

PEIRCE'S TEN CLASSES OF SIGNS: MODELING BIOSEMIOTIC PROCESSES AND SYSTEMS

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Introduction

Few semioticians have approached Peirce's extended typologies of signs (10 and 66 classes of signs), developed from 1903, which still seems obscure, structurally intricate and hard to apply to empirical phenomena. To make things worse, there remains a tendency to think that the extended typologies are extravagant and unproductive conceptual tools. My argument here suggests something different. Such classifications should be considered as an important advancement with respect to the task of empirically modeling the morphological variety of signs, and they constitute one of the most important topics of Peirce's mature semiotics.¹ My main assumption here is simple: the morphological space of semiotic events and processes in which biosemiotic systems are embedded always include intermediary and mixed classes of signs (e.g., proto-symbols).

¹ For an introduction to Peirce's extended classifications of signs, see Savan (1988), Liszka (1996), Parker (1998), Houser (2010); on the classes and its compositions, Weiss, Burks (1945), Lieb (1977), Sanders (1970), Müller (1994); on the theoretical aspects involved in this issue, Savan (1977), Tursman (1987), Short (2007); on its genealogy, Freadman (2001, 2004); on its structural organization, Marty (1982), Jappy (1989), Balat (1990), Houser (1991), Merrell (1996), Serson (1997), Farias, Queiroz (2000, 2003, 2004), Hoffman (2001); on the modeling of semiotic phenomena see Hilpinen (1992), Houser (1992), Queiroz (in press).

If correct, any Peircean based tentative of classifying biosemiotic processes should consider the extended typologies of signs, according to which several aspects of the sign-object-interpretant (S-O-I) relation are described.

Peirce's speculative grammar: Ten classes of signs

Peirce's semiotics is subdivided into speculative grammar, critical logic, and speculative rhetoric (CP 2.229). The first division of this science is the branch that investigates the conditions to which any and every kind of sign must be submitted, the sign itself, and its true nature (CP 1.444). As one of its tasks, speculative grammar elaborates on the classifications of signs. The morphological variety of semiotic processes is usually reduced to three (non-exclusive and hierarchically organized) classes of signs based on sign-object relation (icon, index, symbol). In order to more accurately describe minimally complex semiotic phenomena, Peirce developed several classifications of signs (10 and 66 classes) based on several trichotomies (see EP 2: 289–299 and 478–491). The consequence is an enormous accuracy of the relations observed within semiosis (S-O-I). The trichotomies are aspects according to which semiosis is observed and can be translated to questions (cf. Houser 1991).

In order to understand the design of the ten classes of signs, three questions might be formulated: (i) "What is the relation of the sign with itself?", 1st trichotomy; (ii) "What is the relation between the sign and its object?", 2nd trichotomy; (iii) "What is the relation between the sign and its object for its interpretant?", 3rd trichotomy. For each question there are three kinds of relations as an answer. For the first trichotomy we have at first a "monadic relation answer". In this case, this relation is described as a qualisign, which is designated by the integer 1 – it "is any quality in so far as it is a sign" (CP 2.254). If the answer is a dyadic relation, 2, it is a sinsign, which "is an actual existent thing or event which is a sign" (CP 2.245); if it is triadic, it is a legisign, 3, which is "a law that is a Sign" (CP 2.246). The second and the third trichotomies

are described, respectively by: icon (1), index (2) and symbol (3); rheme (1), dicent (2) and argument (3). A rheme is “a Sign which, for its Interpretant, is a Sign of qualitative Possibility, that is, is understood as representing such and such a kind of possible Object” (CP 2.250); a “Dicent Sign is a Sign, which, for its Interpretant, is a Sign of actual existence” (CP 2.251); “An Argument is a Sign which, for its Interpretant, is a Sign of law” (CP 2.252).

The results of the trichotomic questions (Table 1) may be combined, building up a system of cross-relations (Fig. 1; see Freadman 2004). The kind of relation that answers the first question *qualifies* (cf. Savan 1988: 14) the second, which *qualifies* the third. A class of sign can be described as a *complex* of relations based on the notion of *logical constraints* (cf. *praecisio*) operating between the categories (monadic, dyadic, triadic relations) (see Farias, Queiroz 2000).

Table 1. Three trichotomies and three kinds of relation (see CP 2.243).

	1st Trichotomy	2nd Trichotomy	3rd Trichotomy
Monadic relation	QUALISIGN in itself, the sign is of the nature of appearance.	ICON a sign which refers to the object merely by virtue of characters of its own (CP 2,247).	RHEME a sign which, for its Interpretant, is a Sign of possibility.
Dyadic relation	SINSIGN in itself, the sign is of the nature of an individual object or fact.	INDEX a sign which refers to the object by virtue of some existential relation.	DICENT a sign which, for its Interpretant, is a Sign of actual existence.
Triadic relation	LEGISIGN in itself, the sign is of the nature of a general type (CP 8,334).	SYMBOL a sign which refers to the object by virtue of some kind of convention.	ARGUMENT a sign which, for its Interpretant, is a Sign of law (CP 2,252).

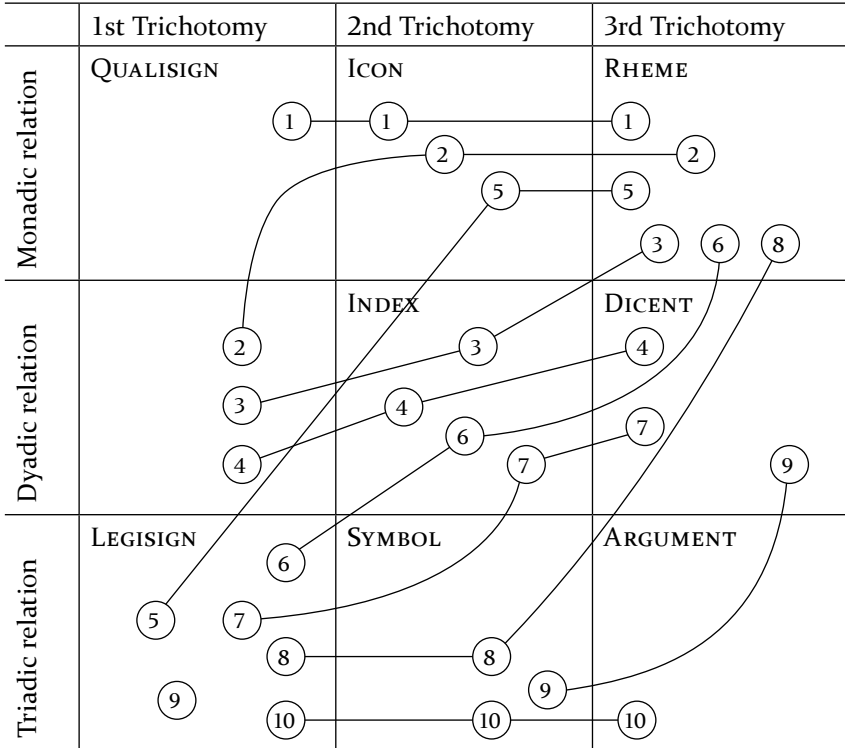


Figure 1. The 10 classes of signs as a system of cross-relational classes. The paths correspond to the possible compounds of relations (figure based on ‘Table 1’, Merrell 1996: 8).

The cross-relations that satisfy the *constraints* are: (1) 111: a Qualisign is a quality “in so far as it is a sign”; its object is interpreted as being of the same nature – “a feeling of red” (CP 2.254); (2) 211: an Iconic Sinsign is a sign-event interpreted as possibly (rheme) standing for its object (icon) – “an individual diagram” (CP 2.255); (3) 221: a Rhematic Indexical Sinsign, is a sign-event interpreted as possibly standing for another event (index) – “a spontaneous cry” (CP 2.256); (4) 222: a Dicent Sinsign is a sign-event interpreted as spatio-temporally standing for another event (index) – “a weather-cock” (CP 2.257); (5) 311: an Iconic Legisign is a *type*, or a law, a “regularity of the indefinite future” (CP 2.293), interpreted as possibly

standing for its object (icon) – “a diagram, apart from its factual individuality” (CP 2.258); (6) 321: a Rhematic Indexical Legisign is a *type* interpreted as possibly standing for its object (another event) – “a demonstrative pronoun” (CP 2.259); (7) 322: a Dicent Indexical Legisign is a *type* interpreted as spatio-temporally reacting with its object (another event) – “a street cry” (CP 2.260); (8) 331: a Rhematic Symbol is a *type* interpreted as possibly standing for its object (law) – “a common noun” (CP 2.261); (9) 332: a Dicent Symbol is a *type* interpreted as physically standing for its object (law) – an “ordinary Proposition” (CP 2.262); (10) 333: an Argument is a *type* interpreted as semiotically standing for its object (law) (CP 2.263).

According to this typology, there are three classes of symbols called rhemes, dicents and arguments. A symbol is a general *type* (1st trichotomy) and its object can only be general (2nd trichotomy). But symbols can also be interpreted as “qualities” or “events” (3rd trichotomy). There are many examples of rhematic symbols. In natural languages, the onomatopoetic words are good examples of symbolic analogical signs. They are dependent on the properties (e.g. phonetic, prosodic) interpreted as shared by signs and objects. For Peirce, “many words, though strictly symbols, are so far iconic that they are apt to determine iconic interpretants, or as we say, call up lively images” (NEM 4: 243). Other symbols are interpreted as “existents”, or dicent signs (CP 2.262) – “A Dicent Sign is a sign, which, for its Interpretant, is a Sign of actual existence” (EP 2: 292). I have argued (against the idea that symbols are uniquely human) that alarm-calls such as those used by African vervet monkeys (*Cercopithecus aethiops*), satisfy Peirce’s formal definition of dicent symbol (see Queiroz, in press; Ribeiro et al. 2007; Queiroz, Ribeiro 2002). Alarm calls vocalized by vervet monkeys are signs of classes or types of objects that exist in the real world. These signs are symbols interpreted as indices of the presence of the predator. Alarm-calls are dicent symbols, for the object of a dicent symbol is a general interpreted as an existent. If symbols can be analyzed in three subclasses, only one, termed argument, possesses meta-semiotic properties. Arguments are genuine symbols, types interpreted as generals – “An *Argument* is a Sign which, for its Interpretant, is a

sign of law. Or we may say [...] that an Argument is a Sign which is understood to represent its Object in its character as Sign” (EP 2: 292).

The importance of this classification must be emphasized. Semiosis exhibits a rich variety of morphological patterns. The morphological space of semiotic processes in which biosemiotic systems are embedded include proto-symbols and variations of indexical signs, beside symbolic and iconic processes. And there is no way to describe these processes with some accuracy examining only the sign-object relationship. Peircean mature typologies provide a detailed description of several inter-related aspects involved in semiosis including the intrinsic nature of signs and the effect on the semiotic agents. According to the ten classes, a sign is grounded in some property, event, or regular pattern, by virtue of which it stands for some quality, occurrence, or law to a third element, an interpretation of possibility, physical connection or rule based tendency (W 1: 332–333).

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