable in terms of these three categories. The categories provide a non-excluding

approach to the infinitely cognizable world. In the architectural theory set out

by Peirce, the relational circuit is an icon of all knowable worlds. As an icon that

is a 'Sign of itself', it is a figure of regulation for any open process of semiosis

that "explains itself by itself." (Eco 1979: 198).

Additional Required Resources

1. Relational Circuit 3D
2. Discussion on Threeing (Yoga of Threeing)both located in the **Additional Resources** section of the Web site.