SIGN. Widely understood as the primary concept of semiotics, the notion of sign is easy to understand informally, building on the word's everyday usage. Looking for a common denominator, we might say, following a medieval formula, that a sign is something that stands for something else. This trivial definition, however, is quickly shown to be circular. One of the main challenges of semiotics is to develop a formal definition of sign that is informative and also intuitively satisfying. Various doctrines of semiotics attempt to meet this challenge differently and are built from fundamentally contrasted and, in some cases, even irreconcilable notions of sign. A survey of approaches to understanding the word sign by exemplification or by definition must have as its first priority a display of the problems rather than a synthesis of their solutions.

In ordinary language, a number of nouns and verbs are more or less synonymous with sign and, in their effects, with sign functions: for example, the terms symbol, name, signal, and representation and the functions "to signify," "to mean," "to refer to," and "to indicate." While particular academic theories specialize their usage of some or all of these terms, there is no common agreement in scholarly discourse that differentiates them systematically. The fundamental problem of the concept of sign does not lie in distinguishing these terms from each other but in specifying what, if anything, they have in common. Therefore, we can take the word sign in what follows to represent the class of words with which it is extensively synonymous.

There is certainly no consensus that a single unified idea of sign makes good sense (even among philosophers who do not denigrate general abstract concepts as a matter of course). At one extreme, Charles Ogden and Ivor Richards's study (1923) concludes that the idea encompasses at least sixteen independent notions. On the other hand, much of Charles Sanders Peirce's work aims at elucidating a core of common principles among the most diverse types of sign. The difference represented by these extreme views is fundamental but not a point of very active academic controversy at present, as their proponents align with separate schools (and thus publish in different journals and attend different meetings). An interest in semiotics as a declared affiliation tends to connote a sympathy for a unified concept.

The technical usage of sign in semiotics is generally more comprehensive than the popular usage. In scholarly writing, the term sign might include, for example, words, sentences, marks on paper that represent words or sentences, computer programs (hard-wired, electronically recorded, or written out), pictures, diagrams, graphs, chemical and physical formulas, fingerprints, ideas, concepts, mental images, sensations, money, postures and gestures, manners and customs, costumes, rules and values, the orienting dance of the honeybee, avian display, fishing lures, DNA, objects made of other signs (including poetry and fiction, even if not considered to "stand for something else"), and also nonrepresentational objects (perhaps in music or mathematics) that have types of structure characteristic of other signs. Furthermore, while all these items affiliate with the idea of sign in that their primary functions concern knowledge, information, or communication, nearly any object can possess signification secondarily by context or aesthetic design: architecture, automobiles, and home furnishings, and any gift or souvenir, for example.

By contrast, a general characteristic of common usage is to elide the concept of sign where its circumstances are the most frequent and transparent. Thus, in commonplace, naive usage, we speak of "sign language" for the deaf but do not use that term for routine oral speech, as the semiotician does. In popular parlance, a totem pole is a sign, but the words totem or pole or totem pole (all of which are signs from the technical standpoint of semiotics) are not. One speaks of an addition sign or a square-root sign but not of 2 as a "two sign." Asked to name a half dozen of the most usual traffic signs, an unprompted respondent is unlikely to include in his or her list the yellow lines often painted in the middle of the road. The inconsistencies of common speech in this regard are easy to grasp, and this disposition toward generalization is itself initial evidence of a coherent concept beneath the surface of common usage.
Nevertheless, this coherent concept is not easy to elicit. Usages such as the English *sign* have parallels but certainly not exact homologues in other languages (for example, English uses *sign* and French uses *enseigne*). Standard dictionary definitions are mere compilations, listing several different senses of the word. The technical approach emerges from an attempt to get at the unity.

The scholastic dictum might introduce some recurrent problems in the formal elaboration of the concept of sign. In the definition “aliquid [stat] pro aliquo” (“something [that stands] for something else”), the preposition is evasive. The notion of substitution is frequently invoked, and some signs can be understood this way—for example, the ritual bread and wine of Catholic communion, which take the place of the flesh and blood of Christ. Similarly, the approval of a blueprint partially substitutes for the inspection of a house. But in general, a sign is not automatically permitted to substitute for its object. In most cases, *pro* simply means “means” or “represents” and thus renders the definition circular.

A more elaborate definition that is often attributed to Augustine of Hippo but is likely older, explains the sign as “something which besides manifesting itself to the senses also indicates to the mind something beyond itself.” The insufficiencies of this definition illustrate further theoretical watersheds in the conception of sign. One problem here is the status of thoughts, ideas, mental images, and concepts as signs. These entities certainly partake of a representational function but do not manifest themselves to the senses, at least in our usual frame of reference. The deep circularity of this definition resides in its recourse to a presupposed notion of mind, for the idea of mind seems impossible to establish without referring to signs, if not literally, then by invoking a collection of concepts (images, knowledge, etc.) that presuppose an idea of representation like that of signs. Furthermore, the term *indicates* is ambiguous here. Certainly, physical transportation (“brings to mind”) is not proposed. We might interpret *indicates* as “to cause a transfer of attention.” The formula then identifies signs by their control of a succession of thoughts or images. However, the thought control envisioned is typically learned, not innate, being embodied in a rule (e.g., a definition) that is itself another sign or sign complex, effective only insofar as it asserts meaning. Analyzed this way, *indicates* is merely another synonym for *means* or *signifies*, and again the definition is ultimately circular.

In the twentieth century, doctrinal progress in developing the concept of sign has hinged on two points: establishing that a sign is a relation, and taking account of the asymmetry or nonequivalence of the related entities. With regard to the relational conception of the sign, stimulus for work in very different directions emerged in linguistics, mathematical logic, and philosophy.

Ferdinand de Saussure’s general linguistics broached the possibility of describing sign systems as autonomous structures. In his scheme and in its further elaborations by others the sign can be understood as a correlation of differences. Saussure’s terms *signifié* and *signifiant*, for which the awkward English equivalents *signifier* and *signified* are now consensually employed, indicate two faces of the sign. In the case of a word, for example, the signifier is a sound structure determined not by the immediate sound of a particular pronunciation in a naive material sense but by its identifying features of similarity to and difference from other sound structures in its language. The signified is a comparable meaning complex, determined not by the immediate burden of a particular usage but again by patterns of equivalence and contrast the one word has established with other words in its language. In Louis Hjelmslev’s theoretical system, which pursues the direction set by Saussure, the key corresponding terms (though they take a different nuance) are *expression* for the signifier and *content* for the signified. Hjelmslev’s *Prolegomena to a Theory of Language* (1943), with its elegant and dramatic axiomatic method, signaled the prospect of a description of signs that makes no reference to an external context or “real world”; the sign is accounted for solely as a relation inside an autonomous system. The mode of thought arising in this vein, which finds sympathy in economics and sociology as well as in linguistics, gave rise to structuralism.

The opposite tack in analyzing the concept of sign is to take its dependence on a real context of use as its central fact. In this perspective, which inspired an elaborate Latin-language philosophical development as well as much contemporary investigation, the point of departure is the nonequivalence of a designated object with the image of it conveyed by its sign. There are many ways to picture this nonequivalence according to the relative roles ascribed to mental and nonmental elements of the total sign situation. The
Gottlob Frege invented a method of investigating the relationships in such a triangle through mathematical modeling. His terms for the three parts of the sign are Zeichen, Sinn, and Bedeutung. His study proceeded through a meticulous and mathematically strict analysis of synonymy and in a novel manner linked the logic of representation to truth relations. His work deeply influenced Rudolf Carnap and Bertrand Russell, among others, and set directions in analytical philosophy. However, the positivist thrust of these researches has tended to deflect effort and attention from a development of a broad conception of sign in favor of a very critical examination of particular mathematical or linguistic cases in which a global sense of sign is not at issue.

With respect to the analysis of sign vis-à-vis a real world rather than systemic (e.g., linguistic) context, Peirce left the richest legacy of ideas, though the degree to which he made his ideas coherent is a matter of controversy. His work was propelled by the at least partially conflicting energies of his genius for practical science, logical abstraction, and the analysis of introspective experience. In evidence of this, his writings include some three dozen different definitions of sign. It is not always clear which of these are the drafts and which are more developed. His prosaic description of the sign as “something which stands for something to somebody in some respect or capacity” seems scarcely related to his definition, “A Sign or Representation, 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 latter definition presumes an understanding of Peirce’s system of phenomenological and ontological categories, for which his theory of semiotics was the linchpin linking them to epistemology. In Peirce’s philosophy, the category of sign is implicated in all aspects of the universe that manifest pattern or continuity. An implication of his definition of the sign that proves fundamental to the whole of his system is that the defining characteristic of signs is their capacity to determine additional signs. In this tripartite scheme, the different possible relations among the three components of the sign generate an extensive system of sign taxonomy. The subsequent classification of signs as indexes, icons, and symbols according to the relationship between the representamen and the object has been widely adopted in semiotic literature. Peirce demonstrated to his own satisfaction that four-, five- and higher-part relations could be generated from three-part relations but not from two-part relations. In consequence, he was interested in construing the sign formally only as characterized by three-part relations. The first of his definitions quoted above has four terms, not three, so this alerts us that the second formula is the building block of a complex rather than a full description. His own elaborations, which allow for (as a minimum) two aspects of the object and three of the interpretant, follow suit.

For Peirce, it was of paramount importance to maintain the reality of both the mental and extra-mental worlds, and he relied on his theory of semiotics to connect them, suggesting that every sign was a bit of mind. The decades following his work witnessed a widespread interest in accounting for the world without reference to mentality and in reducing mind to behavior. Charles Morris developed a semiotic philosophy that, while founded on Peirce’s work, transformed it into a behaviorist model. His explanation of the sign process (1964) reveals his commitment to excluding any entailment of mentality in how he formulates a notion of sign in terms of stimulus and response. As he later described it, “semiosis (or sign process) is regarded as a five-term relation—v, w, x, y, z—in which v sets up in w the disposition to react in a certain kind of way, x, to a certain kind of object, y (not then acting as a stimulus), under certain conditions, z” (1971, pp. 401-402). While Morris’s intention is to achieve greater precision, the result is the opposite, with a loss of both clarity of principle and motivation. The adjective certain hides all the real problems. Russell, who was strongly attracted to this mode of theorizing and formulated a very similar definition, was nevertheless aware of its inadequacy. The idea of sign seems to lose its essential function and its boundaries when its role in establishing the reality of mind is denied.

Aside from the central question of whether or not sign can be construed as a unified, nontrivial category, and aside from major differences of theoretical allegiance to Saussurean, Peircean, behavioral, and other traditions of thought, the literature of semiotics
expresses other particular disagreements about the appropriate way to construct the idea of sign. These differences are indicated here by example but not comprehensively. The notion of sign is regarded by some authors as virtually limitless in scope, while other restrict their formal use of the term to signs as used in human thought, and still others to signs that have a distinctly arbitrary or conventional component. The hierarchical range of sign is also an issue: we might speak of a word, a sentence, a paragraph, a book, or a whole culture as a sign, or we might restrict the term to a portion of that series. At one end of the scale, for the smallest components, such as the distinctive features of linguistic phonemes, Hjelmslev proposed the term *figurae*, distinguishing these elements as less than full-fledged signs because they are incapable of independent reference. The opposing view (advanced by Roman Jakobson, among others) is that these least components are still signs and refer to “difference.” At the other end of the scale, where large sign complexes are involved, the term *text* is frequently preferred, but recent discourse, especially in literary criticism, has tended to oppose text to sign on the basis of polysemy rather than material size, so that a single word might be viewed as a text when its usage is sufficiently charged with multidimensional reference. The problem of typology, though not a particular focus of current debate, is another for which no consensual resolution has gained sway, and it is complicated by our increasing sensitivity to differences among media and sensory channels. Finally, the place of the concept of sign within the whole doctrinal apparatus of semiotics is not a matter of universal agreement; many see it as a less-central fulcrum than sign function, semiosis, or text.

Does semiotic theory even require a definition of sign? It is a commonplace that sciences require primitive terms that they do not define. Physics does not define *matter*, nor biology *life*, nor psychology *mind*; but two objections arise immediately to offering semiotics this easy way out. First, the philosophies of the other sciences do tackle these issues, and semiotics is a philosophical field with comparable responsibilities. Second, in the experimental sciences there are always explicit principles of interpretation that permit research to determine whether or not its undefined objects are present or absent. The biologist or physicist knows how to tell if life or matter is present. In the case of semiotics, such a test returns us to the problem of definition and the ongoing dialectic of exemplification and delineation that achieves no axiomatic basis.

*[See also Augustine of Hippo; Frege; Hjelmslev; Medieval Semiotics; Peirce; Saussure; Semiosis, Semiotic Terminology; and Signification.]*

**BIBLIOGRAPHY**


—David Lidov

**SIGNAL.** While generally conceived of as a sign that conveys information, a signal in the biological sense usually refers to those signs that convey information that incite a recipient to action. A signal can be morphological or physiological and can involve the direct transference of information through, for instance, acoustic or chemical productions; in insects, certain macromolecules known as “pheromones” are highly significant, but many animal signals also involve behavior. The “dance” by which honeybees convey to their nest mates information regarding a source of food is a classic example.

It is thought that many, probably most, signals have evolved for some other reason and have been turned adaptively to information transmission only as a secondary function. This is surely the case of those mating practices of birds that involve preening...