

- Burnyeat, M.  
1998 *Introduction au Théétète de Platon*, traduction par M. Narcy, Paris, PUF, 1<sup>re</sup> éd. 1990.
- Cooper, J. M.  
1970 «Plato on Sense-Perception and Knowledge (*Theaetetus* 184-186)», *Phronesis*, vol. 15, p. 123-146.
- Cornford, F. M.  
1935 *Plato's Theory of Knowledge*, Londres, Kegan Paul.
- Des Places, E.  
1961 «La langue philosophique de Platon. Le vocabulaire de l'être», *Comptes rendus de l'Académie des Inscriptions et Belles Lettres*, p. 88-94.
- Dixsaut, M.  
1985 *Le naturel philosophe. Essai sur les dialogues de Platon*, Paris, Vrin.
- Fouillée, A.  
1869 *La philosophie de Platon*, tome 2, Paris, Baillière.
- Hardie, W. F. R.  
1936 *A Study in Plato*, Oxford, Clarendon Press.
- Joubaud, C.  
1991 *Le corps humain dans la philosophie platonicienne*, Paris, Vrin.
- Kahn, C. H.  
1981 «Some Philosophical Uses of "To Be" in Plato», *Phronesis*, vol. 26, p. 105-134.
- Modrak, D. K.  
1981 «Perception and Judgment in the *Theaetetus*», *Phronesis*, vol. 26, p. 35-54.
- Nédoncelle, M.  
1970 «Les données auditives et le problème du langage dans l'allégorie de la caverne», *Revue des sciences religieuses*, vol. 44, p. 165-178.
- Robin, L.  
1935 *Platon*, Paris, PUF.
- Silverman, A. J.  
1990 «Plato on Perception and "Commons"», *Classical Quarterly*, vol. 40, p. 148-175.
- Soulez, A.  
1991 *La grammaire philosophique de Platon*, Paris, PUF.

## Presuppositional Languages and the Failure of Cross-Language Understanding

XINLI WANG *Juniata College*

**RÉSUMÉ :** Pourquoi la compréhension mutuelle entre deux vastes communautés linguistiques substantiellement différentes est-elle souvent problématique et même inaccessible? Pour répondre à cette question, j'introduis d'abord une notion de langages présuppositionnels. Sur la base de la structure sémantique d'un langage présuppositionnel, j'identifie une importante condition nécessaire pour la compréhension effective d'un langage : l'interprète est capable de comprendre effectivement un langage seulement si il ou elle est capable d'en reconnaître et d'en comprendre les présuppositions métaphysiques. Ce rôle essentiel de la connaissance des présuppositions métaphysiques dans la compréhension est encore renforcé par le développement d'une théorie vériconditionnelle de la compréhension. Je conclus que si l'interprète aborde un langage étranger incompatible en adoptant le point de vue du langage de l'interprète lui-même et en projetant les présuppositions métaphysiques de son propre langage sur le langage étranger, alors la compréhension mutuelle entre les deux communautés linguistiques est vouée à l'échec.

### 1. The Problem: The Failure of Cross-Language Understanding

A radical conceptual shift in the language employed by a comprehensive scientific theory can render the language largely unintelligible to a later age. As T. S. Kuhn observes, when the languages employed by two successive rival scientific theories are separated by a scientific revolution, their respective proponents are liable to experience a failure of mutual understanding (Kuhn 1983, p. 669; 1987, pp. 8-9; 1988, pp. 9-10; 1991, p. 4). I. Hacking concurs and points out that the medical theory of the well-

known sixteenth-century Swiss alchemist and physician, Paracelsus—which exemplifies a host of hermetic interests within the Northern European Renaissance tradition—makes little sense to modern Westerners (Hacking 1982, 1983). Similarly, in canonical texts such as Descartes's *Le monde*, Galileo's writings, Bacon's *Advancement of Learning* and *Novum Organum*, and Locke's *Essay Concerning Human Understanding*, we find the writers claiming to be unable to understand some of the fundamental concepts of the Aristotelian (Biagioli 1990, pp. 183-84). By the same token, substantial semantic and/or conceptual disparities between the languages employed by two comprehensive theories, embedded in two co-existent, distinct, intellectual/cultural traditions, can create serious impediments to mutual understanding. For example, Chinese medical theory is largely unintelligible to Western physicians.

More significantly, as Kuhn and others have noticed, the failure of cross-language understanding cannot simply be taken as evidence of the interpreter's limitation of knowledge or lack of interpretative skills. In many cases, difficulty in understanding an alien language is experienced by most members of a language community. It is this failure of mutual understanding between two language communities as a whole, rather than between some individual speakers with different dialects, intentions, or conflicting interests, that calls for our attention. It clearly involves some deep semantic and/or conceptual obstructions between two substantially disparate languages that make effective mutual understanding difficult and problematic.<sup>1</sup>

Presumably, to explain the failure of cross-language understanding, we need some account of cross-language understanding that is able to locate some essential semantic and/or conceptual obstructions between two languages and thus to identify a significant *necessary* condition of cross-language understanding. A variety of accounts of cross-language understanding have been proposed. None of them are able to identify such a significant *necessary* condition. For example, some contend that one can understand an alien language by translating it into one's native language. Elsewhere it has been argued that translation is neither a necessary nor (necessarily) a sufficient condition for understanding.<sup>2</sup> Still others contend that one can understand a language by understanding its components. But understanding a language is obviously different from understanding its words or sentences. In fact, in any given case of cross-language understanding, there would always be a failure to grasp or understand some specific words or sentences. More to the point, it is quite uninteresting to learn that understanding a language requires a comprehending of its parts. Therefore, even if understanding the parts of a language is necessary for understanding it, it is too trivial a position to be useful as an explication of the failure of cross-language understanding.

Among all other accounts that cannot be listed here, D. Davidson's truth-conditional account of understanding is by far the most appealing (Davidson 1984). According to that account, to know the (Tarskian) truth-conditions of the sentences of a language is both necessary and sufficient to understanding the language itself. However, many have challenged Davidson's basic doctrine that Tarski's semantic notion of truth is central to a theory of understanding; they offer other alternatives without appealing to truth-conditions, such as M. Dummett's verificationist conditional account (Dummett 1993) and W. Sellars's and G. Harman's conceptual role account (Harman 1984). These objections raise doubt about the thesis that the knowledge of truth-conditions is *necessary* for cross-language understanding. More importantly, as will be argued later, it is the knowledge of *truth-value* conditions (under what conditions a sentence has a truth-value), not the knowledge of *truth-conditions* (under what conditions a sentence is true), that plays the essential role in cross-language understanding.

I will present a truth-value conditional account of understanding to identify some significant language-related contextual factors *necessary* for effective cross-language understanding. The notion of effective cross-language understanding will become clear in due course. But a few preliminary remarks about the concept, the subject, and the object of effective understanding might be helpful here. First of all, my discussion of effective understanding will focus only on the essential core of any comprehensive understanding,<sup>3</sup> namely, the propositional understanding (i.e., understanding of the propositional content of what is being expressed). Accordingly, "the speaker/interpreter of a language" is intended to refer to all the speakers/interpreters as a whole, not some specific individual speaker/interpreter with different transient psychological states. Finally, "what is to be understood" is a language as a whole, not some isolated words or sentences of a language. However, at issue is what kind of language is supposed to be understood. Is it a natural language, a scientific language, a linguistic framework, or the language of a culture or tradition? Some of these notions are too narrow (a natural language), some are too broad (the language of a culture or tradition), and some are too vague (a linguistic framework) to be the proper object of effective cross-language understanding. To capture the essential core of these closely related notions, I introduce the notion of a presuppositional language in the next three sections.

## 2. Metaphysical Presuppositions

A scientific language can serve as a paradigm of a presuppositional language (hereafter, p-language) that I have in mind. A scientific language, following the convention in the discipline of philosophy of science,<sup>4</sup> refers to a theoretical language employed to formulate a comprehensive scientific theory.<sup>5</sup> A comprehensive scientific theory (such as Newton's physics, Aris-

totelian physics, Einstein's relativity theory, traditional Chinese medical theory), which roughly corresponds to P. Feyerabend's "background theory," refers to a whole spectrum of conceptually related, relatively restricted individual scientific theories that share the same theoretical model. For example, quantum theory includes several relatively restricted individual theories, such as quantum field theories, group theories, S-matrix theory, and renormalized field theories. Feyerabend once pointed out that comprehensive scientific theories are sufficiently general, sufficiently "deep," and have developed in sufficiently complex ways. They can be considered, to some extent, along the same lines as well-developed natural languages (Feyerabend 1978, pp. 224-25). However, scientific languages should be distinguished from natural languages. The same scientific language (i.e., the language of Newtonian physics) can be recorded in different natural languages (i.e., English or German); on the other hand, two different scientific languages can be recorded in the same natural language. It is important to emphasize that it is the understanding of a scientific language, instead of a natural language, that is the concern of this article.

One crucial feature of a scientific language is that its core sentences share one or more fundamental (Strawsonian) semantic presuppositions.<sup>6</sup> For example, the existence of phlogiston is presupposed by numerous core sentences of the language of phlogiston theory. Likewise, the assumption that there exists absolute space and time underlies the core sentences of the Newtonian language of space and time. These shared fundamental semantic presuppositions of a scientific language are referred to as its metaphysical presuppositions, which are contingent factual presumptions about the world perceived by a language community. There are three primary types of metaphysical presuppositions that merit elaboration.

#### *A. Existential Presumptions*

Many core sentences of a scientific language presuppose the existence of some theoretical entities postulated by the corresponding theory. The language of phlogiston theory presupposes the existence of phlogiston. To say, "The element *a* is not richer in phlogiston than the element *b*" presupposes that "There exists phlogiston." Similarly, the presupposed existence of the yin and the yang, as well as the five elements, underlies many core sentences of the language of traditional Chinese medical theory. These existential presuppositions of a scientific language, which are about the theoretical entities that a language community believes to exist in the world, are referred to as existential presumptions.

#### *B. Universal Principles and Modes of Reasoning*

Metaphysical presuppositions may be some fundamental assumptions about the existential state of the world perceived by a language community. They function as the fundamental shared state-of-affairs presuppo-

sitions of a scientific language and are referred to as universal principles.<sup>7</sup> This is another name for "fundamental rules/laws" underlying a scientific language, such as "Fermat's conjecture" in classical arithmetic, uncertainty relations in the quantum theory, the postulate of "absolute space and time," the second law of motion, or the presumption that shapes, masses, and orbital periods are changed only by physical interactions in the language of Classical Newtonian physics.

More significantly, we can often find a unique mode of reasoning associated with some hidden universal principles of a scientific language. Hacking has identified different styles of scientific reasoning within the Western scientific tradition, such as the Euclidean style of thought in ancient Greece and the Galilean style of reasoning in modern time (Hacking 1982, pp. 48-49). Hacking's style of reasoning has two distinctive features. First, it is not a set of beliefs or assumptions about the nature of the world, but rather the way that beliefs or propositions are proposed and defended. Second, it is not a truth-preserving rule of formal logic, but a way to determine what is taken to be a legitimate candidate for truth or falsity. In a trivalent semantics,<sup>8</sup> we can distinguish two kinds of truth-related semantic values of a sentence, namely, its truth-value (whether it is true or false) and its truth-value status (i.e., whether it has a classical truth-value or whether it is a candidate for truth-or-falsity). Accordingly, the evaluation of a declarative sentence should be conceived as comprising two connected stages: first to determine its truth-value status and second (if the answer to the first question is positive) to determine its truth-value. Hacking's style of reasoning is supposed to be a special form of reasoning that can pass the truth-value status, but not the truth, of a set of sentences to another sentence, and thereby determines its truth-value status. The classical truth-preserving forms of reasoning—such as deduction—will not do for this purpose. Hacking clearly realizes this and claims that his style of reasoning is not a form of reasoning in the traditional sense. But he does not specify at all what alternative form of reasoning it is, except to claim that it is supposed to determine the truth-value status of sentences.

Left unresolved by Hacking, however, is how a form of reasoning, no matter what it is, can determine the truth-value status of sentences. According to Strawsonian truth-value conditions to be presented in the next section, the truth-value status of a sentence is determined by the truth-value of its presupposition(s). A presupposition of a sentence is an assumption about the existential state of the world. This suggests that, as far as its function of truth-value-status determination is concerned, a style of reasoning has to be associated with some kind of assumptions. Therefore, it is reasonable to hypothesize that for any specific style of reasoning within a cultural/intellectual tradition, there are some associated hidden universal principles. More precisely, it is imaginable that every style of reasoning is embedded in a cosmology constituted by some (hidden or

explicit) universal principles. During the historical development of a tradition, these initially explicit universal principles operated *constantly* and eventually became treated as *constants* within it to the extent that they became incorporated into the conception of understanding to generate a unique way of understanding the world. A unique style of reasoning eventually evolved from the same process.<sup>9</sup> Then to say that a style of reasoning determines the truth-value status of sentences is actually to say that the associated hidden universal principles determine it. In this way, the internal conflict between two merits of a style of reasoning—i.e., as a form of reasoning and as a truth-value-status determinator—can be resolved. To distinguish this modification of the notion of the style of reasoning from Hacking's, the former is herein referred to as "the mode of reasoning."

### C. Categorical Frameworks

A categorical framework is a specific category system that describes the structure of the world perceived by a language community. One kind of category system deserves our special attention, namely, lexical taxonomy.<sup>10</sup> Different scientific languages often presuppose different lexical taxonomies, such as the Copernican taxonomy (in which planets include the earth but not the moon and the sun) versus the Ptolemaic taxonomy (in which the moon and the sun were in the extension of the kind "planets" but the earth was not). The lexical taxonomy of a scientific language actually functions as a system of shared fundamental sortal presuppositions<sup>11</sup> of the language that set the boundaries for the categories of its core predicates. Take the Ptolemaic sentence *L*: "All the planets revolve about the earth" as an example. *L* presupposes at least one assertion about the categorical status of the earth. That is,  $L_a$ : "The earth is not a planet," which is analytically implied by the verb "revolve" in *L*.  $L_a$  is one fundamental sortal presupposition of the Ptolemaic language about the category of the predicate, "\_\_\_ is a planet," which excludes "the earth" from the category of "planets."

### 3. Truth-Value Conditions

To better appreciate the significance of the notion of metaphysical presuppositions, it is useful to distinguish, in a bivalent semantics, truth-value conditions from truth-conditions. The usual theories of truth, such as the correspondence theory, are semantic theories about truth conditions and can only be used to determine the truth-value of a statement.<sup>12</sup> According to Tarski's semantic theory of truth, a theory of truth for language *L* is a set of axioms that entail, for any sentence in *L*, a statement of conditions under which it is true. If there is a definition of the truth predicate "\_\_\_ is true in *L*" satisfying Tarski's Convention T,

(Con-T) *s* is true in *L* iff *p*,

then there is a theory of truth for *L*. When "*s*" is replaced by a canonical description of a sentence *S* in an object language *L* and "*p*" by a sentence *P* of a metalanguage *M*, the corresponding T-sentence, "*S* is true in *L* iff *P*," gives us the truth conditions of sentence *S* in *L*.

But at issue here is not whether a statement is true, but rather whether a given string of words is assertable (hence, qualifies as a statement) or whether a sentence has a truth-value. What is needed is not an account about truth conditions, but an account about truth-value conditions. P. Strawson's notion of semantic presupposition provides us with a basic theoretical framework for such an account. According to Strawson's trivalent semantics (Strawson 1996), the truth of a presupposition of a sentence is necessary for the truth or falsity of the sentence. For example, sentence *K*: "The present king of France is bald," presupposes sentence  $K_a$ : "The present king of France exists." *K* is true or false only when  $K_a$  is true; otherwise *K* is neither true nor false. In addition, a sentence may have many different presuppositions. For example, *K* has at least three different presuppositions, i.e.,  $K_a$ ,  $K_b$ : "There is a country called France," and  $K_c$ : "A person can have hair." The conjunction of all the presuppositions of a sentence, if true, is *sufficient* for the truth or falsity of the sentence. For instance, the conjunction of  $K_a$ ,  $K_b$ , and  $K_c$ , if true, is sufficient for *K* to be true or false. But if any one of them is not true, then *K* is neither true nor false.

The above reasoning can be formalized as follows. Suppose  $P_i$  ( $i = 1, 2, \dots, n$ ), when considered within language *L*, is a complete list of all the presuppositions of sentence *S*. Then *S*'s sufficient presupposition is  $P = (P_1 \& P_2 \dots \& P_n)$ . It can be symbolized as:  $\vdash_L [(T_L(S) \vee F_L(S)) \leftrightarrow T_L(P_1 \& P_2 \dots \& P_n)]$ .<sup>13</sup> If any of the presuppositions  $P_i$  ( $i = 1, 2, \dots, n$ ) is untrue, then *S* will be neither true nor false. If all the presuppositions are true, then *S* is true-or-false. Unlike Tarski's Convention T used to determine the truth-value of a sentence in a language, the above formula (dubbed "Convention P") can be used to determine the truth-value status<sup>14</sup> of a sentence in a language. Putting it in a format analogous to Convention T,

(Con-P) A sentence *S* is true-or-false when considered within a language *L* if and only if *S*'s sufficient presupposition *P* is true in *L*. That is,  $\vdash_L [(T_L(S) \vee F_L(S)) \leftrightarrow T_L(P)]$ .

To say that a sentence is true (or false) in terms of some given truth conditions presupposes that it has a truth-value in terms of some given truth-value conditions. In this sense, a theory of truth-value (the notion of truth-value status and truth-value conditions) is more fundamental than a theory of truth (the notion of truth and truth conditions).

According to Convention P, the truth of a single metaphysical presupposition of the core sentences of a p-language is *necessary* for the truth or falsity of the sentences. And the conjunction of all the metaphysical pre-

suppositions of the core sentences of a p-language, if true, is *sufficient* for the truth or falsity of the sentences. This establishes that the metaphysical presuppositions of a p-language constitute the truth-value conditions of its core sentences. The truth-value status of the core sentences of a p-language is determined by the truth-values of its metaphysical presuppositions.

According to one interpretation of Wittgenstein's fact-ontology, to say that a sentence of a p-language has a truth-value is to say that the state of affairs designated by the sentence is a possible fact. To ask about possible facts is to ask whether a language is fit to describe the world perceived through it (Gaifman 1975, 1976). Therefore, it is its metaphysical presuppositions, in terms of determining the truth-value status of its core sentences, that determine whether a p-language is fit to describe the world perceived by the language community. In this sense these metaphysical presuppositions are actually the ontological commitments of the language. The essential job of a p-language is to form a conceptual setup specified by its metaphysical presuppositions to describe the world under consideration. Hence the essence of a p-language consists in its metaphysical presuppositions, which are conceptually true within the language in the sense that denial of them signifies a complete breakdown of informative use of the language.

It should be emphasized that, as Strawson has argued, a presupposition of a sentence is not a *part* of the sentence, and is not even logically *entailed* by the sentence. By the same token, a metaphysical presupposition (i.e., "There exists phlogiston") of a sentence (i.e., "The element *a* is not richer in phlogiston than the element *b*") is not a *part* of the sentence. Thus the metaphysical presuppositions of a scientific language (i.e., the language of phlogiston theory), which might be important components of the corresponding scientific theory (phlogiston theory), are not parts of the language. In general, the metaphysical presuppositions are not *parts* of a linguistic setup of the corresponding p-language.

It becomes clear now that by a p-language, I mean a comprehensive language in which its core sentences share one or more metaphysical presuppositions.<sup>15</sup> Scientific languages as I have defined are p-languages. Even natural languages are p-languages to some extent. That the sun exists, that it rises and sets periodically, may in many everyday discourses count as an inevitable presupposition. Denial of them would play chaos with everyday communicative activity.

#### 4. A Presuppositional Language

As an illustration of a typical p-language, consider the language of Chinese medical theory (hereafter CMT) (Lan 1988). During its more-than-two-thousand-year development, CMT has established a complete conceptual system including its own physiological theory, pathological theory, diagnosis, and treatments. Its physiological/pathological basis consists of

the yin-yang doctrine, the five-element doctrine, the viscera doctrine, and the jingluo doctrine. According to the yin-yang doctrine, it is the balance between the yin and yang parts of the human body that ensures its normal function and health. Loss of the yin-yang balance leads to diseases. Treatment is therefore a matter of restoring this balance. For example, CMT holds that the spleen is responsible for transport and conversion. The spleen affects the upward movement of vital substances and controls blood. Many spleen diseases are caused by the imbalance between the yin and the yang within the spleen, which is manifested as either an asthenic or a sthenic spleen. The cure for these diseases lies in the nourishment of the spleen to restore the yin-yang balance.

The three types of metaphysical presuppositions are identifiable within CMT. First, the existence of the yin and the yang as well as the five elements is existential presumption of CMT. Both underlie numerous core sentences of the language of CMT. Second, CMT has its own unique medical category system. For example, all symptoms related to diseases are classified as eight principal syndromes, which can be grouped further into four matched pairs: the yin versus the yang syndrome; the superficial versus the interior syndrome; the cold versus the heat syndrome; and the asthenia versus the sthenia syndrome. The yin syndrome governs the superficial, the asthenia, and the cold syndrome, while the yang syndrome controls the interior, the sthenia, and the heat syndrome. Therefore, all diseases arising from loss of the yin-yang balance can be diagnosed as the result of either a yin-syndrome or yang-syndrome.

Third and most significantly, CMT embodies the premodern Chinese mode of reasoning (Wong 1989). It evolved from the yin-yang cosmology, which consists of at least three doctrines. One is the yin-yang doctrine: all things and events in the universe are produced and controlled by two forces or principles, namely, the yin and the yang. The yin, which represents the negative, passive, weak, and destructive side of the universe, is associated with softness, coldness, cloudiness, rain, winter, femaleness, and what is inside and dark. The yang, which represents the positive, active, strong, and constructive side of the universe, is associated with hardness, heat, sunshine, spring and summer, maleness, and what is outside and bright. Another doctrine of CMT is the five-element doctrine: everything is made of five elements, Metal, Wood, Water, Fire, and Earth. Things succeed one another as the five agents take their turns. The third doctrine of CMT is the principle of pre-established harmony: the universe is treated as an organic whole composed of ten related parts—the Heaven, the Earth, the yin, the yang, wood, fire, soil, metal, water, and human beings. Within this organic structure, everything undergoes constant transformation. The final cause of these transformations is the yin and the yang. The yin and the yang are of opposing nature. If one flourishes, then the other declines. In addition, not only are things related generally, but

also they activate each other. This mutual correlation among things presupposes that all forces and things in the universe are harmonized. This pre-established harmony manifests itself best in certain correlations in the yin or yang operations of nature with events in human affairs.

During the development of Chinese civilization, these beliefs of the yin-yang cosmology had operated constantly in the premodern Chinese intellectual tradition and eventually were internalized into the premodern Chinese way of thinking, which Sinologists call "associated thinking." This thinking can be best characterized as a specific way of understanding the world within the premodern Chinese tradition. According to this way of thinking, in brief, the world is composed of and is operated by the yin-yang and the five elements. Human beings, holding the most exalted position in it, become attuned to the world to such an extent that they became a shadow of the universe, and are melted into it. Because of such a close relationship between human beings and the universe, ancient Chinese did not treat their surrounding world as external objects that you can love, rebel against, or control. They appreciated the blessings of Heaven and Earth (associated with the yang part of the universe) and accepted the punishment (associated with the yin part of the universe) that befell them. Consequently, for ancient Chinese, understanding the universe was intertwined with achieving attunement with it. Both are related so closely that attunement had actually become a necessary condition of understanding.

During historical development of this kind of associated thinking, the link between attunement and understanding had been constantly incorporated into the mainstream values of Chinese culture. Consequently, it eventually became institutionalized as a dominant mode of reasoning. It not only determines what facts count as evidence for justification, but also determines what states of affairs count as accepted facts. For example, according to this mode of reasoning, a specific interaction between the yin-yang parts in the human body and the yin-yang forces in Heaven counts as a possible fact. Many symptoms can be attributed to the associations between natural forces and changes—which represent the yin or the yang principles of the universe—and the yin-yang parts of the human body that are supposed to correspond to the former. For instance, according to Han Confucians, when Heaven is about to make rain (representing the yin) fall, people feel sleepy. This is because when the yin force in Heaven and Earth begins to dominate, the yin in the human body takes over. The association between the yin and rain causes increased sleepiness among people.

### 5. The Role of Metaphysical Presuppositions in Cross-Language Understanding

A p-language is laden with some specific cosmology, embodies a mode of reasoning, and reflects a form of life. The conceptual richness of a p-language determines the depth and inclusiveness of understanding it. A

p-language is fully intelligible; its purported justification is adequately understood by an interpreter only if its underlying metaphysical presuppositions, including its cosmology and its mode of reasoning, are fully comprehended. Interpreters who fail to do so cannot see the "point" of the language and cannot become engaged communicators. Consequently, effective understanding cannot be achieved. This is the reason why in so-called "abnormal discourses" effective mutual understanding across two conceptually disparate p-languages is problematic and difficult.

Consider the following three core sentences from three different p-languages, namely, *P1* from the language of CMT, *P2* from the language of phlogiston theory, and *P3* from the language of an imaginary physical theory:<sup>16</sup>

(P1) The association of the yin and rain makes people sleepy.

(P2) Element *a* contains more phlogiston than element *b*.

(P3) Electrons have eternally hidden nuclei.

Now consider Dr. Smith, an interpreter who is educated within contemporary Western scientific tradition. Suppose that he is familiar neither with phlogiston theory nor with CMT and its underlying premodern Chinese mode of reasoning. Is Dr. Smith able to effectively understand *P1*, *P2*, or *P3*?

Dr. Smith can understand each word of *P3*. After all, he knows what an electron is, what it means for something to be eternally hidden, and what it means to say that a particle possesses a nucleus. Certainly one may be forgiven for thinking that the hypothesis about the eternally hidden nuclei no more involves "an empty play of words" than claims about permanently confined quarks of the sort seriously discussed and defended in contemporary physics. Besides, Dr. Smith realizes that *P3* is in good syntactic and semantic order. Presumably, as long as a sentence does not contain any meaningless words and is not ill-formed, it *makes sense* to the interpreter.

However, even if Dr. Smith can make sense of *P3*, he is still unable to understand what is being *said* by it. The trouble is not that *P3* involves meaningless words or combines meaningful words in an illegitimate way, but rather that it is odd to the point of being unintelligible (in the sense of failing to have a point) in *contexts* that are conceptually recognizable to him. For Dr. Smith, there is no context, as far as he can tell, in which such a claim can be deemed true or false. He can, as M. Schlick (1991) argues, convince himself that if he asked a question of the speaker, "What do you actually *mean* by the presence of this nucleus?" then the speaker would have to admit, "everything would be exactly as before." Thus he can justifiably conclude that the speaker "had not succeeded in conveying to us the meaning of the hypothesis that electrons have eternally hidden nuclei." In addition, a sentence can be used to make a point only within a suitable context. *P3* could be said to have a point only when it is put for-



ward within the context that Dr. Smith is obliged to reject as conceptually unsuitable or impossible. So *P3* fails to make a point for him. Consequently, Dr. Smith can neither understand *what is being said* nor grasp *the thought* expressed by the sentence.

The importance of the above observation is that although the interpreter from another language can know the meaning of each word of a sentence of an alien p-language, she/he might still not be able to effectively understand it since she/he might not be aware of its *point* or not be able to grasp *the thought* expressed by it. So declaring that one can *make sense* of a sentence is altogether different from declaring that one can understand *what the sentence is saying*.

Our second observation is more significant. We find that although both *P1* and *P2* are unintelligible to Dr. Smith, it is important to make a distinction between the two. An old p-language may be forgotten, but can still be made intelligible to the modern reader who is willing to spend the time relearning it. In contrast, some p-language—especially when embodied within a substantially disparate intellectual or cultural tradition—indicates such a radically disparate mode of thinking and/or categorical framework as to require something far more complicated than mere learning of the language itself. In order to understand it, one has to learn the whole *form of life* behind it (with the mode of reasoning and the category system as its cores). The distinct languages of phlogiston theory and CMT are good examples of this contrast.

The primary cause for why Dr. Smith fails to understand *P2* lies in the meaningless term “phlogiston.” As long as he learns the meaning of the term and the corresponding existential assumption (the existence of phlogiston), he is able to understand *P2*. Although Dr. Smith does not believe there is such a substance as phlogiston, he can work it out and understand *the point* of what Priestley is saying when presenting his phlogiston theory. This is mainly because Priestley’s phlogiston theory, lying within the same intellectual tradition as modern science, is *conceptually recognizable* to Dr. Smith. After being given the meaning of “phlogiston,” he is able to identify and comprehend a metaphysical presupposition of the language, i.e., the existence of phlogiston. He can thus fully recognize the truth-value conditions of *P2*.

Dr. Smith’s failure of understanding *P1* does not just lie in a meaningless term “yin.” He can understand the meaning of “yin” by being given a plain definition. But even if he could make sense of *P1* (in the sense that it does not involve any meaningless term and the terms are not combined in any illegitimate way), he would still be left in a fog. What is *the point* of what is being presented or argued for by *P1*? Or what is *the thought* that *P1* expresses? To know the point of what is being said by *P1*, Dr. Smith has to know the proper contexts in which *P1* can be used to say something true or false, namely, to know its truth-value conditions. But such contexts are

not *conceptually recognizable* to him, for he does not comprehend the conceptual framework (consisting of the premodern Chinese mode of reasoning, its underlying yin-yang cosmology, and the related medical category system) within which these possible contexts are constructed. To grasp the thought expressed by *P1*, Dr. Smith needs to comprehend the premodern Chinese mode of reasoning and the related category system that are central to the thought and presupposed by the proposition expressed by *P1*.

Unfortunately, it is the premodern Chinese mode of reasoning and the related system of categories that are totally alien and scarcely comprehensible to Dr. Smith. The goal of attunement to nature was so highly valued in the premodern Chinese culture that it became a necessary condition of understanding and rational justification. Then it is possible that what ancient Chinese thought to be rationally justifiable and perfectly intelligible is not at all rationally justifiable and intelligible in an intellectual tradition that severs the connection between understanding and attunement. This is what actually happens when Dr. Smith encounters CMT. As C. Taylor points out, the world for the European intellectual tradition ceased to be a possible object of attunement after the rise of modern science. Instead, the world became alienated from human beings and became the object of investigation, experiment, and control. The original connection between understanding and attunement was severed, and was dismissed as mere projection onto the world order of things human beings find meaningful (Taylor 1982). Therefore, the premodern Chinese mode of reasoning, which values attunement so highly, is totally alien to the modern Westerner and hard to understand. This explains why many substantial sentences of the language of CMT such as *P1* sound so strange to Dr. Smith that he cannot fully grasp them.<sup>17</sup>

Theoretically, “what a sentence of an alien language means” can be used to refer either to the meanings of the *words* used in the sentence, or to the thought expressed by it. To understand what a sentence of an alien language means is not just to know the meanings of its words. A good dictionary can help us with that. But it cannot help us understand the thought expressed by it. To effectively understand a sentence of an alien language is not just to simply make sense of it, but rather to grasp the thought expressed by it. To know the thought expressed by a sentence, it is necessary to know that it is assertable or that it has a point, and to know what it asserts or what its point is. As S. Cavell notes, “we can understand what the *words* mean apart from understanding why you say them; but apart from understanding the point of your saying them we cannot understand what you mean” (1979, p. 206). If a sentence is comprehensible to the interpreter, she/he has to understand the point of what is being said, being presented, or being argued for.

Whether or not a sentence of a p-language, when considered within the context of the interpreter’s language, can be used to make an assertion

(has a truth-value) is language-dependent. More precisely, it is determined by the metaphysical presuppositions of the language. A sentence that is apparently the same could be used to assert something or have a point within the context of one language but without a point in a rival one. This establishes the fact that in order to capture the point of what is being said by a sentence of an alien p-language, it is necessary to comprehend its metaphysical presuppositions. There is a conceptual bridge that connects the two referents of the expression of "what a sentence of an alien language means," namely, "the *meanings* of the words used by the sentence" on the one hand and "the *thought* expressed by the sentence" on the other. The connection is not established by universals, propositions, or rules, but rather by the metaphysical presuppositions that make certain syntactical utterances become *assertions*.

In conclusion, a p-language is fully intelligible to the interpreter *only if* the metaphysical presuppositions embodied in the language—including the mode of reasoning with its underlying cosmology, the categorical framework, as well as other universal principles and existential assumptions—are conceptually recognized and comprehended. Thus we have so far identified a *significant necessary condition* of effective understanding of a p-language, i.e., the knowledge of its metaphysical presuppositions.<sup>18</sup>

## 6. A Truth-Value Conditional Account of Understanding

It has been argued above that effective understanding of a sentence in an alien language should be distinguished from making sense of it. But exactly what does it mean "to make sense of" a sentence on the one hand and "to effectively understand" it on the other? It seems safe to say that one understands a sentence if she/he knows what it means. According to this everyday manner of speaking, the phrase "to understand" is an abbreviation of the phrase "to know the meaning of." But to make sense of a sentence seems no more than to make it meaningful. If so, the distinction between effective understanding and making sense seems to be blurred.

Suppose someone was now to say sentence *K*: "The present king of France is bald." No one would deny that *K* is cognitively significant. The problem is how to explain the significance of such a vacuous sentence. For B. Russell, only sentences with truth-values could be significant. A sentence with a non-denoting subject like *K* is significant and thus has a truth-value (it is false) (Russell 1996). By contrast, for Strawson, a sentence could be both significant and truth-valueless. For example, a vacuous sentence is truth-valueless (due to the failure of its presupposition) although it is obviously significant. Strawson thinks that the alleged connection between significance and bivalence should be severed based on his distinction between a sentence and the use of a sentence. The same sentence can be used, by different persons in different linguistic contexts, to make different assertions; different sentences can be used to make the

same assertion. Significance is a semantic property of sentences while truth-value is the function of the use of sentences (or a semantic property of assertions). For example, *K*, uttered by someone today, is certainly significant, since every word of it is meaningful and it follows correct grammatical conventions. But this does not mean that any particular use of *K* has to be true or false. If it is uttered by someone today, it is truth-valueless (since one of its presuppositions,  $K_a$ , is false). But if the same sentence was uttered by someone in the reign of Louis XV, it had a truth-value. Therefore, whether a sentence is significant should be separated from whether it has a truth-value in some specific context. Specifically, according to Strawson, to say that a sentence is significant is to say that it has a *possible* truth-value. Or, more precisely, as long as the sentence satisfies linguistic conventions governing its correct use, it *could be used* in certain contexts to say something true or false. The significance of a sentence has nothing whatsoever to do with whether it has an *actual* truth-value in a *certain context* (Strawson 1996).

On the basis of Strawson's above distinction, it could be argued that meaningfulness and sensefulness are conceptually connected with the *possible* truth-value, instead of with the *actual* truth-value of a sentence. "Sensefulness" may be defined based on logically possible truth-values:

A sentence *S* of an alien language *L* is senseful to the interpreter who speaks language  $L_i$  if and only if *S*, when considered within the context of  $L_i$ , has a *logically possible* truth-value.

A sentence has a logically possible truth-value if it could be used to say something true or false in certain logically possible contexts. Usually, as long as a sentence is in good semantic and syntactic order, it could be used to say something true or false in certain logically possible contexts. Accordingly, the notion of "making sense of" or common-sense understanding (i.e., "understanding<sub>c</sub>") may be defined as follows:

The interpreter can make sense of or understand<sub>c</sub> *S* if and only if (a) *S* is senseful to him/her and (b) he/she knows the sense of *S*.

However, to say that a sentence has a *logically possible* truth-value does not mean that its truth-value is *conceptually* recognizable to the interpreter, since she/he may not be able to recognize its truth-value conditions. For example, our Dr. Smith could not specify the truth-value conditions of *P1*. And it has no conceptually possible truth-value to him. To distinguish making sense from effective understanding, it is useful to distinguish meaningfulness from sensefulness on the basis of conceptually possible truth-values:



A sentence *S* in an alien language *L* is meaningful to the interpreter who speaks language *L<sub>i</sub>* if and only if *S*, when considered within the context of *L<sub>i</sub>*, has a *conceptually possible* truth-value.

Accordingly,

An interpreter who speaks language *L<sub>i</sub>* can *effectively* understand a sentence *S* of an alien language *L* if and only if (a) *S*, when considered within the context of *L<sub>i</sub>*, is meaningful to the interpreter, and (b) she/he knows the linguistic meaning (the thought or the propositional content) of *S*.

The notion of effective understanding so defined suggests that the understanding of a sentence *S* of a language is actually a two-staged cognitive process. First, is *S* meaningful (or does *S* have a conceptually possible truth-value) to the interpreter? *S* has a conceptually possible truth-value to the interpreter if and only if she/he can *recognize and comprehend* the truth-value conditions of *S*. Second, if *S* is meaningful to the interpreter, then what is its meaning? According to Davidson's truth-conditional theory of meaning, to know the truth conditions of *S* is sufficient to know its linguistic meaning.<sup>19</sup> But knowing the truth-value conditions of *S* is a prerequisite to knowing its truth-conditions. For this reason, the account presented above may be referred to as *the truth-value conditional theory of understanding*. According to it, the interpreter can effectively understand a sentence only if she/he knows its truth-value conditions. Accordingly, the interpreter is able to effectively understand a p-language only if she/he knows the truth-value conditions of its core sentences. Furthermore, as was argued earlier, the interpreter can know the truth-value conditions of the core sentences of a p-language if and only if she/he is able to comprehend its metaphysical presuppositions. This brings us back to the same conclusion drawn from the previous section: to be able to identify and comprehend the metaphysical presuppositions of a p-language, it is necessary for the interpreter to effectively understand it.<sup>20</sup>

### 7. Truth-Value Gaps and the Failure of Effective Understanding

Metaphysical presuppositions, such as the mode of reasoning or the lexical taxonomy of a p-language, are not easily identifiable. This poses a problem in knowing whether or not the interpreter is able to identify and comprehend the metaphysical presuppositions of a p-language. A clearly identifiable semantic indicator for a failure of cross-language understanding is needed.

In a trivalent semantics, it is possible for a sentence to be neither true nor false (truth-valueness), which corresponds to a lack of a classical truth-value (truth or falsity). There is, in this case, a truth-value gap regarding

the sentence within a bivalent semantics. If a substantial number of core sentences of one p-language, when considered within the context of a competing p-language, lack classical truth-values, then there is a truth-value gap between the two languages. Working within trivalent semantics, Hacking has noticed a strong linguistic correlate of our failure to understand Paracelsus. "The trouble is not that we think Paracelsus wrote falsely, but that we cannot attach truth or falsehood to a great many of his sentences" because we cannot comprehend the Renaissance mode of reasoning underlying the Paracelsan language (Hacking 1983, p. 70). Similarly, Kuhn has observed that when a modern reader finds many Aristotelian sentences difficult to understand, the trouble is not that she/he thinks Aristotle wrote *falsely*, but that she/he cannot attach *truth or falsity* to a great many of the Aristotelian core sentences, since the Aristotelian lexical taxonomy presupposed by the sentences is totally alien to her/him (Kuhn 1993, pp. 330-31).

Imagine that a Chinese physician diagnoses a patient's painful spleen as being due to an excess of yin within his spleen (an asthenic spleen) by claiming that

(P4) An excess of yin within a person's spleen causes a painful spleen,

on the basis of a fundamental principle of Chinese medical theory, i.e.,

(P5) All diseases are due to the loss of a balance between the yin part and the yang part of the human body.

What is a likely response of a practitioner of Western medicine? She/he would certainly not claim that the Chinese's assertion is false. The content of *P4* and *P5* lies outside the Westerner's conceptual reach because she/he could not appreciate the way in which the assertion is proposed and justified. It is not even clear to her/him whether the sentence really asserts anything. It is, hence, very likely that she/he would say something like "What is the point of what the Chinese are saying?" The Westerner's response implies that the issue of whether the assertion is true or false simply does not arise.

A similar analysis can be extended to other core sentences of the language of CMT. There is no way to match what the Chinese physician wants to say against anything the Western physician wants to say at the theoretical level.<sup>21</sup> They do not lie in the sphere of *disagreement or conflict* of the sort arising when one theory holds something to be true that the other holds to be false. The difference between them is not that Western medical theory has a different theory of the operation of the yin and the yang from that of its Chinese counterpart, or that Chinese physicians say different things about bacteria and viruses. Rather, the difference lies in the fact that one side has nothing to say about it. It is not that they say

the same thing differently, but rather that they say totally different things. The key contrast here is between saying something (asserting or denying) and saying nothing. The Western physician can neither assert nor deny what is claimed by the Chinese physician. Consequently, the Western physician does not regard as false many core sentences of the language of CMT; she/he simply cannot assign truth-values to them. Consequently, there is a truth-value gap between the two languages.

The above illustrations suggest a strong semantic indicator associated with the failure of effective understanding between the speakers of two p-languages. If the core sentences of a language—when considered within the context of the interpreter's own language—lack *conceptually possible* truth-values, then it indicates the failure of effective understanding on the interpreter's part. In fact, such an occurrence of a (conceptually possible) truth-value gap necessarily follows from our truth-value conditional account of understanding. According to Convention P, whether a sentence *S* has a truth-value, when considered within the context of language *L*, depends on the truth-value of *S*'s sufficient presupposition in *L*. This means that the truth-value status of a sentence is relative to a specific language within which the sentence is considered. It is a language that creates the possibility of truth-or-falsity. If the interpreter from p-language  $L_1$  is unable to recognize and comprehend the metaphysical presuppositions of an alien p-language  $L_2$ , then the core sentences of  $L_2$ , when considered within the context of  $L_1$ , will lack (conceptually possible) truth-values. Then a (conceptually possible) truth-value gap occurs between  $L_1$  and  $L_2$ . The occurrence of a *conceptually possible truth-value gap* can be used as a strong semantic indicator of the failure of effective cross-language understanding.

### 8. The Failure of the Projective Way of Understanding

It has been argued that the interpreter can effectively understand a p-language only if she/he is able to identify and comprehend its metaphysical presuppositions. Metaphysical presuppositions are language-dependent. Hence, effective understanding is language-dependent. Just as it is not useful to ask whether a sentence itself is true or false but only whether a specific use of it within a linguistic context is true or false, so it is not useful to ask whether or not a sentence in isolation is meaningful. We can only ask whether it, when considered within the context of a specific language, is meaningful, and what its meaning is. Therefore, the core sentences of a p-language that are meaningful and can be understood in the context of its own or some other compatible p-languages (languages with compatible metaphysical presuppositions) might not be fully understood when considered within the context of some incompatible p-languages (languages with incompatible metaphysical presuppositions).

The language-dependent feature of effective understanding has a significant impact on cross-language understanding. When two disparate p-language communities confront one another, each with its own body of metaphysical presuppositions, but lacking a knowledge of the other, the interpreter often falls into the temptation of approaching the other unknown p-language by imposing, reading into, or projecting the categories, beliefs, the mode of reasoning embodied in her/his own language upon the other. Each community will usually represent the beliefs of the other within its own tradition, in abstraction from the relevant tradition of the other. This is a phenomenon frequently encountered by a historian or an anthropologist. For lack of an alternative, a historian or an anthropologist is tempted to understand an old or alien text as she/he would if it had occurred in either contemporary discourse or in her/his own culture or tradition.

There is a hidden assumption behind the above projective way of understanding, i.e., that others are basically like us by sharing the same linguistic conventions, belief systems, and, most importantly, metaphysical presuppositions with us. This assumption is a manifestation of absolutism in cross-language understanding. It is a basic conviction that there is or must be some permanent, ahistorical, culture-transcendent matrix or framework to which one can ultimately appeal in determining the nature of rationality, intelligibility, truth, reality, and morality. To make the discourse of others intelligible and rational one needs to be able to find some area of agreement. Within the analytic tradition, the desired agreement has often been imagined to lie in some common language. Specifically, in the discussion of cross-language understanding the agreement manifests itself as shared or compatible metaphysical presuppositions. When the metaphysical presuppositions of an alien p-language are compatible with that of the interpreter's own language in normal discourses, the projective way of understanding can proceed without much difficulty. The interpreter is able to understand the other language since she/he can recognize its metaphysical presuppositions by way of analogy.

The projective way of understanding is justifiable only when the above assumption is sound. However, if the metaphysical presuppositions of two p-languages in confrontation were incompatible in abnormal discourses,<sup>22</sup> the projective way of understanding would ensure the failure of cross-language understanding. Projecting the metaphysical presuppositions of the interpreter's own language upon an alien language would suspend or distort the metaphysical presuppositions of the latter. Suspending a p-language's metaphysical presuppositions would suspend all empirical contents of meaningful statements of the language. By distorting them the interpreter puts the original meaningful statements out of their appropriate contexts and hence causes them to lose their original meanings. Either way prevents recognition and comprehension of the metaphysical presupposi-

tions of the alien language. Lack of knowledge of the metaphysical presuppositions of an alien language is sufficient to preclude effective understanding of the language. From each point of view certain of the key concepts and core statements of the other, just because they are presented apart from the linguistic context constituted by its own metaphysical presuppositions from which they draw their conceptual life, will necessarily appear without context, lack justification, and, hence, become meaningless and unintelligible. In an abnormal discourse, the projective way of understanding is doomed to failure. This is the real source of the failure of cross-language understanding that we have often experienced between two conceptually disparate languages.<sup>23</sup>

### Notes

- 1 However, this does not mean that cross-language understanding is unattainable in principle. There are two extreme positions regarding the possibility of cross-language understanding. At one extreme, Habermas and many others believe that cross-language understanding is in principle unattainable. In contrast, many others have argued that the failure of cross-language understanding is contextual. Although there are semantic and/or conceptual obstructions that make cross-language difficult and problematic, neither would make it in principle unattainable. The former position is untenable since one can always understand an alien language by learning it from scratch. The latter position is assumed and will be defended throughout the paper.
- 2 See Wang 1998. Kuhn had stated in the 1980s that although two incommensurable theories or languages are not mutually translatable through word replacement, they are mutually comprehensible through interpretation. See Hoyningen-Huene 1993 (pp. 256-58) for a good summary of Kuhn's position.
- 3 Presumably, any comprehensive understanding involves many semantic and non-semantic aspects, such as language meaning, utterer's meaning, conversational implicature, the intention or attitude of the utterer, and the illocutionary forces, etc.
- 4 Especially see Kuhn 1983, 1987, 1988, 1991, and 1993.
- 5 I do not think it matters much to the argument at hand how one construes the notions of scientific theories, scientific languages, and their interrelations. Just to be definite, I will think here of a scientific theory, following a modified "semantic" approach of van Fraassen (1970, 1989), as a set of theoretical definitions plus a number of theoretical hypotheses. Divorced from the "syntactic" approach of the classic view—the idea that underlying any scientific theory is a purely formal logical structure captured in a set of axioms formulated in an appropriate formal language—the semantic approach shifts the focus from the axioms, as linguistic entities, to the models of axioms (any physical or conceptual entities and processes that satisfy the axioms) which are non-linguistic entities. The important distinction is between one account of theories that takes models as fundamental versus the other that takes statements, particularly laws, as fundamental. Contrary to the syntactic approach which identifies a theory (i.e., Newtonian physics) with a definite set of statements (i.e., Newton's three laws of motion plus the law of universal gravitation), scientific theories are, according to the semantic approach, not linguistic entities. Rather, theories must be some extra-linguistic structures standing in mapping relations to the world. If so, a theory has to be formulated in some theoretical language with a specific lexicon or, more precisely, Kuhn's lexical structure (Kuhn 1983, 1993) plus syntax and logic. The language of a theory consists of a consistent set of sentences while a theory in a language is either these sentences marked as "believed," or a distribution of degrees of beliefs, Bayesian style, over the sentences. Adopting such a semantic approach leaves wide latitude in the choice of languages for formulating particular scientific theories. In principle, any language could be used to formulate a theory, including everyday languages constructed through pragmatic observations of the linguistic usage within a scientific community, not just formal languages.
- 6 P. Strawson's notion of semantic presupposition is adopted throughout the following discussion. For a clarification and defence of the notion, see Wang 1999.
- 7 A name borrowed from Feyerabend (1981, p. 114).
- 8 See Wang 1999 for a trivalent semantics.
- 9 D. Wong makes a similar point (1989).
- 10 For a clear illustration of Kuhn's notion of lexical taxonomy, see Hacking 1993.
- 11 Besides logical presuppositions, a sentence may presuppose many different sortal presuppositions. For example, *S*: "My soul is red" presupposes *S1*: "A soul is capable of being coloured." *S1* in turn presupposes *S2*: "Some nonsense-perceivable entities are capable of being coloured." If a sortal presupposition is so fundamental to a language that it sets the boundary for the category of its predicates, then it will be called a *fundamental sortal presupposition* for the language. To know more on the notion of sortal presuppositions, see Martin 1975.
- 12 Here we are only concerned with the epistemic dimension of truth (about truth conditions), not about the semantic dimension of truth (about the metaphysical nature of truth). See Devitt 1984 for the distinction.
- 13  $T_L(\_)$  refers to the truth predicate " $\_$  is true in *L*." Similarly,  $F_L(\_)$  refers to the falsity predicate.
- 14 Similar to Davidson's notion of truth, the notion of truth-value status denotes a primitive irreducible concept. Just as Tarski's Convention T does not define the notion of truth but rather the truth predicate "is true in *L*," what Convention P defines is not the notion of truth-value status, but rather the truth-value predicate "is true-or-false in *L*."
- 15 As far as its conceptual richness is concerned, the notion of p-language is supposed to catch the essential core of many similar notions, such as the language of a culture or tradition (A. MacIntyre), a worldview (Feyerabend), a paradigm (Kuhn), a tradition (H. G. Gadamer), a culture (R. Rorty), or even a

form of life (L. Wittgenstein). It roughly corresponds to H. Gaifman's notion of a conceptual framework (1975, 1976), Hacking's notion of the style of reasoning (1982, 1983), N. Rescher's notion of conceptual schemes (1980), and Kuhn's notion of lexical structures (1991, 1993). It is an inevitable notion whose variants keep appearing under different names with various degrees of vagueness and overlapping meanings.

- 16 M. Schlick invites us to imagine an opponent who holds that "within every electron there is a nucleus which is always present, but which produces absolutely no effect outside" (1991).
- 17 Of course it does not mean that Dr. Smith cannot learn the language of CMT. However, for Dr. Smith the language-acquisition process involved in learning CMT is different from that involved in learning phlogiston theory. Using a metaphor, we can say that the former is a "wholesale" learning process while the latter is a "retail" learning process. CMT reflects a unique belief system and embodies a specific form of life. By studying the Chinese intellectual tradition, Dr. Smith should be able to comprehend the premodern Chinese mode of reasoning, the underlying yin-yang cosmology, and the categorical system presupposed by the language of CMT. After such a "wholesale" learning, he is able to understand effectively the theory and even talk in the premodern Chinese way. However, Dr. Smith can at best start the premodern Chinese way of speaking only if he becomes alienated or dissociated from the thought and the way of speaking used in the modern Western intellectual tradition.
- 18 It seems to be questionable whether one needs to share metaphysical presuppositions of an alien language in order to conduct some ordinary linguistic acts. For example, one could order a bowl of gavagai stew from a native whether or not one shares the metaphysical presuppositions of the native language in which "gavagai" could mean rabbit, undetached rabbit parts, rabbit time-slice, etc. I think we should distinguish how to understand a language effectively from how to conduct an ordinary linguistic act. If I want to understand the native language in which "gavagai" plays an essential role as "phlogiston" does in the phlogiston theory, then I need to recognize and comprehend its specific lexical taxonomy about "gavagai." In contrast, to conduct a rather ordinary linguistic act of ordering a bowl of gavagai stew from the natives, it is not necessary for me to share the lexical taxonomy. Within a concrete linguistic context there are some other more direct ways to perform such an act. I could simply point to the stew that looks like rabbit stew and say, "I want this." However, suppose that "gavagai" means different things to the natives at different times (it means "rabbit" in the morning, but "rabbit time slice" in the afternoon). If I say, "I want gavagai stew" in the afternoon, the native would be quite confused.
- 19 Notice that the truth-conditions of concern here are not Davidson's truth-conditions of a sentence with an *actual* truth-value, but rather the truth-conditions of a sentence with a *conceptually possible* truth-value. To indicate this distinc-

- tion, we may call the latter the *possible* truth-conditions of *S*. The interpreter knows the linguistic meaning of *S* if she/he knows its *possible* truth-conditions.
- 20 What do we need in order to comprehend the metaphysical presuppositions of a p-language? Or what are the conditions for comprehending them? A metaphysical presupposition of a p-language (i.e., "There exists phlogiston") is usually a statement or a set of statements that are accepted as either true or false by both sides of communication. Based on Davidson's truth conditional theory of understanding, it can be comprehended by knowing its Tarskian truth conditions.
- 21 This does not exclude the possibility that the two physicians may share some common vocabulary at observation level, such as smell, touch, amputation, etc.
- 22 The terms "normal discourse" and "abnormal discourse" are borrowed from R. Rorty (1979, esp. chap. 7). But I use them in a different way here.
- 23 I am deeply grateful for valuable comments and suggestions from two anonymous referees for this journal.

## References

- Biagioli, M.  
1990 "The Anthropology of Incommensurability." *Studies in History and Philosophy of Science*, 21: 183-209.
- Cavell, S.  
1979 *The Claim of Reason: Wittgenstein, Skepticism, Morality, and Tragedy*. New York: Oxford University Press.
- Davidson, D.  
1984 *Inquiries into Truth and Interpretation*. Oxford: Clarendon Press.
- Devitt, M.  
1984 *Realism and Truth*. Princeton, NJ: Princeton University Press.
- Dummett, M.  
1993 *The Sea of Language*. Oxford: Clarendon Press.
- Feyerabend, P.  
1981 "Reply to Criticism." In *Realism, Rationalism and Scientific Method*. Philosophical Paper 1. Edited by P. Feyerabend. New York: Cambridge University Press, pp. 104-31.  
1978 *Against Method*. London: Verso.
- Gaifman, H.  
1975 "Ontology and Conceptual Frameworks (I)." *Erkenntnis*, 9: 329-53.  
1976 "Ontology and Conceptual Framework (II)." *Erkenntnis*, 10: 21-85.
- Hacking, I.  
1982 "Language, Truth and Reason." In Hollis and Lukes 1982, pp. 48-66.  
1983 *Representing and Intervening*. New York: Cambridge University Press.  
1993 "Working in a New World: The Taxonomic Solution." In P. Horwich 1993, pp. 275-309.

- Harman, G.  
1984 "Conceptual Role Semantics." *Notre Dame Journal of Formal Logic*, 23: 242-56.
- Hollis, M., and S. Lukes, eds.  
1982 *Rationality and Relativism*. Cambridge: MIT Press.
- Horwich, P., ed.  
1993 *World Change: Thomas Kuhn and the Nature of Science*. Cambridge: MIT Press.
- Hoyningen-Huene, P.  
1993 *Reconstructing Scientific Revolutions*. Translated by A. T. Levine. Chicago, IL: The University of Chicago Press.
- Kuhn, T.  
1983 "Commensurability, Comparability, Communicability." In *PSA 1982 (Proceedings of the 1982 Biennial Meeting of the Philosophy of Science Association)*. Vol. 2. East Lansing, MI: Philosophy of Science Association, pp. 669-88.  
1987 "What Are Scientific Revolutions?" In *The Probabilistic Revolution*. Vol. 1: *Ideas in History*. Edited by L. Krüger, L. J. Daston, and M. Heidelberger. Cambridge: MIT Press, pp. 7-22.  
1988 "Possible Worlds in History of Science." In *Possible Worlds in Humanities, Arts and Sciences*. Edited by S. Allen. Berlin: Walter de Gruyter, pp. 9-32.  
1991 "The Road since Structure." In *PSA 1990 (Proceedings of the 1990 Biennial Meeting of the Philosophy of Science Association)*. Vol. 2. East Lansing, MI: Philosophy of Science Association, pp. 3-13.  
1993 "Afterword." In Horwich 1993, pp. 311-41.
- Lan, Z.  
1988 "Incommensurability and Scientific Rationality." *International Studies in the Philosophy of Science*, 2: 227-36.
- Martin, J.  
1975 "A Many-Valued Semantics for Category Mistakes." *Synthese*, 3: 63-83.
- Rescher, N.  
1980 "Conceptual Schemes." In *Studies in Epistemology*. Edited by P. French, T. Uehling, Jr., H. Wettstein, and R. Feleppa. Minneapolis, MN: University of Minnesota Press, pp. 323-45.
- Rorty, R.  
1979 *Philosophy and the Mirror of Nature*. Princeton, NJ: Princeton University Press.
- Russell, B.  
1996 "On Denoting." In *The Philosophy of Language*. 3rd ed. Edited by A. P. Martinich. Oxford: Oxford University Press, pp. 199-207. Originally published in *Mind*, 14 (1905): 479-93.

- Schlick, M.  
1991 "Positivism and Realism." In *The Philosophy of Science*. Edited by R. Boyd, P. Gasper, and J. D. Trout. Cambridge: MIT Press, pp. 37-55. Originally published in *Erkenntnis*, 3 (1932/33).
- Strawson, P.  
1996 "On Referring." In *The Philosophy of Language*. 3rd ed. Edited by A. P. Martinich. Oxford: Oxford University Press, pp. 215-30. Originally published in *Mind*, 59 (1950): 320-44.
- Taylor, C.  
1982 "Rationality." In Hollis and Lukes 1982, pp. 87-105.
- van Fraassen, B.  
1970 "On the Extension of Beth's Semantics of Physical Theories." *Philosophy of Science*, 37: 325-39.  
1989 *Laws and Symmetry*. Oxford: Oxford University Press.
- Wang, X.  
1998 "A Critique of the Translational Approach to Incommensurability." *Prima Philosophia*, 11, 3: 293-306.  
1999 "Is the Notion of Semantic Presupposition Empty?" *Dialogos*, 73: 61-91.
- Wong, D.  
1989 "Three Kinds of Incommensurability." In *Relativism*. Edited by M. Krausz. Notre Dame: University of Notre Dame Press, pp. 140-58.