Is Logico-Semantical Analysis of Natural Language Expressions a Translation?

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Abstract

It is sometimes assumed that logico-semantical analysis of natural language consists in translation of natural language expressions into formal language ones. A moment reflection reveals that this translational thesis has unacceptable consequences. Firstly, to explain the meaning of the formal expression which is a translation of a natural language expression, one has to translate it into another language, thus an infinite regress of translations arises. Secondly, the translation does not disclose the meaning (it indicates only the sameness of meanings), which is a serious drawback because the semanticist’s aim is to explicate meanings. In addition to a criticism of that translational thesis, I offer an alternative explanation of typical findings of semanticists (written juxtapositions of natural and formal expressions) which fits the idea that logico-semantical analysis of natural language should provide (expression, meaning) pairs.

Keywords: semantics of natural language, logical analysis, intensional logic

1 Introduction

Logical semantics of natural language construes natural language as a semiotic system, i.e. as a set of signs coding extra-linguistic entities called (linguistic) meanings. The theoretical enterprise of logico-semantical analysis of natural language consists in explication of these meanings, i.e. in their modelling by means of rigorous tools (e.g. logic), explaining also general coding mechanisms of natural language, etc. A typical finding of a theoretician providing logico-semantical analysis of natural language is an analyst’s sentence (as I shall call it). It often takes the form:

The meaning of the expression

\footnote{It is assumed that a communication between users of the same language L (ideally) proceeds in the way that user U₁ wishing to communicate message-meaning M displays (by an acoustic or graphical means) an expression “E₁” which codes M in L, and U₂, when encountering “E₁”, grasps so M.}
"E" is \( \varphi \).

where "E" (which is usually unquoted) is an expression of some natural language (the name of which should occur in the sentence) and "\( \varphi \)" a term (or formula) of some formal language which serves for capturing or displaying of the meaning of "E". The sentence is stated in natural language which is enriched by formal language utilized by the semanticist, forming an *enhanced natural language*. A particular analyst’s sentence of this enhanced natural language delivers a certain message about the meaning of "E" to other analysts.

Those juxtapositions of "E" and "\( \varphi \)" (i.e. a piece of a natural language and a piece of a formal language) in the analyst’s sentence may tempt somebody to the conviction that logico-semantical analysis of natural language *consists in translation* of common natural language expressions into a certain formal language. It seems also to be in accordance with the widely held belief that natural languages ‘hide’ the proper logical forms of their expressions, and therefore some kind of ‘translation’ into a more perspicuous language is needed. (A natural language such as English can contain (as its proper part) a portion of standard arithmetical notation (etc.). Such sub-languages of a natural language are not the semanticist’s formal languages used for investigation of natural language.)

On the other hand, it has been often claimed that logico-semantical analysis of natural language should provide \( \langle \text{expression, meaning} \rangle \) pairs. Nevertheless, analyst’s sentences show only \( \langle \text{expression of natural language, expression of formal language} \rangle \) pairs. Can this conflict be reconciled? Does logico-semantical analysis of natural language really consist in translation of natural language into formal language (within the enhanced natural language)?

A time ago there were published two lucid manifestations of the two mutually exclusive opinions related to our topic. Pavel Tichý argued against the translational view (*cf*. Tichý 1992 and two of his posthumously published papers 1994, 1994a), stating in fact that:

> the task of logico-semantical analysis of natural language is to explicate the meanings of natural language expressions, not to translate them into formal language

i.e. suggesting thus to yield \( \langle \text{expression, meaning} \rangle \) pairs. On the other hand, Jaroslav Peregrin criticized Tichý’s opinions (*cf*. Peregrin 1993), so defending *Translational Thesis* (as I shall call it):
the task of logical semantics is to translate natural language expressions into formal language

i.e. suggesting thus to produce \( \langle \text{expression of natural language}, \text{expression of formal language} \rangle \) pairs.

The present author is indebted to both these theoreticians for their arguments which are partly incorporated (and sometimes more elaborated) in the next section. The key aim of this paper is to reject the thesis that logico-semantic analysis of natural language consists in translation into formal language.\(^2\)

2 Against Translational Thesis

Let us begin with an example which is familiar to anybody concerned with the problem of translation between languages. Suppose an Englishman studying Czech who would like to know what the expression “Skot je rohatý” exactly means in Czech. When his teacher tells him that this expression means the same as the expression “Das Rinde ist gehört” does in German, something odd happens. The answer is not an appropriate one – for the questioner is eager to know the meaning, not the translation, of the former expression into another language.

This shows that knowing how to translate an expression “\( E_1 \)” of \( L_1 \) into another language \( L_2 \) by means of an expression “\( E_2 \)” does not amount to knowing what “\( E_1 \)” means in \( L_1 \) (cf. Tichý 1994a, 53). The knowledge of the meaning congruence of “\( E_1 \)” and “\( E_2 \)” due to their intertranslability does not entail the knowledge of a particular meaning. This is also evident from the fact that an additional answer, stating that “Das Rinde ist gehört” means the same as a certain expression in French, does not increase the knowledge of the sought meaning.

It is also clear enough that “the meaning of ‘\( E_2 \)’ in \( L_2 \)” is a (rigid) description which does not display the meaning we are looking for. When the descriptum is unknown, no identities of the form “the meaning of ‘\( E_2 \)’ in \( L_2 \) = the meaning of ‘\( E_1 \)’ in \( L_1 \)” are capable to exhibit the meaning which the logico-semantic analysis of natural language should yield. Thus to say how a particular expression “\( E_1 \)” can be translated into another language by means of an expression “\( E_2 \)” is an essentially mistaken answer to the question “What is the meaning of the expression ‘\( E_1 \)’?”. This question is still not answered by a shift to another language. Moreover, it is a shift that leads to an infinite regress of translations (cf. Tichý 1994a: 53).

Our example might be probably challenged by means of the following reasoning. Suppose that our questioner receives the answer “Skot je rohatý”\(^2\)

\(^2\)We will assume a natural view that an expression “\( E_2 \)” of a language \( L_2 \) is the translation of “\( E_1 \)” of \( L_1 \) iff “\( E_2 \)” has in \( L_2 \) the same meaning as “\( E_1 \)” does in \( L_1 \).
means in Czech the same as “Bovines are horned’ in English”. A bilingual person who has mastered English and German could be analogously satisfied by the explanation “Skot je rohatý” means in Czech the same as “Das Rinde ist gehörnt” in German.

Nevertheless, both these answers are in fact inappropriate because each of them fails to display the meaning in question. Realize also that a possible satisfaction on the part of a non-theoretician should not arise in case of a semanticist, for the aim of logical semantics is to display the meaning in a rigorous theoretical framework. At the first sight, it seems that semanticists do that. Yet it is not exactly so. Imagine somebody stating that “Skot je rohatý” means in Czech the same as the formula “\(YZ\alpha\)” means in her or his favourite formal language \(L_\varphi\). Are you enlightened about the exact meaning of “Skot je rohatý”? Surely not. The translation of “Skot je rohatý” into a formal language leaves the meaning unexplained. Indeed, to grasp the meaning of “\(YZ\alpha\)”, one needs an explanation concerning what this expression means in the strange language \(L_\varphi\). Again, the problem concerning the meaning of “Skot je rohatý” was only shifted elsewhere. And an infinite regress of translations then arises (cf. Tichý 1994: 9–10).

Notice also that there seems to be a paradox lurking behind the Translational Thesis. Because if the aim of logical semantics of natural language, as it is usually assumed, is to explicate meanings, yet it is impossible to provide meanings because only expressions count, then the aim of logical semantics of natural language cannot really explicate meanings – contrary to the assumption.

There is an indirect argument for Translational Thesis (cf. Peregrin 1993: 75–76); it runs as follows. It is claimed that semantics should produce \(\langle\text{expression}, \text{meaning}\rangle\) pairs. Since meanings coded by expressions are abstract, language-independent entities, it is clearly impossible to write down \(\langle\text{expression}, \text{meaning}\rangle\) pairs. However, it is not difficult to disarm this argument. The main purpose of language is to direct audience to some thoughts (meanings) by means of perceptible items, namely by acoustic or graphical tokens of expressions. Undoubtedly, to direct another semanticist to certain extra-linguistic meaning that is coded by some natural language expression, one cannot help but use a certain expression (of formal language). Clearly, one cannot say something without using words; but surely, it does not follow from this that we never speak about anything other than words (cf. Tichý 1992: 75–76). Therefore, \(\langle\text{expression of natural language, expression of formal language}\rangle\) pairs written down by a semanticist are only tools directing the attention of other theoreticians to \(\langle\text{expression, meaning}\rangle\) pairs.

Summing up this section: though Translation Thesis – i.e. that logico-
semantical analysis of a natural language expression “E” consists in its translation into a formal expression “ϕ” — seems to be right, it produces really doubtful consequences. Firstly, when such translation is offered, one must ask what the meaning of “ϕ” is. In accordance with Translation Thesis, the analyst should yield some other expression of some (perhaps another) language which has the same meaning, thus all these expressions being intertranslatable. A vicious infinite regress of translations results from this. Another odd consequence of Translation Thesis is that an analyst is construed as proposing congruence of two descriptions. Thus the analyst’s sentence is in fact paraphrased to “The meaning of ‘E’ (in the natural language L) is the same as the meaning of ‘ϕ’ (in the formal language L_ϕ)”. However, “the meaning of ‘E’ (in L)” does not really present a rigorously modelled meaning of “E” – the meaning of “E” is therefore left unexplicated. Provided that the very project of logico-semantical analysis of natural language is not idle as such, Translation Thesis must be refuted. Hence, when doing logico-semantical analysis of natural language, we do not provide translations.

3 Logico-semantical analysis of the analyst’s sentence

Nevertheless, Peregrin suggested another, non-trivial, argument supporting Translational Thesis. Though it was directed against Tichý’s logical system – transparent intensional logic (henceforth TIL) – used for hyperintensional analysis of natural language meanings, it can be modified to attack also other logical frameworks used for explication of meaning. In its general setting, the argument goes as follows. An expression “ϕ” of a formal language used for analysis of meaning must be interpreted in order to mean the same (or at least nearly the same) as an expression “E” of the investigated natural language (otherwise the association of “ϕ” with “E” would be quite arbitrary).

Here is the original Peregrin’s version (cf. Peregrin 1993: 75): what makes Tichý’s notation, TIL-language, exactly interpreted is an explicit definition stating that, for instance, “λwλt [[^Shave_w]_t Jn 0_Fred]” signifies the construction of doing so-and-so (I am using “signify” as a neutral semantic term). The strength of the argument can be appreciated when realizing the fact that Tichý would be the last to deny that TIL-terms signify constructions. So it seems that a particular juxtaposition of a natural language expression and a TIL-term is justified by the fact that they both signify the same construction, i.e. that they are intertranslatable.

In this section I am going to show that the discussed pairs of natural language expressions and TIL-terms are not, despite the appearance, intertranslatable, because both members of these pairs signify a particular construction in an entirely different way. The justification of such juxtapo-
sitions of natural language expressions and TIL-terms recording their logico-
semantical analyses is rooted in the fact that each of them signifies, though
in a different manner, one and the same construction. An essential part of
this explanation consists in the logico-semantical analysis of the analyst’s
sentence; I will employ TIL for this matter.

Tichý’s transparent intensional logic was first formulated by him in the
very beginning of 1970s as a typed $\lambda$-calculus (differing from that of Mon-
tague in various important respects) and it was remarkably modified in
Tichý’s late book (see Tichý 1988 for a rigorous exposition of current TIL).
The atomic types of TIL include individuals, truth-values, possible worlds,
and real numbers (used also for representation of time-moments). Intensions
are (often partial) functions from world-time pairs to objects of a certain
type. For instance, propositions are intensions having truth-values as their
values, properties of individuals are intensions having classes of individu-
als as their values. Intensions are denotata of ‘empirical’ expressions. For
instance, typical sentences denote propositions; typical monadic predicates
denote properties, etc. On the other hand, numerals denote numbers; proper
names denote individuals, etc.

Every entity is constructible by (infinitely) many abstract procedures
called by Tichý constructions. Unlike intensions, constructions are not set-
theoretical entities; constructions are close to algorithms (algorithmic com-
putations). Constructions are typically structured (the way functions are
not). Since constructions are suggested to be (explications of) meanings of
expressions, the semantic scheme has a procedural, hyperintensional level:

\[
\begin{align*}
\text{an expression } \text{“}E\text{”} \mid \\
\text{expresses (means):} \\
\text{the construction } C \text{ (which constructs)} \\
\text{denotes (names):} \\
\text{the denotatum } D \text{ (an intension or a non-intension)}^{4}
\end{align*}
\]

The value of an intension denoted by an expression in a given possible world
W and time-moment T is called the referent of that expression in W, T (to
ascertain the referent of such expression one has to empirically investigate
the state of affairs).

Constructions are usually recorded by some kind of $\lambda$-terms because
they are capable to faithfully depict constructions. (I will use a slightly
simplified notation of contemporary users of TIL.) It is not inconvenient to
view constructions as objectual correlates of these TIL-terms. (Thus realize
clearly that constructions are not expressions of any particular formal lan-
guage; notice also that TIL-language has a ‘fixed interpretation’.) We may

\[4\text{It should be added here that some constructions are abortive, they construct nothing}
(e.g., \([0, \frac{3}{0}, 0]\)).\]
also say that a construction is that abstract, language-independent entity which combines functions and non-functions denoted by sub-expressions of a certain expression into a unit, a complex whole.

Here are several semantical statements refined within TIL-framework. An expression “E_2” of a language L_2 is the translation of “E_1” of L_1 iff “E_2” expresses in L_2 the same construction as “E_1” expresses in L_1. Two expressions are synonymous (typically in one language L) iff they both express one and the same construction. Two expressions are equivalent (typically in one language L) iff they express (in L) constructions C_1 and C_2 which construct one and the same object (such two constructions C_1 and C_2 may be called equivalent constructions).

Before we proceed further, a few words about constructions which are objectual correlates of constants, the so-called trivializations, are needed. A slightly simplified definition: a construction which picks out an object X and leaves it, without any change, as it is, is called trivialization of X; it shall be recorded by “0 X”. If X is, for instance, Fido, the construction 0 Fido constructs simply just Fido. If, on the other hand, X is a construction C, then 0 C constructs this construction C (0 C picks out C and leaves it as it is). Consider a particular example, namely the construction [0 + 0 2 0 3] which is the logico-semantical analysis of the expression “2+3”. This construction constructs in the following way: it takes the addition function, it takes the pair (or string) of numbers, and applies the former to the latter. The result of the constructing of [0 + 0 2 0 3] is the number 5 (which is the denotatum of “2+3”). Note carefully that the trivialization of [0 + 0 2 0 3], i.e. 0[0 + 0 2 0 3], constructs the construction [0 + 0 2 0 3], not the number constructed by [0 + 0 2 0 3]. We may say that the constructing of C is ‘blocked’ if C occurs in 0 C.

Note that trivializations are indispensable for correct analyses of expressions such as “Xenia computes 2+3”. This sentence describes an agent as being related to some procedure — not to the result of this procedure (the number 5). Thus λw ws t 0 Compute_{set} 0 Xenia[0 + 0 2 0 3] is a wrong analysis, the constructing of the construction [0 + 0 2 0 3] must be ‘stopped’ by trivialization; i.e. only λw ws t 0 Compute_{set} 0 Xenia 0[0 + 0 2 0 3] is the correct analysis. Another eloquent example is made by explicit belief sentences. Since the agent is not conscious of all logical consequences of the content of her belief, she is not directed towards a mere proposition, but to a particular construction of that proposition (to ‘stop’ the constructing of that propositional construction by trivialization is thus needed).

We have said that due to TIL, the meanings of expressions are constructions — not intensions or other kinds of denotata. A TIL-analyst’s sentence is thus of the form

“The meaning of (the expression) “E” is (the construction) C.”

Let us provide its logico-semantical analysis.
The expression “the meaning of” which is used in this sentence denotes the relation ‘(the) meaning of’ which is applied to an expression and a construction. I will assume the standard praxis of representing expressions by Gödelian numbers yielded via a particular Gödelization, i.e. \( g(“E”) \) constructs the Gödelian number of “E”. Further: since the second relatum of the relation ‘the meaning of’ is a construction C, we have to pick out this construction C as it is. Thus we have to deploy, on the level of meaning, the trivialization of C, namely \( C \), for it is the construction C itself that is ‘conceptually grasped’ here, i.e. picked out by a trivial, one-step, procedure \( C \). The construction expressed by the TIL-analyst’s sentence is thus

\[
\lambda w \lambda t \ [0\text{TheMeaningOf} \ 0g(“E”) \ 0C].
\]

This construction constructs an analytically true or analytically false proposition.\(^5\)

Now we are ready to compare the meaning of an expression such as “Fido is a dog” and a TIL-term displaying its logico-semantical analysis (e.g., in a particular TIL-analyst’s sentence). In a diagram:

\[
\begin{align*}
\text{“Fido is a dog”} & \quad \lambda w \lambda t \ [0\text{Dog}_{wt} \ 0Fido] \quad \text{expresses:} \quad \lambda \left( \lambda t \right) [0\text{Dog}_{wt} \ 0Fido] \\
\text{expresses:} & \quad \lambda w \lambda t \ [0\text{Dog}_{wt} \ 0Fido] \quad \text{denotes:} \quad \lambda w \lambda t \ [0\text{Dog}_{wt} \ 0Fido] \\
\text{denotes:} & \quad \lambda w \lambda t \ [0\text{Dog}_{wt} \ 0Fido] \quad \text{denotes:} \quad \lambda w \lambda t \ [0\text{Dog}_{wt} \ 0Fido]
\end{align*}
\]

We have said above that two expressions of two languages are intertranslatable iff they express (mean) in these languages one and the same construction. It is quite clear from the diagram that “Fido is a dog” originally belonging to ordinary English expresses a construction entirely distinct from that expressed (within the enhanced English) by the TIL-term \( \lambda w \lambda t \ [0\text{Dog}_{wt} \ 0Fido] \). The former expression expresses a certain construction C, while the latter expression expresses the trivialization of this construction C, i.e. \( C \).\(^6\) (Notice also that the justification of the respective (natural

\(^5\)Since no expression has its meaning absolutely, the analyst’s sentence has to relate “E”’s having of particular meaning to a particular language L. Let L be a function from (Gödelized) expressions to (first-order) constructions, i.e. the first-order code of English (whereas English is construed as synchronically given). The proper analysis of the analyst sentence is then \( \lambda w \lambda t \ [0\text{TheMeaningOf}\ 0g(“E”) \ 0C \ 0L] \) (this analysis was published by the present author in one his articles written in Czech in 2005).

\(^6\)Not only that the two expressions in question are not synonymous or equivalent, the constructions C and \( C \) expressed by them are even categorically different – they belong to different types (for good reasons, constructions are stratified into distinct orders, cf. Tichý 1988: 60). Whereas \( \lambda w \lambda t \ [0\text{Dog}_{wt} \ 0Fido] \) is a first-order construction (belonging thus to the type \( (*_1) \), \( 0[\lambda w \lambda t \ [0\text{Dog}_{wt} \ 0Fido]] \) is a second-order construction (belonging to the type \( (*_2) \). We may also say that the analyst’s sentence belongs to the second-order code (a function from expressions to second-order constructions) of English which is
language expression, TIL-term) pair is possible due to the fact that the TIL-term denotes the trivialization of $C$, i.e. $0^C$, whereas $C$ is expressed by that natural language expression.)

Hence, the two expressions which are expressive of distinct constructions cannot be intertranslatable. The aforementioned argument in favour of Translation Thesis thus falls through. Therefore, we have sustained the thesis that the aim of logic-semantical analysis of (natural) language is to provide ⟨expression, meaning⟩ pairs (which are recorded as ⟨natural language expression, TIL-term⟩ pairs).

Let us add two comparisons, one with Tichý, the second with Montagovians. It is interesting to find that Tichý himself rejected intertranslability of TIL-terms with the respective natural language expressions: “we use the [TIL] formula to name [i.e. to denote] the construction which . . . is expressed (not named! [i.e. not denoted]) by the English sentence.’, “By juxtaposing a formula in that [TIL] notation with an English sentence . . . we do not offer the formula as a translation of that sentence’ (Tichý 1980: 352); analogous statements can be found also in Tichý’s unpublished monograph Introduction to Intensional Logic completed in 1976. However, within the simple type-theoretic framework which Tichý used in those times, he could not fully explain the matter. Unlike simple type-theory which cannot classify constructions, only his ramified type-theoretic framework enables us to adequately show the lack of intertranslability of those expressions (and also properly analyze the analyst’s sentence) due to the explicit treatment of constructions within the framework.

Montague (1974) and his followers repeatedly speak about translation of natural language expressions in the language of Montague’s Intensional Logic (IL), suggesting thus that ⟨natural language expression, IL-term⟩ pairs have the same model-theoretic meaning (as it is known, IL lacks a hyper-intensional level, which is its deficiency). On the other hand, some Montagovians have already conceded that they need not provide real translations: “Intensional Logic [serves] as a formalized part of our metalanguage’, whereas our metalanguage contains also “ways of referring to object language (e.g., English)” and “Intensional Logic could provide us with names for meanings” of expressions of the object language — thus Montague’s method of translations is not necessary (Dowty, Peters, Wall 1992: 264). It seems that my proposal based on Tichý’s ramified type-theoretic framework is in conformity with their portrayal.

utilized for commenting on semantic features of the first-order code of English (remember Tarski’s meta-language / object language distinction on this occasion). For more details please consult the present author’s (forthcoming) papers providing explications of semantic notions and solutions to semantic paradoxes.
4 The conceptual role of formal language used within enhanced natural language

One might perhaps doubt the logico-semantical analysis of the analyst’s sentence given above, demanding an independent explanation of why natural language expressions are not intertranslatable with expressions of formal language used by a semanticist. I.e. to be given an explanation of why there is such an incommensurability of the formal language utilized for logico-semantical analysis of natural language (to which the formal language is appended) with the original part of that natural language.

Let me firstly introduce a simple test showing the principally different role of expressions belonging to the formal language used by the semanticist for explication of meanings from the original, usual expressions of that natural language. Within the enhanced natural language, ordinary expressions occur sensibly only in the supposition usualis (as I shall call it). On the other hand, formal expressions that we have embedded into that language for explication of meanings of its original expressions have a conceptual role, thus they occur sensibly in the supposition conceptualis. The usual expressions such as “Fido” or “canine” serve us for talking about ordinary things such as individuals, properties, etc., so we can expand them into their synonymous mates such as “(the) individual Fido”, “(the) property canine”. Formal expressions such as “λwλt [λx [0\text{Canine}_{\text{wt}} x]]” can be expanded to their synonymous mates such as “the construction λwλt [λx [0\text{Canine}_{\text{wt}} x]]”; the prefix “construction” thus indicates the conceptual character (and so the occurrence in the supposition conceptualis) of the subsequent expression.

It is then easy to ascertain that expressions of a formal language (viz. TIL-language) are meaningful in the enhanced natural language only in the supposition conceptualis (compare with “the construction λwλt [λx [0\text{Canine}_{\text{wt}} x]] is a construction of the kind closure”), while being nonsensical in the supposition usualis (“the property λwλt [λx [0\text{Canine}_{\text{wt}} x]] is instantiated by Fido”). On the other hand, original expressions of natural language such as “canine” are nonsensical when occurring in the supposition conceptualis (“the construction canine is a construction of the kind closure”), while being meaningful in the supposition usualis (“the property canine is instantiated by Fido”). Thus the two kinds of expressions have clearly distinct semantic properties and one cannot insist, in order to defend Translational Thesis, on the possibility that TIL-terms can denote – in some contexts – ordinary things such as individuals, properties, etc., so that they can be intertranslatable with expressions (usually) denoting the ordinary things.

One may ask why it is so that the formal language used by a semanticist, the language the coding means of which were explained to us in English, is not translatable with English when the formal language is used for explica-
To elucidate this matter, recall the situation when you were introduced to (typed) $\lambda$-calculus (if you were not, imagine that you were). You were said, for instance, that its expression \texttt{"[+ 2 3"]} means the application of addition to two and three. This explanation was performed in English. On that occasion, you were investigating $\lambda$-calculus by means of English which served for the explication of meanings of $\lambda$-terms. Let us call the language under inspection an \textit{investigated language} and the language used for explication of the semantic features of the investigated language an \textit{explicative language}.

Since the notation of $\lambda$-calculus fittingly codes procedures-meanings (intended to be communicated by means of that language), it was suggested to use this formal language for explication of coding means of natural languages which are admittedly less transparent. On this occasion, the investigated language is English, not $\lambda$-calculus, and the explicative language is $\lambda$-calculus, not English. I.e. it is $\lambda$-calculus which is utilized to transparently display the meanings (procedures) which are coded by English expressions. Thus the role of $\lambda$-terms within enhanced English is conceptual because they serve for certain conceptual tasks.

This explains why the role of formal expressions belonging to the explicative language within the investigated language is not usual (it is conceptual), while the role of original expressions within the investigated language remains usual. In consequence, one should not expect that expressions having such principally distinct roles and semantic features (formal expressions are meaningful only in the supposition conceptualis, while natural expressions are meaningful only in the supposition usualis) would be intertranslatable.

Finally, let us complete the overall picture of the aim of logico-semantical analysis of natural language. The purpose of an \textit{explication} is to provide rigorous concepts where there were only (often vague, imprecise) pre-theoretical notions before. Users of a natural language surely do understand its expressions. However, they do so only \textit{pre-theoretically}. A logical semanticist speaking this natural language is somebody who grasps the meanings coded by its expressions as well. Yet she or he goes further and offers their \textit{exact, rigorous explicans}. The situation is analogous with that in physics: its aim

\footnote{Of course, I am omitting here that the semantics of formal languages is usually given model-theoretically. We may admit that a basic description of the semantics of formal expressions can be given in a natural language and that the model-theoretical jargon is in a sense a shorthand presentation of the matters which can be given in the natural language as well. (Working with a variety of possible interpretations so frequent within the area of mathematical logic is irrelevant here, we discuss a formal language with a fixed interpretation; Church’s own explanation of the semantics of typed $\lambda$-calculus is admittedly the best example of the matter I intend to discuss here.)}

\footnote{For the case of Montague-like approach, the situation is in principle analogous: the explicative language is a language of model theory with a fragment of ordinary English which is used for description of the semantics of two investigated languages, viz. the language of Montague’s IL and ordinary English.}
is to explain, for instance, which physical laws and powers are needed to ride a bike; on the other hand, cyclists, and physicists among them, can ride bikes without rigorous theoretical knowledge of how they do it. A theoretician who investigates English can use TIL for the explication of meanings of usual English expressions. On that occasion, TIL-terms serve for illumination (displaying) of natural language meanings. Thus TIL-terms have a conceptual role. So there is no natural reason to expect that their addition to an investigated language (English, in this case) makes them becoming its proper, usual part.  

References


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