Toward a Topological Semiotics

Extract from Algirdas Julien Greimas: The Social Sciences: A Semiotic View

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If it is true that all knowledge of the world begins with projecting the discontinuous on the continuous, we can perhaps provisionally once more take up the age-old opposition:

expanse vs. *space*

and say that *expanse,* taken in its continuity and plenitude, filled with natural and artificial objects, made present for us by all our sensorial channels, can be considered as the *substance* that, once informed and transformed by humans, becomes *space* (i. e., *form*) and can serve as signification because of its articulations. Space as form is therefore a *construction* that chooses only certain properties of "real" objects and only one or other possible levels of its own pertinence, to signify. It is obvious that all construction is an impoverishment and that the emergence of space makes most of the richness of expanse disappear. What it loses in concrete and lived fullness is compensated for, however, by multiple increases in signification: by becoming *signifying space,* it simply becomes another "object."

In investigating not the origins of space, which is meaningless, but its simplest articulations, we note first of all that any *place* can be apprehended only if it is situated in relation to another place, that it can be defined only by what it is not. This first disjunction can be either indefinite and appear as:

here vs. *elsewhere*

or take on specific contours such as:

enclosed vs. *enclosing*

It really does not matter what form it takes; the appropriation of a *topics* is possible only if a *heterotopics* is postulated. It is only after this that discourse on space can take place. For space that is instituted in this way is only a *signifier;* it is there only to be taken up and to signify something other than space, that is, humans, who are the *signifieds* of all languages. Consequently, it does not matter what types of contents, which vary according to cultural contexts, can be differentially instituted because of this gap of the signifier. Whether

are dealing here with a static social morphology that seeks to manifest itself by all these languages or, rather, that takes on signification because of these languages.

It was only after the appearance of merchant and industrial societies that stable social morphologies were progressively replaced by the dynamics of mobile social groups. It was also at this time that sociosemiotic *syntaxes* developing into specific discourses, spoken and listened to within the framework of systems of *communication,* replaced spatial or linguistic *taxonomies* apprehended as systems of *signification.* The city, which *constructed* itself, *is constructed* by an individuated instance, distinct in itself.

Two sorts of *utopias* arise from the fact that the city can be thought of as an *unhealthy city* and the space that envelops and signifies it is considered to be a *negative space.* Above and beyond the diachronic transformations specific to each semiotic system, a contentious metadiscourse is established that puts into question established human space, a discourse that negates space as the signified of a social signifier. Whether we are dealing with More or Le Corbusier, the goal of the metasemiotic project is the same.

Methodological Approaches

As can be seen, the foregoing brief remarks are intended only to present, in intuitive and simplified terms, the problematics of a possible topological semiotics, rather than to answer the question every researcher has asked: how and where to start exploring such a vast, complex, and promising domain?

It is as though the object of topological semiotics were twofold, as though its project could be defined both as the inscription of society in space and as the reading of the society in question through space. Two dimensions, which we provisionally called the spatial signifier and the cultural signified, seem to constitute this semiotics. Although these dimensions can be dealt with autonomously, it is only their correlation that makes the construction of these topological objects possible.

Considered in itself, the spatial signifier is coextensive with the natural world, which is also called the world of common sense. It is through this world that we read an infinite number of significations that appear as figures of the world, as objects beyond their apprehension. Within this vast spatial network, it is possible to delimit a zone of signification specific to topological semiotics only if a specific signified is posited for it at the same time.

In addition, this spatial signifier is used not only to categorize the world, to construct the world of objects as it appears in natural languages (in the form of an inventory of lexemes such as "forest," "prairie," "road," "house," "roof," and "window,"). It can also be established as a true spatial language ("a spatial logic") that is both natural and formal and that makes it possible to speak "spatially" about things that have no apparent relation with spatiality. We are aware, for example, of the particularly rich semantic investments that spatial categories such as *high* vs. *low* or *right* vs. *left* or the multiple semantic articulations of the cardinal points in what Lévi-Strauss calls concrete logic can take on. The contents manipulated by the spatial categories go far beyond the limits of signification that we would like to assign to topological semiotics.

Because the spatial signifier appears as a true language, we can readily understand that it can be used to signify and especially to signify the presence of humans in the world and their activity that informs and transforms the substance of the world. Hence, if for example we start from the rather commonly held idea that an architect's ideal is to use space to "create beauty," then we will undoubtedly misunderstand the semiotic project. All human activity, whether it is

part of the general epistemology of the sciences.

Concrete topological objects are often complex and ambiguous, if only because of the durable solidity of their signifiers, and because their "message," like Egyptian writing engraved in stone, is the product of mediating communication compared with immediate speech. This results in a *historical stratification* of the object with several substrata and superstrata coexisting within the present dimension. A "real" topological object can therefore be justified not by one but by several models. As we say today, it is the product of several grammars. This is another reason not to confuse urban semiotics with the study of particular cities, canonical cities with real cities, the organization of real objects with the construction of topological objects.

An Ideological Model of the City

It is not by adopting a scientific strategy, which supposedly would make it possible to work out at one and the same time a specific semiotics and a common methodological conceptualization, that we can hope one day to imagine a general semiotics. Nor can we hope to specify the limits of its project that appears either too vast, if extended to the totality of human behaviors that transform space, or too restricted, if it only includes artificial and secondary signal codes (arrows, signs, display windows, etc.) covering spaces that already signify with their overdeterminations.

Let us take as example, topological objects called "cities" as part of a specific semiotics that we can call urban semiotics. It is obvious that we have before us a complex and polysemic object that can be apprehended only as a global semantic effect. It is also obvious that its reading can be thought of only as the disarticulation of a whole into its constituent parts. And yet, the attempt to decompose the city into an infinite number of objects filling its space would not get us anywhere in our analysis. For two reasons these objects in part would also appear as complex and polysemic. First of all, an object alone cannot be apprehended semiotically and scientifically because a topological whole is made up not of objects but of their common properties. Second, a Dogon lock, for example, is a global object; that is, it is multifaceted and undifferentiated until the cultural context in which it is inscribed questions it by situating it at various possible isotopies of reading. It is only when it is situated before our eyes, surrounded by other objects that are part of our familiar space, that it can be questioned as to whether it is beautiful, good, or useful. Most often, however, our answers to these questions are false because they are founded on our implicit Europocentrism.

Since the epistemological revolution to which we referred (and an aspect of which we defined as the substitution of a discursive syntax for sociosemiotic morphology), perceived as global objects our cities are subjected to a pluriisotopic reading. This phenomenon is moreover especially noticeable at the level of the mythic conception of the city. Formerly thought of as a euphoric molar object whose origin and destiny were its only problematic aspects, today the city is conceived of in terms of a profane mythology that articulates it along the general axis:

euphoria vs. *dysphoria*

as a triple discourse on beauty, goodness and truth.

This sociological triad serves as the starting point for the establishment of the major isotopies for reading a city. It also haunts the dreams and thoughts of producers (or so-called producers) of cities, at any moment likely to transform *descriptive* semiotics, which seeks only to explain the significations inherent in its object, into a *normative* semiotics. Articulated into positive and negative values accor-

geographically determined zone, one could construct an *ideological model* of the city. Such a model would not only generate multiple modern mythologies but, under conditions of manipulation of the signifier that remain to be specified, would also produce topological objects that are part of urban semiotics.

A certain number of remarks would be useful in order to specify the status of this model.

First, it must not be considered uniquely as a model for reading the city, but also as an abstract and deep structure from which an infinite number of urban canonical forms can be generated. Since it is not a normative model (i.e., it is independent of the science of beauty, goodness, and truth), it must be able to allow for the generation of beautiful as well as ugly cities, happy as well as unhappy ones, functional and dysfunctional ones, whether they happen to be realized or only possible.

Second, the categories that constitute the model situated at the level of deep structures are to be considered as formal categories; that is, they can be invested both with the semantic variables of different cultural contexts and with the subarticulations of the invested contents giving rise to the appearance of true axiological microuniverses. Without raising the issue of aesthetic or political categories in general, whose relativity is self-evident, cultural differences appear at all levels and through all channels. For example, the thermic euphoria of an inhabited space will be different for an Englishman or an American, and the sonorous or olfactive euphoria of an oriental town will be considered to be dysphoric by a Westerner. The relativity of semantic investments and their articulations makes it possible for us to consider this type of model as a grammatical model.

Third, in addition to its taxonomic organization, we can see that the model has a limited number of rules that can orient the actualization of its combinatory. Thus, along with the *compatibility* of two social or individual euphorias or dysphorias, of communal culture or individual life-style, the rule of the *dominance* of one over the other can be formulated and applied. The same holds for rules of *priority* to be given to the different isotopies for constructing cities, rules that, when applied, can produce cities with a functional, political, or aesthetic dominance.

A Grammar: The City as Utterance

The model we have just proposed must be considered to be hypothetical for the following two reasons. Although grounded in the dominant episteme, it is nevertheless intuitively constructed from the redundant concerns of urban planners. As a model organizing the form of content at an abstract level, it remains incomplete, without any foreseeable links with the plane of spatial expression whose parallel articulations only can validate it. In fact, it is through this spatial language that the categories constituting this model must appear and/or be read. In turn, this is possible first of all only if an equivalence, the nature of which remains to be clarified, between the articulations of the deep content and those of the language of manifestation can be postulated and also if the distance separating them can be filled with procedures of generation and instances of construction that progressively conjoin the postulated model with the spatial manifestation. Possible solutions to this very problem need to be worked out in the near future.

Among the various approaches that make possible the analysis of a topological object as complex as a city, the setting up of a structure of communication appears to be one of the most viable. Within the framework of this elementary structure, made up of a sender-producer and a receiver-reader, the town can be inscribed as an object-message to be deciphered.

haviors are therefore *signifying programs*. They can be characterized by the fact that they are stereotypical programs that are both recurrent and can be carried out by any subjects, considered as syntactic roles (and not as flesh-and-blood individuals), and also by the fact that these are programs for which human subjects can be replaced, in whole or in part, by automatons.

There is no need here to enter into sociological considerations describing the process of industrialization, showing how, starting from the tool that extends the hand, humanity has constructed substitution automatons that in turn presuppose other somatic or mechanized programs of doing, thus instituting new forms of social organization that function by successive mediations and substitutions. To do so would be to encroach on other disciplines, more precisely on a certain branch of sociology, only the research results of which could be used in topological semiotics. However, the identification of the substitution of segments of somatic doing by automatized programs is already of interest to semiotics insofar as this "thingification" of social practices facilitates the segmentation of the urban text into autonomous and isotopical instances of doing.

We can also see that the semiotic manifestation of urban space, which roughly can be illustrated as the setting into relation of

(thermic signifier) + (euphoric signified)

presupposes a certain *doing of the subject* (which can simply be an operation of pressing a button) carried out on a *support object* (central heating furnace), a localized substitute of a somatic program. This *individual instance* of doing in turn, however, presupposes a new *collective instance,* with a new *support object* (the urban distribution of gas or electricity), manipulated by a *collective subject* (gas or electric company). We are therefore faced with two types of support objects that make it possible to distinguish two forms of participation of subjects in an urban space that, for the purpose of analysis, constitute two autonomous syntactic individual and collective instances.

Seen from this perspective, individual instances appear to be made up of all the relations of an individual with the surrounding objects that make him the center of this relational network. On the contrary, the collective instance appears as the set of networks (electricity, gas, water, sewers, telephone, mail, subway, streets, etc.) whose terminals constitute a series of individual instances.

Two types of individual and collective practices are linked to these instances that ensure the maintenance and functioning either of individual or collective networks. Two types of subjects considered no longer as individuals but as *syntactic roles* corresponding to programs can be equated to these two types of support objects and programs. Just as objects are of interest to semiotics only because some of their properties make it possible to group them into topological sets, subjects also can be broken down into roles, according to the programs they have to carry out. It is only at the price of this dual "destruction" of objects and subjects that a semiotic syntax is possible.

The grammatical approach we have just sketched has a number of advantages, probably the most important one being the integration of human subjects into the text of the city. While providing a semiotic interpretation of the "users of the city," in a way by allowing us to imagine *the city as a set of interrelations and interactions between subjects and objects,* it enables us to make our representation dynamic. In addition, distinguishing two canonical forms of the transcription between subjects and objects – utterances of states and

ferred back to the individual, who can interpret them in terms of fatigue, boredom, and so forth. But the problem remains of knowing if and how individuals as social role "live" their participation in the common practice, what meaning they give to themselves and to their practice as part of a whole.

From the problematics of the individual actant we now go on to that of *collective actants.* Because we are familiar with concepts of "society" and of "class" and with anthropomorphic attributes such as "class conscience" with which we endow them, we can ask ourselves whether a grammaticalization of these collective entities and the representation of social groups and social organizations as collective subjects could not give urban semiotics a tool that makes it possible to account for the modes of existence of "social beings," that is, humans engaged in social practice and participating in the social being. A number of investigations in narrative semiotics tend to show that it is not impossible to describe economic and social organizations, political and cultural institutions as collective actants endowed with the modalities of wanting, being able, and knowing, and invested with axiological contents that are experienced as such by the participants in this "moral person." Urban social organization can therefore be broken down into different actants and collective actors whose descriptions, initially partial and then comparative and totalizing, would provide numerous insights into communal signification. The syntactic models so obtained would serve as a framework for the semantic analysis of the "collective representations" of the city.

The advantage of such an approach[1] is that it clearly posits the object of urban semiotics. By refusing the traditional views according to which the city is a thing, a complex of objects lived and perceived by humans, it substitutes a citytext made up of individuals and things, of their relations and interactions. Human subjects whose presence in the text can only account for its signifying character are therefore differentiated from the subject of enunciation, the producer of the city; and the grammar of the enunciated-town can be completed by a grammar of enunciation. This is all the more possible as the hierarchized instances of generation that presuppose one another are already theoretically anticipated. In short, all one has to do is to take the procedures, which starting from the conjunction of the individual with the qualities of urban space, posited the existence of support objects constructed on several levels, and inverse them by using opposite procedures that illustrate collective mechanisms, before going on to the objects constituting the individual's immediate environment.

Another Grammar Project: The Enunciation of the City

In spite of the specificity of the object considered ("the architectural ensemble" is only incidently inscribed in the problematics of urban semiotics) it is Jean Castex and Pierre Panerai's project[2] that can best illustrate this generative process. It is obvious that the analysis of such a limited object is valid only insofar as all the restrictions that made it possible to clarify the thrust of the project are clarified beforehand, that is: (a) that for the intents and purposes of analysis the architectural ensemble is considered separately, as an enclosed object with the enclosing being provisionally bracketed off; (b) that the delimited object is considered only on a single isotopy, the visual one, and more-

1. This is inspired in part by a stimulating text by Alain Renier that appeared in *Sémiotique de l'espace*, published by *l'Institut de l'environment* (Paris, 1974), pp. 23–32.
2. See *Sémiotique de l'espace.*

their terms. This level must be considered elementary. Indeed, it is at this level that baroque architecture is defined in part by means of the category *convex* vs. *concave*. It is also here with the oppositions – straight lines and curves, vertical and horizontal lines – that the first articulations of signification, isomorphic to spatial oppositions, appear. It is as though to engender *spatial-figures* such as the square and the triangle by means of the rules of its combinatory, the grammar of the production of spatial forms had to begin with these elementary categories.

As in the case in point, it is only if the architectural corpus to be analyzed happens to be relatively restricted that the spatial figures possibly can be chosen as the point of departure from which to construct a limited number of topological objects. In fact, we can see that the choice of the square as an elementary figure best satisfies the rule of simplicity of description, because it is from the square that the greatest number of rules of derivation can be formulated in the simplest way. Nevertheless this rule is only pragmatic and therefore subordinated to the principles of coherence and exhaustivity.

Moreover, if *spatial categories* can generate *figures*, they in turn can produce composite figures or *configurations*, such as the cross of the George Barton House, which is coextensive with the actual architectural ensemble described. Following the *decomposition* and *overcomposition* of the figure chosen as base structure, a hierarchy of spatial units is instituted that in large measure justifies the analyst's strategic option.

However, although it seems to be an expected extension of the process generating the architectural ensemble, the recognition of this third level of overcomposition does create difficulties when interpreting constructed objects. An "architectural ensemble," which is defined only intuitively, can be produced either by a configuration (= the cross) or by interrupting the generation at the level of simple figures (= square building) or, finally, by the coordination of two figures (= two square buildings juxtaposed). For want of a definition of the "ensemble," instead of speaking about contradictory models or the "exasperation of an architectural code," we could see the simple effect of the passage of a figurative level to a configurative level, of sentence grammar to discursive grammar. Since derivation is a procedure of decomposition of the utterance (figures could be assimilated with semantic utterances), overcomposition of base units produces configurations that correspond to expansions of the utterances of discourse, it being understood that the discursive level once recognized, the utterance-figure is already a discursive unit that can be substituted for the entire expanded discourse. Consequently, the rules of a discursive grammar that would deal with the compositions of architectural ensembles, but also with much more complex objects, must be worked out independently of those of the elementary grammar.

On the other hand, and without excluding the theoretical possibility of contradictory codes that would imply the production of a topological object starting from at least two autonomous elementary structures, we can envisage the existence of objects characterized by the complementarity of spatial figures, of which some would be, for example, constructed from straight lines and others, from curved lines (the Pantheon in Paris). In this case, the strategic choice of the level of figures, as a starting point for the generation of architectural forms, could be maintained only by adding new rules of transformation to the rules of derivation, and by positing, for example, that at such and such a level of derivation, square figures are transformed into circular fi-

which would bring to light economic and political components that are much more powerful than the architect-town planner.

This could be one of the objects of urban semiotics. For example, insofar as the producer can be considered as the subject of enunciation, a subject endowed with competence that ultimately can be broken down into a *being-able-to-do,* a *wanting-to-do,* and a *knowing-how-to-do* of the producer. Having no real power, town planners would be in part exonerated or at least would not confuse the two syntactic roles they can be called on to play.

The structure of the collective actant is made up not only of the dispositions of the modalities of being-able, wanting, and knowing; it also consists in an investment of an ideological nature. The study of the process by which various particular wills constituting this actant succeed in amalgamating sometimes contradictory values and give rise to an ideological model of the city to be constructed, makes it possible to describe the decisional mechanisms that end up constructing cities along the three previously examined isotopies. This ideological model is implicit and corresponds only remotely to what architects think and especially what they do. For if we know, or even believe we are more or less acquainted with, problems related to the political finalities of town planning, such research would also make it possible to situate aesthetic problems in their proper light, notably by describing the various systems of constraints imposed on architects: so-called natural constraints, pressures of actors making up the collective actant, as well as the self-censorship exercised by this imaginary model of reading that the implicitly recognized and accepted "user's taste" has to be.

Finally, a third type of analysis is possible, consisting in the syntagmatic decomposition of the global program of the production of the city into collective or individual actors or into automatized substitutes. In adopting the generative form, such a description appears as the inverse path of the process we have already described, when we proposed the model of textual grammar. In its generic form the description would aim at giving a representation of the processes and programs actually realized by various actors and ending up in the construction of a city in case.

Methodological difficulties increase when one abandons the point of view of the sender for that of the receiver. The same terms generally used to designate this instance – "reader," "user," "consumer" – belong to ideologically different disciplines and attitudes that lead to their constant metaphorical or analogical use.

It should also be added that even the semiotic conception of the city as objectmessage is not without ambiguity. We are too used to interpreting communication in linguistic terms not to have difficulty in imagining that meaning can be communicated without the intermediary of natural languages. We have already emphasized that to receive spatial messages is not, or is not only, to perceive them; rather it is what could be called by the vague term "to experience" the city, by reacting in a significant way to all spatial stimulations. Even though such an interpretation of the signification of nonlinguistic messages may appear clear at the moment of its formulation, nonetheless it must be used with caution in practice. It is necessary that the primary "meaning" of the city not be confused with conscious thought or with discourses on the city. It implies that the boundary between what is conscious and what is unconscious about the way one experiences the city be abolished or at least suspended. It is only at this price that the concepts of *reading* and *usage* of the city can be considered as synonymous and that the *consump-*

linguistic communication, two actants encountering one another are supposed to ensure the emission and reception of messages filled with possible misunderstandings.

Topological Discourses

As space does not have to be spoken in order to signify, terms such as "message," "discourse" or "text" that we have used in connection with it are simply names of semiotic concepts that must be defined, as structures and not as terms, at the level of an epistemological language establishing the principles of the analysis of all semiotic systems. In relation to this primary "spatial text," all discourses on space are always secondary. Whether they happen to be more or less faithful transpositions of a spatial language into another language or autonomous manifestations of original modes of spatial construction – or, more often, both at the same time – verbal, graphic, pictorial, or cinematographic discourses on space are always situated adjacent to spatial discourse proper.

Verbal discourse, the dominance of which need not be underscored, since through it all other languages can be compared and since they can be translated into it, constitutes the principal concern of semioticians. It is their responsibility to work out a twofold and paradoxical task. At the same time, semioticians need to recognize the distance that separates spatial discourse from the discourses paraphrasing it, but also, since their own discourse takes place in a natural language, they need to attempt to suppress this distance or to nullify its effects.

In the first instance, to recognize this distance is to distinguish the properties of signifying space from the properties that characterize verbal discourses dealing with space. For no matter what is said about them, discourses are defined not by the contents they manipulate (to speak of political, social, or religious discourses is to establish a typology of value systems) but by the forms of their organization. The typology of discourses, which is of a grammatical nature, is therefore a problem of general semiotics on which discourses on space depend. They do not, however, constitute a separate class of discourses. Hence the dissenting or prospective, descriptive or normative utopian discourses that can be held on space could easily find their equivalents in semantic loci other than space.

To nullify the effects created by the distance separating "discourse on things" from discourse on this discourse is first of all to clarify the conditions of the scientificity of the latter, so that the semiotic discourse one is attempting to construct can be subjected to the rules that make it possible to satisfy these conditions. Hence, contrary to what happens in the production of nonscientific discourse, where, for example the temporalization and the spatialization of the models are procedures of normal enunciation, semiotic models are considered to be *achronological,* realizable at all times and in all places, but independent of their realization. Contrary to what happens in prescientific times where sometimes extremely judicious theoretical models have been worked out that can be subsequently modified, semiotic models must satisfy the principle of *adequacy.* In a way, scientific discourse must be equivalent to the primary discourse it transposes, and thereby can be validated by means of procedures or indispensable complementary discourses. However, the principles for the validity of discourse and the procedures for its validation also fall under the purview of the general epistemology of sciences.

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science superseding reason, are put out of the question. Now the whole process of development among the community of students of those formulations by abstractive observation and reasoning of the truths which *must* hold good of all signs used by a scientific intelligence is an observational science, like any other positive science, notwithstanding its strong contrast to all the special sciences which arises from its aiming to find out what *must be* and not merely what *is* in the actual world.

A sign, or *representamen,* is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the *interpretant* of the first sign. The sign stands for something, its *object.* It stands for that object, not in all respects, but in reference to a sort of idea, which I have sometimes called the *ground* of the representamen. "Idea" is here to be understood in a sort of Platonic sense, very familiar in everyday talk; I mean in that sense in which we say that one man catches another man's idea, in which we say that when a man recalls what he was thinking of at some previous time, he recalls the same idea, and in which when a man continues to think anything, say for a tenth of a second, in so far as the thought continues to agree with itself during that time, that is to have a *like* content, it is the same idea, and is not at each instant of the interval a new idea.

In consequence of every representamen being thus connected with three things, the ground, the object, and the interpretant, the science of semiotic has three branches.* The first is called by Duns Scotus *grammatica speculativa.* We may term it *pure grammar.* It has for its task to ascertain what must be true of the representamen used by every scientific intelligence in order that they may embody any *meaning.* The second is logic proper. It is the science of what is quasi-necessarily true of the representamina of any scientific intelligence in order that they may hold good of any *object,* that is, may be true. Or say, logic proper is the formal science of the conditions of the truth of representations. The third, in imitation of Kant's fashion of preserving old associations of words in finding nomenclature for new conceptions, I call *pure rhetoric.* Its task is to ascertain the laws by which in every scientific intelligence one sign gives birth to another, and especially one thought brings forth another.

A Sign, or *Representamen,* is a First which stands in such a genuine triadic relation to a Second, called its *Object,* as to be capable of determining a Third, called its *Interpretant,* to assume the same triadic relation to its Object in which it stands itself to the same Object. The triadic relation is *genuine,* that is its three members are bound together by it in a way that does not consist in any complexus of dyadic relations. That is the reason the Interpretant, or Third, cannot stand in a mere dyadic relation to the Object, but must stand in such a relation to it as the Representamen itself does. Nor can the triadic relation in which the Third stands be merely similar to that in which the First stands, for this would make the relation of the Third to the First a degenerate Secondness merely. The Third must indeed stand in such a relation, and thus must be capable of determining a Third of its own; but besides that, it must have a second triadic relation in which the Representamen, or rather the relation thereof to its Object, shall be its own (the Third's) Object, and must be capable of determining a Third to this relation. All this must equally be true of the Third's Thirds and so on endlessly; and this, and more, is involved in the familiar idea of

* This note is omitted by the editor O. M.

b. Icon

... While no Representamen actually functions as such until it actually determines an Interpretant, yet it becomes a Representamen as soon as it is fully capable of doing this; and its Representative Quality is not necessarily dependent upon its ever actually determining an Interpretant, nor even upon its actually having an Object.

An *Icon* is a Representamen whose Representative Quality is a Firstness of it as a First. That is, a quality that it has *qua* thing renders it fit to be a representamen. Thus, anything is fit to be a *Substitute* for anything that it is like. (The conception of "substitute" involves that of a purpose, and thus of genuine thirdness.) Whether there are other kinds of substitutes or not we shall see. A Representamen by Firstness alone can only have a similar Object. Thus, a Sign by Contrast denotes its object only by virtue of a contrast, or Secondness, between two qualities. A sign by Firstness is an image of its object and, more strictly speaking, can only be an *idea.* For it must produce an Interpretant idea; and an external object excites an idea by a reaction upon the brain. But most strictly speaking, even an idea, except in the sense of a possibility, or Firstness, cannot be an Icon. A possibility alone is an Icon purely by virtue of its quality; and its object can only be a Firstness. But a sign may be *iconic,* that is, may represent its object mainly by its similarity, no matter what its mode of being. If a substantive be wanted, an iconic representamen may be termed a *hypoicon.* Any material image, as a painting, is largely conventional in its mode of representation; but in itself, without legend or label it may be called a *hypoicon.*

Hypoicons may be roughly divided according to the mode of Firstness of which they partake. Those which partake of simple qualities, or First Firstnesses, are *images;* those which represent the relations, mainly dyadic, or so regarded, of the parts of one thing by analogous relations in their own parts, are *diagrams;* those which represent the representative character of a representamen by representing a parallelism in something else, are *metaphors.*

The only way of directly communicating an idea is by means of an icon; and every indirect method of communicating an idea must depend for its establishment upon the use of an icon. Hence, every assertion must contain an icon or set of icons, or else must contain signs whose meaning is only explicable by icons. The idea which the set of icons (or the equivalent of a set of icons) contained in an assertion signifies may be termed the *predicate* of the assertion.

Turning now to the rhetorical evidence, it is a familiar fact that there are such representations as icons. Every picture (however conventional its method) is essentially a representation of that kind. So is every diagram, even although there be no sensuous resemblance between it and its object, but only an analogy between the relations of the parts of each. Particularly deserving of notice are icons in which the likeness is aided by conventional rules. Thus, an algebraic formula is an icon, rendered such by the rules of commutation, association, and distribution of the symbols. It may seem at first glance that it is an arbitrary classification to call an algebraic expression an icon; that it might as well, or better, be regarded as a compound conventional sign. But it is not so. For a great distinguishing property of the icon is that by the direct observation of it other truths concerning its object can be discovered than those which suffice to determine its construction. Thus, by means of two photographs a map can be drawn, etc. Given a conventional or other general sign of an object, to deduce any other truth than that which it explicitly signifies, it is necessary, in all cases,

themselves icons), the relations of the quantities concerned.

It may be questioned whether all icons are likenesses or not. For example, if a drunken man is exhibited in order to show, by contrast, the excellence of temperance, this is certainly an icon, but whether it is a likeness or not may be doubted. The question seems somewhat trivial.

c. Index

[An index is] a sign, or representation, which refers to its object not so much because of any similarity or analogy with it, nor because it is associated with general characters which that object happens to possess, as because it is in dynamical (including spatial) connection both with the individual object, on the one hand, and with the senses or memory of the person for whom it serves as a sign, on the other hand. ... While demonstrative and personal pronouns are, as ordinarily used, "genuine indices," relative pronouns are "degenerate indices"; for though they may, accidentally and indirectly, refer to existing things, they directly refer, and need only refer, to the images in the mind which previous words have created.

Indices may be distinguished from other signs, or representations, by three characteristic marks: first, that they have no significant resemblance to their objects; second, that they refer to individuals, single units, single collections of units, or single continua; third, that they direct the attention to their objects by blind compulsion. But it would be difficult, if not impossible, to instance an absolutely pure index, or to find any sign absolutely devoid of the indexical quality. Psychologically, the action of indices depends upon association by contiguity, and not upon association by resemblance or upon intellectual operations.

An *Index* or *Seme* ($\sigma\hat{\eta}\mu\alpha$) is a Representamen whose Representative character consists in its being an individual second. If the Secondness is an existential relation, the Index is *genuine*. If the Secondness is a reference, the Index is *degenerate*. A genuine Index and its Object must be existent individuals (whether things or facts), and its immediate Interpretant must be of the same character. But since every individual must have characters, it follows that a genuine Index may contain a Firstness, and so an Icon as a constituent part of it. Any individual is a degenerate Index of its own characters.

Subindices or *Hyposemes* are signs which are rendered such principally by an actual connection with their objects. Thus a proper name, personal demonstrative, or relative pronoun or the letter attached to a diagram, denotes what it does owing to a real connection with its object, but none of these is an Index, since it is not an individual,

Let us examine some examples of indices. I see a man with a rolling gait. This is a probable indication that he is a sailor. I see a bowlegged man in corduroys, gaiters, and a jacket. These are probable indications that he is a jockey or something of the sort. A sundial or a clock *indicates* the time of day. Geometricians mark letters against the different parts of their diagrams and then use these letters to indicate those parts. Letters are similarly used by lawyers and others. Thus, we may say: If A and B are married to one another and C is their child while D is brother of A, then D is uncle of C. Here A, B, C, and D fulfill the office of relative pronouns, but are more convenient since they require no special collocation of words. A rap on the door is an index, Anything which focusses the attention is an index. Anything which startles us is an index, in so far as it marks the junction between two portions of experience. Thus a tremendous thunderbolt indicates that *something* considerable happened, though we may not know precisely what the event was. But it may be expected to connect itself with some other experience.

to words "governed" by other words, and which serve to show which the governing word is, by repeating what is elsewhere expressed in the same form, are likewise *indices* of the same relative pronoun character. Any bit of Latin poetry illustrates this, such as the twelveline sentence beginning, *"Jam satis terris."* Both in these terminations and in the A, B, C, a likeness is relied upon to carry the attention to the right object. But this does not make them icons, in any important way; for it is of no consequence how the letters A, B, C, are shaped or what the terminations are. It is not merely that one occurrence of an A is like a previous occurrence that is the important circumstance, but that *there is an understanding that like letters shall stand for the same thing,* and this acts as a force carrying the attention from one occurrence of A to the previous one. A possessive pronoun is two ways an index: first it indicates the possessor, and, second, it has a modification which syntactically carries the attention to the word denoting the thing possessed.

Some indices are more or less detailed directions for what the hearer is to do in order to place himself in direct experiential or other connection with the thing meant. Thus, the Coast Survey issues "Notices to Mariners," giving the latitude and longitude, four or five bearings of prominent objects, etc., and saying *there* is a rock, or shoal, or buoy, or lightship. Although there will be other elements in such directions, yet in the main they are indices.

(...)

Icons and indices assert nothing. If an icon could be interpreted by a sentence, that sentence must be in a "potential mood," that is, it would merely say, "Suppose a figure has three sides," etc. Were an index so interpreted, the mood must be imperative, or exclamatory, as "See there!" or "Look out!" But the kind of signs which we are now coming to consider are, by nature, in the "indicative," or, as it should be called, the *declarative* mood. Of course, they can go to the expression of any other mood, since we may declare assertions to be doubtful, or mere interrogations, or imperatively requisite.

d. Symbol

A Symbol is a Representamen whose Representative character consists precisely in its being a rule that will determine its Interpretant. All words, sentences, books, and other conventional signs are Symbols. We speak of writing or pronouncing the word "man"; but it is only a *replica,* or embodiment of the word, that is pronounced or written. The word itself has no existence although it has a real being, *consisting in* the fact that existents *will* conform to it. It is a general mode of succession of three sounds or representamens of sounds, which becomes a sign only in the fact that a habit, or acquired law, will cause replicas of it to be interpreted as meaning a man or men. The word and its meaning are both general rules; but the word alone of the two prescribes the qualities of its replicas in themselves. Otherwise the "word" and its "meaning" do not differ, unless some special sense be attached to "meaning."

A Symbol is a law, or regularity of the indefinite future. Its Interpretant must be of the same description; and so must be also the complete immediate Object, or meaning. But a law necessarily governs, or "is embodied in" individuals, and prescribes some of their qualities. Consequently, a constituent of a Symbol may be an Index, and a constituent may be an Icon. A man walking with a child points his arm up into the air and says, "There is a balloon." The pointing arm is an essential part of the symbol without which the latter would convey no information. But if the child asks, "What is a balloon," and the man replies, "It is something like a great big soap bubble," he makes the image a

signal agreed upon; a standard or ensign is a "symbol," a watchword is a "symbol," a badge is a "symbol"; a church creed is called a "symbol," because it serves as a badge or shibboleth; a theatre ticket is called a "symbol"; any ticket or check entitling one to receive anything is a "symbol." Moreover, any expression of sentiment was called a "symbol." Such were the principal meanings of the word in the original language. The reader will judge whether they suffice to establish my claim that I am not seriously wrenching the word in employing it as I propose to do.

Any ordinary word, as "give," "bird," "marriage," is an example of a symbol. It is *applicable to whatever may be found to realize the idea connected with the word;* it does not, in itself, identify those things. It does not show us a bird, nor enact before our eyes a giving or a marriage, but supposes that we are able to imagine those things, and have associated the word with them.

A regular progression of one, two, three may be remarked in the three orders of signs, Icon, Index, Symbol. The Icon has no dynamical connection with the object it represents; it simply happens that its qualities resemble those of that object, and excite analogous sensations in the mind for which it is a likeness. But it really stands unconnected with them. The index is physically connected with its object; they make an organic pair, but the interpreting mind has nothing to do with this connection, except remarking it, after it is established. The symbol is connected with its object by virtue of the idea of the symbol-using mind, without which no such connection would exist.

Every physical force reacts between a pair of particles, either of which may serve as an index of the other. On the other hand, we shall find that every intellectual operation involves a triad of symbols.

A symbol, as we have seen, cannot indicate any particular thing; it denotes a kind of thing. Not only that, but it is itself a kind and not a single thing. You can write down the word "star," but that does not make you the creator of the word, nor if you erase it have you destroyed the word. The word lives in the minds of those who use it. Even if they are all asleep, it exists in their memory. So we may admit, if there be reason to do so, that generals are mere words without at all saying, as Ockham supposed, that they are really individuals.

Symbols grow. They come into being by development out of other signs, particularly from icons, or from mixed signs partaking of the nature of icons and symbols. We think only in signs. These mental signs are of mixed nature; the symbol-parts of them are called concepts. If a man makes a new symbol, it is by thoughts involving concepts. So it is only out of symbols that a new symbol can grow. *Omne symbolum de symbolo.* A symbol, once in being, spreads among the peoples. In use and in experience, its meaning grows. Such words as *force, law, wealth, marriage,* bear for us very different meanings from those they bore to our barbarous ancestors. The symbol may, with Emerson's sphynx, say to man,

Of thine eye I am eyebeam.

Extract from: *The Philosophy of Peirce – Selected Writings.* [1940.]
Edited by Justus Buchler
London 1950.

lose his orientation and waste his efforts in directions which bring him no nearer to his goal, or even carry him entirely astray. He is like a ship in the open sea, with no one on board who understands the rules of navigation. And in such a case some general study of the guiding principles of reasoning would be sure to be found useful.

The subject could hardly be treated, however, without being first limited; since almost any fact may serve as a guiding principle. But it so happens that there exists a division among facts, such that in one class are all those which are absolutely essential as guiding principles, while in the others are all which have any other interest as objects of research. This division is between those which are necessarily taken for granted in asking why a certain conclusion is thought to follow from certain premisses, and those which are not implied in such a question. A moment's thought will show that a variety of facts are already assumed when the logical question is first asked. It is implied, for instance, that there are such states of mind as doubt and belief – that a passage from one to the other is possible, the object of thought remaining the same, and that this transition is subject to some rules by which all minds are alike bound. As these are facts which we must already know before we can have any clear conception of reasoning at all, it cannot be supposed to be any longer of much interest to inquire into their truth or falsity. On the other hand, it is easy to believe that those rules of reasoning which are deduced from the very idea of the process are the ones which are the most essential; and, indeed, that so long as it conforms to these it will, at least, not lead to false conclusions from true premisses. In point of fact, the importance of what may be deduced from the assumptions involved in the logical question turns out to be greater than might be supposed, and this for reasons which it is difficult to exhibit at the outset. The only one which I shall here mention is, that conceptions which are really products of logical reflection, without being readily seen to be so, mingle with our ordinary thoughts, and are frequently the causes of great confusion. This is the case, for example, with the conception of quality. A quality, as such, is never an object of observation. We can see that a thing is blue or green, but the quality of being blue and the quality of being green are not things which we see; they are products of logical reflections. The truth is, that common-sense, or thought as it first emerges above the level of the narrowly practical, is deeply imbued with that bad logical quality to which the epithet *metaphysical* is commonly applied; and nothing can clear it up but a severe course of logic.

We generally know when we wish to ask a question and when we wish to pronounce a judgement, for there is a dissimilarity between the sensation of doubting and that of believing.

But this is not all which distinguishes doubt from belief. There is a practical difference. Our beliefs guide our desires and shape our actions. The Assassins, or followers of the Old Man of the Mountain, used to rush into death at his least command, because they believed that obedience to him would insure everlasting felicity. Had they doubted this, they would not have acted as they did. So it is with every belief, according to its degree. The feeling of believing is a more or less sure indication of there being established in our nature some habit which will determine our actions. Doubt never has such an effect.

Nor must we overlook a third point of difference. Doubt is an uneasy and dissatisfied state from which we struggle to free ourselves and pass into the state of belief; while the latter is a calm and satisfactory state which we do not wish to avoid, or to change

an egotistical impertinence to object that his procedure is irrational, for that only amounts to saying that his method of settling belief is not ours. He does not propose to himself to be rational, and, indeed, will often talk with scorn of man's weak and illusive reason. So let him think as he pleases.

But this method of fixing belief, which may be called the method of tenacity, will be unable to hold its ground in practice. The social impulse is against it. The man who adopts it will find that other men think differently from him, and it will be apt to occur to him, in some saner moment, that their opinions are quite as good as his own, and this will shake his confidence in his belief. This conception, that another man's thought or sentiment may be equivalent to one's own, is a distinctly new step, and a highly important one. It arises from an impulse too strong in man to be suppressed, without danger of destroying the human species. Unless we make ourselves hermits, we shall necessarily influence each other's opinions; so that the problem becomes how to fix belief, not in the individual merely, but in the community.

Let the will of the state act, then, instead of that of the individual. Let an institution be created which shall have for its object to keep correct doctrines before the attention of the people, to reiterate them perpetually, and to teach them to the young; having at the same time power to prevent contrary doctrines from being taught, advocated, or expressed. Let all possible causes of a change of mind be removed from men's apprehensions. Let them be kept ignorant, lest they should learn of some reason to think otherwise than they do. Let their passions be enlisted, so that they may regard private and unusual opinions with hatred and horror. Then, let all men who reject the established belief be terrified into silence. Let the people turn out and tar-and-feather such men, or let inquisitions be made into the manner of thinking of suspected persons, and when they are found guilty of forbidden beliefs, let them be subjected to some signal punishment. When complete agreement could not otherwise be reached, a general massacre of all who have not thought in a certain way has proved a very effective means of settling opinion in a country. If the power to do this be wanting, let a list of opinions be drawn up, to which no man of the least independence of thought can assent, and let the faithful be required to accept all these propositions, in order to segregate them as radically as possible from the influence of the rest of the world.

This method has, from the earliest times, been one of the chief means of upholding correct theological and political doctrines, and of preserving their universal or catholic character. In Rome, especially, it has been practised from the days of Numa Pompilius to those of Pius Nonus. This is the most perfect example in history; but wherever there is a priesthood – and no religion has been without one – this method has been more or less made use of. Wherever there is an aristocracy, or a guild, or any association of a class of men whose interests depend, or are supposed to depend, on certain propositions, there will be inevitably found some traces of this natural product of social feeling. Cruelties always accompany this system; and when it is consistently carried out, they become atrocities of the most horrible kind in the eyes of any rational man. Nor should this occasion surprise, for the officer of a society does not feel justified in surrendering the interests of that society for the sake of mercy, as he might his own private interests. It is natural, therefore, that sympathy and fellowship should thus produce a most ruthless power.

In judging this method of fixing belief, which may be called the method of authority, we

least developed form which the method takes, for it is clear that another man might find Kepler's theory, that the celestial spheres are proportional to the inscribed and circumscribed spheres of the different regular solids, more agreeable to *his* reason. But the shock of opinions will soon lead men to rest on preferences of a far more universal nature. Take, for example, the doctrine that man only acts selfishly – that is, from the consideration that acting in one way will afford him more pleasure than acting in another. This rests on no fact in the world, but it has had a wide acceptance as being the only reasonable theory.

This method is far more intellectual and respectable from the point of view of reason than either of the others which we have noticed. Indeed, as long as no better method can be applied, it ought to be followed, since it is then the expression of instinct which must be the ultimate cause of belief in all cases. But its failure has been the most manifest. It makes of inquiry something similar to the development of taste; but taste, unfortunately, is always more or less a matter of fashion, and accordingly metaphysicians have never come to any fixed agreement, but the pendulum has swung backward and forward between a more material and a more spiritual philosophy, from the earliest times to the latest. And so from this, which has been called the *a priori* method, we are driven, in Lord Bacon's phrase, to a true induction. We have examined into this *a priori* method as something which promised to deliver our opinions from their accidental and capricious element. But development, while it is a process which eliminates the effect of some casual circumstances, only magnifies that of others. This method, therefore, does not differ in a very essential way from that of authority. The government may not have lifted its finger to influence my convictions; I may have been left outwardly quite free to choose, we will say, between monogamy and polygamy, and, appealing to my conscience only, I may have concluded that the latter practice is in itself licentious. But when I come to see that the chief obstacle to the spread of Christianity among a people of as high culture as the Hindoos has been a conviction of the immorality of our way of treating women, I cannot help seeing that, though governments do not interfere, sentiments in their development will be very greatly determined by accidental causes. Now, there are some people, among whom I must suppose that my reader is to be found, who, when they see that any belief of theirs is determined by any circumstance extraneous to the facts, will from that moment not merely admit in words that that belief is doubtful, but will experience a real doubt of it, so that it ceases in some degree at least to be a belief.

To satisfy our doubts, therefore, it is necessary that a method should be found by which our beliefs may be determined by nothing human, but by some external permanency – by something upon which our thinking has no effect. Some mystics imagine that they have such a method in a private inspiration from on high. But that is only a form of the method of tenacity, in which the conception of truth as something public is not yet developed. Our external permanency would not be external, in our sense, if it was restricted in its influence to one individual. It must be something which affects, or might affect, every man. And, though these affections are necessarily as various as are individual conditions, yet the method must be such that the ultimate conclusion of every man shall be the same. Such is the method of science. Its fundamental hypothesis, restated in more familiar language, is this: There are Real things, whose characters are entirely independent of our opinions about them; those Reals affect our senses according to regular laws, and, though

contrary, itself involves the application of the method. Hence it is that bad reasoning as well as good reasoning is possible; and this fact is the foundation of the practical side of logic.

It is not to be supposed that the first three methods of settling opinion present no advantage whatever over the scientific method. On the contrary, each has some peculiar convenience of its own. The *a priori* method is distinguished for its comfortable conclusions. It is the nature of the process to adopt whatever belief we are inclined to, and there are certain flatteries to the vanity of man which we all believe by nature, until we are awakened from our pleasing dream by rough facts. The method of authority will always govern the mass of mankind; and those who wield the various forms of organized force in the state will never be convinced that dangerous reasoning ought not to be suppressed in some way. If liberty of speech is to be untrammelled from the grosser forms of constraint, then uniformity of opinion will be secured by a moral terrorism to which the respectability of society will give its thorough approval. Following the method of authority is the path of peace. Certain nonconformities are permitted; certain others (considered unsafe) are forbidden. These are different in different countries and in different ages; but, wherever you are, let it be known that you seriously hold a tabooed belief, and you may be perfectly sure of being treated with a cruelty less brutal but more refined than hunting you like a wolf. Thus, the greatest intellectual benefactors of mankind have never dared, and dare not now, to utter the whole of their thought and thus a shade of *prima facie* doubt is cast upon every proposition which is considered essential to the security of society. Singularly enough, the persecution does not all come from without; but a man torments himself and is oftentimes most distressed at finding himself believing propositions which he has been brought up to regard with aversion. The peaceful and sympathetic man will, therefore, find it hard to resist the temptation to submit his opinions to authority. But most of all I admire the method of tenacity for its strength, simplicity, and directness. Men who pursue it are distinguished for their decision of character, which becomes very easy with such a mental rule. They do not waste time in trying to make up their minds what they want, but, fastening like lightning upon whatever alternative comes first, they hold it to the end, whatever happens, without an instant's irresolution. This is one of the splendid qualities which generally accompany brilliant, unlasting success. It is impossible not to envy the man who can dismiss reason, although we know how it must turn out at last.

Such are the advantages which the other methods of settling opinion have over scientific investigation. A man should consider well of them; and then he should consider that, after all, he wishes his opinions to coincide with the fact, and that there is no reason why the results of those three first methods should do so. To bring about this effect is the prerogative of the method of science. Upon such considerations he has to make his choice – a choice which is far more than the adoption of any intellectual opinion, which is one of the ruling decisions of his life, to which, when once made, he is bound to adhere. The force of habit will sometimes cause a man to hold on to old beliefs, after he is in a condition to see that they have no sound basis. But reflection upon the state of the case will overcome these habits, and he ought to allow reflection its full weight. People sometimes shrink from doing this, having an idea that beliefs are wholesome which they cannot help feeling rest on nothing. But let such persons suppose an analogous though different case from

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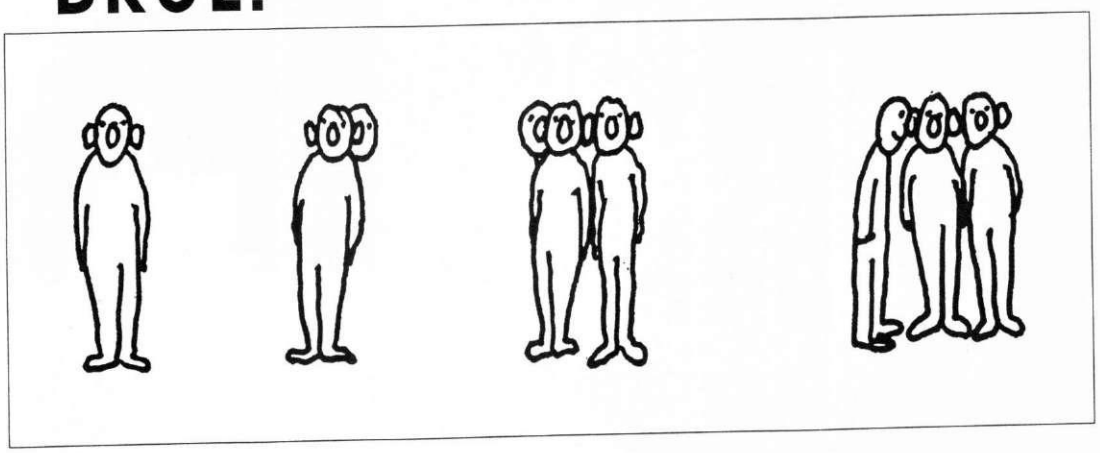

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