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A CRITIQUE OF THE TRANSLATIONAL APPROACH TO INCOMMENSURABILITY

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Summary:

In this paper, I give a comprehensive criticism of the received traditional interpretation of incommensurability according to which incommensurability is viewed as untranslatability due to radical variance of meaning or reference of the terms in two competing languages. My conclusion is that the translational approach to incommensurability does not effectively clarify the concept of incommensurability. Since it cannot provide us with tenable, integrated concept of incommensurability, it should be rejected.

1. The Translational Approach and Its Criticism

Even though adequate analyses of the notion of incommensurability are conspicuously absent from the literature, a somewhat more specific sense is often associated with the notion of incommensurability, namely, incommensurability as untranslatability due to radical variance of meaning and/or reference of terms occurring in two competing theories (or the languages employed by the theories). It is widely accepted that such a concept of incommensurability hangs on the so-called contextual theory of meaning / reference advocated by Kuhn and Feyerabend. According to the contextual theory of meaning / reference, the meaning and reference of a theoretical term is a function of the theory in which it occurs. If a theoretical term t (say "phlogiston") is taken out of its appropriate theoretical background L_h (say, the phlogiston theory), it would lose its original semantic value in that theory. So, on this view of meaning, when t is examined from the point of view of a competing theory L_c (say, modern theory of chemistry), even if the original semantic value of t in L_h might be *identifiable* in terms of some expressions within L_c , the value cannot be expressed or *reformulated* in L_c without loss. In this case, we would say that the full semantic value of the term t in L_h is *unrecoverable* within L_c . In particular, the meanings and references of the shared terms in two competing theories (such as "mass" in both Newtonian and relativity theory) would be different when they occur in each theory. If this is the case, we say that there is a lack of a certain desirable semantic relation, namely, that of *meaning-referential continuity*, between L_h and L_c .

Presumably, such a lack of meaning-referential continuity between two competing theories or languages has one closely related chief consequence for inter-theory translation between them. It is commonly accepted that mutual translation between two languages is possible only if either some basic semantic values (both meaning and reference are primary ones) of the shared terms (such as "mass" in both Newtonian and relativity language) can be preserved or the semantic values of different terms in the competing language L_c (such as "phlogiston" in phlogiston theory) can be recovered, or more precisely, can be identified and reformulated, in the home language L_h (such as in modern theory of chemistry). The lack of meaning-referential continuity between the terms occurring in two languages would inevitably render

them untranslatable. In this way, untranslatability constitutes the very essence of incommensurability. This is the reason why Kuhn, in subsequent development of his views in the 1970's, realized that 'untranslatable' (Quine's term) is a better expression than 'incommensurable' for what he had in mind when he spoke of a communication breakdown between two alien texts.¹ Thus, instead of saying that Aristotelian physics and Newtonian physics are incommensurable, one should say that some substantial Aristotelian sentences are not translatable into Newtonian sentences. Ever since Kuhn, the issue of translation failure between languages has been a dominant theme in discussion of incommensurability. I call this received interpretation of as untranslatability *the translational approach to incommensurability*.

Any approach to incommensurability must deal with both the nature and the sources of incommensurability. As far as the sources of incommensurability are concerned, we can identify two alternative possibilities within the framework of the translational approach with respect to which semantic value – meaning or reference – of the terms of two competing theories plays the essential role in the explication of incommensurability. One is *the meaning alternative* which regards incommensurability as the result of a radical change in the meanings of the non-logical terms occurring in two competing theories in question, namely, incommensurability due to radical meaning variance. The other is *the referential alternative* which attributes incommensurability to radical change in the references of the terms employed in two competing theories. This is incommensurability due to radical reference variance.

In brief, according to the translational approach, to say that two theories T_1 and T_2 are incommensurable is to say that the languages employed by T_1 and T_2 do not exhibit meaning-referential continuity due to the different semantic values attached to some key terms in these theories. Consequently the two languages are mutually untranslatable.

The above standard interpretation of incommensurability has been the target of an influential line of criticism. Many argue that the thesis of incommensurability based on the contextual theory of meaning / reference faces many difficulties. I will only focus on a crucial one here. According to certain critics, not only is the contextual theory of meaning / reference refuted by actual scientific practice, but also it theoretically stems from a confused concept of reference, namely, the traditional descriptive theory of reference.² According to this theory, each term is logically associated with a more or less certain number of descriptions. The referent of a term is the object which fits most of these descriptions. These associated descriptions are the meaning (Frege's sense) of the term. So, the reference of a term is determined by its meaning. In this way, terms have meanings essentially and references only contingently. Consequently, whenever meaning changes reference changes accordingly. Critics contend that Kuhn and Feyerabend neglect to consider the possible separations between the change of meaning and that of reference. To defend this contention, critics have been busy finding a way to detach the change of one semantic value from that of the other in order to keep at least one semantic value fully or partially unchanged during theory change. The believers of informal semantics³ take an externalistic view on meaning and separate meaning from reference. It is contended that full references

¹ Kuhn 1970a, 1970b, 1976, 1979.

² Here the description theory refers to the so-called cluster theory of reference defended by John Searle and others. See Searle 1958.

³ Informative semantics gives a realistic interpretation of the reference of scientific terms. According to it, (a) a scientific theory is not a logically reconstructed formal system; (b) the reference of a term is identified with the set of "real world" objects to which it applies. Therefore, the intended referents of central concepts of a scientific theory are fixed absolutely, not relative to some specific theoretical framework. The reference of the terms of a scientific theory should remain unchanged during theory change.

ence. It is contended that full references of scientific terms remain stable while their meanings might change with the variance of the theory containing these terms. Kripke-Putnam's causal theory of reference, I. Scheffler's notion of co-reference,⁴ M. Prezelecki's relativized full-identity of reference,¹ and P. Kitcher's full-identity of token-reference² are some representatives of informal semantics. In contrast, the followers of formal semantics³ admit that the references of scientific terms change with the theory in which they occur. But they try to locate some unchanged common core or commensurable part of the two referents of the same term before and after the change of the theory in which the term occurs. For example, M. Martin argues that although the referents of the same term in two competing theories are not identical, they somehow overlap.⁴ H. Field contends that we can identify the shared partial reference between the same term occurring in two competing theories.⁵ In contrast with the referential alternative, those following *the radical meaning alternative* argue that what changes with the change of a theory is the *references* of terms in the theory while the meanings of the terms remain stable. Others, who follow *the modest meaning alternative*, grant meaning variance by accepting the basic principle of the contextual theory of meaning, but argue that there is a continuity of meaning during meaning variance on the basis of the chain-of-reason.⁶

In sum, the general conclusion to be drawn from the above line of criticism is that, contra Kuhn and Feyerabend, there is no such radical change in the meaning or reference of scientific terms corresponding to any substantial change in the theory in which the terms occur. No matter how much the meanings or references of the terms change with the variance of the theory containing them, we can always locate some sort of meaning-referential continuity between the terms in two theories. This continuity manifests itself either as a common core of semantic values shared by the same terms or as the recoverable semantic values between the different terms in two competing theories. As it is the existence of such a meaning-referential continuity between the terms of two competing theories that makes mutual translation possible, the thesis of incommensurability fails.

2. The Meaning-referential Relation and Incommensurability

I do not intend to make a judgment on which side – the standard interpretation of incommensurability or the above influential criticism of it – is right or holds more truth; rather I argue that both sides are on the wrong track due to a mistaken common assumption shared by both the advocates and the opponents of the received notion of incommensurability. The mistaken assumption is that incommensurability has something to do with a specific kind of semantic relation (i.e., the meaning-referential relation) between the terms of two competing theories:

⁴ I. Scheffler 1967.

¹ M. Prezelecki 1979.

² P. Kitcher 1978.

³ Formal semantics gives a relativistic interpretation of reference. A scientific theory is believed to be a logically reconstructed formal system. The issue of meaning and reference can be dealt with within a formal (model-theoretic) framework. Meaning and reference are determined by and relative to the formal framework, instead of being fixed absolutely.

⁴ M. Martin 1971.

⁵ H. Field 1973.

⁶ D. Shapere 1984; N. Nersessian 1984.

(MR) It is the meaning-referential relationship between the terms of two competing languages that should be identified as the determinant semantic relationship in the case of incommensurability.

Here it is *a term*, rather than *a sentence as a whole*, that is supposed to be the appropriate carrier of semantic values in the case of incommensurability. The reason for identifying the meaning-referential relation between terms as the determinant semantic relation between two competing languages in the case of incommensurability can be given as the result of the following fallacious reasoning:

(M1) Mutual translation is necessary (and sufficient) for effective mutual understanding or successful linguistic communication between the speakers of two distinct languages.

(M2) The meaning-referential continuity between the terms of two competing languages is necessary for mutual translation between them. Therefore,

(M3) The meaning-referential continuity is necessary for effective mutual understanding or successful linguistic communication between any two distinct linguistic communities.

Attributing the premise (M2) to both the advocates and opponents of the received notion of incommensurability is obvious; for no matter what notion of translation is adopted, mutual translation between two languages is possible only if at least two basic semantic values of expressions (meanings and references) in the translated language can be preserved in the translating language. To justify the premise (M1), we need to realize that although there is not general agreement concerning the nature of incommensurability, there is one basic intuitive sense of incommensurability which is likely to be acceptable by all, namely, the sense of incommensurability as linguistic communication breakdown between two competing languages. To say that two languages are incommensurable is another way of saying that effective linguistic communication breaks down between them. For Kuhn, the notion of untranslatability emerges during the process of his constant relocation of one crucial necessary condition for the communication breakdown in the case of incommensurability.¹¹ Mutual translation thus becomes such a necessary condition for the later Kuhn.

On the basis of this shared line of reasoning, the view of the advocates and opponents of the received notion of incommensurability diverge due to conflicting views about the possibility of the existence of the meaning-referential continuity between the terms occurring in two allegedly incommensurable languages. The advocates of incommensurability argue, in terms of the contextual theory of meaning / reference, that there is a lack of the meaning-referential continuity between the terms of two competing languages due to radical meaning / reference variance. The two languages are hence not mutually translatable. Consequently, linguistic communication breakdown between the speakers of two languages is inevitable. The two languages are therefore incommensurable.

On the contrary, the critics of the received notion of incommensurability argue that there must exist some degree of continuity of meaning-reference between the terms of two allegedly incommensurable languages. If so, the argument for untranslatability cannot even get off the ground. Furthermore, if the meaning-referential continuity is not only a necessary, but also a sufficient condition for translation, then the thesis of untranslatability simply fails. However, although the critics argue against the impossibility of mutual translation between two allegedly incommensurable languages, they share the basic doctrine with the advocates

¹¹ For a full justification of such an intuitive reading of the notion of incommensurability, please see X. Wang 1998, chapter 5.

that the issue of incommensurability is conceptually linked with the issue of translation: incommensurability is equivalent to untranslatability and commensurability to translatability.¹² Just because the critics accept the identity between translatability (untranslatability) and commensurability (incommensurability), they reject the notion of incommensurability. In particular, the critics accept that it is the link between untranslatability and incommensurability that determines the meaning-referential relation as the determinate semantic relation in the case of incommensurability. In this sense, the critics agree with the advocates in the translational approach to incommensurability.

My criticism of the translational approach to incommensurability focuses on the following question: Is the meaning-referential relation between the terms of two competing languages the determinant semantic relation between two allegedly incommensurable languages? Presumably the answer to this question depends on the answers to the following: (a) Is there a tenable and integrated notion of translation which we can use to clarify the notion of incommensurability? (b) Is mutual translation necessary (and sufficient) for mutual understanding between two languages? (c) Is the meaning-referential continuity necessary for mutual translation between two languages?

3. The Notion of Truth-preserving Translation

Let us first examine the notion of translation used by Kuhn in his explication of incommensurability. During the development of the thesis of incommensurability as untranslatability, Kuhn has employed two different notions of translation. The earlier Kuhn employs a concept of translation which is used by professional translators in practice. We can call this notion of translation *literal translation*. According to this concept, the final goal of a translator, like Quine's radical translator or interpreter, is to achieve a better understanding or to provide an interpretation of an alien text. For this purpose, the translator "must find the best available compromises between incompatible objectives." This is because "[t]ranslation, in short, always involves compromises which alter communication. The translator must decide what alterations are acceptable" (Kuhn 1970b, 268).

Translation in this practical sense, hence, has the following features: (a) The translating language (the target language) is permitted to be changed by introducing new concepts and more or less subtly changing the old concepts. (b) It does not require the systematic replacement with or mapping of words or words groups in the source language to the corresponding words or words groups in the target language. (c) It treats translation as a matter of degree; no perfect translation is available. (d) Last but most importantly, translation in this sense is closely connected with the process of language learning, and thereby involves a strong interpretative component. Actually, it is the enterprise practiced by historians and anthropologists when they try to understand an out-of-date text or break into an alien culture. In such cases,

¹² Many critics of the thesis of incommensurability explicitly accept the identity of incommensurability with untranslatability. David Pearce contends that translatability is necessary, and sufficient under suitable conditions, for commensurability (see D. Pearce 1987). W. Balzer claims that incommensurability is intimately linked with a particular kind of potential translation (see Balzer 1989). It is well-known that Davidson equals incommensurability with untranslatability and argues that it does not make sense to talk about two untranslatable conceptual schemes (see Davidson 1984). In the similar way, Putnam, Devitt (1984), and many others regard incommensurability as being or implying the untranslatability of languages. More recently, H. Sankey defends the thesis of incommensurability as untranslatability in his 1994.

in order to make the source language intelligible, the translator (strictly speaking, the interpreter) has to learn the source language in the process of translation, and afterward to look for the closest counterparts of expressions of the source language in the target language.¹³

An immediate problem with the explication of incommensurability in terms of the notion of literal translation is that if we accept this concept of translation, then it is always possible to translate any different text, no matter how alien it is to the translator's home language; it is always theoretically possible to make an alien text intelligible by language learning as an anthropologist does when she or he attempts to break into an unknown tribe. Then, there would be no incommensurable texts at all eventually. This notion of translatability directly leads to the dissolution of the issue of incommensurability. It is too easy for the opponents of incommensurability to claim the victory.

After 1983, by virtue of introducing the new tool of a lexicon and its structure, Kuhn continues to rely heavily on the notion of untranslatability in the explication of incommensurability, and further links untranslatability closely with change of the taxonomic structures of scientific languages. At this latter stage, the concept of incommensurability is directly connected with the notion of untranslatability.¹⁴ "Incommensurability thus equals untranslatability" (Kuhn 1988, 11). "If two theories are incommensurable, they must be stated in mutually untranslatable languages" (Kuhn 1983b, 669-670).

More significantly, at this stage, Kuhn consciously operates with a different notion of translation than his previous notion of literal translation. According to Kuhn's later notion of translation, translation must be taken in a strict sense as the *formulation* of expressions within the translating language (the target language) which are the semantic equivalents of expressions of the translated language (the source language). Semantic equivalence is not word-to-word synonymy, but it does require that the translator systematically substitute the appropriate expressions in the target language for the corresponding expressions in the source language in such a way as to produce a fully equivalent text in the target language. We can call such a translation *the perfect translation*. In contrast with the notion of literal translation, perfect translation has the following features: (a) During the process of translation, the target and the source languages should remain unchanged; no addition of new kind-terms and no change of semantic values (sense, reference, and truth values) of the expressions are permissible. (b) Translation requires a systematic mapping of concepts (kind-terms especially) in the source language to the corresponding concepts (kind-terms) in the target language such that each concept in the source language is mapped to a concept in the target language with exactly the same semantic values. (c) Translation is either possible and perfect, or impossible (does not count as a translation at all). (d) Translation is a totally different linguistic activity from language learning or interpretation. The purpose of interpretation is to make an alien text intelligible. We can achieve this by language learning. For this purpose, it suffices to identify the related semantic values of the expressions in the source language. In contrast, the purpose of translation in the perfect sense is not only to *identify* the semantic values of the expressions in the source language, but further to *formulate* semantic equivalents of these expressions in the target language. Translatability in this sense is a function of what can be said or expressed in a target language. It depends upon the potential ability of the target language to produce semantic equivalents of the expressions in the source language without change of its taxonomic structure and without extending its semantic resources. A translation fails if formulating a semantic equivalent of an expression of the source language

in the target language requires either change of the taxonomic structure of the target language or extending its semantic resources by semantic enrichment.¹⁵ The possibility of mutual translation between two languages is limited and restrained by the capacity of the taxonomic structure of each language.

What constitutes semantic equivalency as sought in a perfect translation? Sameness of sense or intension, sameness of reference or the extension of shared kind-terms (including the sameness of the way in which the reference of a term is determined as well), and sameness of truth values of shared sentences are obvious desiderata. As far as the sufficient conditions of the perfect translation are concerned, some pragmatic aspects of language, such as conversational implicatures, the speaker's intentions, the speaker's meaning, the speaker's reference, and context specifiers have to be included as well. Unfortunately, it is almost impossible to list all the sufficient conditions for the perfect translation (I doubt that there exists such a complete set of sufficient conditions).

According to Kuhn's notion of the perfect translation, translation is an all-or-nothing issue. Such a notion of the perfect translation presupposes that there exists, if any, one and only one right translation for an expression in question. But this presupposition is questionable. Quine has argued convincingly that there can be many mutually incompatible systems of translation consistent with all possible behavioral data. We have no way to determine which of many available translations is the only right translation. Hence, translation is indeterminate. Of course, we can follow Davidson's suggestion to put enough constraints – both the constraints from the bottom, such as formal constraints and empirical constraints (tested as true), and the constraints from the top, namely, the methodological perception or the principle of charity – on the language to be translated so as to reduce multiple acceptable translations for the language to a small amount of translations or even to the one best translation. But a translation so constructed is no longer a perfect translation. As Davidson contends, such a translation does not (should not) preserve the detailed propositional attitudes of the speakers (such as the speaker's beliefs or intentions) and does not (should not) make use of unexplained linguistic concepts (such as the speaker's meaning, synonymy). Besides, due to inextricability between meaning and belief, we have to put the speaker in general agreement on beliefs with the interpreter and try to maximize such an agreement. This often inevitably distorts the speaker's belief system. Even so, there will still be no perfect mapping from sentences held true by the speaker in the source language onto the sentences held true by the translator in the target language.

Recall an example given by Davidson; it is even impossible to give a perfect translation in English of a speaker's expression in English: "There's a hippopotamus in the refrigerator". "Hesitation over whether to translate a saying of another by one or another of various nonsynonymous sentences of mine does not necessarily reflect a lack of information: it is just that beyond a point there is no deciding, even in principle, between the view that the other has used words as we do but has more or less weird beliefs, and the view that we have translated him wrong" (Davidson, 1984, 100-101). The inextricable intertwine between the speaker's belief and the speaker's meaning establishes that there is no such perfect translation available in any case. Therefore, Kuhn's notion of the perfect translation is too strict and could never be exemplified. If we accept such a notion of translation, we cannot even translate the speech of others who speak our own language, not to mention the case of translation between two distinct languages.

¹³ Kuhn 1983b, 672-673.

¹⁴ Kuhn 1983b, 669-670; Kuhn 1988, 11; Kuhn 1990, 5.

¹⁵ Kuhn 1983b, 672-676, 679-682; Sankey 1994, 76-77.

The conclusion to be drawn from the above examination of Kuhn's notion of translation is that neither the notion of perfect translation nor that of literal translation help us to clarify the notion of incommensurability. As a matter of fact, the thesis of incommensurability as untranslatability becomes trapped in a fatal dilemma: If "translation" is construed narrowly and strictly to mean "the perfect translation," then it indeed follows that two allegedly incommensurable languages (such as Newtonian vs. Einsteinian languages) are untranslatable. But incommensurability in this sense would degenerate into a trivial platitude since there is no perfect translation available between any two languages anyway. In this sense, some degree of partial untranslatability marks the relationship of every language to every other. Consequently, it would make the commensurables incommensurable. On the other hand, if "translation" is construed broadly and loosely to mean "literal translation," then untranslatability will not qualify as the criterion of incommensurability since any two languages would be translatable. As the result, it would make the incommensurables commensurable. The thesis of incommensurability would turn out to be an illusion.

Some might reply: "Yes, maybe Kuhn's two notions of translation are trapped in the above dilemma. But this does not exclude the possibility of a more tenable notion of translation that could be used as a criterion of commensurability." It is true that there might be some more appropriate notion of translation than Kuhn's two radical notions of translation. But I doubt that we could have a "desirable" notion of translation as the advocates expect which can be used to clarify the notion of incommensurability. To show this, I am not going to consider every possible notion of translation presented or that would be presented by the advocates (such as D. Pearce's notion of context-sensitive translation as reduction¹⁶). For my limited purpose, it suffices to point out that the issue of incommensurability, as I have argued elsewhere,¹⁷ is essentially associated with the possibility of truth-or-falsehood. It is the issue about the distribution of *truth-value status* (whether a sentence in a language is true or false or has a truth-value from the point of view of the competing language) among the sentences of the competing language, not about the distribution of different *truth-values* among the sentences of the competing language. Two languages are incommensurable when both sides disagree about the truth-value status of some substantial number of core sentences in the other language. Such a truth-value gap indicates a linguistic communication breakdown between the speakers of two languages; however, traditional notion of translation (no matter which is Kuhn's notion of the perfect translation or any other alleged more "appropriate" notion of translation), Quine's indeterminacy of translation and Davidson's notion of radical interpretation, all start from an idea that an adequate translation should preserve the truth-values of the sentences translated and gain the truth-value matching of sentences between the target and the source languages.¹⁸

¹⁶ David Pearce contends that translatability is necessary and sufficient under suitable conditions for commensurability. A translation can be considered adequate in the semantic sense if it respects an acceptable model-theoretic reduction of the structuralist sort. Science as a whole is so rich in concepts and so diversified in its patterns of conceptual change and development, one cannot expect to find out one general method of translation which can be used to produce adequate specific translation between any two languages. A successful response to the challenge of the doctrine of incommensurability as untranslatability consists in examining concrete examples of theory change in science and providing translation of right kind which applies there (see Pearce 1987).

¹⁷ See X. Wang 1998.

¹⁸ This point has equally insisted upon by Ian Hacking in his 1982.

Traditional extensional semantics uses truth-value preservation as a condition for an adequate translation. Kuhn, who holds a stand of intensional semantics on translation, certainly does not regard truth-value preservation as a sufficient condition for the perfect translation. But the truth-values of the translated sentences are, for Kuhn, important semantic values that should be preserved in the perfect translation. Similarly, there is an assumption underlying Davidson's notion of radical interpretation: although the speaker and the interpreter in discourse may assign opposite truth-values to some core sentences of a language (say, the sentence "The sun revolves about the earth" in Ptolemaic astronomy), they all agree that all the sentences in the competing language are either true or false. The task of the radical interpreter is to design a translation (more precisely, a theory of truth for the language in question) based on the principle of charity which can preserve as much truth as possible. It is my conviction that this kind of truth-preserving translation is irrelevant to the incommensurable texts because what really matters is not *redistribution of truth-values* between the sentences among two compatible texts, but whether or not both sides still accept the other's sentences as *candidates for truth-or-falsehood*. Therefore, using the notion of a truth-preserving translation to clarify the notion of incommensurability is on the wrong track. For this reason, I conclude that there is no tenable and integrated notion of translation which can be used to clarify the notion of incommensurability.

4. Mutual Translation and Successful Linguistic Communication

There is still another way to connect the notion of translation with the notion of incommensurability as communication breakdown. Many contend that translation is either sufficient or necessary for effective linguistic understanding or successful linguistic communication. An interpreter can understand an alien language through or only through the relation of the translated language to his or her own home language. If so, the failure of mutual translation between two languages would indicate the breakdown of effective linguistic communication between the speakers of two languages, and hence the two languages would be incommensurable. This alleged connection between successful linguistic communication and translation is a hidden motivation for many philosophers, advocates and opponents of the thesis of incommensurability alike, who identify commensurability with translatability.

Davidson has already observed that a translation manual is to be contrasted with a theory of meaning or interpretation. A theory of interpretation for an unknown language directly describes the way in which the language functions by providing an account for the essential role of each sentence in that language. Since the meaning of each sentence in a language is determined by the essential role of the sentence in the language as a whole, a theory of interpretation for a language does help us understand the language. For Davidson, a theory of interpretation is a theory of understanding. In contrast, a translation manual tells us only that certain expressions of the translated language mean the same as certain expressions of the translating language, without telling us what, specifically, the expressions of either language mean. It is theoretically possible, Davidson contends, to know, of each sentence of a given language, that it means the same as some corresponding sentence of another language, without knowing at all what meaning any of these sentences have. Therefore, a translation manual itself does not constitute a theory of meaning or understanding. A translation manual leads to an understanding of the translated language only via the translating language, an understanding

which it does not itself supply. In other words, a translation itself is not sufficient for understanding.¹⁹

Furthermore, according to the truth-value conditional theory of understanding which I have presented elsewhere,²⁰ the notion of truth-value status, instead of the notion of truth, plays an essential role in understanding; an interpreter can understand a sentence in a given language only if the sentence has a truth value from the point of view of the interpreter. Shared notion of truth-value status (whether the sentence in question is true-or-false or neither-true-nor-false) between the interpreter and the speaker is necessary for the interpreter to fully understand the sentences in the speaker's language. In this way, understanding an alien text is a matter of recognizing new possibilities for truth-or-falsehood, and of how to appreciate and follow other ways of thinking embedded in other languages that bear on these new possibilities. What we need to capture in communication is not what each word in a sentence or the whole sentence means in an alien language, which can be done by constructing an adequate translation manual, but the factual commitments underlying each language which create new possibilities for truth-or-falsehood. For example, even if the sentence in traditional Chinese medical theory, say, "The combination of yin and rain makes one drowsy", could be translated into some appropriate expressions in Western medical theory,²¹ a Western physician is still at a loss if he or she does not know the mode of reasoning underlying the sentence. What is true-or-false in the way of reasoning used by Chinese medical theory may not make much sense in another until one has learned how to reason in that way.²² Hence, a truth-preserving or meaning-matching translation, if any, is not sufficient for effective understanding of an alien text.

On the other hand, translation is certainly not necessary for understanding. There is good reason to think that the whole focus on actual translation in understanding is misguided. The key category with which we should be concerned in understanding is surely not translation but interpretation or language learning. Interpretation is a totally different linguistic activity from translation. By interpretation, following many others, I mean the enterprise practiced by historians and anthropologists when they try to understand an old text or break into an alien culture. The interpreter, at the very beginning, only masters his or her own home language. The source language is totally unknown to him or her. The purpose of interpretation is to make an unknown alien text intelligible. The most effective means to make an old or alien text intelligible is to learn the language, instead of to translate it. For this purpose, it suffices to identify the related semantic values of the expressions in the source language. For instance, to identify the referent of an out-of-date kind-term (say, "phlogiston" in phlogiston theory) and the role of the term in the theory is sufficient for understanding the term. To understand the theory, the interpreter has to learn the source language by identifying the related semantic values of all the expressions in the source language. In contrast, a translator is supposed to master both the source and the target language at the very beginning. The purpose of translation is to *formulate* semantic equivalents of expressions of the source language in the target language. Translatability in this sense is a function of what can be said or expressed in the target language. It depends upon the potential ability of the target language to produce

¹⁹ It seems to me that Davidson's argument used above does not presuppose any specific notion of translation. It provides a general objection to regarding translation as a sufficient condition of understanding.

²⁰ X. Wang 1998, chapter 4.

²¹ Of course this is not the perfect translation of the original Chinese sentence since there is no perfect translation available here.

²² This argument is essentially Hacking's. See Ian Hacking 1982.

semantic equivalents of the expressions in the source language without change of the taxonomic structure of the target language and without extending its semantic resources. A target language's ability of translating a source language into a specific language is limited and restrained by the capacity of its underlying taxonomic structure, descriptive universal principles, and mode of reasoning. There can be no genuine translation where the underlying descriptive principles, taxonomic structures, or the modes of reasoning of two languages involved are substantially different.

After understanding an alien context by learning it, an interpreter may be able to make an alien text intelligible to his or her fellow speakers through paraphrasing, "explaining" or the like, the alien text into the nearest "corresponding" (not exact mapping) expressions in his or her own home language. For example, an English speaker, after learning Chinese, may attempt to interpret the Chinese sentence, "Jenni ni hen fung maan", as, "Jenny has a full figure, or is full and round, well-developed, full-grown, plump and smooth-skinned." But as every Chinese knows, the above English expression not only does not convey all evaluative elements contained in the Chinese adjective "fung maan", but cannot even describe exactly the physical appearance of a "fung maan" lady. This is because Chinese speakers categorize the body of a lady differently from the way English speakers do, using different discriminations in doing so. Under this circumstance, "fung maan" remains an irreducibly Chinese term, not translatable into English. But this does not block understanding. An English speaker can understand the term very well by learning Chinese. In general, the process of learning an alien language or text may well involve a complex process of theory building or a loose sort of reinterpretative reconstruction of the alien language. But this is not a process of translation. Translation might be a desideratum, but not a *sin qua non* necessity for understanding. Interpretation can serve perfectly well in understanding.

To sum up, translation is neither necessary nor sufficient for understanding. To understand is to learn, not to translate; to translate does not amount to understanding. In addition, translation does not help understanding, but often sets obstacles. Linguistic studies show that the best way to learn a foreign language is not to learn it by means of word by word translation, but by living in the community of native speakers and learning the language from scratch as a child does. The more you forget your native language, the more effectively you learn, and the deeper you understand the foreign language.

5. The Meaning-referential Continuity and Translation

Whether or not there is a meaning-referential continuity between the terms of two competing languages in the case of incommensurability is supposed to determine whether or not mutual translation between the two languages is possible. For the opponents of incommensurability as untranslatability, mutual translation is possible since there exists the meaning-referential continuity between the terms of two languages. For the advocates of incommensurability as untranslatability, mutual translation is impossible since there is a lack of meaning-referential continuity. Now, after we have detached the notion of untranslatability from the notion of incommensurability by showing the untenability of the notion of translation and separating translation from successful linguistic communication, it is not clear at all how much weight the meaning-referential relation can carry regarding the explication of incommensurability, not to mention how the relation can remain a determinant semantic relation between allegedly incommensurable languages.

I would like to point out further that, in general, there is no necessary connection between the meaning-referential continuity and translation. Mutual translatability does not presuppose the stability of reference or meaning. Whether two languages are mutually translatable depends upon the target language's capacity for encapsulating substantial expressions of the source language. Such a formulation does not require the stability of meaning-reference. For illustration, let us consider the following artificial case about color classification. Different languages may divide up the spectrum in different ways and thereby have different color predicates. Let us imagine two sets, S1 and S2, of color predicates in two different languages L₁ and L₂. S1 and S2 divide up the spectrum in such a way that none of the color predicates of them match up with the color predicates of the other set. So, we have two different color classifications or color category systems. Let us further suppose that S1 has "red", "orange", "yellow", "green", "blue", and "purple" as its finest-grained color predicates, while S2 has "Orange", "Green", "Purple" at the corresponding level of discrimination. The extensions of S2 can be imagined to be distributed along the spectrum so that "Orange" matches up with the shades of both "red" and "orange", "Green" with both "yellow" and "green", "Purple" with "blue" and "purple" in S1. The conceptual mismatch between S1 and S2 is adjustable since each color predicate of S2 can be defined in S1. The concept "Orange" in S2 can be expressed as "both red and orange" in S1, and so on. More generally, all the color predicates in L₂ are translatable into corresponding expressions in L₁. Hence, the two languages are translatable. This case shows us that translation does not presuppose the stability of reference. In addition, translatability does not even presuppose overlapping of reference. Suppose the term t in a language L₁ refers to an object A but the same term would refer to a totally different object B from the viewpoint of another competing language L₂. As long as there is an expression e in L₂ which preserves all the essential semantic values of t in L₁, then t in L₁ can be translated as e in L₂.

Interestingly enough, we can easily infer, according to the rule of modus tollens, from the above conclusion that meaning-referential continuity is not necessary for translation to the claim that the discontinuity or variance of meaning or reference between two competing languages is not necessary for untranslatability between two languages. So, Kuhn's and Feyerabend's arguments for meaning-reference variance, based on their versions of the contextual theory of meaning / reference, do not entail without further ado the thesis of untranslatability. This is what many critics of the thesis of untranslatability contend. If this argument against untranslatability holds water (which I think it does), then the same argument can be used against translatability also. Ironically, appeal to the meaning-referential relation (continuity or discontinuity) is a double-edged sword which can be used to hurt both proponents and opponents of the thesis of incommensurability as untranslatability. This establishes that there is no necessary conceptual connection between meaning-referential continuity and the possibility of mutual translation between two languages.

As the last point, I would like to point out that untranslatability does not establish anything interesting about many theoretical issues which are supposed to be implied by the thesis of incommensurability, such as the issues of the rationality of science and scientific progress as well as the debate between relativism and realism. For example, the debate between relativism and rationalism simply does not depend on the possibility of translation. On the one hand, the ineliminable possibility of mutual translation between two languages does not guarantee either that the speakers of the two languages share criteria of truth, rules of inference, or have a common core of empirical knowledge, or that the two languages enable their speakers to refer to some fundamental common set of referents. On the other hand, the impossibility of mutual translation between two allegedly incommensurable languages does not exclude the

possibility that the speakers of the two languages may have shared criteria of truth, shared domain of referents, or common criteria of theory evaluation. The alleged semantic obstruction implied by the thesis of incommensurability does not arise from untranslatability.

6. Conclusion

For more than three decades, the translational approach has dominated much of the discussion of incommensurability. Philosophical analyses of the thesis of incommensurability, of both proponents and opponents alike, have focused exclusively on the translational approach to incommensurability. Questions of meaning, reference, and translation have been examined both from the standpoint of general philosophical theories as well as from case studies in the history of science. However, in spite of tremendous efforts, little progress has been made toward the goal of understanding and clarifying the thesis of incommensurability. The notion of incommensurability still remains mysterious to us.

Too much attention paid to the meaning-referential relation between incommensurable theories is, I believe, to a large extent responsible for the slow progress which has been made toward establishing the integrity and tenability of the notion of incommensurability. This is because the translational approach is not an effective²³ way of exploring the essence of incommensurability. It cannot provide us with a tenable and integrated notion of incommensurability. Instead, it often leads to misinterpretation. The notion of translatability (or untranslatability) is a notion without any independent interpretative power in the case of incommensurability. Reference to translation neither identifies nor resolves the problem of incommensurability.

Therefore, the received interpretation of incommensurability as untranslatability due to radical meaning-referential change has to be rejected. Of course, the failure of the received notion of incommensurability does not indicate the failure of the notion of incommensurability itself. It is not the notion of incommensurability that lets us down, but the received notion of it does. In fact, the rejection of the translational approach paves the road to a more promising approach to incommensurability, namely, the ontological approach to incommensurability.²⁴ But this is the topic of another paper under preparation.

References

- Balzer, W. 1989, "On Incommensurability", in Gavroglu, K., Goudaroulis, Y, Nicolacopoulos, P. eds. *Imre Lakatos and Theories of Scientific Change*, Kluwer Academic Publisher, 1989, 287-304.
- Davidson, D. 1984, *Inquiries into Truth and Interpretation*, Clarendon, Oxford.
- Devitt, M. 1984, *Realism and Truth*, Princeton University Press.
- Field, H. 1973, "Theory Change and the Indeterminacy of Reference", *Journal of Philosophy*, 70, 462-481.
- Hacking, L. 1982, "Language, Truth and Reason", in *Rationality and Relativism*, (eds.) Martin H. and Steven L, The MIT Press 1982, 48-66.

²³ I choose the expression "not effective" because I do not wish to imply that the translational approach is completely wrong, although it does lead to misinterpretation.

²⁴ For the ontological approach to incommensurability, please see X. Wang 1998.

- Kitcher, P. 1978, "Theories, Theorists, and Theoretical Change", *Philosophical Review* 1987: 519-547.
- Kuhn, T. 1970a, *The Structure of Scientific Revolution*, second edition, University of Chicago Press.
- Kuhn T. 1970b, "Reflection on My Criticism", in I. Lakatos & A. Musgrave (eds.), *Criticism and the Growth of Knowledge*, Cambridge University Press, 231-278.
- Kuhn, T. 1976, "Theory-Change as Structure-change: comments on the Sneed Formalism", *Erkenntnis* 10, 179-199.
- Kuhn, T. 1979, "Metaphor in Science", in A. Ortony (ed.), *Metaphor and Thought*, Cambridge University Press, 1979, 409-419.
- Kuhn, T. 1983a, "Rationality and Theory Choice", *The Journal of Philosophy* 80, 563-570.
- Kuhn, T. 1983b, "Commensurability, Comparability, Communicability", *PSA 1982*, Vol. 2, 669-688.
- Kuhn, T. 1988, "Possible Worlds in History of Science", in S. Allen (ed.) *Possible Worlds in Humanities, Arts and Sciences*, Berlin: Walter de Gruyter 1988, 9-32.
- Kuhn, T. 1990, "The Road Since Structure", *PSA 1990*, Vol. 2, 3-13.
- Kuhn, T. 1993, "Afterwords", in Horwich, P. (ed.), *World Changes: Thomas Kuhn and the Nature of Science*, The MIT Press, 1993.
- Martin, M. 1971, "Referential Variance and Scientific Objectivity", *British Journal for the Philosophy of Science*, 22, 17-26.
- Martinich, P. (ed.) 1996, *The Philosophy of Language*, third edition, Oxford University Press.
- Nersessian, N. 1989, "Scientific Discovery and Commensurability of Meaning", in Gavroglu 1989, 323-334.
- Pearce, D. 1987, *Roads to Commensurability*, Holland: Reidel, Dordrecht.
- Przelecki, M. 1979, "Commensurable Referents of Incommensurable Terms", in *The Logic and Epistemology of Scientific Change*, eds. by Niiniluoto, I, and Tuomela, R., Amsterdam: North-Holland Publishing Company, 1979, 347-365.
- Sankey, H. 1994, *The Thesis of Incommensurability*, England: Avebury.
- Scheffler, I. 1967, *Scientific and Subjectivity*, New York: The Bobbs-Merrill Company.
- Searle, J., 1958, "Proper Names", in Martinich 1996, 249-254.
- Shapere, D. 1984, *Reason and the Search for Knowledge*, Holland: Reidel, Dordrecht.
- Wang, X. 1998, *Truth-value Gaps, Ontological Confirmation and Incommensurability*, Doctoral Dissertation, University of Connecticut.