

Theoretical Sources of Charles Morris's Semiotics

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Abstract

Charles Morris constructs his semiotics on the basis of scientific empiricism. The latter is the combination of three schools of thought, namely, formalism, empiricism and pragmatism. The former similarly consists of three parts, i.e., syntactics, semantics and pragmatics. The three philosophical schools of thought contribute to the three major components of Morris's semiotics.

Keywords: semiotics, scientific empiricism, syntactics, semantics, pragmatics, formalism, empiricism, pragmatism

Formalism, empiricism and pragmatism are the three main philosophical schools of thought that guided Charles Morris while he constructed his scientific empiricism to provide a philosophical foundation for his semiotics. A brief analysis of scientific empiricism and its components will be beneficial for understanding the philosophical foundation of Morris's semiotics and its components, and will be helpful for understanding the train of thought that led to the formation of Morris's semiotics in its entirety.

Morris's semiotics consists of three branches which are syntactics, semantics, and pragmatics. The construction of these three branches is based on three philosophical schools of thought, namely, formalism, empiricism and pragmatism. Morris combed through these three philosophical approaches, made full use of their advantages while casting off their shortcomings, and formed his own scientific empiricism. A contrastive analysis of those three philosophical '-isms' will be helpful for our full understanding of the foundation of Morris's semiotics and for our appreciation of how he formed his three semiotic component branches.

1. Formalism

Formalism first appeared as a rationalistic tool for metaphysics, mainly concerned formal logic including mathematical logic and symbolic logic. Early formalists were mathematicians and logicians, who belonged to the group of rationalists. The rapid development of formalism can be attributed to the close combination of logical study and modern mathematical study. Morris regards Leibniz as a master of formalism because his formalist thought includes the universalized mathematic, scientific language, a vastly useful inferential calculus, and all kinds of logic relations in the sciences (Morris, 1938, pp. 63-75). Under the influence of Leibniz, formalism is mainly concerned with formal logic, which accords with the logic of relational structures in mathematics and sciences, and which analyses the relations between signs in scientific languages. Three centuries after Leibniz, important formalist philosophers include Carnap, Russell, Reichenbach, Neurath, Wittgenstein, and Frank. Traditional logic focuses on the formal side of a language, determining how to derive symbolic combinations from the universally recognized symbolical combinations based on given universal operation rules. To put it simply, formalism is only concerned with the inferential process from axioms to theorems. Often, formalism studies the relations between propositions, such as the logical form: $p \rightarrow q$ (p implies q) to the frequent neglect of empirical questions. According to logic theory, people will make corresponding reactions in symbolic categories if they obey certain syntactical rules. In his paper “The Relation of the Formal and Empirical Sciences Within Scientific Empiricism”, Morris points out that the relations between signs considered in this way are logical relations, and in logical analysis logicians regard rules as postulations from which corresponding results will be achieved in the use of signs; other results would not be of the same interest to logicians (Morris, 1935-1936, p. 9). Morris illustrates the focus of formalist logical analysis by citing the example of “smoke” and “fire”. Suppose in a crowded theatre, a person sees smoke. In such circumstances, he may either simply utter “fire”, or decide to yell “smoke” instead of “fire” probably because he is afraid the word “fire” might cause panic and therefore chaotic reactions. For logicians, smoke, fire and panic as actual entities are of no interest. What formalists are interested in are the relations between propositions made up of those signs like “fire”, “smoke,” and “panic”, namely, logical implicature or transformation processes in which a sentence containing “smoke” is transformed into one containing “fire”, or a sentence containing “fire” is transformed into one containing “panic”. The transformation between sentences is conducted according to certain rules which reflect the relations between signs.

For formalists, formal logic is extremely important to philosophy. For example, Carnap insists that formal logic is the only scientific element in philosophy and if deprived of formal logic, philosophy would be left with a pile of confusing unscientific false propositions. Formalists do not consider the empirical and pragmatic aspects of signs and meaning but the syntax of language. It is well acknowledged that logical analysis classifies propositions into two types, analytic propositions and synthetic propositions.

Synthetic propositions rely on the judgment of empirical knowledge, whereas analytic propositions, which do not depend upon experience, are considered as *a priori* knowledge and are the concern of the formal sciences. Since philosophy is often canvassed as the lead discipline for all other sciences, formalists assign to philosophy the task of the syntactic analysis of the language of the sciences. Consequently, formalist philosophy stands well above other sciences, because it is good at formal logical analysis, i.e., the syntactic analysis of scientific languages. Carnap suggests that to analyze the formal structures of language as a system of rules is the only method in philosophy (Carnap, 1996, p. 7).

Thus, formalism equates philosophy with scientific logic. For this reason, on one hand, a closer relation is established between philosophy and other sciences, and on the other hand, philosophy enjoys a theoretical niche of its own. In other words, there is an overlapping part between formalist philosophy and other sciences to which, meanwhile, are assigned different divisions of labor. The surviving space of formalism is far larger than expected; for example, discussions on formal meaning, discussions on the function of rules in defining formal necessity, and discussions on multi-modality etc., all fall within the domain of formalism. Morris was deeply influenced by the accurate philosophical method of formalism, but at the same time clearly understood the high price paid by formalism for its philosophical accuracy. For Morris, the formalist method analyses the formal structures of scientific languages as a system of rules, and regards one proposition as the transformation of another. The purely formal analysis by formalism cancels any judgment concerning meaning. In other words, except for analyzing the syntactic structures of actual and possible languages, it does not take into consideration other aspects of language such as the relation between language sign and its referent, and the relation between signs, users and society. Morris thought the direct consequence of the formalists' sole concern with forms would be their refusal to judge and analyze the non-linguistic world (Morris, 1937, p. 7). It can be concluded that formalism does not comment on human mankind, society, or nature. Early formalism only analyzed forms at the expense of meaning. However, later formalists, even though they began to integrate meaning, as in Carnap's later works, still attributed the dominant factor in the formation of sign meaning to syntactic rules in language, regarding the meaning of propositions as possible propositions transformed according to logical rules. Owing to the fact that formalism adopts deduction to construct formal language, paying no attention to actual things, extreme formalism would exclude all sciences. Formalism unavoidably brackets out the referent of signs and human experience. Morris was profoundly aware of the shortcomings of formalism, and thought that formalism only analyses language and simply designs artificial languages, and that for this reason it is not within the reach of formalism to find truth in the world simply by relying on the formal structures of language (Morris, 1936, pp. 130-138). Morris further points out that the pure formal language constructed by formalism does not work necessarily for every occasion, and formal discourse cannot express what we intend to express all the time. For example, when we talk about language rules themselves, even though we can use terms of formal

language, the language form we use is not the pure formal language. In other words, when we deal with language rules as objects, we are using new signs to discuss these objects, and these new signs have not yet been highly formalized. Hence what we are doing now is using signs and understanding the expression of rules in non-formal ways.

The logical relation often used by formalism is the one of “ $p \rightarrow q$ ”, the deduction of a consequent from an antecedent. What is this relation of necessary inference? Morris points out that few formal logicians would face this question. Formalists like Russell explain the relation of “ $p \rightarrow q$ ” as “either p is not true or q is true”. According to this explanation, the relation between antecedent and consequent is one of implication, namely, antecedent implies consequent. However, Morris points out that, from the structure of “either... or...”, if the consequent is true, it can be implied by any antecedent. Hence the so-called inherent necessary inference does not exist any longer. What, then, is the logical necessity of implication from antecedent to consequent in syllogism? Morris insists that the deduction from a set of signs called axiom or antecedent to another set of signs called theorem is realized through observing some specific rules of operation (Morris, 1929, p. 258). Only a set of consistent signs can form a system of deduction in which, according to rules of operation, the axiom rigidly or necessarily implies the theorem and the theorem necessarily comes from the axiom. It is the neglect of rules of operation that led to the shortcomings of formalist deduction theory. Different rules of operation lead to different systems of deduction from the same axiom. Therefore, the validity of a deduction system depends on rules of operation. In Morris’s mind, these rules of operation have non-formal denotational meaning, hence, seen from the perspective of the rules of operation, extreme formalism is untenable. Morris points out that, with the exception of those theorists researching into axioms, a lot of people would not test what new signs will come from arbitrary signs because most of the deduction systems are constructed on the basis of their application. Therefore, the extreme formalist account, exempt from material source and empirical truth, is invalid.

2. Empiricism

Morris in his article “Semiotic and Scientific Empiricism” briefly divides empiricism into four historical periods (Morris, 1935, pp. 2-16). The first was the Greek period during which empiricism appeared in opposition to all forms of dogmatic metaphysics. The main schools of empiricism at that time included the schools of the Epicureans and the Skeptics. The Epicureans were opposed to formalist deductive inference and emphasized inductive inference and human experience. The Skeptics went to the extreme of empiricism to the extent that they refused to take into consideration any relations between signs if they did not involve empirical relations between the signs and their referents. During this period, the medical tradition with its conspicuous empirical tendency provided nourishment for the development of empiricism. The second period came with the late period of the European Middle Ages. Especially in the 13th century, there appeared a group of Oxford

empiricists among whom Roger Bacon was the most influential. William of Occam in the 14th century further developed British empiricism. The empiricism of this period was well aware that logical analysis and linguistic analysis were not the only fields of dogmatic metaphysics but regarded logical research and grammar research as part of the domain of the empirical study on signs. The empiricism of the third period, approximately from the 17th to 19th centuries, introduced semiotic tools. The empiricism of this time was typical of British empiricism whose representatives included Locke, Hume, Mill, Berkeley, Francis Bacon, etc. These philosophers criticized metaphysical dogmatism by analyzing the nature and limitations of language. The fourth period came with the beginning of more contemporary times. One representative of this period was Auguste Comte. The empiricism of this time is called by Morris "scientific empiricism", which meant for people involved possessing a more critical mind, adopting scientific methods, and actively constructing theories instead of being satisfied with the passive refutation of metaphysics. The contemporary empiricism initiated by Comte keeps formal logic and mathematics within the research domain of philosophy and at the same time emphasizes the social aspect of experience. As a consequence, Morris regarded the scientific empiricism of this time as a combination of the three complementary views, namely, pragmatism, traditional empiricism and formalism (Morris, 1935, p. 9). If the empiricism of the fourth period can be called "scientific empiricism", which Morris obviously endorsed and hoped to carry forward, the empiricism of the previous three periods would be called traditional empiricism, which Morris criticized and utilized only very selectively.

Traditional empiricism like Hume's is inadequate empiricism to Morris's mind. Like ordinary British empiricism, it has a deep color of subjectivity, and is confined to inner, subjective, psychological and personal experience without access to the outer world. The value emphasizing self-indulgence in Western thought enhanced the dependence of traditional empiricism on the concept of the individualistic psyche which resulted in the neglect of the social aspect of experience. Traditional empiricists did not pay attention to the study of the methods which individuals adopt to acquire knowledge on objects they cannot experience directly. A traditional empiricist regarded knowledge as the sum of the expectations which he could corroborate. According to such narrow-minded empiricism, one of course could not know his own birth, could not know whether the world would continue to exist or not after his death, and of what he is told would not approve of that which he himself has not experienced. In fact, everyone knows that the world would continue to exist after his death. If one sees his door broken and his house messy everywhere, he will believe that his house was burglarized even though he had not personally witnessed the burglary. This case proves that representation by signs, others' statements, and the use of tools also constitute our experience, and some of them are indirect experience. Morris thought that traditional empiricism confined itself to direct subjective experience and regarded as a discredit to the history of empiricism its failure to combine positivism and naturalism into one whole (Morris, 1935, p. 7). Compared with formalism, traditional empiricism is more interested in meaning than in form. Empiricism

provides methods for clarifying concepts. Empiricist activity is the process of making clear concepts and propositions by relating them to experimental data. Its normal method is to classify ambiguous concepts or propositions with reference to their objects and environment in order to make such ambiguities disappear. Empiricist philosophy begins with the explanation and clarification of some basic propositions and their meanings, and finishes with the proposal of some generalized meaning theory. Empiricism develops in the domain of existing sciences because it is closely related to the object world. According to traditional empiricism, if we understand the referent of a word, its meaning is clear.

Since traditional empiricism, as opposed to metaphysic dogmatism, only paid attention to individual inner experience while neglecting the social aspect of experience, it lacked a self-criticizing spirit, which was its obvious weakness. Traditional empiricism often operated on its own, independently of successful sciences, so it was forced to retreat to its subjective or individual domain. Morris sharply points out three main weaknesses of traditional empiricism: (1) its subjectivism and individualism; (2) failure to deal correctly with the formal sciences; (3) the failure of its epistemology to combine the meaning theory of empiricism and the cosmology of naturalism (Morris, 1935, p. 11). Morris thinks that these weaknesses of traditional empiricism are due to the neglect of the three aspects of meaning (i.e. formal meaning, empirical meaning and pragmatic meaning), and the enhancement of the analysis of these three aspects can provide the means for remedying empiricism. Traditional empiricism laid emphasis on individual inner experience, neglecting social and objective experience; it was thus more closely related to the biological sciences than to mathematics and physics. In fact, one can talk about objects which one does not experience because he can make use of others' statements in sciences and epistemology in order to find the things referred to by others in principle, and prove them on the basis of common social experience. Similarly, on the time axis, an object yet to be known in one period may be one experienced in another period. Morris prescribes a solution for traditional empiricism: to free itself from inadequate empirical views, empiricism needs to strengthen itself in two aspects: first to make fullest use of the logical and mathematical tools of formalism in order to explain such rational meanings as sociability and the objectivity of experience, especially direct experience; secondly, to be combined with pragmatism so as to emphasize the relations and functions of experience since pragmatism adopts pragmatic factors besides formal factors and semantic factors, and in this way let itself be enriched. Thus, Morris puts forward his own views of scientific empiricism by remolding traditional empiricism and by referring to modern empiricism.

3. Pragmatism

Pragmatism is an American indigenous philosophy which was initiated by Peirce and further developed by Dewey, Lewis, James, Mead and others. According to Morris, pragmatism began as an empiricist theory of meaning. Morris summarizes the pragmatist

view of meaning as follows: when meaning is regarded as signification instead of significance, the meaning of anything is equal to a group of expectations aroused as a result of its presence (Morris, 1934, p. 556). Expectations are a kind of imaginable experience phenomenon. Morris's summary is likely to remind us of Peirce's statement on meaning in his article "What is pragmatism?": "if one can define accurately all the conceivable experimental phenomena which the affirmation or denial of a concept could imply, one will have therein a complete definition of the concept, and there is absolutely nothing more in it" (Peirce, 1992-1998, 2:332). Expectations are responses which can be expected, and responses are involved with objects responded to, so the content of expectations includes features of the signified objects. To put this in another way, signified objects refer to those objects which meet the conditions of expectations. In Morris's opinion, statements of expectations occupy an important position in sciences and philosophy. But how can we verify their truth or falsehood? Pragmatism tests the object of expectations with the help of experience. Thus one of the methods for pragmatists to deal with the meaning of a concept is to conduct a test on the content of expectations. According to pragmatists, the concept of meaning is larger than that of truth because the latter is limited to the meaning resulting from the testing procedure of the object signified in light of expectations. Expectations incur verification, but not all expectations need to be verified. Which expectations need verification depends on the goal of testing. Morris reminds us that the pragmatist testing procedure of expectations does not indulge itself in the mire of individualism and subjectivism dominant in traditional empiricism, and that testing procedures and social factors are not inconsistent. In real life, we often find that others' statements about something are in accordance with our expectations of that thing, and we believe others' statements because our expectations get verified in experience. From this perspective, expectations constitute one part of objectively observable behavior. Human interactive communication relies on testable experiential observation. Scientists believe what they see in the telescope or microscope. Attorneys and a dead person's family believe the deceased's will is true. Doctors believe patients' statements about their pain. All these cases of communication are related to the socialness of expectations and meanings. Under such circumstances, we do not have to go in person to make a direct and detailed test on the objects signified in others' statements. We believe those statements as when using ordinary tools because we rely on some inferential habits verified in larger domains. And those inferential habits have been universally recognized interactions of the members of a given community. For example, according to some kind of pragmatism, logical inference is a thinking instrument reflecting the socialness of verifying expectations. To some pragmatists, the thinking mode depends on the interacting mode between an organism and its surroundings, and logic studies how thinking fulfills its instrumental function. The function of logic is to help thinking fulfill its function adequately. In other words, pragmatists emphasize the psychological and biological factors of logical activities, and the so-called valid forms are only those thinking modes which are very much dependable in the process of solving problems, and

are in fact good generalizations of reflection examples (Morris, 1929, p. 255). Pragmatism tries to construct a universal theory which regards sciences as psychological habits, and attempts to illustrate the significance of the application and dissemination of scientific methods and achievements in the vast domain of human life. It is Dewey's pragmatic instrumentalism that pushes pragmatic theory of uses to the extreme. He puts an emphasis on the instrumental use of signs in individual and social life and regards sciences as systemized mind, psychological habit and an instrument for certain values. In sciences, there is much potential which can be used to investigate human life, improve or liberate the human mind. Dewey even thinks that the main task of pragmatic philosophy is to apply the rational methods emanating from sciences to social and ethical domains. Reason is regarded by Dewey as a force of social activities. The major contribution of Dewey's pragmatic instrumentalism lies in the description and generalization of the essential features of scientific psychological habits and the detailed analysis of values and social problems in various domains. On the whole, pragmatism goes beyond the boundaries of science, emphasizes the social and ethical environment of science and scientists, and is concerned with the various potential functions of rational methods as psychological habits in society and ethics. In short, pragmatism elevates the pragmatic aspect of meaning to a status of priority.

The advantage of pragmatism is its analysis, from the perspective of physiology and sociology, of concepts like sign, meaning, truth, consciousness, and mind, so as to avoid cocooning itself like a silkworm in *a priori* reasoning. Pragmatism has successfully accomplished the transition from the individuality and subjectivity of experience to the intersubjectivity and objectivity of experience. Pragmatism, compared with traditional empiricism, has broadened the scope of knowledge, meaning and truth, and, compared with formalism, has weakened the rigid border between testable and non-testable objects, between knowledge and hypothesis, but at the same time has not erased the relative importance of those distinctions since the relative importance among propositions is analyzed from the pragmatic angle. Although pragmatism distinguishes between subjectivity and objectivity, it has not given up the test of all possible meanings and, meanwhile, has kept the distinction between the content verified by oneself and the content verified by others' statements. However, pragmatism faces a great risk. As is pointed out by Morris, pragmatism as a biological positivism makes meaning only rotate around behavior, which might cause pragmatism to be trapped in a more serious predicament. And the emphasis of pragmatism on the social aspect might appear as a narrowing down the scope of human experience. Pragmatism can learn a lot from its European relatives, for example, learning the fine analytical method from formalism. Morris proposes systematization and a proper use of formal sciences as two ways of improving pragmatism (Morris, 1936, pp. 130-138). Pragmatism emphasizes the function of deduction in thinking, but its focus is only on the experiential background of the deduction system, regarding formal logic as an instrument for the formation of experience. Pragmatism often leaves us such an impression: negating actual formalness

and neglecting the important function and meaning of *a priori* structure. For example, the theorem $(p < q) < (pr < qr)$ is regarded by formalism as an *a priori* structure in which “<” is an implicative sign. Let p , q and r stand for any propositions and let every proposition be either true or false. According to these rules, this theorem is obviously true for any combination of p , q , and r . In Morris's analysis, no matter what the three propositions are, and regardless of their truth value, the theorem “ p implies q ” implies the theorem “ pr implies qr ”, and the implicational relationship between the two branch propositions is valid, i.e., the theorem “if p implies q , then pr implies qr ” is valid. In this sense, Morris regards this theorem as *a priori* truth (Morris, 1929, p. 264). Consequently, the abstract *a priori* structures discussed by formal sciences are not only from experience, but also independent entities by themselves, and pragmatism regards them as the result of human activities. For example, James regards logic and mathematics as the result of mind play; Lewis regards *a priori* structures as the result of human selection of words meanings, i.e., regarding the absolute truth domain in logical necessity as the domain of definition and the product of human decision.

4. Complementation, Combination and Unification

Formalism, empiricism, and non-Peircean pragmatism have their advantages and disadvantages respectively. Formalism mainly serves formal sciences, empiricism mainly serves linguistic analysis, and pragmatism serves human values. According to Morris, these three philosophies have their own reasonable focus, but none of them alone can adequately and properly explain signs and meanings. Formalism studies possible languages emphasizing the formal relations between signs. Empiricism studies actual languages emphasizing the relations between signs and their referents. Pragmatism studies both possible languages and actual languages emphasizing the relation between signs, behavior, and values. Mathematics and logic are possible languages, sciences are actual languages, and arts are languages about values. So mathematicians and symbolic logicians are practitioners of formalism because they regard signs, forms and relations as their research focus. Scientists are ideal candidates for empiricism because they attempt to describe the true nature of objects emphasizing the experiential aspect of meaning. Artists and businessmen exemplify pragmatism because they connect signs, practical values, and value judgments emphasizing pragmatic meaning. These three philosophical traditions are different and complementary. For example, traditional empiricism and formalism have been constantly at odds throughout history. Formalism appears as metaphysics imitating mathematical concepts and seeking *a priori* existence like Russell's view on functional language, while traditional empiricism concentrates its fire on the transcendental view of formalism instead of making a positive appraisal of the formal scientific methods used by its adversary. Formalism however criticizes traditional empiricism as being superficial subjectivism, individualism, and atomism. What Morris does is to point out the connections between the three schools of philosophies. Mathematics is the main means

of acquiring natural knowledge by formalism, while experiment is a favored means of empiricism. These two methods have been opposed to each other throughout history, and the situation has resulted in the opposition between formalism and empiricism. In fact, both mathematics and experimentation are means of studying nature, their aims are the same, and they complement each other. After mathematics was combined with traditional logic, formalism changed from ontological metaphysics to methodological rationalism. And after the traditional empiricism adopted mathematical forms, formalism and empiricism have ceased to be antagonistic, but have become complementary components of sciences whose method is the combination of deduction and experiment. If formalism stands for theory and empiricism stands for practice, the dichotomy between theory and practice will be cancelled with the combination of mathematics and empiricism (Morris, 1938, p. 64). According to Morris, contemporary empiricism is developing in this direction. New empiricism begins to take a proper view on formal sciences. Formal logic and mathematics help empiricism avoid subjectivism, and move on to objectivity and the social nature of experience while adhering to the controlling function of individual experience. Many modern empiricists consider symbolic logic as an analytic instrument, but Morris points out that the empiricists' interest in formal sciences lies not only in their instrumentality but also in the possibility that, ontologically speaking, all formal sciences as a whole can be combined with empiricism. This horizon is vast enough to include all aspects of sign operation so as to lay a semiotic foundation for modern empiricism which encompasses formal logic and mathematics (Morris, 1935, pp. 2-16). Formal sciences consist of analytic propositions and empirical sciences consist of synthetic propositions. But as is pointed out by Morris, the history of thought shows that synthetic propositions of one period might become analytic propositions of another period, and vice versa (Morris, 1935-1936, p. 12). Approached in this way, there is not a wide gap between formal sciences and empirical sciences. Furthermore, logical analysis itself in formal sciences can become the object and material of empirical study, so the distinction between formalism and empiricism is relative. Ensuring obedience of the behavioral code is a matter of experience and so is it in the semiotic domain in order to make sure of the result of obeying a rule, i.e., the inference of deduction. To operate on a formal level only shows that we limit our attention to linguistic structures, and does not prove that we have given up our concern with psychological experiential habits. What Morris insists on is that even though formalism pushes itself to the extreme, it is still a special kind of empiricism as far as actual or possible sign vehicles are concerned (Morris, 1935-1936, p. 12). The confluence of formalism and pragmatism can be seen in the two important tasks of pragmatism, i.e., systematization of and proper handling of formal sciences. To Morris's mind, these two philosophical approaches are complementary to each other and they will have a thoroughly promising future if they can make up for each other's deficiencies and learn from each other. Although pragmatism is keen on biological sciences and formalism favors symbolic logic, these two modes of thought are aware of their own deficiencies and sense the appeal from each other's domain. Pragmatism attempts to extend its antenna to

the domain of the formal sciences, and physics and formalism begin to acknowledge the pragmatic context in which signs function. In fact, Peirce, the founder of pragmatism, was a master of biology, mathematics, and physics (among other sciences). The combination of pragmatism and formalism is like a circle on which they start from the same point and go to meet one another at a closing point after a period of separation. These two philosophical views, according to Morris, are two forms of positivism, formalism being logical positivism and pragmatism biological positivism. To combine these two into one, what is required is the scientific empiricism advocated by Morris. And to complement pragmatism with traditional empiricism is a step toward scientific empiricism.

As analyzed above, the combination of empiricism and formalism prompts us to draw the conclusion that formal rules are conventional habits. For example, the correctness of formal rules relies on conventional rules concerning language. In the discussion on conventional formal rules and habits, besides formal and empirical factors, sign users are unavoidably involved. Pragmatists, especially Dewey, put special emphasis on the instrumental meaning of empirical concepts and formal procedures. According to Dewey, because logical rules are successful for some inferential purposes, they are designated by users as theorems or axioms to be used in future inferential studies. This way of thinking is in fact an empirical generalization for pragmatic purposes. Introducing pragmatism into empiricism can help the latter avoid going to the extreme. Pragmatism, with the help of biological and sociological methods, helps empiricism further clarify the instrumental meanings and scientific usages of the terms like “experience,” “ego,” “concept,” “meaning,” and liberates empiricism from the prison of subjectivism and individualism. Pragmatists’ emphasis on the relations and functions of objects from a biological perspective leads empiricists to pay close attention to the aspects of relations and functions of experience. From the perspective of sociology, pragmatists’ awareness of the social environment in which signs and their meanings appear helps empiricists see clearly the one-sidedness of subjectivism and individualism in the concept of experience. For Morris, the combination of pragmatism and empiricism leads to thorough empiricism. In other words, pragmatism with its thorough empiricist view contributes to the enrichment of the empiricist tradition (Morris, 1938, p. 6).

Morris tried to construct, from the perspective of *a priori* variable, semiosis and meaning, the complementarity and unity between formalism, empiricism, and pragmatism. The implication relation mentioned above is regarded as an *a priori* structure by formalism. *A priori* structures refer to a set of meaning structures on which organisms with thinking ability rely for dealing with empirical materials. And formalism is keen on the research about *a priori* structures. But pragmatists like Lewis think that these *a priori* structures are a result of the selection of the meanings of words and are therefore subject to changes. In non-Peircean pragmatism, the absolute truth domain of logical necessity is a domain of definitions and a result of human selections. *A priori* structures depend on connotative definition, i.e., the conditions satisfying a definition, for example, the connotative definition of metal is to describe the conditions to be met if something is to

be called metal (Morris, 1929, p. 265). Morris thinks that *a priori* structures vary with the changes of new empirical materials and users' interest and purpose, and therefore provide a new reference framework for formal analysis. The changing *a priori* structures are called variable *a priori*. If an *a priori* structure is compared to the cross-section of a tree at a certain period, the variable *a priori* can be regarded as the changes of the cross-section at different periods. Variable *a priori* is subject to the control of the experiencing environment and the control of users' purposes. If thunder and rain lose their connection in experience, the relationship between the two words will vary accordingly. If the utterance of "it is thundering" could result in a consequence which people do not want to happen, behavior rules involved here will be replaced by others. Every change of variable *a priori* is accompanied by formal, experiential and pragmatic changes. To take actions according to a set of new *a priori* structures will lead to the rise of new experience and purpose, which in turn will have an influence on the variable *a priori*. The changes of *a priori* structures tie together form, experience and pragmatic purpose. The changes of variable *a priori* involve the form of sign combinations emphasized by formalism according to sign usage rules, encompass the past experience traces of meaning structures described by empiricism, and reflect human needs and purposes which pragmatism focuses on. Morris dialectically points out that formalism, empiricism, and pragmatism have correctly highlighted some foci with respect to relations between signs, relations between signs and objects, and relations between signs and purposes, but only when they assert their own foci as the content of all truths do they become fallacy (Morris, 1935-1936, p. 11). Only when they are integrated into one unity can these three philosophical thoughts have more explanatory power. It is the concept of variable *a priori* that Morris uses to regard formalism, empiricism, and pragmatism as three complementary components in the development of scientific thought.

Variable *a priori* is a specific meaning structure. Considered in a broad perspective, it is still true that formalism, empiricism, and pragmatism are complementary to each other. Meaning for Morris is not a particular event, but a functioning process in which one situation is referred to from different angles. When we approach a word in its relation with other words in a language, we get its formal aspect of meaning. When we understand the signified object of a word, we get its empirical aspect of meaning. When we are aware of what expectations are aroused in people, we obtain its pragmatic aspect of meaning. Morris reminds us that what cannot be neglected is that the delimitation of all three aspects of meaning is an empirical process. When we attempt to explain all the features of meaning from any one perspective, our explanation will extend to other perspectives. When empiricism attributes the meaning of a sign to its signified object and describes the qualities of the object to meet meaning requirement, other signs will be unavoidably used to accomplish this description by empiricism and this will lead to the formalist stand because the explanation of the meaning of a sign will inevitably involve its relation with other signs. When pragmatism defines the meaning of a sign as the expectations it arouses, it will unavoidably talk about the object of expectations and therefore impinges

upon the empirical aspect of meaning. In a similar manner, when formalism highlights the formal aspect of meaning, formal rules themselves as empirical objects will have their pragmatic meaning. Every aspect of meaning needs and makes use of another aspect. The meaning concept put forward by Morris provides an important platform for the combination of formalism, empiricism, and pragmatism (Morris, 1936, pp. 130-138).

The discussion meaning is in fact closely intertwined with the discussion of semiotic relations. Two of the relations discussed by Morris are that of signs referring to non-sign objects and that holding between signs (Morris, 1929, p. 267). From the first relation we can get the extensive meaning of signs, and from the second relation we can obtain intensive meaning of signs. Morris thinks that logical studies move along the directions indicated by these two relations. The object in the first sign relation in fact includes both the empirical object emphasized by empiricism and the category of behavioral response emphasized by pragmatism. The first research orientation encompasses two modes of thought: (1) the study of signified objects belongs to empiricism which focuses on empirical induction, and (2) the study of the signified behavior of signs falls into pragmatism which focuses on the research of instrumental uses. The second research orientation is formalist, for it studies the internal relations between signs. Because the definition of intensive meaning of signs mainly describes the qualities of a thing meeting a sign, the intensive meaning of signs determines the extensive meaning of signs, but at the same time cannot occur without the previous extensive meaning. For Morris, the mutual dependence between the intensive meaning of signs and the extensive meaning of signs illustrates the complementarity between formalism, empiricism and pragmatism.

Formal factors, empirical factors, and pragmatic factors exist equally in sign processes, which can be verified by formalism, empiricism, and pragmatism. The process of verification is one of knowledge acquisition. And knowledge is part of meaning. For Morris, in scientific usage, knowledge refers to the meaning verified by society and meaning as knowledge is a stable reference point in scientific procedures. Scientific knowledge has a societal feature, i.e., social acknowledgement. In the domain of meaning, some meanings are controversial, and others are consensual. Morris defines knowledge as consensual meanings and so meanings as knowledge represent previous human cognition. Consensual meanings are problem-solving tools. Knowledge is constructed as experience and transmitted by way of socialization. Hence, from the perspective of knowledge, empirical factors in semiosis, in Morris's opinion, take precedence over others. As for the knowledge of the proposition that three kinds of factors exist in semiosis, we need to empirically find out the presence of the three kinds of factors in sign situations and verify this proposition. To verify a proposition with the object signified by experience is a method by positivism. Therefore, from the angle of knowledge verification, formalism, empiricism, and pragmatism are complementary components in the broader scope of empirical positivism. Morris could not find a better name than scientific empiricism to address this broadened positivism which integrates formalism, empiricism, and pragmatism as a whole (Morris, 1935-1936, p. 13).

Scientific empiricism is in fact a higher-level thinking activity, which in an empirical manner explores formal, empirical, and pragmatic factors in lower-level thought situations. Morris thinks that these three kinds of factors exist in every thinking situation. Because formalism, empiricism, and pragmatism have some complementary scientific overlap (Morris, 1937, p. 16), Morris dismisses their defects, makes use of their advantages, remolds them respectively into methodological rationalism, thorough empiricism, and critical pragmatism (Morris, 1938, pp. 63-75), and finally combines them into scientific empiricism. This newer philosophical mode of thought only acknowledges those concepts and propositions that are based on and are subject to the control of proofs. By “scientific”, what is meant is that sciences are the acknowledged reference point in philosophical studies and formalism, empiricism and pragmatism functioning in various sciences are all encompassed in scientific empiricism. In Morris’s view, scientific empiricism is a meta science, i.e., a science of sciences, which is intended to take into consideration all scientific enterprises. This ambitious goal requires the exploration of formal, empirical, and pragmatic factors in scientific enterprises. These three kinds of factors make up the three components of scientific empiricism which overcomes the partiality of holding formalism, empiricism, and pragmatism in isolation, and benefits from the merits of the three philosophical modes of thought. As a science of sciences, scientific empiricism takes sciences as its research object. In Morris’s opinion, the most conspicuous form of expression of the sciences is written letters and words. A science is an organic whole which consists of many signs. There are certain relations between signs and signs, between signs and objects, and between signs and practice. Hence a science is simultaneously a language, a kind of knowledge of objects, and an activity (Morris, 1938, pp. 68-69). We can study the relations between signs in scientific language in a formalist manner as was done by Carnap. This kind of study is termed by Morris as the syntactic study of scientific language; the study of the relation between signs and their objects in scientific works can be termed semantic study of scientific language; and the study of the relation between the signs of scientific language and the activities of scientists can be called the pragmatic study of scientific language. The scientific empiricism put forward by Morris encompasses the interconnected syntactics, semantics and pragmatics of scientific language. Thus, Morris’s scientific empiricism provides a philosophical foundation for a certain kind of semiotics. Or to put it in another way, the former is a model for the latter. Scientific empiricism is a language about scientific languages and is granted by Morris the important mission to be a universal science. Therefore, it is the most inclusive language which at the same time co-exists with other specific scientific languages. In this sense, it is also the object of study by a broader semiotics. Because scientific empiricism is a language about various languages, it is in this sense a miniature of semiotics.

Formalists like logicians and mathematicians place their emphasis on the relation between signs, and their study is syntactic in nature. Traditional empiricists and natural scientists are concerned with the relation between signs and objects, and their study is semantic. Pragmatists, biologists, and sociologists focus on the relation between signs

and human beings, and their study falls into the pragmatic category. As is pointed out by Morris, each of the three sign relations represents only one aspect of meaning, and when formalism, empiricism, and pragmatism regard one aspect of meaning as the sole content of meaning they are in danger of fallacy. The meaning of a sign should be the totality of all aspects of meaning. Morris integrates the three aspects of meaning into a whole with an equation: $M=M_E+M_P+M_F$, in which M is the total meaning, M_E is the existential aspect of meaning or existential meaning reflecting the relation between signs and objects, M_P is the pragmatic aspect of meaning or pragmatic meaning representing pragmatic relations of signs, and M_F is the formal aspect of meaning or formal meaning, indicating formal relations between signs (Morris, 1935, pp. 2-16). In this way, Morris connects the three aspects of meaning and the three aspects of signs, and the discussion of every aspect leads to other aspects. With this equation, Morris on one hand integrates formalism, empiricism, and pragmatism into his scientific empiricism, and on the other hand constructs the discipline of semiotics that encompasses syntactics, semantics, and pragmatics. For Morris, semiotics itself is an independent discipline, and at the same time is an instrument for various specific sciences and the philosophy of scientific empiricism.

From the analysis above, we can see the complicated associations between the discipline of semiotics and the philosophy of scientific empiricism, and between the three components of semiotics and the three philosophical conceptions, i.e., formalism, empiricism, and pragmatism. Scientific empiricism unites the rationalities of formalism, empiricism, and pragmatism, while semiotics makes its own achievements: in syntactics, semantics, and pragmatics arise from corresponding philosophical foundations. Metaphysics narcissistically questions the origin of its presupposed imaginary world. In contrast to this, Morris's scientific empiricism, in studying the objects signified by propositions, verifies those propositions and thereafter classifies them into hierarchical knowledge. In other words, scientific empiricism explains human knowledge from various perspectives of sign signifying relations, and this explanatory method is in principle semiotic. Unlike previous philosophies, scientific empiricism is a philosophy of semiotic nature. Morris constructs semiotics on the basis of scientific empiricism. Therefore, it is no wonder that semiotics might also be called philosophical semiotics. Since Morris regards philosophy and semiotics as a language of scientific languages, his semiotics can be termed as scientific semiotics as well. But Morris's final determination is to set up a semiotics which surpasses and can unify philosophy and various sciences.

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