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This paper is an attempt to give the terms 'concept' and 'meaning' their distinct formal definitions. Based on the assumption that a constant concept can have various meaning manifestations across languages and through time, this paper also expounds the notions of symbolics and symbolic change.

Anyone who has an opportunity to perform translation from one language into another or compare equivalent expressions between two languages will inevitably notice the fact that apparently identical ideas sometimes are represented in remarkably different ways across languages. Of course, sometimes the contrast can be explained as a result of two languages having different syntaxes and morphologies. However, quite often the contrast has to do with idiomaticity and ceases to be a purely structural phenomenon. In other words, given a pair of equivalent sentences from two languages, its members are rarely the literal translations of each other, even after syntactic and morphological adjustments are made to enhance maximal grammaticality in translation. Language apparently defies literal translation. As a result, what is an idiomatic expression in one language, when literally translated sometimes becomes unidiomatic in another. Thus, for example, (1a) in English has its usual counterpart (1b) in Mandarin Chinese and (1c) in Korean. But if one literally translates (1b) and (1c) into (1b') and (1c'), one obtains inaccurate English translations:

(1a) I showed him the book.
(1b) Wǒ bǎ shū ná gěi tā kàn.
'I-hold-book-take-give-him-see.'
(1b') I took the book and gave it to him to see.
(1c) na nun ku chayk ul ku i eykey po-i-ess-ta.
'I-topic m-that-book-acc. m-that-person-dat. m-see CAUSE PAST STATEMENT.'
(1c') I let/caused him to see the book.

Sentence (1b') is inaccurate because it improperly emphasized the actions of 'taking' and 'giving' and (1c') is inaccurate because of its undue emphasis on the action of 'letting/causing.' To express whatever idea (1a) is supposed to have expressed, the English language has already made (1a) available. Therefore, (1b') and (1c') are poor substitutes, and in that sense they are unidiomatic expressions in English.

Let us call two sentences such as (1a) and (1b) or (1a) and (1c) a pair of translation-equivalent sentences or a translation-equivalent pair. Then the lack or loss of idiomaticity caused by the literal translation from (1b) or (1c) into (1b') or (1c') raises the question of whether a pair of translation-equivalent sentences are merely two different expressions of the same thought (or idea) or whether they represent two different thoughts. The question as it is phrased is not precise enough to allow for a clear answer. For one thing, we have not yet adopted a theory of translation to serve as a context in which to answer the question. So, let us first propose a theory of translation and then try to answer the question in the context of such a theory.

Let us begin by assuming that an idea (or thought or notion) is comprised of a number of subideas, never mind for the moment what exactly an idea is. The relation between an idea and its subideas may be roughly equated with an unordered set and its elements, or with an ordered set (i.e., a sequence) and its components. Let $X = \{x_1 , x_2 , \ldots , x_n\}$ be a (unordered) set. Then $x_1 , x_2 , \ldots , x_n$ are the elements of X. That is, for each $i \leq n$, $x_i \in X$. Let $S = < s_1 , s_2 , \ldots , s_n >$ be a sequence, then $s_1 , s_2 , \ldots , s_n$ are components of S. An idea may be equated with X, and its subideas with $x_1 , x_2 , \ldots , x_n$ or an idea may be viewed as S, and its subideas as $s_1 , s_2 , \ldots , s_n$. In the former case, we say that the idea is a loose heap or that it is not structured or organized. In the latter case, we say that the idea is structured or organized. For the sake of simplicity, we will restrict ourselves to the discussion of ideas that are not structured, and thus treating the relation between an idea and its subideas as a relation that holds between a set and its elements.

Suppose that we are given two sets, namely, $X = \{x_1 , x_2 , \ldots , x_n\}$ and $Y = \{y_1 , y_2 , \ldots , y_m\}$. It can happen that X and Y do not share any element. Then we say that their intersection is empty, and we write $X \cap Y = \phi$. If X and Y share some but not necessarily all elements, we say that X and Y intersect, and in that case exactly one of the following four situations obtains: (i) $X = Y$, that is, X and Y are identical because they share every element; (ii) $X \subseteq Y$, that is, X is a subset of Y, meaning that every element in X is also an element in Y; (iii) $Y \subseteq X$, which is the reverse of $X \subseteq Y$; and (iv) $X \cap Y = Z$, for some Z (and $Z \neq X$ and $Z \neq Y$), meaning that X and Y share only some but not all elements.

Let A and B be two languages, and let x be a sentence in A representing the idea i(x), and y a sentence in B representing the idea i(y). Assume that x and y are a translation-equivalent pair, then x translates y adequately and y translates x adequately. The relation between i(x) and i(y) (more precisely, from i(x) to i(y)) is exactly one of the following: (i) $i(x) = i(y)$, (ii) $i(x) \subseteq i(y)$; (iii) $i(y) \subseteq i(x)$, and (iv) $i(x) \cap i(y) = i(z)$, where i(z) is the idea expressed or expressible by some sentence z in either A or B. In situation (i), we say that the translation sentence x *preserves* the idea i(y) as i(x); in situation (ii) we say that the translation sentence x *reduces* the idea i(y) to i(x); in situation (iii) x is said to *augment* the idea i(y) to i(x); and in situation (iv) x is said to *approximate* the idea i(y) by i(x). The relation between i(y) and i(x) is the reverse of that between i(x) and i(y).

In accordance with this view on translation, if x and y are a pair of translation-equivalent sentences, then x and y are merely two different expressions of the same idea if x preserves the idea of y (i.e., i(x) = i(y)), otherwise x and y are expressions of two distinct ideas.

Now, given any pair of translation-equivalent sentences, how can we decide whether they represent one single idea or two separate ideas? Let us use a concrete example. Faced with (1a) and (1b), how can we determine whether (1a) and (1b) correspond to identical or distinct ideas? All one can say is that a (perfect) bilingual of English and Chinese would use (1a) and (1b) under 'comparable' speech situations, but one does not know whether 'comparable' means 'exactly the same' or 'roughly the same.' In order to determine whether two comparable speech situations in two languages are identical or merely similar, one would have to assume that the two translation-equivalent sentences are one and the same idea or are two separate ideas, and that would get us into a circular argument (see Quine 1960 for indeterminacy in translation). Other criteria would not get us far either. For example, even if the logician can find two identical or distinct formulas for the two sentences compared (cf. Montague 1974), or even if the psychologist can find two identical or distinct subject responses in his experiment (cf. Kay and McDaniel 1978), it remains a question whether the logician's formulas or the psychologist's experiments are adequate measurement of the sameness or difference between the two sentences (see Lewis 1946 for inscrutability of object). In fact, in his attempt to define truth, Tarski (1952) has shown that truths do not reside in the sentences of an object language but must be asserted by individual statements in the meta-language. The same would seem to apply to the sameness between ideas within a language or across languages. Consequently, we must make some arbitrary decision and declare, for any given pair of translation-equivalent sentences, whether they correspond to the same idea or not.

To achieve this, we start out by dividing our previous term idea into two terms: concept (idea, notion, thought, etc.) and meaning (semantic value). Technically, a sentence in a specific language has a meaning but does not by itself represent a concept. By contrast, a set of translation-equivalent sentences represents a concept but does not have a meaning. So used, the term meaning denotes the same thing as our previous term idea; the term concept will now be explicated.

If X and Y are two sets, then we can obtain their intersection $X \cap Y$ as indicated before. We can also obtain their union $X \cup Y$

by collecting elements which are in X or in Y or in both. The operation of intersection and union can be applied to any number of sets. Let A_1 , A_2 , . . . , A_n be n number of languages, and let $x = \{x_{A1}, x_{A2}, \ldots, x_{An}\}$ be the set of n translation-equivalent sentences, with each x_{Ak} being a sentence in some A_k. Then the set x can be viewed as an abstract sentence whose concrete manifestations in particular languages are x_{A1} , x_{A2} , . . . , x_{An}. We want to define the concept that x represents. Let $m(x_{A1}), m(x_{A2}), \ldots, m(x_{An})$ be the meanings of x_{A1} , x_{A2} , . . . , x_{An}. Then the intersection $m(x_{A1}) \cap m(x_{A2}) \cap \ldots \cap m(x_{An})$ and the union $m(x_{A1}) \cup m(x_{A2}) \cup \ldots \cup m(x_{An})$ can be obtained. Let us call the former min(x), or the minimum semantic content of x, and the latter max(x), or the maximum semantic content of x. Then, we define the concept that x represents to be $c(x) = \langle \min(x), \max(x) \rangle$, which is a pair with its two elements fixed in order, that is, an ordered pair. As a hypothetical example, consider the three meanings $m(x_{A1}) = \{a, b, c, d\}$, and $m(x_{A2}) = \{a, b, c, g\}$, and $m(x_{A3}) = \{a, b, c, h\}$. Then $\min(x) = m(x_{A1}) \cap m(x_{A2}) \cap m(x_{A3}) = \{a, b, c\}$, and $\max(x) = m(x_{A1}) \cup m(x_{A2}) \cup m(x_{A3}) = \{a, b, c, d, g, h\}$. Therefore, $c(x) = \langle \{a, b, c\}, \{a, b, c, d, g, h\} \rangle$.

It is clear that for any x_{Ak} , $m(x_{Ak})$ includes min(x) as its subset and at the same time is included as a subset in max(x), that is, $\min(x) \subseteq m(x_{Ak}) \subseteq \max(x)$. Thus, min(x) is the lower bound and max(x) is the upper bound of a continuum within which $m(x_{Ak})$ is located. If A_1 , A_2 , . . . , A_n are separate contemporary languages (or dialects), then this continuum may be viewed as the flexibility range within which the same concept c(x) can be particularized as various $m(x_{Ak})$'s in various A_k's. If A_1 , A_2 , . . . , A_n are successive historical stages of the same language, then this continuum may be regarded as the mutation range within which the same concept c(x) may be particularized as the meaning $m(x_{Ai})$ at one stage A_i but as the meaning $m(x_{Aj})$ at a later stage A_j. In the former case, we say that the various sentences x_{A1} , x_{A2} , . . . , x_{An} symbolize the concept c(x) through the meanings $m(x_{A1}), m(x_{A2}), \ldots, m(x_{An})$. In the latter case, we say that a symbolic change has taken place with the result that whereas c(x) is particularized as $m(x_{Ai})$ at time A_i , it is particularized as $m(x_{Aj})$ at a later time A_j.

Given a sentence x_{Ak} symbolizing a concept c(x) through the meaning $m(x_{Ak})$, it has been standard to refer to a study of how x_{Ak} acquires $m(x_{Ak})$ by the term semantics. It is thus appropriate to refer to a study of how $m(x_{Ak})$ particularizes c(x) by the term symbolics. Similarly, whereas semantic change refers to a mutation from $m(x_{Ai})$ to $m(x_{Aj})$ for a supposedly fixed x_{Ak}, symbolic change refers to a mutation from $m(x_{Ai})$ to $m(x_{Aj})$ for a supposedly fixed c(x).

In the following space, we will undertake to illustrate the terms meaning, concept, and symbolic change by using a concrete example, namely, the triple of sentences (1a), (1b), and (1c) cited previously.

To begin with, how do we determine what meanings (1b) and (1c) have, since they are not English sentences? We decide to treat the meanings of their literal translations into English, namely (1b') and (1c'), as their own meanings. Thus, m(1b) = m(1b'), m(1c) = m(1c'), and of course m(1a) = m(1a). The next step is to break each one of these meanings into a set whose elements are its submeanings. But the set of translation-equivalent sentences formed by (1a), (1b), and (1c) is too small, and so whatever conclusion we arrive at based just on these sentences cannot be reliable. Therefore, we have to substantially increase the size of this set by adding to it many more translation-equivalent sentences. Instead of actually doing that, we will analyze these three sentences utilizing knowledge that we would have gained if we had actually studied a sufficient number of languages with respect to the concept particularized in (1a), (1b), and (1c).

Now we invoke the arbitrary power of a metalanguage and declare that syntactic and morphological differences among (the literal English translations of) the translation-equivalent sentences reflect difference in meaning. Accordingly, one clear meaning contrast among the three sentences (1a), (1b), and (1c) is this: the Korean sentence particularizes the concept of showing as a single overt causative event, the Mandarin sentence expresses it as a sequence of three temporally-structured events (cf. Tai MS), and finally the English sentence treats it as a single event which is neither an overt causation nor an overt sequence of temporally-structured events.

Since (1a), (1b), and (1c) are mutual translations, they should share some meaning, according to our theory of translation. What is it that they share? Roughly, the shared meaning is (a) 'I made the book visible to him.' If I showed someone a book, he might still not have seen it. Thus, (b) 'as a result he saw the book' is an implicature (à la Grice) but not a part of the meaning of (1a) I showed him the book. However, (b) is more a part of the meaning of (1b) than just an implicature. The same seems true with the Korean sentence (1c). Therefore, we can hypothesize that (a) is the shared meaning of (1a), (1b) and (1c), but (1b) and (1c) also share the meaning (b).

The Korean sentence (1c) is a causative construction, and causative constructions have been rather extensively studied (cf. Shibatani 1976). Such notions as control (Givón 1975), directness (Shibatani 1973, Yang 1974, Maran and Clifton 1976, Kachru 1976), accidentalness (Vichit-Vadakan 1976) form a short list of features of causation. Based on this short list, we characterize the extra semantic feature in the Korean sentence (1c) as follows: (d) causation: agent-controlled, direct, neutral w.r.t. accidental/intentional.

The meanings m(1a), m(1b), m(1c) can now be tentatively analyzed as follows:

m(1a) = {(a) 'I made the book visible to him'};
m(1b) = {(a) 'I made the book visible to him,'
(b) 'as a result he saw the book,'
(c) 'I took the book and gave it to him'};
m(1c) = {(a) 'I made the book visible to him,'
(b) 'as a result he saw the book,'
(d) 'causation: agent-controlled, direct, neutral}.

Clearly, min(1) = {a} and max(1) = {a, b, c, d}. Therefore, $c(1) = \langle \min(1), \max(1) \rangle = \langle \{a\}, \{a, b, c, d\} \rangle$. Thus, {a} and {a, b, c, d} form a continuum, which can be viewed as a flexibility range in symbolization or as a mutation range in symbolic change, with respect to the concept c(1). In symbolic change, c(1) is particularized as (oc-1b) *wǔ shì zhī yǐ shū*, *I showed him with the book*, in Old Chinese, but as (1b) in Mandarin. Therefore, a symbolic change in Chinese has occurred with the result that m(1b) = {a, b, c} replaced m(oc-1b) = {a} as the particularized shape of c(1). In the history of the English language, *show* in Old English had the sense 'to look at.' In about 1200 *show* suddenly changed from this sense to the causative sense 'to cause to see.' However, the periphrastic construction *make someone do something* was already in use about 1175. Therefore, it seems likely that before *show* acquired its causative sense, the semantic values 'show' and 'cause to see' share the periphrastic syntactic construction. If this is correct, then the symbolic change affecting English in connection with c(1) would have been from {a, b, d} to {a}.

Before concluding, it may be worth mentioning that our notion concerning the distinction between concept and meaning is closely analogous to the ideas proto-type (Labov 1973), scene (Fillmore 1979), category (Chafe 1979), schema (Rumelhart 1978), natural category (Rosch et al. 1976), model (Miller 1979), fuzzy set (Zadeh 1965, Lakoff 1972), etc. The intended contribution of this paper, however, is to formalize a portion of these parallel ideas in order to make it possible to talk about symbolics and symbolic change in explicit and exact terms.

References

Chafe, W. 1979. Recall and verbalization. Current issues in linguistic theory, ed. by Roger Cole, 215-246. Bloomington: Indiana University Press.

Fillmore, C. 1979. Topics in lexical semantics. Current issues in linguistic theory, ed. by Roger Cole, 76-138. Bloomington: Indiana University Press.

Givón, T. 1975. Cause and control: on the semantics of interpersonal manipulation. Syntax and semantics, vol. 4, ed. by J. Kimball, 59-89. New York: Academic Press.

Kachru, Y. 1976. On the semantics of the causative construction in Hindi-Urdu. Syntax and semantics, vol. 6: the grammar of causative constructions, ed. by M. Shibatani, 353-369. New York: Academic Press.

Kay, P. and C. K. McDaniel. 1978. The linguistic significance of the meanings of basic color terms. Language 54.3:610-646.

Lakoff, G. 1972. Hedges: a study in meaning criteria and the logic of fuzzy concepts. Papers from the 8th Regional Meeting, Chicago Linguistics Society, 183-228.

Labov, W. 1973. The boundaries of words and their meanings. New ways of analyzing variation in English, ed. by C.-J. Bailey and R. Shuy. Washington, D.C.: Georgetown University Press.

Lewis, C. I. 1946. An analysis of knowledge and valuation. La Salle, Illinois: Open Court.

Maran, L. and J. M. Clifton. 1976. The causative mechanisms in Jinghpaw. Syntax and semantics, vol. 6: the grammar of causative constructions, ed. by M. Shibatani, 443-458. New York: Academic Press.

Miller, G. 1979. Images and models, similes and metaphors. Metaphor and thought, ed. by Andrew Ortony, 202-250. Cambridge: Cambridge University Press.

Montague, R. 1974. The proper treatment of quantification in ordinary English. Formal philosophy, ed. by R. Thomason, 247-270. New Haven: Yale University Press.

Quine, W. V. 1960. Word and object. Cambridge, Mass.: MIT Press.

Rosch, E. et al. 1976. Basic object in natural categories. Cognitive psychology 8:382-439.

Rumelhart, D. 1978. Schemata: the building blocks of cognition. University of California at San Diego, CHIP report no. 79.

Shibatani, M. 1973. Semantics of Japanese causativization. Foundations of language, 9:327-373.

__________ (ed.). 1976. The grammar of causative constructions. New York: Academic Press.

Tai, J. MS. Temporal sequence and Chinese word order.

Tarski, A. 1952. The semantic conception of truth. Semantics and the philosophy of language, ed. by L. Linsky, 13-47. Urbana: University of Illinois Press.

Vichit-Vadakan, R. 1976. The concept of inadvertence in Thai periphrastic causative constructions. Syntax and semantics, vol. 6: the grammar of causative constructions, ed. by M. Shibatani, 459-476. New York: Academic Press.

Yang, I. 1974. Two causative forms in Korean. Language research (Seoul) 10.1:83-117.

Zadeh, L. A. 1965. Fuzzy sets. Information and control 8.338-53.