Charles Sanders Peirce, Pathfinder in Linguistics

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Abstract:

Charles Sanders Peirce (1839-1914) was a polymath who made significant contributions to many fields of study, from phenomenology to astronomy and from physics to metaphysics. In his writings of some 12,000 pages published, and some 90,000 manuscript pages still unpublished during his lifetime, language and linguistics are among the recurrent topics. In fact, the second paper in the chronology of Peirce's professional writings was on the pronunciation of Shakespearean English (MS 1184). However, Peirce's papers on language as well as his other linguistic insights have remained mostly unexplored until today, although there has been a growing influence of Peirce's general semiotics in contemporary linguistics.

Keywords: Language, Words, Syntax (Grammar), Semantics, Linguistics, Pragmatics

1. Peirce on Language and Peircean Linguistics

Although Peirce had "no pretension to being a linguist" (CP 2.328), the *Annotated Catalogue* of his publications and manuscripts lists no less than 127 papers classified as 'linguistic' and contains references to many other manuscripts dealing with language (MSs 1135-1261 [in Robin, 1967, p.133-142] and, e.g., also MS 427). The topics range from phonetics, graphemics, morphology, grammar, lexicography, semantics, translation studies, from historical and evolutionary linguistics to general and comparative linguistics. Peirce wrote papers dealing with aspects of Greek, Latin, German, Italian, Spanish, French, Basque (MS 1226-1247), and there is even a manuscript for an Arabic grammar (MS 1243; Deledalle-Rhodes, 1979). For a first survey on Peirce as a linguists see Rauch (1999, p.61-72). Some aspect of Peice's theory of grammar are discussed in Hilpinen (1995) and Thibaud (1997). For Peirce as a translator and a critic of translations (see MS 1514-1520), in particular from German, see Deledalle-Rhodes (1996). An outline of Peirce's philosophy of language is Pape (1996).

Today, most linguists seem to know Charles Sanders Peirce better as the founder of general semiotics than as a writer on language in the narrower sense. In fact, the growing influence of Peircean ideas in the fields of cognitive linguistics, diachronic linguistics, linguistic semantics and pragmatics, and text linguistics is largely due to general semiotic insights which linguist have derived from Peirce (see, e.g., Ransdell, 1980; Wirth, 1983; Gorlée, 1994; Réthoré, 1994).

The relevance of Peirce's semiotics to language studies was first discovered by Roman Jakobson, who made reference to the founder of modern semiotics in a series of papers since the 1960s (cf. Nöth, 2000, p.60, 327). In 1977, Jakobson called Peirce a "pathfinder in the science of language" and "a bold forerunner of structural linguistics." While Jakobson (1977) was right in his evaluation of Peirce's importance to the future of linguistics, his characterization of Peirce as a stucturalist seems inappropriate today. On the contrary, the rise of Peirce in linguistics is closely associated with the decline of structural linguistics. Peirce's semiotic theory of language is based on principles quite different from the ones established in the tradition of Saussure's structuralism (see, e.g., Deledalle, 1979; Colapietro, 1991, and Liszka 1996). Instead of considering language as a closed system of immanent structures, Peirce focuses on language as a sign process (semiosis) in the context of cognition and communication

There are two major areas of research in the poststructuralist paradigm of linguistics which have their foundation in Peircean semiotics: iconicity in language (phonology, morphology, syntax, and texts; Nöth 1990, 1999, 2000a) and language change (Shapiro, 1991, 1995; Short, 1999). In both areas, Peirce did not do any linguistic research himself, but it was his general theory of sign processes which served as a foundation to linguists working in these domains of language study. The present paper cannot discuss in detail the state of the art of language studies influenced by Peirce (but see Nöth, 2000, pp.59-70, pp.327-328, for a survey), since its focus must be restricted to Peirce's own writings on language.

2. Phonetics and Graphemics

One of Peirce's special fields of linguistic interest was the spelling of English in relation to its pronunciation (MSs 1178-1207), i.e., the "graphical symbolization of phonetic elements" (MS 1206). His "Apology for Modern English" focuses on the differences between spoken and written English. Several other papers examine the rules for phoneme-grapheme correspondences in English or the rules for doubling letters representing English consonants. However, Peirce did not restrict himself to descriptive studies of English orthography, but was also a critic of the English spelling conventions. He discussed "disputed" spellings and "misspellings," and he even elaborated a proposal to simplify English spelling (MS 1204).

Peirce's great interest in the study of writing is not only apparent in his papers on English orthography and in two manuscripts with notes Egyptian hieroglyphs (MS 1227-28), but also in a practical experiment for the creation of a unique method of iconic

handwriting, which he dubbed "Art Chirography" (MS 1539; photographic reproduction in Brent, 1993, p.329). Winner (1994, p.282) describes this manuscript of 6 pages as follows: "It reproduces, in several versions, the beginning of Poe's 'Raven' in which Peirce's handwriting contains strange curlicues and lines, enlargements of the verticals and horizontals of letters, and lines seemingly combining different contiguous and noncontiguous lines of the stanza. [...] They apparently represent Peirce's attempt at representing the phonic-semantic knot, that mysterious junction between sound and meaning that forever seemed to elude him, by pictorial representation."

3. Lexicography

Lexicography and lexical semantics are two further major areas to which Peirce dedicated various original studies, both in the domains of specialized scientific terminology and of everyday language.

Peirce was not only an author of numerous articles on technical and philosophical terms, which he wrote for publication in encyclopedic dictionaries (MS 1145ff.), but in his "Ethics of Terminology" (CP 2.219-226), he also developed guidelines for the use and against the abuse of scientific terms (Ketner 1981; Oehler 1981; Weinsheimer 1996). In contrast to the semantics of everyday language, where every word is a "living thing," whose form changes slowly, while "its meaning inevitably grows, incorporates new elements, and throws off old ones [...], the essence of every scientific term should be unchanged and exact, although absolute exactitude is not so much as conceivable" (CP 2.222). In order to avoid misinterpretation, new scientific terms should therefore have a form that prevents confusion with the meaning of other existing words, even if this form may sound unusual. The ethics of terminology requires that the meaning of a technical term introduced by a particular author for a special purpose should be respected, for "whoever deliberately uses a word or other symbol in any other sense than that which was conferred upon it by its sole rightful creator commits a shameful offence against the inventor of the symbol and against science" (CP 2.224).

However, Peirce's theory of special language is not only founded in ethics and an appeal to having respect for intellectual copyright. Nor is Peirce's appeal to terminological precision and clarity of expression primarily motivated by considerations of stylistics. There is a deeper semiotic foundation to it, namely the principle of the unity between words and ideas, signs and thought, language and cognition (cf. Dewey, 1946, p.92). Language is not secondary to cognition, words are not secondary to, or otherwise independent from, the ideas which they express, "since it is wrong to say that a good

language is important to good thought, merely; for it is the essence of it" (CP 2.220).

Peirce was also a critic of practical lexicography, and he wrote several comments on dictionaries published in his time, among them a paper on "Omissions and Errors of Oxford Dictionary" (MS 1157-1162). An original contribution to the field of practical lexicography was Peirce's draft for a "Classification of Ideas and Words" which was to serve "the double purpose of replacing Roget's *Thesaurus* and of providing an all-in-one encyclopedia" (MS 1135). A "Scientific Book of Synonyms" and a "Little Dictionary of Choice English Words" were two further projects in the lexicography of everyday English pursued by Peirce (MS 1136-1143). In particular, Peirce took much interest in the semantic fields of color words, words designating luminosity and numerals (MSs 1137, 1152-55, 12478-1251).

4. Morphemes and Words

Several manuscripts on prefixes and suffixes (MSs 1207-1213), among them a long study on "The principal suffixes and their effect upon a final consonant following a single vowel," testify to Peirce's competence in English morphology and morphophonemics. His insights into the nature of words, by contrast, pertain rather to general linguistics.

A Peircean distinction which has meanwhile become part of the general terminology of linguistics and which is in particular indispensable to statistical linguistics is the one between the word as a *type* and as a *token* (or *replica*; CP 2.292, 4.447, 4.537, 8.334; Fisch 1986, p.357; Pape 1996, p.313). As a type, a word is an element of the language system, as a token, it is an individual occurrence in language use. The word *it*, e.g., exists only once as a type in the English language. As a token in a given printed or spoken text, it exist as many times as it appears in printing or in speech. In contrast to the structuralists, who would account for this opposition in terms of system (*langue*) and its individual use (*parole*), Peirce defines this relationship as one of the determination of an individual occurrence of a word by "a habit or acquired law" (CP 2.292). Only the word as a token comes into existence (in use), whereas the word as a type "does not exist, [but] only determines things that do exist" (CP 4.537). The word *man*, e.g., "is not an existence at all. The word does not consist of three films of ink. If the word 'man' occurs hundreds of times in a book of which myriads of copies are printed, all those millions of triplets of patches of ink are embodiments of one and the same word. I call each of those embodiments a *replica* of the symbol. This shows that the word is not a thing. What is its nature? It consists in the really working general rule that three such

patches seen by a person who knows English will effect his conduct and thoughts according to a rule" (CP 4.447).

Words, according to Peirce, cannot be considered the primary constituents of language. They are only fragments of situations of language use, of propositions and of arguments (Pape, 1996, p.321). The word belongs to the category of the *rheme*, which is a sign of a mere "qualitative possibility" (CP 2.252). As such, it is always indefinite and vague, neither true nor false, and it asserts nothing (Liszka, 1996, p.40-41). Such are the features which account for the "impotence of mere words" (CP 3.419).

5. Word Categories

Peirce was particularly interested in the theory of word categories and developed some original ideas concerning the nature of common nouns, proper nouns, pronouns, verbs, and prepositions (cf. Rauch, 1999, p.67-69). His general approach to the theory of word categories is a semantic (or logical) and not syntactic one. The most fundamental classification of words is into two classes: "words which denominate things […], and such words are proper names, and words which signify, or *mean*, qualities […], and such words are verbs or portions of verbs, such as adjectives, common nouns, etc." (CP 4.157).

With arguments from general and comparative linguistics, Peirce defends the thesis that only *proper nouns* and not *common nouns* are universal categories of language (CP 2.328, 2.287 fn., 3.440, 3.459, 4.56, 4.151, 7.385 fn., 8.337). The reason for this assessment is the "impotence" (CP 3.419) of a mere common noun to evince reference by itself, without an indexical expression to specify it (cf. Hilpinen 1995). The word *donation*, e.g., "is indefinite as to who makes the gift, what he gives, and to whom he gives it" (CP 4.543). Hence, in contrast to proper nouns, which always have a specific referential object, common nouns are referentially open in the same way as verbs and adjectives are. Therefore, "proper nouns must exist in all languages; and so must such 'pronouns,' or indicative words as *this*, *that*, *something*, *anything*. But it is probably true that in the great majority of the tongues of men, distinctive common nouns either do not exist or are exceptional formations. In their meaning, as they stand in sentences, and in many comparatively wide-studied languages, common nouns are akin to participles, as being mere inflections of the verbs. If a language has a meaning 'is a man,' a noun 'man' becomes a superfluity" (CP 3.459).

While common nouns cannot refer to anything by themselves, pronouns can, and for this reason, Peirce argues that pronouns cannot be derived from, or be secondary to,

common nouns, as traditional grammarians suggested: "There is no reason for saying that *I*, *thou*, *that*, *this*, stand in place of nouns; they indicate things in the directest possible way. It is impossible to express what an assertion refers to except by means of an index. A pronoun is an index. A noun, on the other hand, does not *indicate* the object it denotes; and when a noun is used to show what one is talking about, the experience of the hearer is relied upon to make up for the incapacity of the noun for doing what the pronoun does at once. Thus, a noun is an imperfect substitute for a pronoun. [...] A pronoun ought to be defined as *a word which may indicate anything to which the first and second persons have suitable real connections, by calling the attention of the second person to it*" (CP 2.287 fn). In this context, Peirce criticizes in particular the grammatical term "demonstrative pronoun," calling it "a literally preposterous designation" (CP 3.419). The term is inadequate since it suggests a derivation of demonstratives from nouns. Not 'demonstrative pronouns' should be considered as secondary to nouns, but nouns should be conceived as secondary to demonstratives, "for nouns may more truly be called pro-demonstratives" (ibid.).

6. Syntax

The elementary structure of a sentence, according to Peirce's "pragmatic logic" of the proposition (CP 2.358), consists of a subject and a predicate. In accordance with the medieval tradition, the subject "is that concerning which something is said, the predicate is that which is said of it" (CP 4.41). In terms of linguistic pragmatics, the predicate is a "word that asserts, questions, or commands whatever is intended" (CP 3.419).

In addition to such semantic and pragmatic definitions, Peirce gives a distributional account of the syntactic functions. The *subjec*t is that element of the sentence which can be substituted by a proper noun: "Each part of the proposition which might be replaced by a proper name, and still leave the proposition a proposition is a subject of the proposition" (CP 4.438). Hence, the subject is "everything that can be removed from the predicate" (Peirce, 1977, p.71). This means that the category of the subject, like the one of the argument in modern propositional logic, includes the one of the direct and indirect objects (4.438 fn). From the point of view of a logical grammar, the subject must not be restricted to the noun phrase in the nominative case, as in grammars following the model of Latin and Greek. After all, "even in our relatively small family of Indo-European languages, there are several in which that noun which in Latin, Greek, and the modern European languages is put in the nominative, is put in an oblique case.

Witness the Irish and Gaelic" (CP 2.338). Peirce reminds us that even in the tradition of Latin grammatical theory the category of subject once included the one of the object: "The terminology of the older grammarians was better, who spoke of the subject nominative and the subject accusative. I do not know that they spoke of the subject dative; but in the proposition 'Anthony gave a ring to Cleopatra', Cleopatra is as much a subject of what is meant and expressed as is the ring or Anthony. A proposition, then, has one predicate and any number of subjects" (CP 5.542).

The *predicate* is then that which remains when all elements of the sentence are removed that can be substituted by a proper noun (CP 2.358, 4.438). The distributional discovery procedure for determining the predicate is the following: "If parts of a proposition be erased so as to leave *blanks* in their places, and if these blanks are of such a nature that if each of them be filled by a proper name the result will be a proposition, then the blank form of proposition which was first produced by the erasures is termed a *rheme*" [i.e., a predicate] (CP 2.272). The syntactic function of the predicate is hence to specify the relationship between the subjects, "to represent the form of connection between the different subjects." Ultimately, all predicates can be semantically reduced to the purely relational formula "A is in the relation R to B" (Peirce 1977, p.71).

Peirce's analysis of the predicate follows principles which have since been independently developed in dependency and case grammars in modern linguistics (Nef, 1980). The key to syntactic structure is the predicate and its valency (CP 1.288-292, 3.420-21, 3.469-471, 4.438, 5.469). Predicates can be *monadic* (e.g., "___ is good"), *dyadic* ("___ loves *"), and triadic ("* gives ___ to ___") (CP 4.438). All predicates with more than three subjects can be analyzed as compounds of dyadic or triadic predicates. For example the verb to sell: "Take the quatruple fact that A sells C to B for the price of D. This is a compound of two facts: first, that A makes with C a certain transaction, which we name E; and second that this transaction E is a sale of B for the price of D. Each of these two facts is a triple fact" (CP 1.363).

The syntactic functions of subject and predicate have furthermore a semiotic characterization. While the subject is essentially indexical, the predicate is iconic (Thibaud, 1997, pp.277-279). Peirce's view of the indexical nature of the subject was already apparent in his characterization of it as that element of the sentence which can be substituted by a proper noun. Since the predicate "expresses what is believed" and the subject "expresses of what it is believed" (CP 5.542), there must be an index which directs attention to that which is referred to (cf. CP 2.336). Hence, "the subjects are the indications of the things spoken of" (CP 3.419). They are "either names of objects well

known to the utterer and to the interpreter of the proposition (otherwise he could not interpret it) or they are virtually almost directions how to proceed to gain acquaintance with what is referred to. Thus, in the sentence 'Every man dies,' 'Every man' implies that the interpreter is at liberty to pick out a man and consider the proposition as applying to him. In the proposition 'Anthony gave a ring to Cleopatra,' if the interpreter asks, What ring? The answer is that the indefinite article shows that it is a ring which might have been pointed out to the interpreter if ha had been on the spot" (CP 5.542).

In contrast to the subject which only indicates and thus "communicates by an indirect method of communication" (CP 2.278), the predicate is an icon, and hence "a way of directly communicating an idea" (ibid.). One aspect of its iconicity has to do with its valency. In so far as the predicate determines the structure of the sentence, it functions as "a logical icon aided by conventional rules" (CP 2.280), or it "shows the forms of the synthesis of the elements of thought" (CP 4.544). While the subject, due to its indexicality, establishes a relation with the present, the predicate, due to its iconicity, relates to the past (CP 4.447), since it "is a word or phrase which will call up in the memory or imagination of the interpreter images of things such as he has seen or imagined and may see again. Thus, 'gave' [the predicate in 'A. gave a ring to C.'] conveys its meaning because the interpreter has had many experiences in which gifts were made; and a sort of composite photograph of them appears in his imagination" (CP 5.542). (For the symbolic aspects of syntactic structure see: Thibaud, 1997, pp.279-280).

7. Semantics

Peirce deals with both meaning and reference. Reference pertains to the dimension of the object of the sign and requires the distinction between denotation and extension: "The being determined by its Object [...] is what we call the Denotation of a concept, and the collection which consists of the aggregate of whatever Objects it permits its Interpreter to refer to, is its *Umfang*, its Extension" (1998, p.497).

Meaning in the narrower sense of "the *Signification* of the concept, its *Inhalt*," (ibid.) pertains to Peirce's interpretant of the sign. Peirce gives a semantic and a pragmatic account of the nature of meaning in this sense (for the homologies between both see Short, 1996, pp.516-524). In terms of *semantics*, the meaning of a word is defined in terms of other words. Meaning, in this semantic perspective, is "the translation of a sign into another system of signs" (CP 4.127), or, in other words: "The meaning of a sign is the sign it has to be translated into" (CP 4.132). Such a translation can be intralingual (a synonym, a paraphrase, a definition) or interlingual (as a translation into another

language). It was Jakobson (1977, p.251) who acclaimed this Peircean definition of meaning enthusiastically as "one of the most felicitous, brilliant ideas which general linguistics and semiotics gained from the American thinker," asking: "How many fruitless discussions about mentalism and anti-mentalism would be avoided if one approached the notion of meaning in terms of translation."

Peirce does not postulate the semantic identity of the definiendum, the word whose meaning we wish to define, and the definiens, which is its translation. The definiens can only be a semantic approximation of the definiendum: "The meaning of a representation can be nothing but a representation. In fact, it is nothing but the representation itself conceived as stripped of irrelevant clothing. But this clothing never can be completely stripped off; it is only changed for something more diaphanous" (CP 1.339).

In terms of *pragmatics*, meaning is a relation between the intentions of a sign producer and the effect of the sign on the interpreter. Peirce gives such an account of meaning in his famous pragmatic maxim, which states: "In order to ascertain the meaning of an intellectual conception one should consider what practical consequences might conceivably result by necessity from the truth of that conception; and the sum of these consequences will constitute the entire meaning of the conception" (CP 5.9). From the perspective of the sign producer, meaning comes close to intention. Peirce argues that to *mean* in the sense of 'to intend' is not as remote from the sense of 'to have meaning' as it seems: "We are too apt to think that what one *means* to do and the *meaning* of a word are quite unrelated meanings of the word 'meaning.' [...] In truth the only difference is that when a person *means* to do anything he is in some state in consequence of which the brute reactions between things will be moulded in conformity to the form to which the man's mind is itself moulded, while the meaning of a word really lies in the way in which it might, in a proper position in a proposition believed, tend to mould the conduct of a person into conformity to that to which it is itself moulded" (CP1.343).

8. Pragmatics

Peirce's contributions to linguistic pragmatics have so far remained largely unexplored (Pape 1996, p.316). Long before Austin and Searle, Peirce studied speech acts and their consequences for the speaker and listener (cf. Brock, 1981; Martens, 1981). He shows, e.g., in how far "taking an oath [...] is not mere saying, but is *doing*" (CP 5.546) and that "to assert a proposition is to make oneself responsible for it" (CP 5.543), whereas "conventional utterances, such as 'I am perfectly delighted to see you'" are speech acts

"upon whose falsehood no punishment at all is visited" (CP 5.546). The consequences of lying, denying, or judging, the strategies of questioning, commanding, or teaching, the pragmatic characteristics of fiction, and the strategies of dialogic communication are other topics of Peirce's studies in the theory of speech acts which deserve closer linguistic study (Hilpinen 1995; Thibaud 1997).

References

Brent, J. (1993). *Charles Sanders Peirce: A Life*. Bloomington: Indiana Univ. Press.

Brock, J. E. (1981). Peirce and Searle on assertion. In Ketner, K. L., et al. (Eds.) *Proceedings of the C. S. Peirce Bicentennial International Congress*, (pp. 281-287). Lubbock: Texas Tech Press (=Graduate Studies Texas Tech University 23).

Colapietro, V. M. (1989). Two rival conceptions of the semiological ideal. *Face, 1*, 135-158. São Paulo.

Deledalle, G. (1979). *Théorie et pratique du signe*. Paris: Payot.

Deledalle-Rhodes, J. (1979). Peirce's Arabic grammar. *Ars Semeiotica, 2* , 3: 365-68.

Deledalle-Rhodes, J. (1996). The transposition of the linguistic sign in Peirce's contributions to 'The Nation.' *Transactions of the Charles S. Peirce Society, 32*(4), 668-682.

Dewey, J. (1946). Peirce's theory of linguistic signs, thought, and meaning. *Journal of Philosophy, 43*(4), 85-95.

Fisch, M. H. (1986). *Peirce, Semeiotic, and Pragmatism*. Bloomington: Indiana Univ. Press.

Gorlée, D. L. (1994). *Semiotics and the Problem of Translation with Special Reference to the Semiotics of Charles S. Peirce*. Amsterdam: Radopi.

Hilpinen, R. (1995). Peirce on language and reference. In Ketner, K. L. (ed.) *Peirce and Contemporary Thought*, (pp. 272-303). New York: Fordham Univ. Press

Jakobson, R. (1977). A few remarks on Peirce, pathfinder in the science of language. In Jakobson, R. *Selected Writings* (Vol. 7, pp. 248-253). The Hague: Mouton.

Ketner, K. L. 1981. Peirce's ethics of terminology. *Transactions of the Charles S. Peirce Society, 17*, 328-47.

Liszka, J. J. (1996). *A General Introduction to the Semeiotic of Charles S. Peirce*. Bloomington: Indiana University Press.

Martens, E. (1981). C. S. Peirce on speech acts. In Ketner, K. L., et al. (eds.) *Proceedings of the C. S. Peirce Bicentennial International Congress*, (pp. 289-292). Lubbock: Texas Tech Press (=Graduate Studies Texas Tech University 23).

Nef, F. (1980). Note sur une argumentation de Peirce a propos de la valence verbale. *Langages, 58*, 93-102.

Nöth, W. (1990). The semiotic potential for iconicity in spoken and written language. *Kodikas/Code* 13: 191-209.

Nöth, W. (1999). Peircean semiotics in the study of iconicity in language. *Transactions of the Charles S. Peirce Society* 35, 3: 613-19.

Nöth, W. (2000). *Handbuch der Semiotik* (2nd ed.). Stuttgart: Metzler.

Nöth, W. (2000a). Semiotic foundations of iconicity in language and literature. In Fischer, Olga & Max Nänny (Eds.) *Iconicity in Language and Literature*. Amsterdam: Benjamins.

Oehler, K. (1981). The significance of Peirce's ethics of terminology for contemporary lexicography in semiotics. *Transactions of the Charles S. Peirce Society, 17*, 348-357.

Pape, H. (1996). Charles Sanders Peirce. In Borsche, T. (Ed.). *Klassiker der Sprachphilosophie*, (pp. 307-324). München: Beck.

Peirce, C. S. (1931-1958). *Collected Papers* (Vols. 1-6, C. Hartshorne & P. Weiss, Eds.; Vols. 7-8. A. W. Burks, Ed.). Cambridge, Mass.: Harvard Univ. Press. (Quoted as CP.)

Peirce, C. S. (1963-66). *The Charles S. Peirce Papers*. 30 reels, microfilms edition. Cambridge, Mass.: The Houghton Library, Harvard University Microproductions.

Peirce, C. S. (1977). *Semiotic and Significs: The Correspondence Between Charles S. Peirce and Victoria Lady Welby* (C. S. Hardwick, Ed.). Bloomington: Indiana Univ. Press.

Peirce, C. S. (1998). *The Essential Peirce* (Vol. 2). Bloomington: Indiana Univ. Press.

Ransdell, J. (1980). Semiotic and linguistics. In Rauch, Irmengard & Gerald F. Carr (Eds.) *The Signifying Animal* (pp. 135-185). Bloomington: Indiana Univ. Press.

Rauch, I. (1999). *Semiotic Insights*. Toronto: Toronto University Press.

Réthoré, J. (1994). A survey of the use and usefulness of Peirce in linguistics in France in particular. In Debrock, G. & M. Hulswit (Eds.). *Living Doubt: Essays Concerning the Epistemology of Charles Sanders Peirce* (pp. 275-288). Dordrecht: Kluwer.

Robin, R. S. (1967). *Annotated Catalogue of the Papers of Charles S. Peirce*. Amherst: Univ. of Mass. Press. (MS refers to the numbers of this catalogue. The manuscripts are available on microfilm; see Peirce 1963-66.)

Shapiro, M. (1991). *The Sense of Change*. Bloomington: Indiana Univ. Press.

Shapiro, M. (1995). History as theory. In Ketner, K. L. (ed.). *Peirce and Contemporary Thought* (pp. 304-311). New York: Fordham Univ. Press.

Short, T. L. (1996). Interpreting Peirce's interpretant. *Transactions of the Charles S. Peirce Society, 32*, 488-541.

Short, T. L. (1999). Teleology and linguistic change. In M. Shapiro & M. C. Haley (Eds.) *The Peirce Seminar Papers* (Vol. 4, pp. 111-158). New York: Berghahn.

Thibaud, P. (1997). Between saying and doing: Peirce's propositional space. *Transactions of the Charles S. Peirce Society, 33*, 270-327.

Weinsheimer, J. (1996). A word is not a sign: Hermeneutic semiotics and Peirce's "Ethics of Terminology." In V. Colapietro & T. M. Olshewsky (Eds.) *Peirce's Doctrine of Signs* (pp. 399-413). Berlin: Mouton de Gruyter.

Winner, T. G. (1994). Peirce and literary studies. In H. Parret (Ed.) *Peirce and Value Theory: On Peircean Ethics and Aesthetics* (pp. 267-299). Amsterdam: Benjamins.

Wirth, U. (1983). Die Abduktive Wende in der Linguistik. *Kodikas/Code, 16*(3-4), 289-301.