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only by physical interactions, in the language of Classical Newtonian physics. (c) Sortal presuppositions: different scientific languages often presuppose different lexical taxonomies, such as the Copernican taxonomy versus the Ptolemaic taxonomy, which functions as a system of shared fundamental sortal presuppositions of the language that set the boundaries for the categories of its core predicates.

As an illustration of a typical p-language, consider the language of Chinese medical theory (hereafter CMT). CMT has a complete conceptual system including its own physiological theory, pathological theory, diagnosis, and treatments. Its physiological or 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 the balance between the yin and the yang. 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 an existential presupposition of CMT. Second, CMT has its own unique medical category system. For example, all symptoms related to diseases are classified under 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. Third, the yin-yang cosmology, which consists of at least the yin-yang doctrine, the five-element doctrine, and the principle of preestablished harmony, is one of the state-of-affairs presuppositions of CMT.

CMT and Western medical theory are two distinct alternative p-languages. We must avoid any temptation to view them as distributing truth-values differently across the *same* propositions. To illustrate, imagine that a Chinese physician diagnoses a patient's painful spleen as being due to an excess of yin within his spleen by claiming "An excess of yin within a person's spleen causes a painful spleen." 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 the assertion 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 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. 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. 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.

The above analysis could be applied to many celebrated conceptual confrontations between opposing conceptual schemes. Ian Hacking has noticed 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. "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, 70). Similarly, Thomas 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, 330-1). To me, these familiar conceptual confrontations are not confrontations between two conceptual schemes with different distributions of truth-values over their assertions, but rather confrontations between two p-languages with different *distributions of truth-value-status* over their sentences. In this case, a substantial number of core sentences of one p-language, when considered within the context of a competing p-language, lack truth-values. There is a truth-value gap between the two p-languages.

Thus we have identified a semantic correlate of two alternative conceptual schemes: the occurrence of a truth-value gap between the languages associated with the schemes. What causes such a truth-value gap? To answer this question, it is useful to distinguish truth-value conditions from truth-conditions. The usual theories of truth are semantic theories about truth-conditions and can only be used to determine the truth-value of a statement. But at issue here is whether a sentence has a truth-value. What is needed is an account of truth-value conditions. 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, "The present king of France is bald" presupposes "The present king of France exists." The former sentence is true or false only when the latter is true; otherwise the former is neither true nor false. Accordingly, the truth of any metaphysical presupposition of a p-language is *necessary* for the truth or falsity of its sentences. In this sense, the metaphysical presuppositions of a p-language constitute the truth-value conditions of its core sentences. If the speakers of p-language L_1 are 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 truth-values. Then a truth-value gap occurs between L_1 and L_2.

Presumably the notion of metaphysical presuppositions is an ontological one. But what exactly is the ontological status of 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. 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 become clear now that by a p-language, I mean a comprehensive theoretical language whose core sentences share one or more metaphysical presuppositions. More broadly put, a p-language is a comprehensive language of culture and tradition which is laden with contingent factual presumptions about the way the world is perceived by the language community. To adopt a p-language is to presuppose a specific cosmology. 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 (Alasdair MacIntyre), a worldview (Paul Feyerabend), a paradigm (Thomas Kuhn), a tradition (Hans-Georg Gadamer), a culture (Richard Rorty), or even a form of life (Ludwig Wittgenstein). It roughly corresponds to Hacking's notion of the style of reasoning (Hacking 1982, 1983), Nicholas Rescher's notion of conceptual schemes (Rescher 1980), and Kuhn's notion of lexical structures (Kuhn 1991, 1993). It is an inevitable notion whose variants keep

appearing under different names with various degrees of vagueness and overlapping meanings.

Nevertheless, the notion of p-languages is not a counterpart of, but rather a substitute for, the traditional notion of conceptual schemes, a specific way of organizing experience or a way of "carving up" the world under consideration. Quine characterizes a conceptual scheme as a set of sentences of a language, which embodies the scheme, held to be true by its believer. So two conceptual schemes differ when some substantial sentences of one scheme are not held to be true in the other in a systematic manner. In other words, the difference between two conceptual schemes is semantically signified by the redistribution of truth-values over sentences of two languages which embody the conceptual schemes. Similarly, Davidson assumes that a conceptual scheme can be defined in terms of what count as truths. He gives a formula for generating distinct conceptual schemes: "We get a new out of an old scheme when the speakers of a language come to accept as true an important range of sentences they previously took to be false (and, of course, vice versa)" (Davidson 1984, 188). Because of such a redistribution of truth-values from one scheme to another, the truth-preserving translation between them is in principle impossible. This is why Davidson insists that untranslatability between any two alleged distinct conceptual schemes is a necessary condition for distinguishing one conceptual scheme from another.

Quine and Davidson presumably commit themselves to a tacit assumption: although the speaker and the interpreter in discourse may assign opposite truth-values to some sentences in the other's language, they agree that all sentences in the other language are either true or false. That means that they agree on the truth-value-status of these sentences. So there is no truth-value gap between the two languages. However, we have shown that this assumption does not square with many profound classical confrontations of competing scientific languages. Many conceptual scheme innovations at bottom turn on whether or not the sentences in the alternative conceptual scheme have truth-values. Numerous truth-valueless sentences do occur in one language by the standard of a competing language.

As Hacking correctly points out "Once you focus on truth rather than truth-or-falsehood, you begin a chain of considerations that call in question the very idea of a conceptual scheme" (Hacking 1982, 59). In my opinion, the best way to block Davidson's attack on the notion of conceptual schemes is to remind ourselves that Davidson's arguments, if they work, are only applicable to one specific notion of conceptual schemes, namely, the Quine-Davidson notion of conceptual schemes. But there is another more plausible notion of conceptual schemes, i.e., the notion of p-language, which is not subject to Davidson's criticism.

Dissatisfied with the Quine-Davidson notion of conceptual schemes, Hacking, Kuhn, Rescher, and some others prefer to characterize conceptual schemes in terms of truth-value-status instead of truth-values. For Hacking, "A conceptual scheme is a network of possibilities, whose linguistic formulation is a class of sentences up for grabs as true or false" (Hacking 1983, 71). To distinguish this notion from the Quine-Davidson notion, Hacking calls his version of conceptual schemes the style of reasoning. It is defined as the way in which beliefs are proposed and defended or the way to determine and create the possibility for truth and falsehood. Similarly, Kuhn's notion of lexical taxonomy is actually a version of conceptual schemes. "The 'very notion' of a conceptual scheme is not that of a set of beliefs but of a particular operating mode of a mental module prerequisite to having beliefs, a mode that at once supplies and bounds the set of beliefs it is possible to conceive" (Kuhn 1991, 5). Rescher approaches the new version of conceptual schemes from the angle of conceptual innovation. "What is involved with diverse schemes is a different way of conceptualizing facts—or rather the *purported* facts—as to how matters stand in the world. ... The key schematic changes are those from a definite (classical) truth-status to I "I" means neither-true-nor-false] (i.e., from T or F to I) or those in the reverse direction (i.e., from I to T or F)" (Rescher 1980, 331-2). What I intend to express in this paper by the notion of p-languages is such a modified notion of conceptual schemes.

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