The Truth of 'Meaning' and ... the Meaning of 'Truth'

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All kinds of coherence and immanent theories of truth and meaning notwithstanding, the basic intuition remains the same: linguistic expressions refer, for the most, to some non-linguistic world and language's meaning is constituted by a relation to this world. What this relation consists of is the painful question, even more so, as it is hard to say what the world is without saying it in ... some language. A schematic illustration of this follows.

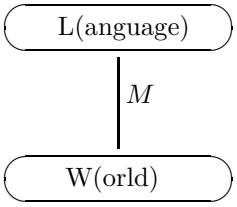

Figure 1: Linguistic frame

I won't elaborate too much on the painful question about the character of this relation. For our discussion it will do if we merely keep in mind that it is a *relation* and not necessarily a function. (We draw a line at M, not an arrow!) An ambiguous expression may have different meanings while, on the other hand, the same meaning (not only the same object) can be expressed in different words.

Given the relation M, it is tempting to make the following definitions. A linguistic expression (and I won't go into detailed distinctions between such), say 'dog', has the associate semantic field in the world, namely all the *dogs*. The meaning of an expression 'expr' is its afterset wrt. this relation, i.e.,

$$M(expr) = \{obj : \langle expr, obj\rangle \in M\}, \tag{1}$$

whatever this set is and however it is constituted. Dually, any thing obj has the associated set of linguistic expressions which can refer to it, namely, the foreset wrt. the relation [1]

$$M^{-}(obj) = \{expr : \langle expr, obj\rangle \in M\}. \tag{2}$$

It should be emphasized that meaning M, being a relation, may very well leave some expressions without any associated meaning and, vice versa, some meanings without associated expressions.

To fix terminology, let me call the pair 'word'-*its meaning* a *concept*, e.g., the concept dog is the pair 'dog'-*dogs*. It is so clean and nice that there must be serious problems and I am sure that if philosophers got his into their hands, there would be an unpleasant slaughter. But I am not making any metaphysical or epistemic claims, I do not insist that this is what concepts *really are* – after all, who can tell? I just stipulate the definition since this pair will play an important role in what follows.

[1] There is nothing wrong with allowing the language to be part of the world and let its expressions refer to other expressions. The above illustration captures only the schematic situation of a linguist for whom the language is an independed object of studies in its relation to the world. Also, I am by no means limiting myself to extensional view. If you like, the meaning of an 'intensional expression' can be taken to be its *intension* which, like *dogs*, is in the world.) Accepting the danger of oversimplification I will gloss over this, and many other niceties.

Now, I believe that the figure 1 reflects the universal situation in semantic: we have a language, its epressions refer to something-out-there, and our task is to investigate how that happens, what this relation consists of, how it is consituted. I am by no means unsymphatetic, this is certainly fruitful and demanding. But I think that there is also an underlying assumption which I will try to confront; the assumption that this figure is static and fixed, that concepts, even if fuzzy, are given, that meaning, even if ineffable, is constituted withing such a static linguistic frame. This fundamental fuzziness and ineffability come from even more basic fact that there are hardly any static sematnic frames and that what constitues meaning is as much a static relation within a frame as a dynamic relation of transition between frames.

1 Indeterminacy and Invariants of Translation

Translation is considered to be a transition between two frames. Ok, it is a transition from one language to another but, of course, not an arbirtary one but one "preserving the meaning". Again, we may draw a neat schema:

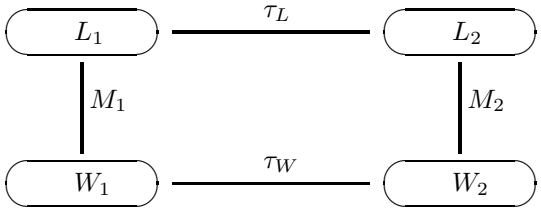

Figure 2: Traslation

Typically, one would draw the upper horisontal arrow and not just line. However, although this is how translation is used in practice, this possibility is based on the existence – and discovery – of a correspondence between the respective languages. If one can translate language L_1 into L_2, then one can also translate, even if imperfectly, L_2 into L_1. Besides, as we know, already the first translation is imperfect. For us, this means that here too we have to do with *relation*.

What may strike one in the above figure is the presence of the associated translation of the worlds. Uuhh?! Yes. It does not show, if we stick to simple examples. We have no reservations when German 'Hund' gets translated as 'dog' – *dogs* are *dogs*, whether in Germany or in England, and there is no need, at least no explicit need, to translate *German dogs* to *English dogs*. It would be a bit worse if we had, in Germany, a race of dogs not known in England. The actual 'Hund' might then refer to a *dog*, sorry, *Hund* of this race. Ok, it is well-known that the semantic fields of words which we often take to be translations of each another are not necessarily the same in two languages. Or as we might say, using our definition: the concept Hund may not exactly coincide with the concept dog. And since one may try to look for another phrase describing the actual *Hund* of the unknown race, indeterminacy of translation follows.

The point is only that translation does involve not only correspondence of the linguistic expressions but, equally, a correspondence between their semantic fields. When the fields diverge, one looks for other expressions. And what if one does not find any? Well, one always finds some, sometimes better and sometimes worse. And this is the whole meaning of the lower relation: when no exact linguistic counterpart is found, that is, there is no concept in the target language coinciding with the concept from the source language, one translates the respective world. This is much more clear if we ask for a translation of Nordic mythology (where there is a lot of snow) into a language of a small, isolated African tribe *Umba*, where no word for *snow* exists. These are perhaps rare cases, but they show that, in fact, translation of the worlds takes place too. And when we think that it does not, it is because the two worlds are so close to each other that

this translation takes care of itself.[2] As in the case of M, both τ_L and τ_W are relations and so, formally, nothing precludes the cases where a word, 'snow', in one language has no counterpart in the other. More significantly, *snow* existing in one world may have no counterpart in the other world.

In fact, something more subtle can be said here. I am trying to translate an expression 'e_1' from L_1 to L_2. I find a candidate $e_2 = \tau'_L(e_1)$ – it says τ'_L to indicate that I have chosen a particular candidate among the possible ones given by the full afterset $\tau_L(e_1)$. I find its meaning $M_2(\tau'_L(e_1))$ and check whether, translated back to the world W_1 it will yield the meaning of the original expression. The more subtle point concerns the fact that while the translation of the language goes from the source to the target, the associated – verifying – translation of the worlds goes in the opposite direction. Ideally, I should get what was there in the begining, that is, the formula for the ideal translation would be:

$$M_1(e_1) = \tau^-_W(M_2(\tau'_L(e_1))) \tag{3}$$

Notice that another procedure of ideal translation would be expressed by the formula:

$$\tau_W(M_1(e_1)) = M_2(\tau'_L(e_1)) \tag{4}$$

If I discover that *Umba* has no word for *snow*, I may decide for something like 'white pulver coming from the sky instead of rain'. According to (3), I have lost, for, although the meaning of this phrase translated back to English has something to do with snow, it certainly isn't the same. However, according to (4), I am fine because what this phrase describes in *Umba* is what I get when I translate the English meaning of 'snow', namely *snow*, into the *Umba* world.

Since, mathematically (3) and (4) are equivalent, this shows that our mathematics is too simple to capture all possible dimensions. Nevertheless, mathematics can say a lot about various compatibility criteria for the situations illustrated in figure 2, some of which will be indicated later on. In any case, mathematics serves us here merely as a model – even if imperfect one. More importantly, this model should suffice to convey the fundamental point which is:

2 Meaning is an invariant of translation

If this sounds audacious, this section will try to make it less so. The setting of translation are two separate linguistic frames. And if we restrict our attention to this context, there isn't much more to say than that "translation attempts to preserve meaning". Such a static view amounts to freezing and, as a matter of fact, absolutizing the static character of respective frames. The first claim is, that the relation, that is the relation within a frame between expressions and their referents, is by no means that static. I have intensionally been very vague as to what L_1, L_2 are and, more importantly, what W_1, W_2 may be. They certainly may be the frames of two separate language communities with distinc languages. But they also may be the frames within one language community, for instance, the frames of two persons. The relation τ would then be called 'communication' rather than 'translation'. They may also be frames of one and the same person at different moments of time, in which case, τ amounts to development of individual language capacities as well as world perception. [3] Probably, there are more plausible interpretations, but these will do for now.

To justify the first claim I only briefly mention the aspects of these two latter situations showing that all of the them share the structure represented in figure 2. Meeting new people, one often confronts a situation requiring a good deal of translation. And, provided that both speak the same language, even the language of the same social class, the translation will typically involve the translation of the respective worlds. Another tells me about his children, and his feelings for them, and I, who have no children, try to be emphatetic, which means, try to translate the setting he is sketching and incorporate it into my world. Or else he tells me about his travels to foreign

[2] Formally, if you do not like the idea of translating worlds, you may take both W_1 and W_2 to be the same world and τ_W to be identity.

[3] I am using 'world perception' to denote something like *Weltanschaung* – not just perception but all the capacities of perceiving, recognizing, thinking distinctions and connections, as well as relating to them.

countries, or about his house, or problems at work, or whatever. Everything, which I understand pefectly well, has to be accommodated to my frame. Occasionally, he may use a word I do not understand. If I cannot translate it merely from the context, I ask him for explaining the word and, pretty adult and mature language users as we are, the conversation may go on. However, it may also turn out that he uses a word, which was familiar to me, in a way which does not make sense from the context. I haven't noticed it the first time, judged it a slip of the tounge, but then he did it again, and now again. Well, I cannot make it fit, I cannot translate it, so I ask him again. He gives me an astonishingly precise description of its meaning. I must admit that, in the past, I used to be occassionally uncertain about this word and now I realize why. I had slightly misunderstood it, I construed it in an approximate fashion which worked by and large, but sometimes caused uncertainty. Now I see why. I give him the right and he continues. It should pass without saying that I enter analogous scenario when reading a book, listen to a radio, or participate in a discussion between several people.

The story of a development of personal frame is indicated in the above conversation. Children development may illustrate it more clearly because here it is harder to deny that actual expansion and adjustements of both the language and the world and their mutual relation take place. Elimination of overgeneralizations is supposedly showing that language capacities are developed under the corrective of the environment. And surely, they are. However, they show development not only of language capacities but also of the world perception. If, at first, a child calles a *plane* a 'bird', a correction amounts to forcing a distinction which might not have been there before. And so on and on. Instead of multiplying examples, let me say at once that in this case, it will be typically the case that the relations τ effect sophistication of concepts. On the one hand, overgeneralizations get refined, and on the other, new abstactions appear. The latter corresponds to emergence of new words and expressions which collect various earlier meanings. Thus, having learned 'Europeans', I do not find any word in the earlier language L_1 – still, I may be able to find a group of entities (meanings) in the earlier world W_1 to which I can correctly translate the current meaning $M_2(Europeans_2)$. The former corresponds to relating the word 'bird'$_1$ to word 'bird'$_2$ and, perhaps, also to the new word 'plane'$_2$. Notice that the corresponding τ_W^- will have no proper counterpart for $plane_2$ in the earlier world W_1. However, what is left from $bird_1$ after it became $bird_2$ is invariant under translation: any $bird_2$ can be translated back to $bird_1$.

Thus arises the second, and main claim, that meaning is what is invariant in various, yes, all transitions between frames. It is what persists through all confrontations with new and other frames, whether my own or other people's, or other language's. Notice that, like the abstraction example above shows, new concepts may arise and thus, new meanings. They need not be entirely new – I can translate the meaning of 'Europens' back – but they are new as meanings of *new expressions*. One might, probably, try to think of meanings-in-themselves but for our purposes meanings are always meanings of some expressions. Thus, speaking about meaning as invariance under translation makes sense only from the point where meaning appeared in the semantic world *and* a corresponding expression appeared at the linguistic level.

Interdependency of meaning and translation. According to the main thesis, meaning of an expression is not fixed once and for all. For sure, it may be very stable, especially when living in a static world with few changes. But it also has a shifting aspect, any word can acquire a slight variation of meaning, a slight modification of emphasis, tone, flavour, when confronted with a new variation of its original meaning or else with a close but different meaning of a word in a different language.

Only the assumption that each linguistic frame is static and closed leaves us satisfied with the indeterminacy of translation. But there is more to translation than that. As any person using daily two different languages will know, it is creative and constitutive for meaning, it may endow old expressions with new meanings and old meanings with new expressions. Taking as the basis figure 2 (or, rather, an innumerable bunch of such figures) instead of figure 1, allows us to fiddle not only with τ's, in order to accommodate them to M's, but with M's as well. This is what everybody learning a language does. (Linguists learning foreing languages do exactly that, too –

they change the frame.) This is what a great translation of a difficult piece of text does. And this is what everybody listening to other people does.[4]

No language without language users. A point which may be worth noting is that linguistic frames are certainly anchored somewhere, namely, at the language users whether individual or collective. Meaning is inseparably linked to the use of the language. For conversation, discussion and any attempt to understand what another is saying, is a translation, that is, enrichment. It is where meaning of a language emerges. And since few people talk exclusively to themselves, meaning is a highly social phenomenon.

I hope to have made it clear that no solipsistic constitution of meaning is assumed nor ensures. But it is not excluded either. It all depends on what one is willing to consider as frames. I, at least, would include here the examples from the begining of this section. Thus, since children certainly hear their parents and we certainly do talk and listen, the meaning is an invariant of a horrible sphagetti of mutual relations and translations.

This, I believe, may account also for the impossibility to define the meaning of even simplest phrases. On the one hand, such a definition has to relate to the world which, we feel, is richer than language. But on the other hand, it has to accommodate all the modifications with which innumerable contexts and users, also all future poeats, may endow the meaning of the words.

Invariance, meaning... In a sense, I have dissociated meaning from expressions. It now resides beyond any single frame, at a meta-linguistic level. In a sense. And it is fine with me. But this smells, I am afraid, again the absolutization of semantic frames. I know, linguists love them but the whole point here is that, important and basic as they are, single frames are not that constitutive for meaning which emerges only between them. (Keep also in mind that frames are not just different languages, they exist withing every single language as well.) But, although meaning emerges between frames, there is no access to it except through some actual single frame. Only from such a frame, can I begin translating and, eventually, arrive at a new, larger frame encompassing the meaning of an expression, or else, more prosaically, elucidate the meanig of the exprerssion within my old frame.

More to the point, what does 'invariance' actually mean? I do not think I have said it very precisely. (If you feel I did, you may skip to the next section.) The point of departure is, as I just said the relation M within one frame (right after I have heard or said the first words.) Eventually, it is the frame of an adult person who speaks the language he speaks and lives in the world he lives in. At this stage, there is apparently not so much new-meaning-acquisition, as only reuse of various meanings constituted in the course of development. But only apparently because, as I have argued, we do translate as long as we converse. If we ask about the meaning within a single frame, it must appear as something primitive, given, metaphysical, if not simply mysterious. The only experience revealing its ... well, meaning, is a transition to another frame.

In terms of the figure 2, the invariant is this part of M_1 which makes the diagram commute, that is all these pairs $\langle e_1, m_1\rangle \in M_1$ which survive the transition and hold after application of τ :

$$\langle e_1, m_1\rangle \in M_1 \Rightarrow \langle \tau_L(e_1), \tau_W(m_1)\rangle \in M_2. \tag{5}$$

But even reducing the intuitive discussion to such a formal statement, we still have a lot of choices. What we have just said is that meaning is what is *preserved* by translation. Why not *reflected*, that is, why not that part of M_2 which originates from M_1, i.e.:

$$\langle e_2, m_2\rangle \in M_2 \Rightarrow \langle \tau_L^-(e_2), \tau_W^-(m_2)\rangle \in M_1 \ ? \tag{6}$$

These are not equivalent. So, perhaps, we should require both preservation *and* reflection? But why?

Things are even worse because all our M's and τ's are relations. Thus, in general, $\tau_W(m_1)$ or $\tau_L^-(e_2)$ are *sets*. For instance, in (5) we start with singletons e_1 and m_1 but arrive at the sets $\tau_L(e_1)$

[4]Beware, I do not mean that there are no bad, or incorrect translations – in the literal, and not our general sense. In pratice, one does have two relatively stable frames, typically, sharing most of the world and separated by distinc languages. In practice, a lot of ingenuity is needed to make translation affect meaning in an acceptable way.

and $\tau_W(m_1)$. Should we require M_2 to hold between all individuals from these sets, some, at least one pair? There are all kinds of possibilitites of combining preservation/reflection properties with the set-valued operations leading to a variety of possible formal invariance criteria. Snice I do not intend to settle this detail here, I refer interested reader to mathematical work on the subject.[5]

3 Truth and meaning

Speaking abut *truth* should make one uncomfortable so I will start assumig the, by now quite common, position and treat it with symbols and formal systems. I haven't said that, but the figure 2 has a special case (in fact is a generalization) where M is replaced by $\models$. This little known picture[6] is as follows:

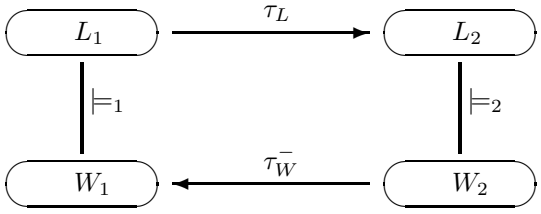

Figure 3: Logical frame

At the language level, we have formal theories: languages of some kind, for instance, all possible signatures (collections of non-logical symbols) for first-order logic with some axioms. With each such theory there is associated its world – the class of structures which interpret all the symbols. These (theories and worlds) are then related by $\models$-relation, in this case, the usual satisfaction relation of first-order logic. One defines translation of theories in some purposeful manner (for instance, so that it preserves logical symbols) and then shows, that for each language translation τ_L there is a corresponding, but contravariant, model translation τ_W^- at the model level. Given a translation $\tau_L : T_1 \to T_2$ and any model $M_2 \models T_2$ in W_2, one may recover a model $M_1 = \tau_W^-(M2)$. The whole thing is of interest iff all these translations and $\models$-relations satisfy the condition for every model M_2 and sentence e_1 :

$$\tau_W^-(M_2) \models_1 e_1 \iff M_2 \models_2 \tau_L(e_1) \tag{7}$$

Yes, roughly but not exactly, this is what we have seen in (3). (Only here both τ_L and τ_W^- are functions.) This notion of logical frame generalizes the traditional notion of truth – it is easy to show that most (if not all) standard logical systems known from the history of formal logic satisfy the condition (7). But now, one stands quite free to choose which parts of the picture to adjust – one may fiddle with the definition of translation as well as with the definition of $\models$. And when one arrives at something which satisfies (7), one is pretty sure that it isn't nonsense.[7]

In this scenario, it is truth and only truth (well, $\models$) that is invariant under translation. So one may rightly say. But we do not have to yield to mathematical accidents. These people wanted to generalize Tarski's truth definition and they seem to have succeded quite well. But we want something different. Let me therefore say it at once. I certainly want to keep truth invariant under translation. However, meaning already is and the two do not seem to cincide. So ...? Truth is again a kind of (yes, I want to be vague) relation between linguistic expressions and the world. But not arbitrary linguistic expressions – only propositional ones. Invariance of truth is a special case of the invariance of meaning, just as propositions (or whatever you assume can have truth-value) are special cases of linguistic expressions.

[5] [BK86, Br93, WB97]

[6] It is widely known only in a tiny subculture of theoretical computer scientists who, themselves, constitue only a small branch of computer science; see [GB83].

[7] There exists quite an extensive theory of such logical frames.

Did I say that the meaning of a proposition is its truth conditions? Or even worse, its truth value? And therefore is preserved by translation, since meaning is... It is certainly a possible and simplest way. But I didn't mean it. I think the whole project of reducing meaning to truth is a dinosaur, so let's keep it where it belongs. I think, on the contrary, that it is truth of a proposition that depends on its meaning. I do not intend to define truth but I am prepared to claim that: preservation of meaning implies preservation of truth. If 'Ich bin ein Mann' is true, it is because of what it means. If I translate it and get 'I am a man' then what I got is true *provided that the translation preserved the meaning.*

I hope that I said more than a few tautologies. That 'Ich bin ein Mann' is true because of what it means may be one. Given a static linguistic frame, it may be very difficult to say something more precise about the relation between truth and meaning. However, our dynamic view enables me to say: preservation of meaning implies preservation of truth. This, I hope, at least says something.

4 Summarizing

1. The normal situation of a language user is not to stay within a single, static linguistic frame but to constantly switch between them or, perhaps, constantly extend his frame. In general, we call a transition between frames 'translation'.

2. Meaning is *defined as* an invariant of all translations. It manifests itself within a single (current) frame of a language user, but it emerges only through the process of translation.

3. Since meaning of a proposition is what determines its truth-value, truth, too, is invariant under translation.

We have left all technicalities for "future research" – good luck!

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