Constructional vs. Denotational Conception of Aboutness

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ABSTRACT: Following Carnap's Principle of Subject Matter, Pavel Tichý proposed a methodological principle I call the "Denotational Principle of Aboutness". It says that expressions are about their denotata. Denotata are modelled as possible world intensions or (common) extensions. Nearly the same principle was recently defended by Marie Duží and Pavel Materna under the name the "Parmenides Principle". However, Duží and Materna did not react to Tichý's late proposal which I call the "Constructional Principle of Aboutness". It says that the subject matter of expressions consists not in their denotata but in their meanings. The meanings are explicated by Tichý, and also by Duží and Materna, as so-called constructions; constructions are complex entities akin to algorithms, they construct intensions or extensions. In this paper, I argue in favour of the Constructional Principle of Aboutness. I show that there are not only single arguments, but the whole net of methodological principles which support it. This is why the topic largely transcends the debate among Tichý's followers.

KEYWORDS: Aboutness – logical analysis of natural language – logical semantics – principle of subject matter.

1. Introduction: aboutness and constructions vs. denotata

When investigating natural language, Pavel Tichý – the founder of Transparent Intensional Logic (TIL) – introduced his own *Principle of Aboutness*, i.e. a principle related to the *subject matter* of expressions (in

a natural language), to what they speak *about*.[1] As I indicate in the title of this paper, I distinguish two kinds of aboutness.

The so-called *Denotational Conception of Aboutness* (DA) is the erstwhile conception by Tichý and also the recently published conception by Pavel Materna and Marie Duží (see Materna – Duží 2005). The so-called *Constructional Conception of Aboutness* was already formulated by Tichý (1988) as his supreme theory and I am going to argue in favour of its adoption.

The task of logical analysis of (natural) language, which is a discipline auxiliary for the aim consisting in the control of validity of arguments, is to associate expressions with meanings. Thus, there is an important question of what kind of entities meanings are. In the case of TIL as a semantic system, three answers are possible: meanings are extensions / (possible world) intensions / Tichý's so-called constructions of extensions or intensions. But the question goes far beyond the framework of TIL because it asks whether meanings are flat set-theoretic entities or whether they are, rather, certain 'over-set-theoretical' structures, procedures.

Such questions have also a significant historical model in Gottlob Frege's considerations in the initial pages of his seminal study (1892). Frege proposed there *Sinne* as (structured) entities connected with expressions, whereas they are grasped by every competent user of a given language; on the other hand, *Bedeutungen* of expressions are (if there are any) determined by *Sinne* and they are not necessarily grasped by the competent language users. Frege seems to oscillate between two conceptions of aboutness: in normal contexts we speak about *Bedeutungen*, while with help of indirect contexts we speak about *Sinne* of someone's words. It is obviously difficult to reconcile all this ideas and claim, e.g., that according to Frege the subject matter of an expression is its *Sinn* because it is graspable by any competent speaker.
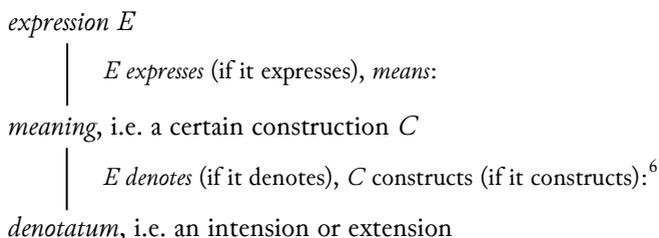
In his view on natural language, Tichý adopted the generally accepted view that language can be understood as a code system,[2] which transfers, by means of its coding signs, *meanings*. These meanings were explicated by Tichý as his so-called *constructions*. Constructions are abstract procedures which are specified by the entities they construct and the way how they

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[1]   I do not discriminate terminologically among "aboutness", "subject matter" and "talking" or "speaking about" in this text.

[2]   See Raclavský (2006) for more details; a detailed analysis can be found in my forthcoming paper "A Model of Language in a Synchronic and Diachronic Sense".

construct them. It holds that any object is constructed by infinitely many distinct constructions.[3] Constructions do not have extensional individuation as possible world intensions do – intensions are mere functions, unstructured mappings. Constructions have 'intensional' individuation: they can be equivalent without being identical; they differ as regards their structure. Individuation of constructions is thus more fine-grained than individuation of possible world intensions or (common) extensions. Constructions can be thus understood as *hyperintensions*, which have been recently often discussed in the philosophy of language and logical semantics.

There is no need here to introduce the apparatus of TIL.[4] It suffices to be acquainted with the *semantic scheme*, which is usually adopted in TIL. The scheme has two levels, the constructional and the denotational one:[5]

expression E

  E expresses (if it expresses), *means*:

meaning, i.e. a certain construction *C*

  E denotes (if it denotes), *C* constructs (if it constructs):[6]

denotatum, i.e. an intension or extension

In TIL, the relation of *naming* is often identified with the relation of denotation.

The motivation for this scheme will be expressed just after an illustrative example of the application of TIL in logical analysis of natural language. According to TIL, the sentence

"Fido is a dog"

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[3]   The term "construction" has nothing to do with intuitionism or constructivism.

[4]   I refer especially to Tichý (1988) as the most relevant source.

[5]   The explication of basic semantic notions in the spirit of TIL can be found in Raclavský (2012a). The above semantic scheme is not the only one accepted by TILians. It resembles the scheme propagated, e.g., by Materna – Duží (2005), and Tichý's earlier scheme (cf. Tichý 1980a; 1980b): 'an expression *E* depicts/represents a construction *C*; *E* names an object *O* (*E*'s nominatum) if *C* is closed'.

[6]   Some constructions are *improper* in the sense that they construct, on a certain valuation, nothing at all.

expresses the construction

$$\lambda w \lambda t [\mathbf{Dog}_{wt} \ \mathbf{Fido}],$$

which constructs the proposition (i.e. a class of ⟨a possible world, a moment of time⟩ couples) that Fido is a dog. The proposition is the denotatum of the sentence.[7]

Unlike the reference of mathematical, logical and some other expressions which does not change dependently on modal or temporal circumstances, the reference of many common expressions does vary; we will call them *empirical expressions*.[8] Empirical expressions denote (non-trivial, i.e. non-constant) intensions. Possible world *intensions* are total or partial functions from ⟨a possible world, moment of time⟩ couples. A value of a denoted intension in a given world W and time T, i.e. the reference of that expression in W and T, cannot be assessed by logic alone because it is a matter of empirical facts. To illustrate, the empirical sentence "The number of planet is eight" refers to the truth-value T in the actual world and at the present time, yet it need not be so in other worlds and at other times – an empirical investigation is thus indispensable to pinpoint the reference of that sentence. Other examples of empirical expressions include the individual description "the president of the USA" or the predicate "dog". *Non-empirical expressions*, on the other hand, denote extensions (or trivial, constant intensions); their reference in Ws and Ts can be identified with their denotation.

As mentioned above, distinguishing reference and denotation is not the only notable peculiarity of TIL: TIL uses a hyperintensional level of meaning. Such level of hyperintensions was introduced in semantics and philosophy of language because intensional semantics was incapable to model faithfully the structuredness of meanings. This is obvious in the case of mathematical beliefs (reported by the respective sentences) which cannot be directed towards flat classes of ⟨a possible world, a moment of time⟩ couples, but towards structured ways to achieve the propositions. As suggested

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[7]   The logical analysis of the sentence "E is (in English) about C", where "C" is a record of a construction, is entirely analogous to the logical analysis of "The meaning of E (in English) is C" which is suggested and explained in Raclavský (2010).

[8]   The difference between empirical and non-empirical expressions has been stressed by Materna on a number of places (including Duží – Jespersen – Materna 2010); Tichý himself did not terminologically discriminate between denotation and reference.

by Tichý (1988, 222), belief sentences express constructions in such a way that an agent is related towards a construction C of a certain proposition where C is the meaning of the respective embedded sentence. To illustrate, the sentence

"Xenia believes that 1+1=2"

expresses the construction

$\lambda w \lambda t [\textbf{Believe}_{wt} \textbf{Xenia} \ ^{0}\lambda w \lambda t [= [+ 1 \ 1] \ 2]]$

(^{0}C constructs C in a trivial one-step manner; if X in ^{0}X is not a construction, we write "X" instead of "^{0}X").

In our subsequent considerations, it is necessary to be aware of the difference between empirical and non-empirical expressions and also the fact that constructions are suggested to be meanings of expressions, while intensions or extensions constructed by those constructions are considered to be only denotata of those expressions.

In the next section, I will introduce the early DA by Tichý. Then, in Section 3, I present DA by Duží and Materna. I will argue against DA in Section 4, though I will offer some additional arguments in Section 5. Section 5 is devoted mainly to the exposition of CA.

2. Tichý's denotational conception of aboutness

As noted above, DA has it that expressions are about denotata, i.e. intensions or extensions. In contrast to it, CA considers meanings of expressions to be their subject matter. To propagate this or that conception of aboutness is to promote a certain picture of our language and meanings.

From another viewpoint, a conception of aboutness is a formulation of a certain methodological position which should guide our philosophical and logical analyses of natural language. Just in this sense, a certain theory of aboutness was formulated by Frege and Carnap, and then also by Tichý and Duží with Materna.

The problem of an accuracy of a conception of aboutness is only divided into a denotational and constructional version because the semantic theory adopted in TIL has two levels, viz. the meaning and the denotational one.

Of course, a decision in favour of this or that conception amounts to the enforcement of this or that line of explanation of language matters.

Our brief survey of declarations of DA starts with the Principle of Subject Matter by Rudolf Carnap, which was explicitly recalled by Tichý:[9]

> A sentence is about (deals with, includes in its subject matter) the nominata of the names occurring in it. (Carnap 1947/1956, 98)

Materna – Duží (2005) identify as Carnap's predecessor none other than Gottlob Frege:[10]

> Ueberhaupt ist es *unmöglich*, von einem Gegenstande zu sprechen, ohne ihn irgendwie zu bezeichnen oder zu benennen. (Frege 1884, 60)

As regards just this idea, Carnap did not mention Frege's possible influence on him. Anyway, both Frege and Carnap seem to take the principle to be a guide for our logical analyses of linguistic expressions – to insert entities which are not mentioned in the expressions into logical analyses is methodologically undesirable.

Tichý first introduced his Principle of Aboutness in his unpublished book "Introduction to Intensional Logic":

> An object X is said to be *mentioned in* an expression A, if at least one component of A is a name of X. (Tichý 1976, §22.13)

> A sentence is said to be *about* an object X just in case X is mentioned in that sentence. In other words, a sentence is about X if it contains a name of X. (Tichý 1976, §22.16)

He précised this formulation in his paper "The Logic of Temporal Discourse":

> An expression depicting a closed, proper construction is called a *name* of the object constructed by the construction; and the object is called the *nominatum* of the name.

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[9]   Tichý quoted Carnap twice, cf. Tichý (1976, §22.16) and Tichý (1978, 15).

[10] Carnap's relation of naming seems to be the same relation as our relation of denotation.

> A sentence is *about* an object just in case it contains a name of that object; which is to say just in case the construction depicted by the sentence contains a closed construction of that object. (Tichý 1980a, 351)

DA was once more exposed by Tichý in his prime book *The Foundations of Frege's Logic*. But he explicitly announced it there *provisionally*:[11]

> an expression is a *name* just in case the construction it expresses is closed. An expression is about whatever objects are named by itself and its parts. (Tichý 1988, 208)

With the help of this provisional conception, Tichý examined Frege's logic and he repeatedly said that sentences are about determiners, whereas determiners are intensions denoted by them (cf. Tichý 1988, 207-208).

3. Duží and Materna's denotational conception of aboutness

The problem of aboutness was recently popularized, with a reference to Tichý, by Materna – Duží (2005)[12] under the name *Parmenides Principle*. But the term "Parmenides Principle" has already been occasionally used in metaphysics for an ontological claim that anything thinkable exists:

> What is there to be said and thought must needs be: for it is there for being, but nothing is not. (Parmenides, 293)[13]

It is rather some other, adjacent claim by Parmenides which is close to the principle advanced by Duží and Materna:

> For you would not understand what is not (that cannot be done), nor would you utter it. (Parmenides, 291)

Duží and Materna seem to choose the term "Parmenides Principle" because of Tichý's remark in his unpublished book (1976) where he evoked a cer-

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[11] "Let us provisionally adopt this theory" (Tichý 1988, 208).

[12] Without substantial changes in Duží – Jespersen – Materna (2010, 133-135).

[13] Quoted from Kirk, G.S. – Raven, J.E. – Schofield, M. (1983): *The Presocratic Philosophers: A Critical History with a Selection of Texts*. 2nd edition. Cambridge University Press, p. 247 (and then 245). Thanks to my colleague Josef Petrželka for his help.

tain connection of the Principle of Aboutness and the just exposed Parmenides' statement was cited by Tichý as:

> Thou canst not be acquaintanced with what is not, nor indicate it in speech. (Tichý 1976, §22.16)

Note that Parmenides' statement, pointing at the fact that the non-existent cannot be talked about, has only a small relevance to the problem of aboutness. The Principle of Aboutness says that a sentence is about what it speaks about – and it is not about anything it does not speak about. That it cannot speak about a non-existent object, as Parmenides claimed, is in principle another question. (Tichý 1976, §22.19, did not suggest that he expected more.[14])

When discussing aboutness, Materna – Duží (2005) refer to Tichý's unnamed manuscript; arguably, they mean Tichý (1976). They do not, however, refer to aboutness mentioned in Tichý (1980a). Quite surprisingly, they do not discuss aboutness from Tichý (1988).

Duží and Materna explicitly understood the naming relation as identical with the relation of denotation, thus they hold that expressions are about their denotata. In other words, they consider the relations of denotation and talking about to be identical (cf. Materna – Duží 2005, 156, 161).

They explicitly follow Tichý's opinion from his paper "What Do We Talk About":[15]

> intensions figure prominently among the entities we commonly talk *about*. (Tichý 1975, 81)

and claim that empirical expressions are about intensions:[16]

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[14]   For Tichý, a language L is defined over a particular base of objects; if there is no object from the ontology of objects generated over the base which would be denoted by an expression E of L, E speaks about nothing. This is, on Tichý's opinion, what Parmenides intended to say. (Tichý's main idea may remind us of Wittgenstein's famous "*Die Grenzen meiner Sprache* bedeuten die Grenzen meiner Welt"; Wittgenstein 1918/1964, 5.6.)

[15]   Similarly as in Tichý (1980b), Tichý defends intensional semantics as a suitable explication of expressions' meanings. He criticized writers such as N. Goodman, H. Putnam and G.H. Merill who maintained that empirical expressions speak about extensions.

[16]   The original emphasis is suppressed; similarly for the next quotation.

> An empirical expression E talks about all and only those objects that are denoted by some (sub)expressions SE of E. (Materna – Duží 2005, 162)

Now there is only one step to the generalization, mentioned few pages later in their text:

> Expressions talk about just those objects that are denoted by them and by their (meaningful) components. (Materna – Duží 2005, 167)

Their certain reluctance to adopt this unrestricted general version of the Denotational Principle of Aboutness has an obvious root in their divergent opinions on the aboutness of the non-empirical expressions. Materna think that they are not about their denotata but about the constructions expressed by them. Duží, however, proposes that we also speak by means of these expressions about denotata and that using true mathematical sentences we "learn to speak" about the truth value T (cf. Materna – Duží 2005, 177-178).

4. Against the denotational conception of aboutness

There is Tichý's early formulation of the Principle of Aboutness which seems to contradict DA:[17]

> A sentence to the effect that the result of performing a certain operation has a certain property is not about whatever item is the result, but about the operation itself. (Tichý 1994, 33, 2004, 715)

> ... we say what sort of entity one obtains by performing an operation, while leaving it unspecified what particular entity it is, i.e. without referring to that entity, not mentioning it. (Tichý 1994, 34, 2004, 715)

But these statements cannot be understood as proclamations of CA because, by an operation, Tichý did not mean a construction but an intension. At that time, e.g. in Tichý (1971), he identified intensions with equivalence classes of procedures. Procedures modelled as certain Turing machines (see Tichý 1969) are predecessors of constructions. The meanings of expressions were procedures, not those intensions.

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[17]   I utilize the English translation of Tichý's paper in Tichý (2004).

Tichý's only argument against DA is thus the following.[18] Tichý used it within his criticism of the view that empirical and non-empirical sentences speak about the truth-value T:

> [the provisional] theory [of aboutness] ... portrays the [maths] teacher as never mentioning the item which is at the heart of the matter [i.e. mathematics] and which he is anxious to bring to the pupil's attentions. It does not impute the teacher the reference to the *truth-value* determined by the proposition constructed by $\lambda w \lambda t.=[+\ \mathbf{1}\ \mathbf{1}]\mathbf{2}$, but to the *proposition itself*. But the trivial proposition (the unique proposition which is true in all worlds at all times) is no more the subject matter of ['One plus one makes two'] than it is the truth-value T. The real subject matter that the sentence treats of – namely the construction $\lambda w \lambda t.=[+\ \mathbf{1}\ \mathbf{1}]\mathbf{2}$ – goes on my own modification of Frege's theory [of reference], unnoticed. (Tichý 1988, 223-224)

We can note that Tichý had rejected the aboutness of non-empirical sentences proposed by Duží. Moreover, his argument also adverts to the information worthlessness of the constantly true proposition denoted by all true mathematical (and logical) sentences.[19]

I will elaborate on Tichý's criticism of DA as follows. The view that mathematical sentences are expressions denoting the truth-value T or F is problematic when we face quite meaningful sentences such as

"3÷0=0".

At first sight, Materna's construal of aboutness of mathematical sentences is immune to such criticism because for him sentences such 3÷0=0 are about the constructions expressed by them. But there is a price to be paid: an undesirable methodological dualism which results from it. For it is strange to maintain that the (mathematical) sentences

"1+1=2"

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[18]   A similar argument can be found already in Tichý (1986, 528).

[19]   "Propositions (construed as functions from world/times to truth-values) are thus too coarse-grained, and sentences too fine-grained to serve as objects of mathematical beliefs. We obviously need a category of objects which falls between these two extremes" (Tichý 1988, 222).

and

"1+1=2 and $\forall x \forall y \forall z \forall n \, ((x^n+y^n=z^n) \rightarrow (n<3))$"

have distinct subject matter,[20] while the (empirical) sentences

"It rains in New York"

and

"It rains in New York and $\forall x \forall y \forall z \forall n \, ((x^n+y^n=z^n) \rightarrow (n<3))$"

– a couple of sentences isomorphic to the preceding one – have one and the same subject matter.

Of course, such a criticism can be avoided if we are ready to claim that mathematical and other non-empirical sentences each denote one of the three trivial (constant) propositions: the proposition which is either constantly true, or constantly false, or constantly undefined.

Now I come up with a more forceful argument and claim that

There are meaningful (non-empirical) expressions which do not denote anything, thus they cannot speak about their denotata.

My example is not "the greatest prime" which expresses a construction constructing nothing (there is no greatest prime number). This is because one may perhaps explain such an expression as expressing a construction constructing a constant intension which is undefined; the intension would be the denotatum of that expression.

My example is thus, rather,

"$3\div0$".[21]

This meaningful expression expresses the abortive, improper construction consisting in dividing 3 by 0, thus it denotes nothing. There is no good reason to explain this expression as denoting a constantly undefined intension – the expression is a paradigmatic example of an expression lacking denotatum.

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[20]   The formula with four general quantifiers is Fermat's Last Theorem, an analytical truth.

[21]   In ordinary English, "three divided by naught".

Note that DA portrays anybody who says (e.g.) "3÷0 is undefined" as somebody who ascribes something to nothing whatsoever, i.e. as making a void claim.[22] But this contradicts our intuition about meaningfulness of such a piece of mathematical discourse.

The case of non-empirical expressions, and also of empirical expressions containing such expressions, thus enforces the adoption of aboutness which treats such expressions as dealing with, speaking about, what they express, i.e. CA.[23]

Now, let us think a bit about the aboutness of empirical expressions. We have seen that DA of non-empirical expressions can only be preserved if there is a possibility to replace the absenting denotatum by a constantly undefined intension. DA thus cannot be preserved if there are genuine cases of expressions not denoting such intensions. This gives us a hint that DA of empirical expressions cannot be criticized by means of an argument similar to the one I have mentioned above because all empirical expression already denote an intension.

For that reason, my argument against DA of empirical expressions will be of a different kind. Recall that empirical expressions denote non-trivial (i.e. non-constant) intensions and that every intension is a function from possible worlds and moments of time. There is an infinite number of possible worlds and moments of time (which stand in 1-1 fashion correspondence with real numbers). To identify any intension is to enumerate (uncountably) infinite many ⟨⟨a possible world, a moment of time⟩, value⟩ couples. (Do not confuse it with that one can find, in a given world and time, a value of a proposition.) Since human intellectual resources are always bound to finite items only, it follows that humans are not really capable to identify any intension at all.[24; 25]

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[22] As noted already by Pavel Cmorej in Cmorej (2000, 246).

[23] Consequently, one cannot reduce logical analysis to the analysis of denoting expressions only, as proposed by Materna – Duží (2005, 162).

[24] My claim will be probably challenged: aren't mathematicians capable to mentally grasp infinite, uncountable quantities? In the sense of "identify" used above, they are not. Their minds relate exclusively to finite, identifiable entities, namely to constructions of such infinite quantities.

[25] Cf. Cmorej's opinions on the identification of set-theoretical objects in Cmorej (2001).

Let us look at the problem from another side. Consider the sentence "It rains in New York". If we ascertain that what the sentence says about raining in New York is the case, we achieve knowledge that a possible world proposition related to the sentence assigns for the present moment of time, and the possible world we understand as the actual world, the truth-value T. Unfortunately, there are infinitely many such possible world propositions and we do not know which one is denoted by the sentence in question. By knowing the state of world in some other moment of time, we surely move towards our goal to select the denoted proposition, but only by a small step. To fully determine the proposition, one needs an infinite amount of steps, which is beyond human capabilities.

Analogical considerations apply to expressions denoting other kinds of intensions. This yields my second argument:

In the case of empirical expressions, DA treats speaker as somebody who has no chance to know what exactly (which intension) he is talking about.

Now we are facing the topic I mention above as 'further connections in the investigation of meanings'. Note that DA introduces a principle which contradicts another important principle used in logical analysis of natural language and philosophy of language, viz. the principle articulated by Tichý as the Principle of Acquaintance with the Content of One's Own Claims.[26] I formulate it as follows:

The Principle of Acquaintance with the Content of One's Own Claims: If a competent user[27] of a language L asserts an empirical or non-empirical expression E of that language L, she is capable to know what she is talking about and what she ascribes to it.

This principle is interlocked with that conception of aboutness which treats expressions as speaking about constructions expressed by them, viz.

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[26]   "Normally one can be trusted to know what one is talking about and what one is saying about it" (Tichý 1994, 214, 2004, 735).

[27]   See the analysis of the notion *ideal speaker* by Marián Zouhar in Zouhar (2010) and relevant comments in the first chapter of Raclavský (2009).

with CA.[28] Constructions constructing intensions are finite; thus, they can be comfortably captured by intellects of speakers, i.e. also identified.[29]

5. The constructional conception of aboutness

Tichý introduced his *revised* conception of aboutness, i.e. CA, in his (1988, Sec. 43, called "Constructional attitudes: aboutness revisited"). He explicitly talked about its application to mathematical expressions:

> Mathematics *is* about constructions. It is not concerned with facts or states of affairs; it is concerned with calculations. ... It is ... construction which is of cognitive value, not the trivial proposition it constructs. The purpose of mathematics is to bring out to attention various noteworthy ways in which this single trivial proposition can be constructed. (Tichý 1988, 222)

> The real subject matter that the sentence ["One plus one makes two"] treats of–namely the construction $\lambda w \lambda t.=[+\ 1\ 1]\ 2$. (Tichý 1988, 224)

He had already proclaimed such conception in his paper "Constructions":

> Thus the only viable way of construing mathematical expressions is as names of constructions. (Tichý 1986, 531)

Since the aboutness of mathematical expressions was discussed by Tichý in his (1988) book as a reason for a revision of aboutness in general, the following two Tichý's claims have to be unambiguously understood as speaking about an aboutness of both non-empirical and empirical expressions:

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[28] Cmorej (2000, 261-262), for instance, stated a similar claim: our intensional attitudes often concern constructions expressed by expressions, not the objects possibly constructed by them.

[29] Constructions are ideal procedures, they need not to be actually executed, *cf.* Tichý (1986, 526). One could perhaps object that some constructions construct (even in a direct, trivial way) infinite objects; I oppose that this does not make the constructions infinite and thus not identifiable.

Constructions must be what we talk *about* and what expressions through which we communicate *stand for*. ... An expression is simply a name of the construction depicted by it. (Tichý 1988, 224)

Analogously to the thought connections of CA in Tichý's writings (cf. Tichý 1994), I view CA as justified also by its interweaving with further methodological principles. For instance, compare CA with the Principle of Understanding:

The Principle of Understanding: To understand empirical or non-empirical expression E amounts to be capable to determine its meaning by a competent user of a language L of which E is a meaningful part.[30]

Somebody who is familiar with the paradigmatic ideas of the contemporary philosophy of language would perhaps oppose my claims by the well-known slogan "understanding a sentence amounts to the ability to determine its truth-conditions".[31] What worries me as regards such an objection concerns the appropriateness of a reduction of knowledge of truth-conditions to the knowledge of a (possible world) proposition. We have seen that in principle it is impossible to fully identify a proposition. (We identify only parts of propositions.) Fortunately, the intuition about knowing truth-conditions can be captured in another way, namely by focusing not on the denotation of sentences but on their meaning, i.e. constructions. To understand a sentence is then to know the way how to determine the truth-value of the sentence; in other words, it amounts to knowing rather the construction (which determines a proposition which is the truth-condition of the sentence).[32]

In the light of the above considerations, we can formulate the Principle of Aboutness as follows:

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[30]   Tichý writes: "To *understand* the expression 9 − 2 is clearly to know which particular construction it expresses, rather than which number it stands for" (Tichý 1986, 515).

[31]   But there is a question, what would be analogical to this in the case of non-sentential expressions? One possible solution accessible to the paradigm is a kind of semantic holism: an expression is understandable only in context of sentences; however, this contradicts our intuition that we can understand the expressions even outside the sentential contexts.

[32]   Cf. also Tichý (1969, 7-9).

The Principle of Aboutness: An empirical or non-empirical expression E of a language L is about its meaning in that language L, i.e. a construction C which is expressed by E in L.

6. Conclusions

After an introduction of DA by Tichý, Duží and Materna, and also other writers, I have offered two principal arguments against it. According to the first one, there are meaningful non-empirical expressions such as "three divided by zero" which are explained by DA as lacking any subject matter. According to the second one, the conception wrongly treats empirical expressions, too, because it implies that speakers are not capable to know what they are talking about. I have also discussed this second argument in relation to CA, which can avoid both kinds of criticism.

Moreover, CA gives rise to further and more general observations concerning meanings and logical analysis. For instance, that there are deeper reasons for abandoning a set-theoretical or, rather, intensional semantic paradigm of explication of meanings than the usually mentioned ones, such as failure of substitutivity in hyperintensional contexts. One example of such a reason is the possibility to be acquainted with the content of one's own claims, which is preserved only by CA. There are also further interesting relations with use other methodological principles when providing logico-semantic explications of meanings, but this is an issue for another paper.[33]

References

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[33] The first draft of this paper was written in 2005. I also discuss the related problems in the first chapter of my book Raclavský (2009); there I distinguish, *inter alia*, the Principle of Logical Analysis from the Principle of Aboutness (cf. also Raclavský 2012b), though the two principles seem to be one and the same. The author is indebted especially to P. Cmorej and D. Glavaničová for discussions of this paper; his thanks belong also to an anonymous reviewer.

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