
AI 符号学



Peirce's Metaphor and AI: A Case Study

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Abstract: The widespread availability of AI platforms has made research much easier for students and researchers than the encyclopaedias of the past, and this is true, too, of the latter's more recent online versions. This availability and ease of use and the immediately employable results returned make them beneficial pedagogical and search aids to teaching and research; they also have the potential to impact the background teaching environment. However, whereas the paper encyclopaedias were the works of teams of editors and scholars, there is apparently no team of reviewers and fact-checkers for the AI platforms. These are said, metaphorically speaking, to “trawl” through enormous volumes of digitized data and to “hoover” up statements of fact and opinion in order to sustain the search facilities that they offer. In order to examine the reliability and accuracy of such programs, the paper prompts two AI programs with requests for information concerning a specific Peircean concept, namely his theory of metaphor. Within Peirce's logic this has both a technical typology-based sense and a more general theoretical sense in the discussion of cognitive processes, and both acceptations would be expected to appear in a search with the appropriate prompt. The paper proposes to review the results and discusses their value with respect to the author's own understanding of the concept.

Keywords: Peirce, artificial intelligence, metaphor, hypoicons, sign

皮尔斯的隐喻与人工智能：一项案例研究

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摘要：人工智能平台的广泛可得性，使学生和研究者开展研究比以往依赖纸质百科全书的时代更加便捷，这一点同样适用于较新的百科全书网络版本。其易获取性、易用性以及能够即时反馈可直接使用的结果，使其成为教学与研究中颇具价值的辅助工具和检索手段；同时，它们也具有影响整体教学背景环境的潜力。然而，与由编辑和学者团队共同编纂的纸质百科全书不同，人工智能平台显然并不存在相应的审稿与事实核查团队。人们常以隐喻的方式描述这些平台“拖网式”地搜寻海量数字化数据，并“吸纳”事实与观点陈述，以维系其所提供的检索功能。为了检验此类程序的可靠性与准确性，本文以皮尔斯的一个特定概念——隐喻理论为例，对两个人工智能程序提出相关信息请求。在皮尔斯的逻辑体系中，这一概念既具有基于技术分类学的意义，也在对认知过程的讨论中具有更为一般的理论意义，恰当提示下的检索结果理论上应当呈现这两种意义。本文拟对检索结果进行评析，并结合作者自身对该概念的理解，讨论其价值。

关键词：皮尔斯，人工智能，隐喻，亚像似符，符号

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“We individually cannot reasonably hope to attain the ultimate philosophy which we pursue; we can only seek it, therefore, for the community of philosophers.” (EP1: 29, 1868)

I. Introduction

There can be no doubt that the now general free and easy access to AI platforms

has the potential to revolutionize classrooms and seminars as an advanced pedagogical and research tool for summaries, bibliographies and illustrative material, etc. It renders online internet research much easier for students and researchers than the encyclopaedias of the past, and this is true too of the latter's online versions. Even a once ground-breaking online encyclopaedia such as Wikipedia is unable to evolve rapidly or generate topic-specific responses to prompts in the way the AI programs can.

Nevertheless, there are latent negative aspects to this situation. First it is possible for students to access specific programs without detection during tests and examinations as they are freely available on cellphones and thus potentially undetectable; the results obtained from the programs can also be used to bolster essay work and classroom tasks. This can introduce the possibility of cheating and the distortion of results and, thereby, of grades. Second, and in the present case, more importantly, there is no guarantee of the accuracy of the responses returned to given prompts. There is also growing concern that, following a noticeable trend outside the academy where subaltern tasks and their human performers are being increasingly replaced by AI programs, cash-strapped universities might be tempted to replace faculty in the same way. Furthermore, whereas the “old school” encyclopaedias were the works of teams of editors and scholars there is, apparently, no consultable team of reviewers and fact-checkers for the AI platforms. Whereas, too, the contributors to encyclopaedias, like Peirce and Christine Ladd-Franklin's entries for Baldwin's *Dictionary*, for example, can usually be identified by name or initials after the entry, the results returned by the AI programs are by default anonymous, and there is thus no “institutional” way of checking their accuracy. It is this problem of accuracy, not AI's useful capacity to produce summaries and imagery (from paid image generators such as Dall. E), that the present paper attempts to address, and to this end it reviews the results from recent searches on two AI platforms and discusses their pedagogical and research worth.

The paper is organized as follows. Section II presents a summary review of the sort of information that needs to be provided by the programs from a specific prompt concerning Peirce's theory of metaphor. This will involve principally two major aspects of Peirce's employment of the concept. First its potential role in philosophical enquiry and, second, his ephemeral reference in his logic to it as one of three hypoicons.

There is obviously a personal element in the selection of points to be covered, particularly in the presentation and discussion of hypoiconicity: as we see later, Peirce had abandoned the concept by 1905; also, the presentation offered in this paper is only one of many potential ways of understanding what he meant by it. It is a concept which has engendered a certain amount of confusion, debate among Peirce specialists, even avowed avoidance of it, and this should be borne in mind when evaluating the responses from the AI programs.^①

Section III is composed of the corpus of results obtained when two freely available programs, ChatGPT and Claude. ai, were prompted with the same search prompt, namely “C. S. Peirce’s theory of metaphor”. The concept of metaphor was chosen because it has more than one function in Peirce’s general philosophy, and is, moreover, conveniently less prominent as such in the Peirce canon than, say, semiosis, icon, symbol, pragmatism, etc., about which far more has been written. Its most obvious function is as the third, most complex hypoicon, and a second as one of the origins of symbols mentioned in the Ethics of Terminology, both from the Syllabus of 1903. One would expect both AI programs, therefore, to return reasonably specific and, in a preliminary research paper like the present, appreciably manageable results. The corpus is completed by two schematizations of the formal structure of metaphor as a hypoicon, each with its prompt given to ChatGPT’s image generator. The two principal texts were prompted consecutively, and the date of the prompts is given. On the other hand, the very first short text with a slightly different prompt is from 2023, when I first had the idea of checking the accuracy of AI searches. I had just completed a monograph on Peircean semiotics and one of my conclusions warned against underestimating the impact of generative AI on our research and on our general way of life.

Section IV presents a comparison of the salient points of interest identified in the two 2025 sets of results composing the corpus, and discusses their theoretical merits

^① Haack (see Section II, 1) is one such scholar in the paper cited 2020: 232n35, and another scholar on Peirce’s definition of metaphor as a hypoicon: “This is one of the more obscure passages I have had occasion to quote, and I do not profess to understand it completely. The central message, however, seems to be that hypoicons have three degrees of complexity” (Pharies, 1985, p. 36) and, finally, the noted Peirce scholar, T. L. Short, who has this to say of the general definition of the hypoicons in CP 2.277: “One last note on icons: in an interesting passage that I quote without comment, Peirce wrote”(2007, p. 218)—and that was all he had to say.

and discernible inaccuracies or misrepresentations. Further to the discussion of the written results, the two images generated by the non-paying version of ChatGPT are compared to the author's own illustrations (which are *not* to be taken as standard, as there are versions by other Peirce semioticians, of course).

Section V summarizes the various points generated in the discussion of the two sets of results and draws a number of conclusions. At this point it has to be noted that as these programs evolve with more and more data to work with, the results of prompts such as the one employed here will necessarily vary and thereby inevitably return more voluminous and probably more and more accurate results.

II. Elements of Peirce's Metaphor

Appropriately, we begin with one of Peirce's own well-known examples:

Upon this first, and in one sense this sole, rule of reason, that in order to learn you must desire to learn, and in so desiring not be satisfied with what you already incline to think, there follows one corollary which itself deserves to be inscribed upon every wall of the city of philosophy:

Do not block the way of inquiry. (CP 1.135, 1898)

It will easily be admitted that all extant AI platforms, and most certainly the people responsible for them, desire more or less legitimately to learn. Just how well they put what they learn to use is an important concern of the academy: (human) scholars advance ideas in papers and monographs and other scholars accept or reject their findings, and so the process of learning goes on, as it has done for centuries. The potential positive contribution from the AI programs to the process is an important matter of observation and fact-checking. With this in mind, the following sections set out a number of points concerning Peirce's conception of metaphor, deemed essential by the author, which should appear in results in the corpus returned by the two programs—ChatGPT and Clause.ai.

1. Metaphor, Reasoning and Enquiry

A useful starting point is provided by Haack (2017), who is more suggestive than indicative on how Peirce relates metaphor to enquiry, but is nevertheless a very

valuable secondary source. She proposes two major fields where Peirce's use of metaphor should be noted:

Peirce notes the role of metaphor in the origin of symbols, and hence in the growth of meaning; and his semiotic classifies metaphor as the third of three types (image, diagram, metaphor) of iconic representamen or "hypoicon." So far as I know, however, beyond this he hadn't much to say about the phenomenon of metaphor as such. (2017, p. 232)

There are perhaps three aspects of Peirce's conception of metaphor to be considered, in fact. First as a figure of speech employed to make a point, and as Haack shows, there are abundant examples of this use of metaphor in the Peirce canon, but it is a negligible role for the AI programs to note. Second, as Haack and others have suggested, metaphor has an important contribution to make to the discovery, understanding and description of new objects of knowledge. Finally, as a subclass of the icon, metaphor constitutes its most complex formal configuration, one which underwrites the function of the second, broader philosophical use. The two AI programs discussed here and all the others, would be expected to include these two points in their content.

2. Symbols and the Ethics of Terminology

Peirce states in "The Ethics of Terminology" in the Syllabus he wrote to accompany the Lowell Lectures on Logic of 1903 that the symbol, the most complex type of sign, was the essential vehicle of scientific thought: "the woof and warp of all thought and all research is symbols, and the life of thought and science is the life inherent in symbols; so that it is wrong to say that a good language is important to good thought, merely; for it is of the essence of it." (EP 2: 263, 1903) He held that new scientific ideas required a new concept-specific terminology, and furthermore required the inventor of any new conception, as he was doing in logic and pragmatism, to provide a new, concept-specific term (EP 2: 266, 1903). He was, nevertheless, well aware that symbols being a subclass of signs that represented their objects by convention, their meaning was subject to change as new understandings emerged, and it is in this process of meaning-change over time that metaphor acquires its broader theoretical sense and purpose:

For every symbol is a living thing, in a very strict sense that is no mere figure of speech. The body of the symbol changes slowly, but its meaning inevitably grows, incorporates new elements and throws off old ones. But the effort of all should be to keep the *essence* of every scientific term unchanged and exact; although absolute exactitude is not so much as conceivable. Every symbol is, in its origin, either an image of the idea signified, or a reminiscence of some individual occurrence, person or thing, connected with its meaning, or is a metaphor. (EP 2: 264, 1903)

Here we see the familiar categorial hierarchy in the reference to images (possibilities), reminiscence of an (existent) occurrence and metaphor as the origins of innovative developments in the meaning of a symbol, a position which is echoed with a striking metaphor of Peirce's own: "Metaphysics has been said contemptuously to be a fabric of metaphors. But not only metaphysics, but logical and phaneroscopical concepts need to be clothed in such garments. For a pure idea without metaphor or other significant clothing is an onion without a peel." (EP2: 392, 1906) Thus, one would expect to find content referring to metaphor in its broad theoretical role in Peirce's general philosophy in the results returned by the two programs. Ideally, such content would be related to metaphor's seemingly organic relation to symbols as the conceptual basis for the growth of knowledge as seen in terminological neologisms produced by research.

This section concludes with an example of Peirce's own use of metaphor in the pursuit of a satisfactory explanation of consciousness. Technically speaking "Consciousness is rather like a bottomless lake" is a comparison, a simile, unlike the more surprising statement "Consciousness is a bottomless lake", in which the copula represents a membership relation: "Consciousness is a member of the class of bottomless lakes." But here Peirce is simply drawing attention to a parallelism between the mental state and a feature of the physical world:

Consciousness is rather like a bottomless lake in which ideas are suspended, at different depths. Percepts alone are uncovered by the medium. The meaning of this metaphor is that those which [are] deeper are discernible only by a greater effort, and controlled only by much greater effort. These ideas suspended in the medium of consciousness, or rather themselves parts of the fluid, are attracted to one another by associational habits and dispositions, —the former in association by contiguity, the latter in association by resemblance. An idea near the surface will attract an idea that is

very deep only so slightly that the action must continue for some time before the latter is brought to a level of easy discernment. Meantime the former is sinking to dimmer consciousness. (CP 7.554, n. d.)

3. Metaphor as Hypoicon

This is how the hypoicons are presented in the same paragraph as the icon in the unpublished version of the Syllabus (Manuscript R 478, 1903). Note that the second part of the quotation, namely the very precise definition of the three hypoicons, was given separate status in the *Collected Papers* at paragraph 2.277, testifying to its very unusual formulation:

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 roughly [be] divided according to the mode of Firstness which they partake. Those which partake the 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*. (EP 2: 273–274, 1903)

But to understand the defining formula, which involves the initially perplexing reference to First Firstnesses, requires introduction first to the three categories, second to the definition of the sign within a triadic relation and, third to the icon-index-symbol division in the 1903 classification of signs. Additionally, the short-lived status of metaphor as the most complex subclass of the icon should be addressed, and, since it is qualitative in nature, that is, a complex form capable of representing parallelisms, it should be possible to schematize its structure.

3.1 The Categories

Ideally, any synthesis returned by an AI program responding to a prompt concerning Peirce's metaphor hypoicon would trace the definition back to his three "universal" categories. In the Syllabus he prefaces his description of the sign and the initial two divisions of signs with a review of his phenomenology, an entirely logical

step as phenomenology precedes logic in his classification of the sciences (see EP 2: 458 –459, 1911). This is how he had introduced the categories in the year before the Lowell Lectures on Logic:

I essay an analysis of what appears in the world. It is not metaphysics that we are dealing with: only logic. Therefore, we do not ask what really is, but only what appears to everyone of us in every minute of our lives. I analyze experience, which is the cognitive resultant of our past lives, and find in it three elements. I call them *Categories*. (CP 2. 84, 1902)

The category of Firstness was, for Peirce, assimilated to freedom and independence and was characteristic of qualities, properties, qualities of feelings, for example. For Secondness, which he assimilated to effort and resistance and is realized in individuality, fact, existence and brute action unrelated to thought. Finally, Thirdness, which he assimilated to generality, mediation and continuity, characterizes the complex phenomena of thought, habit and signs.

In the ideas of Firstness, Secondness, and Thirdness, the three elements, or *Universal Categories*, appear under their forms of Firstness. They appear under their forms of Secondness in the ideas of Facts of Firstness, or *Qualia*, Facts of Secondness, or Relations, and Facts of Thirdness, or Signs; and under their forms of Thirdness in the ideas of Signs of Firstness, or Feeling, i. e. , things of beauty; Signs of Secondness, or Action, i. e. , modes of conduct; and Signs of Thirdness, or Thought, i. e. , forms of thought. (EP 2: 272, 1903)

Now, a fundamental operation involved in the phenomenology was a form of mental separation, or abstraction, which enabled him to identify relations between these three categories, a form of separation which he referred to as “prescission”. Consider the following statements:

Where you have a triplet you have three pairs; and where you have a pair, you have two units. Thus, Secondness is an essential part of Thirdness though not of Firstness, and Firstness is an essential element of both Secondness and Thirdness. Hence there is such a thing as the Firstness of Secondness and such a thing as the Firstness of Thirdness; and there is such a thing as the Secondness of Thirdness. But there is no Secondness of pure Firstness and no Thirdness of pure Firstness or

Secondness. (CP 1.530, 1903)

Firstness, Secondness and Thirdness thus constitute increasingly complex hierarchically related categories. Prescission makes it possible to prescind, that is, abstract mentally, Firstness from Thirdness as when mentally isolating the defining qualities of some entity from the class of such entities—e. g. “catness”: properties such as whiskers, raised tail when walking, purring, etc., from the class of felines—since these qualities compose our knowledge of the entity in question from long acquaintance with it. This is the important principle behind the triple distinction between First Firstnesses (images), Second Firstnesses (diagrams) and Third Firstnesses (metaphors) to be found in the definition above, and we can reasonably expect from an AI search some explanation of how metaphor comes to be the most complex of the three subclasses of the icon in 1903 and of why it should be a Third Firstness.^①

3.2 Triadic Relations and the Sign

Once he had established the major principles of logic underwritten by phenomenology in manuscript R 478 (EP 2: 267 – 288, 1903), Peirce defines the sign and the two associated correlates in terms of first, second and third, introducing as he does so, the concept of the triadic relation that he was to build upon in the later manuscript (R 540):

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... A *Sign* is a Representamen with a mental Interpretant. Possibly there may be Representamens that are not Signs. (EP 2: 272 – 273, 1903)

The definition invites at least two comments. First, from the definition it follows that for all triadic relations the first correlate of the triadic relation is the representamen. However, in the special case where the interpretant of a

① Note that Second Firstnesses and Third Firstnesses are not mentioned as such in the definition.

representamen is mental in nature, is a “cognition of a mind” then that representamen is a sign. A sign, thus, is defined to be a species of representamen: it does *not* constitute the entire triadic relation. Second, there is a necessary order of determination holding between the three relates: the object determines the sign to determine, to produce, an interpretant, a determination sequence which is constant throughout his logic.^① This determination order can conveniently be represented by Figure 1, although it might be ambitious to expect an AI platform to represent the process schematically in exactly this way.

$$O \rightarrow S \rightarrow I$$

**Fig. 1 The Determination Order within the Triadic Relation Holding
between Sign(S), Object(O) and Interpretant(I)**

After having introduced the sign in the Syllabus, Peirce described two divisions of signs. The first established the sign's three modes of representation—its three ways of representing its object—namely the types of relation, governed by the three categories in ascending order of complexity, holding between the sign and its object: “Representamens are divided by two trichotomies. The most fundamental is into *Icons*, *Indices*, and *Symbols*.” (EP 2: 273) The three modes of representation of the object by the sign are thus, respectively, a basic form of similarity or resemblance, physical contiguity of some kind and general convention. Since, by the principle of prescission, the index can be seen to involve an icon and the symbol to involve an index (EP 2: 291 – 292, 1903), it follows that by transitivity, a symbol will also involve an icon, albeit of a peculiar kind. Furthermore, since the icon can be trichotomized as image, diagram or metaphor (EP 2: 274), it also follows that symbols can also involve any of the subdivisions of the icon. This logical principle underwrites the possibility for metaphors to be one of the origins of symbols examined above, a principle which can be expected to figure in any suitable AI description of Peirce's metaphor.

① See, for example, this definition five years later: “I define a Sign as anything which is so determined by something else, called its Object, and so determines an effect upon a person, which effect I call its Interpretant, that the latter is thereby mediately determined by the former.” (SS: 80 – 81, 1908)

4. Schematizing Metaphor

At this point the reader may be wondering why it should be necessary or even useful to schematize the concept. As was seen from the definition given above, metaphors are a subclass of the icon that represents a parallelism in its object. Hypoicons being Firstnesses they are subclasses of qualities and it is licit and convenient to consider them as abstract forms: the diagram represents at least one dyadic relation in its object and a parallelism is conveniently represented by a schema. This schema is, in actual fact and of necessity, a diagrammatic hypoicon, since the medium by means of which it is being represented is the white page of an existent semiotics journal. The diagrams to follow, Figures 2 through 4, are based upon the dynamic structure of the object-sign-interpretant determination displayed on Figure 1, but the relate identifiers O, S and I from the triadic relation have been replaced by elliptical forms in order to represent internal structure. Thus Figure 2 is the ellipse version of Figure 1. Figure 3 displays generic metaphorical hypoiconicity by showing the impoverished structure of the sign in comparison with parallelism displayed in the object. Note that these diagrams are not some sort of Peircean standard but, rather, one semiotician’s attempt to schematize the hypoicons.



Fig. 2 A Diagram of the Determination Sequence in the Definition of a Sign

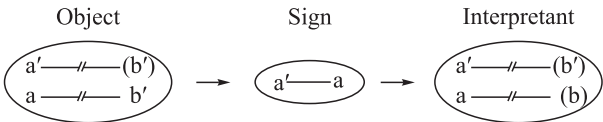


Fig. 3 A Generic Representation of the Parallelism Represented by the Sign

Given this formal nature of the hypoicons, one would expect the AI programs to offer graphic examples of metaphor structure. This being the case, Figures 3 and 4 are a human’s attempt to schematize Peirce’s concept. According to his concise and innovative definition, the metaphor subclass informs a sign whose object—the “something else” of the definition—is structured by a two-tiered parallelism and is

thus significantly more complex than the unidimensional medium representing it. Figures 3 and 4 represent what is in fact a third grade of resemblance and one would expect any viable response from an AI program to attempt to schematize it in some way; and it would presumably provide its image generator with something like the information given above. The “human” analysis takes as an example the “Time is a river” metaphor proposed by ChatGPT, in which the structure of the schema on Figure 4, as mentioned earlier, is intended to represent the determination of the interpretant by the object via the mediating function of the sign (a system that was superseded by the later semiosis).

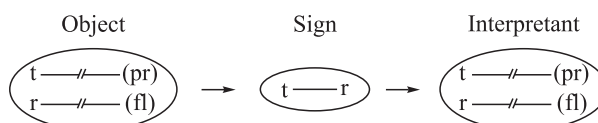


Fig. 4 The Metaphorical Structure of “Time Is a River”

Note, first, that the schema of the sign correlate on Figure 4 contains a single dyadic relation which is the formal structure of the simple but slightly incongruous statement “Time is a river”, where *t* and *r* represent, respectively, *time* and *river*, and the copula *is* constitutes a membership relation: *time is a member of the class of rivers*. On the other hand, within the object the schema displays counterpart mappings between elements in the relation [$t \text{ ---//--- } (pr)$], representing *Time has (some sort of progression)*, which constitutes the state of affairs that is under investigation, i. e. that requires explanation, and elements from the generally acceptable fact [$r \text{ ---//--- } (fl)$], representing *Rivers have a forward flow*, and providing the basis of the evaluation: in the object, the parallelism thus maps the temporal domain onto the spatial. The two parallel relations can be referred to, following the conceptual metaphor tradition, as the target and the base or source domains respectively. The topic in the target domain, time, is somehow contentious or difficult to describe precisely or is not yet fully understood, while the fact considered to be the basis of the judgement and assumed to be self-evident to the addressee or interpreter is the idea that all rivers have unimpeded forward movement (flow) into another river or into the sea. In the very simple case on Figure 4, *t* maps to its counterpart in the base domain, *r*, whereas the mapping from *(pr)*

(progression) to its counterpart in the base domain, (fl) (has unimpeded forward flow) is absent from the sign, an absence indicated by the brackets. Owing to the vectorial character imposed upon it by the medium that “carries” it: within Peirce’s phenomenological framework the spoken sign “Time is a river” is necessarily constrained in the amount of information that it can represent in the existential medium of air. Figure 4 shows how certain elements displayed in parentheses forming the original parallelism in the object are “bracketed” out by the unavoidable quantitative restriction caused by the sign’s being an existent perceivable medium. Figures 5 and 6 in the corpus represent ChatGPT’s own two attempts to schematize the metaphor “Time is a river”.

5. The Evolution of the Subclasses of the Icon

The definition of the hypoicons in 1903 emphasized their specifically formal aspects as opposed to the more general description given in the earlier passage, the striking definition of metaphor being noteworthy in this respect. The trichotomization of the icon and the resultant formal hierarchy governing the three subclasses of the icon turned out to be an unstable logical concept, however (Table 1). The following extract is from Peirce’s “Logic Notebook”, written two years after the definition of the hypoicons:

A sign may represent its dynamical object simply by virtue of its own abstract quality. It thus represents whatever else has that quality. Such a sign is termed an Icon. Icons either represent unanalyzed qualities, when they are simple *likenesses* or they have structures like the structure of the object, when, [...] they are *analogues*, or if made for the purpose are *diagrams*. (R 339: 257r, H 487, 1905)

Table 1 Three versions of the subclasses of the icon

Discriminant	Manuscript and Date			
	R 478 (1903)	R 339 (1905)	R 284 (1905)	—
First Firstness	image	likeness	Priman	quality of feeling
Second Firstness	diagram	analogue	Secundan	relation of parts
Third Firstness	metaphor	diagram	(Tertian)	diagram

The *metaphors* constituting the most complex types of icon in the 1903 definition from the Syllabus have now been reformulated as *diagrams*, with the phenomenologically less complex earlier *diagrams* now redefined as *analogues*. The complex parallel form of the object in the case of *metaphor* in the phenomenological phrasing of the earlier definition has now been replaced by what had earlier been defined as a phenomenologically less complex type of icon, namely the *diagram*. Moreover, the diagram is now defined by its being employed for a “purpose”. Furthermore, in the following extract from manuscript R 284 the earlier *diagram* in the Syllabus definitions is now simply described in the terminology of Peirce’s 1904 phaneroscopy as bearing “brute Secundan relations of parts”, whereas the *diagram*, here again in 1905 the most complex of the three subclasses but the only one to be named, presents “intellectual relations” with respect to the icon’s object, and partakes of a “symbolic flavor”:

Icons are subdivided according to the nature of their significant likeness to their Objects which may be 1st in Priman characters or qualities of feeling; these alone have the iconic character in its purity; or 2nd in brute Secundan relations of parts; or 3rd in intellectual relations of parts. The last which are the most important may be called *Diagrams*. These partake of a symbolic flavor. (R 284: 61v – 63, 1905)

Such modifications indicate the relinquishing of the strict phenomenological terminology framing the earlier hypoicons and a shift towards an attempt to reformulate the definition in the terminology of his newly named phaneroscopy: “priman” and “secundan”, for example, appear frequently in the texts of 1905. This ephemeral, year-specific status of metaphor as a hypoicon is an important feature of any discussion of the topic as it belongs to a triadic conception of the action of the sign as shown on Figure 1, and is incompatible with the hexad composing the sign and its five correlates described by Peirce in the letter to Lady Welby of 23 December, 1908 (EP 2: 478 – 481, 1906).^①

① However, the icon-index-symbol division figures in all of the ten-division *typologies* were constructed by Peirce from 1905 on.

III. Corpus

1. ChatGPT: C. S. Peirce's Theory on Metaphor (2023)

Charles Sanders Peirce, the American philosopher and logician, defined metaphor as a form of signification in which one object or idea is represented by another object or idea that is perceived to have some similarity or resemblance to it. Peirce saw metaphor as an important aspect of human thought and language, and he believed that it played a key role in the process of abstraction and generalization.

For Peirce, metaphor was not simply a matter of using one word or phrase to represent another, but rather a complex process of creating meaning through analogy and inference. He argued that metaphor involves a transfer of meaning from one domain of experience to another, based on perceived similarities or shared attributes.

Peirce also distinguished between two types of metaphor: the literal metaphor and the figurative metaphor. A literal metaphor is one in which the signifier and the signified are closely related and share many attributes, while a figurative metaphor is one in which the relationship between the signifier and the signified is more distant and relies on analogy or association.

Overall, Peirce saw metaphor as a powerful tool for human thought and communication, allowing us to create meaning and convey complex ideas through analogy and inference. His ideas on metaphor have been influential in fields such as linguistics, cognitive psychology, and literary theory.

(15/04/2023 3:36 PM)

2. ChatGPT: C. S. Peirce's Theory of Metaphor (2025)

2.1 Peirce's Semiotic Triad

Peirce defined a sign as something that stands to somebody for something in some respect.

Every sign involves three interrelated elements:

Representamen—the form the sign takes (e.g., a word, image, or gesture);

Object—what the sign refers to;

Interpretant—the meaning or effect produced in the mind of the interpreter.

Metaphor fits into this triadic model as a particular type of relation among these three.

2.2 Three Types of Signs: Icon, Index, and Symbol

Peirce divided signs into three main categories:

Icon—signifies by resemblance (e. g. , a portrait, a map);

Index—signifies by actual connection (e. g. , smoke for fire);

Symbol—signifies by convention or rule (e. g. , words, traffic signs).

Metaphor, according to Peirce, is a special kind of icon.

2.3 Metaphor as a Type of Icon

In his *Collected Papers* (especially CP 2. 277 and CP 2. 299), Peirce identifies three types of iconic signs:

Image—Resembles its object in simple qualities (e. g. , a photograph);

Diagram—Resembles its object in structure or relations (e. g. , a map, a mathematical formula);

Metaphor—Represents the parallelism or analogy between two otherwise different things.

So for Peirce, a metaphor is:

“A sign which represents the representative character of a representamen by representing a parallelism in something else.” (CP 2. 277)

In simpler terms:

A metaphor is an icon of a relation;

It works by mapping a relation or quality from one domain (the source) onto another (the target), showing an analogy between them.

2.4 Example

Take the metaphor: “Time is a river.”

For Peirce:

The sign (“river”) represents a relation—the continuous, directional flow.

The object (“time”) is something different, but the relation of flow is shared.

The interpretant recognizes the analogous relation between the flow of a river and the passage of time.

Thus, metaphor functions as a third-level iconic sign that maps relational similarities across domains.

2.5 Metaphor and Thought

Peirce’s semiotic perspective also implies that metaphor is not merely linguistic but cognitive—it’s a way of structuring thought through relational resemblance.

This view anticipates later theories of conceptual metaphor (like Lakoff & Johnson’s), which see metaphor as fundamental to human cognition.

2.6 Summary

Table 2 Chat GPT’s Summary on C. S. Peirce’s Theory of Metaphor(2025)

Concept	Peirce’s View
Type of sign	Icon
Level of Iconicity	Third-level (after image and diagram)
Defining Feature	Represents an analogy or parallelism
Cognitive Role	Reveals or constructs relations of resemblance
Example	“Time is a river” → maps the flow of water onto the flow of time

(5/11/2025 5:26 PM)

3. Claude.ai: C. S. Peirce’s Theory of Metaphor (2025)

Charles Sanders Peirce (1839—1914), the American philosopher and founder of pragmatism, developed a sophisticated approach to metaphor that emerges from his broader semiotic theory—his systematic study of signs and meaning.

3.1 Metaphor as Iconic Sign

Within Peirce’s triadic classification of signs (icon, index, symbol), metaphor functions primarily as a type of icon. Icons represent their objects through resemblance or similarity. While a simple icon might be a portrait or diagram, metaphor represents a more complex form of iconic representation—what Peirce called a “hypoicon”.

Peirce identified three types of hypoicons:

Images—resemblance through simple qualities (like a photograph);

Diagrams—resemblance through relations between parts;

Metaphors—resemblance through “representing the representative character of a representamen”.

3.2 The Logic of Metaphor

For Peirce, metaphor isn’t merely ornamental or emotional but has genuine cognitive and logical value.

Metaphors work by:

Establishing parallels between two domains of experience;

Revealing structural similarities that might otherwise go unnoticed;

Generating new meanings through the interaction of different conceptual frameworks.

This places metaphor at the heart of scientific and philosophical discovery, not just literary expression.

3.3 Metaphor and Abduction

Metaphor relates closely to Peirce’s concept of abduction (or “retroduction”) — the logical process of forming explanatory hypotheses.

Both metaphor and abduction involve:

Creative leaps of imagination;

Recognition of patterns across different domains;

Generation of new insights that require further testing.

When we use metaphor, we’re essentially hypothesizing that understanding one thing in terms of another will be productive and illuminating.

3.4 Representational Character

The key to Peirce’s view is that metaphor “represents the representative character of a sign”. This means metaphor works at a meta-level: it doesn’t just represent objects directly but represents how signs represent. When we say “time is money”, we’re not just comparing two things but transferring an entire representational structure from the economic domain to the temporal domain.

3.5 Implications

Peirce’s theory suggests that:

Metaphor is fundamental to thought, not peripheral;

Metaphorical thinking has rational structure, not just associative or emotional resonance;

New knowledge often requires metaphorical leaps;
The study of metaphor is integral to understanding how meaning evolves.

This anticipates later work by linguists and cognitive scientists (like Lakoff and Johnson) who argue that metaphor structures our conceptual systems, though Peirce’s framework remains distinctly grounded in his broader semiotic architecture.

(11/11/2025 14:00 PM)

4. Two AI-generated Schemas for Metaphor

Prompt:

A clear, diagram-style illustration of Charles Sanders Peirce’s conception of metaphor in semiotics: three nodes labeled “Representamen”, “Object”, and “Interpretant” arranged in a semiotic triangle. The Representamen node displays a metaphorical phrase such as “Time is a river”. Lines connect the nodes. Visual icons show the relational mapping: a clock icon representing time, a flowing river icon representing the river domain, with arrows indicating the parallel relations that constitute a metaphor as a hypoicon. Clean academic infographic style, minimalistic, neutral colors, high clarity.

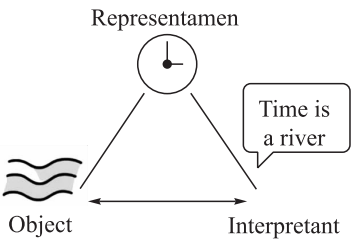


Fig. 5 Schema 1 from ChatGPT

(11/17/2025)

Prompt:

A clear, diagram-style illustration of Charles Sanders Peirce’s conception of metaphor in semiotics: three nodes labeled “Representamen”, “Object”, and “Interpretant” arranged in a semiotic triangle. The Representamen node displays a metaphorical phrase such as “Time is a river”. Lines connect the nodes. Visual icons show the relational mapping: a clock icon representing time, a flowing river icon representing the river domain, with arrows indicating the parallel relations that

constitute a metaphor as a hypoicon. Clean academic infographic style, minimalistic, neutral colors, high clarity.

Mots clés (keywords) :

Metaphor, Peirce, Infographic, Minimalistic, Neutral, Colors

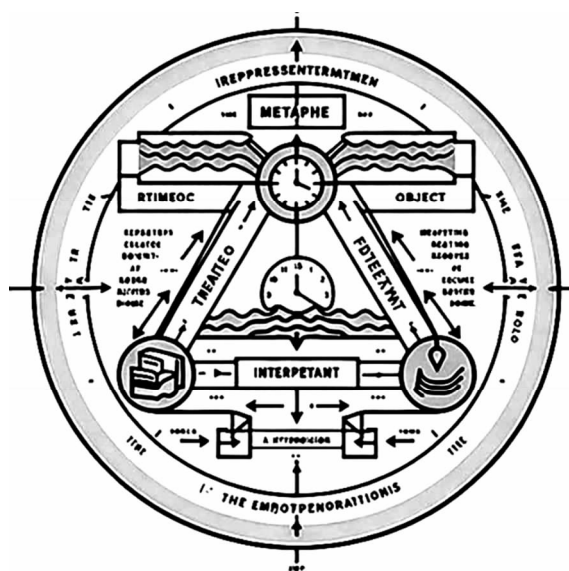


Fig. 6 Schema 2 from ChatGPT

(11/17/2025)

IV. Commentary

Since both sets of 2025 results are organized by numbered section, we take the discussion of the various points in the order in which they appear, noting that the 2023 ChatGPT text is offered principally as an example of how the treatment of the topic has developed in two years (and noting that the prompt is not identical in the two cases).

2023

The criticism that can be made of this very general answer to the prompt is that (unfortunately, like certain semiotics papers) it attributes to Peirce a certain number of statements that are not substantiated with a reference to the source: “Peirce saw

metaphor...”, “For Peirce, ...”, “Peirce also distinguished...”. In this last statement, the formulation would have benefited from a reference to hypoiconicity rather than to a literal-figurative distinction, as the three hypoicons constitute *three* different ways of representing the nature of the object, not two.

2025

ChatGPT

(1) “Every sign involves three interrelated elements.” This is a risky formulation of the definition of the sign as it suggests that the sign is the entire triadic relation with the representamen (“sign-vehicle”) being determined by the sign to produce an interpretant. Such an error is frequently found explicitly stated, too, in the literature: ^①

“Metaphor fits into this triadic model as a particular type of relation among these three.” The problem here is that this unsourced statement is far too vague. Any instructor finding it in a student’s essay would immediately require the textual source.

(2) “Peirce divided signs into three main categories Icon—signifies by resemblance (e. g., a portrait, a map).” The “term” categories is of general usage and is understandable in the context, but given the theoretical status of Peirce’s universal categories, “subclasses” is preferable.

(3) This section contains useful material but requires care: “In his *Collected Papers* (especially CP 2. 277 and CP 2. 299), Peirce identifies three types of iconic signs.” The statement is correct and useful up to a point: the reference to CP 2. 277 is correct, but the reference to CP 2. 299 is not. The latter identifies a text from 1894, “What is a Sign?”, in which the term *metaphor* does occur (EP 2: 10) but is not defined or referred to as a subclass of an icon (referred to in the 1894 text as a *likeness*). Of the three types of icon the example of the image as photograph is incorrect, as a photograph is diagrammatic in structure, even one that has been

^① See, for example, one of several Wikipedia definitions of the sign (emphasis added): The other major semiotic theory, developed by Charles Sanders Peirce(1839—1914), defines the sign as a triadic relation, as “something that stands for something, to someone in some capacity”. This means that a sign is a relation between the sign vehicle (the specific physical form of the sign), a sign object (the aspect of the world that the sign carries meaning about) and an interpretant (the meaning of the sign as understood by an interpreter). [https://en.wikipedia.org/wiki/Sign_\(semiotics\)](https://en.wikipedia.org/wiki/Sign_(semiotics)) (retrieved 11/17/2025).

doctored; a better example would have been a painting. The examples for diagram are correct and in the case of metaphor the basic structure is both simplified usefully (“Represents the parallelism or analogy between two otherwise different things”) and the original definition and source are given. Furthermore the mappings between domains illustrated in section II, 4 above are mentioned and in section III, 2 – 4 offers the example “Time is a river”.

(4) “Peirce’s semiotic perspective also implies that metaphor is not merely linguistic but cognitive—it’s a way of structuring thought through relational resemblance. This view anticipates later theories of conceptual metaphor (like Lakoff & Johnson’s), which see metaphor as fundamental to human cognition.” The statement is essentially correct but references would have been helpful. This is an interesting attempt to contextualize Peirce’s version.

(5) The summary is accurate. There is no mention of metaphor being a hypoicon but it is recognized as third-level; there is no mention of its later replacement by the diagram. Finally, the defining feature as representing “an analogy or parallelism” would have gained in clarity with the addition of “in something else” or “in the object”, as the inexperienced reader might think that the parallel structure is in the sign and not in the object.

Claude. ai

The introductory text is necessarily general, referring to metaphor as having a “sophisticated approach”, which is probably a generous appreciation from some noted Peirce scholar. Unfortunately, a prompt for bibliographical sources was omitted: this would have provided valuable information on the sources employed.

(1) “Metaphor as Iconic Sign” begins by placing the icon within Peirce’s “triadic classification of signs (icon, index, symbol)”, which, while essentially correct might lead the unsuspecting reader to conclude that there is only one such classification (in 1903), whereas there are three. Claude states vaguely that within the icon metaphor has a complex function and very correctly introduces the concept of the hypoicon. It mistakenly cites the photograph as an example of the image (it is necessarily diagrammatic), and offers an incomplete definition of metaphor: “...resemblance through representing the representative character of a representamen”: stopping short of mentioning the “something else” of the original definition might lead the reader to think that it is the sign that is internally structured in the form of

the parallelism mentioned in the original definition.

(2) “The Logic of Metaphor” section offers another example of general attribution of ideas to Peirce (“For Peirce...”), whereas a reference would help, such reference being admittedly difficult to find in the circumstances, which is why such general references should be avoided. Otherwise, stating that metaphors work by “establishing parallels between two domains of experience” is very useful, while the other two statements are vague, being as valid for almost any theory of metaphor, but are not incorrect: “Revealing structural similarities that might otherwise go unnoticed Generating new meanings through the interaction of different conceptual frameworks.”

Placing Peirce’s metaphor “at the heart of scientific and philosophical discovery, not just literary expression” is true but smacks of hyperbole, as while it was obviously in Peirce’s general philosophy in 1903 an important hypoicon and was stated to be one of the origins of symbols and therefore of the representation of knowledge, it has never had general currency outside that specific domain.

(3) “Metaphor and Abduction”. This section establishes an interesting similarity between Peirce’s metaphor and his simplest type of inference, abduction. This wasn’t mentioned in the “human” presentation in section II above but is of research value. Both are said to work by “recognition of patterns across different domains”, which is obviously the case of metaphor, and can be linked to the tripartite structure of inference, and hence of abduction.

(4) “Representational Character”. This section makes a number of misleading statements. Citations being the formal justification of statements in any piece of research on a complex theory such as Peirce’s logic, an erroneous misquote as here is reprehensible; the second statement is misleading as it misinterprets Peirce’s general definition in paragraph CP 2.277. Stating as the key to Peirce’s conception of metaphor the notion that it represents “the representative character of a sign” misinterprets Peirce’s general definition a second time by omitting to mention the object, and by default implies that the unmentioned parallelism structures the sign. Moreover, inferring from this that metaphor (Peirce’s conception, one hopes) works at a meta-level is also misleading. The Existential Graphs, which seek to represent the “movements” of thought itself can be said to be a metatheory of thought; this is not the case with metaphor as Peirce conceived it—it is neither a theory of iconicity

nor of thought.

(5) “Implications”. The concluding remarks are sufficiently general and are totally apposite. They terminate a well-structured but in places, inadequate, response.

Figures 5 and 6

With respect to these artificial intelligence schematizations, the following points need to be made (taking into account the fact that they were generated by a single entry-level non-paying program, ChatGPT):

Figure 5 represents the attribution of elements of the metaphor to the three relates forming the triadic relation holding between sign, object and interpretant, while Figure 6 has collapsed sign, object and metaphor into a single schema.

Both represent the parallelism structuring the object by placing it complete in the sign. This suggests that although each “understands” metaphor to compose the sign and the triadic relation, neither understanding that the definition of the sign underwrites the action of the sign and that its inherent dynamism requires all three elements. This is no doubt a consequence of the programs not having integrated the principle that it is the object that is structured by a parallelism, not the sign, and that the sign is a relate *in* a triadic relation, and does not constitute the whole triadic relation as some specialists assert.

Both feature triangular shapes reminiscent of the “triangle of reference” from Ogden and Richards (1923, p. 11). Any posited direct line between the sign and the interpretant nullifies the schema as a representation of Peircean metaphor, as the determination of the interpretant has to be initiated by the object. This schema also contains unfinished nonsense words, which are neither nonces nor neologisms. This suggests that the image generator was not powerful enough to complete the schema and/or that the information in the prompt was insufficient to provide a valid representation. In view of all these remarks, the conclusion is that in any discussion of metaphor both are worthless.

V. Discussion and Conclusion

Judging by the results returned by these two programs, neither offers consistently valuable information for a prospective user such as the beginning student

of semiotics, or of cultural or media studies. Of the two programs examined here, Claude.ai performs fractionally better. Criticism of their results does not mean, of course, that other platforms wouldn't have performed more convincingly. The purpose of the paper was to examine the theoretical validity of the output from two easily available AI programs, not to establish some sort of accuracy hierarchy.

AI can only “know” what it produces from statements that have been written about a given subject by a human source. It gathers seemingly indiscriminately the correct and incorrect statements on a subject such as the one discussed above and, as far as I can determine, there seems to be no “peer review” process of the sort required by responsible semiotics journals or academic monograph publishers. Programs such as the two compared here are probably best used at the present time for what they do well: supplying bibliographies and reference sources.

Why is this important? Well, one notable risk of such easy-to-use programs is that universities, for example, might adopt them or their professional versions more or less wholesale without proper resources to fact-check the output, and use them to replace experienced but expensive faculty. Since the information that has been obtained subterranean-fashion by these two particular platforms—like that of all the other platforms, it has probably been taken without permission from research papers and monographs written by human researchers and specialists—and is by the nature of things necessarily composed of diverse critical opinions on the subject and therefore of both accurate and potentially inaccurate or doubtful statements concerning Peirce's logic and his general philosophy, it seems beyond contest that Peirce scholars and enthusiasts have a duty to analyse the output of such programs and warn of any found inaccuracies and, where applicable, laud successful and helpful content.

The present Cassandra-like exposé offers a negative view of the value of AI as a quick source of valid information concerning a subject such as Peircean semiotics, and there is evidence that the sort of errors examined above have already found their way into highly important research areas such as biosemiotics (Jappy, 2023). The process of obtaining new knowledge requires checks and balances, so to speak: human research in semiotics, for example, answers to a community of enquirers in such a way that if someone publishes a position paper other specialists can publish comments for or against the original statements; such a to-and-fro of opinion

constitutes a system that more or less guarantees the validity of new research results. Judging by the present offerings from the two platforms examined above, and at present there is no reason not to believe this of other AI platforms, the danger is that they have no sound theoretical background that guarantees the scientific authority of a theory such as Peircean semiotics. At the moment, then, the humans prevail.

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