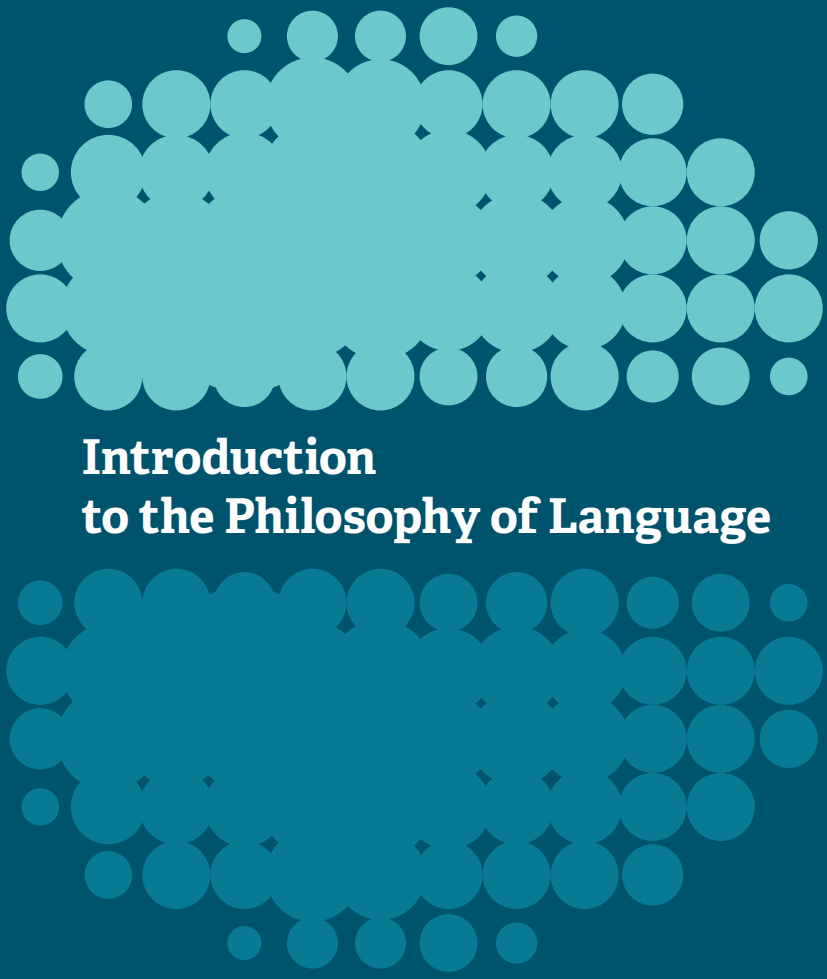


Introduction to the Philosophy of Language

Reginald Adrián Slavkovský · Michal Kutáš

Edition Cognitive Studies

fftu

Introduction to the Philosophy of Language

Reginald Adrián Slavkovský · Michal Kutáš

Edition Cognitive Studies

fftu

The publication of this book is part of the project *Innovative Forms of Education in Transforming University Education* (code 26110230028) — preparation of a study program Cognitive Studies, which was supported by the European Union via its European Social Fund and by the Slovak Ministry of Education within the Operating Program Education. The text was prepared in the Centre of Cognitive Studies at the Department of Philosophy, Faculty of Philosophy in Trnava.

fftu

ISBN 978–83–7490–614–2

Table of Contents

Introduction

In today globalized world, more than before people are being confronted with situations of foreign language environment or communication with people speaking different languages. The language of science has evolved to such form that a common person will comprehend a highly scientific article to a limited extent only. Information technology, whose software part is based on artificial programming languages, is infiltrating the ever growing number of areas of our life. As if even more pressingly than before, question from these and other areas can be heard, : What is language? What is sense? How do words carry sense?

Many fields of study are concerned with language. This textbook is focusing on one line of language study only, for which the name philosophy of language became common. It is intended primarily for students of the Master's level of the *Cognitive studies* field of study, but everyone who wants to become familiar with this topic is invited to reach for it.

As for the teaching method used in the textbook, we would like to point out that we have focused on certain important thoughts of selected philosophers only (mainly Frege and Russell, because they are virtually the "founders of the philosophy of language"). At least in case of some partial problems, we wanted to go in more details, because we hope that these more detailed analyses can be inspiring for the reader to the effect that he will become interested in more detailed and precise solution of problems that also important thinkers of analytic philosophy were concerned with. We also

hope that this detailed explanation will motivate him to immerse in the study of original texts. Many works that are part of the analytic traditions are not only some vague discussions about big topics, but they are attempts for very precise solution of certain, albeit partial, problems. Mainly due to this fact, certain analytic philosophers contributed significantly to the understanding in such fields as logic, semantics, mathematics, linguistics, artificial intelligence and others.

In chapters concerned in more detail with certain specific issues, we expect some knowledge of (propositional and predicate) logic, which is the content of basic university courses on logic. Because we think that without this basic knowledge many works of analytic philosophy (although not all) will remain closed off to person and the beauty of their ideas will not be visible.

In Trnava, July 31, 2012 *Adrián Slavkovský and Michal Kutáš*

1. Introduction to the Philosophy of Language

Keywords: *linguistic turn, analysis, language, philosophy of language, sense*

1.1 What is the Philosophy of Language Concerned with? What is Language?

One of the most prominent movement in contemporary philosophy is the philosophy of language. It is a broad movement, not quite unified, but connected through such approach to philosophising that emphasises the role of language as a medium of our thought and our relation to the reality. In the history of philosophy, individual thinkers who thematised the role of language have been emerging since ancient history, but only at the turn of 19th and 20th century such approach became widespread, therefore this shift is usually called the **linguistic turn**. The new emphasis on language was accompanied also by the conviction that the analysis of language, which can either help solving the problem or reveal that it is a pseudo–problem emerging from the misunderstanding of the functioning of language, is the road to solving traditional philosophical problems.

Apart from the emphasis on the role of language, science became another impulse and challenge for philosophy. For ones, the

enchantment with science and its exactness became an ideal the philosophy too should fulfil, whereas for others it became a warning against the danger of narrower perception detached from reality in its complexity. The movement emerging from the effort for scientific approach in philosophy is usually called **analytical philosophy**. It is mainly understood as broader movement, more or less also including the philosophy of language.

The same thinkers are considered inspirers of both movements: Gottlob Frege, Bertrand Russell, Ludwig Wittgenstein, G. E. Moore and also logical positivists concentrated in the Vienna Circle. For this reason, certain authors also use the terms "philosophy of language" and "analytical philosophy" as synonyms. Said thinkers played an important role in forming modern logic too. Due to that, philosophy of language is being sometimes taught within the studies in logic as well.

Mainly in the English language area, a selected circle of topics and authors is understood under the **philosophy of language**, although the topic of language is much broader. We will take this usage into account in this text, but we will cross it in part. Therefore also our usage of the term "philosophy of language" will be broader.

The nature of meaning, use of language, knowledge of language and relation between language and reality are mainly stated as the central topics of the philosophy of language. Also other topics are added in broader understanding of philosophy: how is the language made and how are we learning it, the issue of translation, understanding, metaphorical nature of language, the role of language in forming social reality, impact on interpersonal relations and even on understanding of self–identity.

Language, like other important essential terms, cannot be easily defined. As **language** in general, a complex system of symbols used for communication is understood. The main and the most usual representative are the human languages, which at first had acoustic shape in the form of speech and later also visual (or today also haptic) shape of script. In the generalized form, also the system of

road signs, human gestures and facial expressions, formal languages in mathematics and logic, artificial computer languages, etc., can be considered a language. Language is associated with the human ability to acquire certain system of symbols and use it for communication, i.e. for exchange of information.

1.2 Why Get Interested in the Philosophy of Language?

When people started to use language and communicate with it, describe the world and ask questions, it was only a matter of time when the language itself becomes the subject of interest. There is nothing left that we would not continuously try to grasp with language, therefore we ask with the language about the language itself too. What sort of special phenomenon is it, seemingly infinitesimal, demonstrating no notably distinctive differences from other animals, but playing an important role in changing the surface of our planet and even its close surrounding? The language is like an eminence grise of these changes. What is its essence? How does it facilitate communication, mutual understanding, but also the feeling that we understand the reality?

If it is not too exaggerated, then we could also talk in case of animals about at least the fact that certain objects, events, relationships are important to them through the fact that they need them for living, they are fulfilling their certain needs. A cat does not hold the meaning of milk in it as we are picturing the meaning of milk, for example, within the semantic triangle. When we speak about the meaning of milk for a cat, it is more the way how we describe the difference of cat's approaches to different realities: from total indifference to necessity. But a cat has no mobile phones, air planes nor institutionalized health care network up to teeth filling. Neither it has political parties and religions. But it has quite decent flexible system of environmental adaptation, mainly due to emotionality. This system enables it to adapt to outer and inner changes so the organism survives and remains in dynamic balance, which the

body perceives as something pleasant. Even despite rationality, this type of emotional significance is still an important moving agent of human behaviour. Life can therefore exist also without language. What is language good for? Or is our language foreshadowing to us that communication and mainly information exchange were here in some form in all times, that they form a basis of existence, but we are able to realize it only thanks to language?

The origin of our human communication can be anticipated just in connection with satisfying basic needs, therefore meanings of first sounds, words and sentences related probably to such situations, as was the need to notify about danger or, to the contrary, about the source of food. When the language was created, the reality became as if doubled. Our finality forced and still forces us to fulfil our basic needs, but due to language, thoughts and concepts, the image of world is here as well and this image can stir us in similar way as the reality itself. Our image of world should help us to orientate ourselves in the real world so there should be a certain relationship of correspondence between them. The occurrence of philosophy is connected with period in which humans had been using quite complex language. Among expressions of wonder were also questions: How can we keep putting our experience, tradition, the best of knowledge into fragile and passing sounds? But language also brought the possibility to use it to one's benefit at the expense of others. Thus emerged the need to protect, defend, control the operation of language. To understand each other, we need to define the word. But that already brings us to Aristotle. According to him, we can approach the meaning of word if we classify it correctly into a tidy structure of language, in which 10 main branches stem from the trunk and which branch further into genders and classes.

If we want to better understand ourselves, we cannot bypass the language, because we would have bypassed something that is significantly contributing to our difference from other beings. The most profound language–related questions surpass facts perceived by senses, thus being philosophical questions, aiming at the substance. Therefore every try for knowledge needs the philosophy of language too.

1.3 Who and how Studies the Language?

We can find thoughts about languages already with the ancient thinkers. Some of their observations deserve admiration even today. Nowadays, there are several approaches to language. They partially overlap, although each of it otherwise focuses its attention on slightly different aspect of language or studies it with different method.

Linguistics studies the language as a relatively independent phenomenon and system. As founder of this approach is considered Ferdinand de Sausssure (1857 — 1913). He analysed the language as a formal system of symbols. The function of a symbol is given through relations to other symbols.

Cognitive linguistics is one of the fields of cognitive sciences, deals with explanation of mental structures and processes connected with linguistic knowledge. It studies the possibilities of modelling the process of acquisition, reception and production of language, whereas its main effort is to create a complex theory on the interconnectedness of structural and procedural aspects of linguistic knowledge. Mária Bednáriková pursues cognitive linguistic in more detail in the textbook dedicated to this topic (Bednáriková, 2013).

Among other specialized areas of research are the neurolinguistics, psycholinguistics, evolutionary linguistics, comparative linguistics, sociolinguistics, computer linguistics, and others.

Jaroslav Peregrin characterizes the main line of the philosophy of language as *"... an attempt to think about traditional philosophical issues with the "mathematical" mind of the twentieth century."* The boundaries of this approach are rather vague. Its features (whereas some of them define the method) include: analysis, anti–psychologism in logic, logical analysis, philosophical interpretation of thought through philosophical interpretation of language, linguistic turn, primacy of the philosophy of language and rejection of metaphysics (Peregrin, 2005, 17–22). None of these features are necessary. Besides that, nowadays a discussion across originally divided approaches is under way.

1.4 The Role of Philosophy and Cognitive Sciences in Studying Language

Many impulses for deeper understanding of language, but also many applications come from the area of cognitive fields. As I am writing this text, a computer programme is checking my spelling in a quite simple way. Should I make a mistake and write a word that absolutely does not belong to the lexicon of Slovak language, the programme will underline it. The functioning principle of such check is very simple: it is enough for the programme to contain all words of given language and all their correctly created forms and it just finds out if the word is on the list. Far more difficult is to create programmes that are able to read written texts in a way that is getting very close to how a human reads text. Such programmes are already available. Even more difficult is to programme the reverse process: to record the acoustic form of speech, analyse it and transcribe into text.

In case of previous applications it rather poses a technical problem. But during attempts for machine translation from one language into another, the question of meaning emerges in full. And this question is sublimely philosophical. There are various theories of meaning. Come put emphasis on experience, others on innateness, on the position of concept in the structure of concepts, on conditions of validity, on the method of usage, on implications and practical use. Each theory exposes certain aspect of meaning. We made first steps on the path of machine translation and we also created programmes that are able to lead a discussion. However, in both cases we can find mistakes quite fast, pointing out that our understanding of meaning is still rather partial and little complex.

Said problems are among those that inspire thinkers today to questions about language and meaning. A good aid for us to understand what led different thinkers to their understanding of language and meaning is to put these question into the context of work and efforts of given author and into the context of given period. Frege, who inspired many with his interest in meaning, was concerned with thoroughness and objectiveness of proving in mathematics.

Many proofs were indeed thorough enough, but Frege did not like the argumentation for this thoroughness, therefore he was looking for new foundations. His understanding of meaning is thus marked by his direction. He himself was aware that he is engaged with only a narrow slice of knowledge and science and had no aspirations for creation of an universal theory of meaning, which would apply to all areas of life and reality. The effort for accuracy down to the level of concepts helps the science to be a better science. But when we start to ask: What is science? Where is it heading? Can we develop it without negative side consequences? etc., we open up to broader understanding of meaning.

Recommended Literature

MARVAN, T.: *Otázka významu. Cesty analytické filosofie jazyka*. Praha : Togga, 2010, pp. 7 — 29.
MARVAN, T. — HVORECKÝ, J. (eds.): *Základní pojmy filosofie jazyka a mysli*. Nymburk : OPS, 2007.
PEREGRIN, J.: *Kapitoly z analytické filosofie*. Praha : Filosofia, 2005, pp. 13 — 29.
THAGARD, P.: *Úvod do kognitivní vědy. Mysl a myšlení*. Praha : Portál, 2001, pp. 76 — 94.
WOLF, M. P.: Philosophy of Language. In: *Internet Encyclopedia of Philosophy*. [online]. 2009. [cit. 12. 7. 2012]. Available on the internet: <http://www.iep.utm.edu/lang–phi/>. ISSN 2161–0002.

2. Insight to the History

Keywords: *relativity of language, meaning behind words, identity and difference, language and thinking*

2.1 Master Chuang

From the down of philosophical reflection, many thinkers realised that language is an amazing communication tool, yet it forms certain threats. Neither words, nor sentences can completely express the meaning; meaning transcendents them. In ancient China, the fact was probably the most realised by master Chuang (around 4^{th}–3^{rd} century BC), a representative of Daoism in its early form. For one thing, Master Chuang makes the role of language topical, for another in his way of philosophising; it clearly reflects how he understands the role of language for thinking and recognition. According to him, language is an obstacle in following the Dao way and names (ming) are just an artificial and disobedient viewport of reality. He mocks rational philosophising. Humour is an important tool for him to look in whereby the first object of irony and humour is he himself.

In master Chuang's opinion, wisdom the second to language. He says on the intermediating role of words: "*The role of the net is to catch fish; when it is caught, we think about the net no more. The function of the rabbit trap is to catch the rabbit. When it is caught, we think about the trap no more. The role of words is to express the meaning. When the meaning is expressed, we forget about the*

words. Where should I search for a man that can forget about the words so that I can talk with him?" (Cheng, 2006, p.112)

Words are an instrument for master Chuang. Without them, it would be more difficult to communicate and all our cognitive functions would be weakened. Behind the last sigh, there is probably an experience of incomprehension, taking at words, and stress in communication. One can anticipates that if we want to understand other person, it is not enough to listen to their words, as though it were self–standing semantic units. It is necessary to listen to what does not fit into words, what is behind them.

In his opinion, a confrontation of opinions is a non–sense, as there is no standpoint from which it could be possible to consider, how the things "really" are. Recognition is ability to hit the reality. A wise man cannot be taken in by language and a prideful idea that they can "claim something".

Master Chuang's approach means a reflection of language, but the one leading to language usage so that language could be transcended to show fullness of life. In this, he is a predecessor of the attitude emphasising the pragmatic aspect of life.

2.2 Nagarjuna: Borders of Rationality

According to Nagarjuna, an ancient Indian Buddhist thinker (aprox. 2nd — 3rd century), at closer look, even the most rational theories are incoherent and irrational (drishti). Thinking expects the category of identity and difference, but these are not coherent, they refer to nothing (absolute difference would mean total separateness, gap, and a loss of any coherence). Therefore language does not refer to things, but to itself. Our deepest emotional and existential problems rise from the fact that we stick to cognitive approaches and assumptions.

Illusions created by language can be explained by the following example in Nagarjuna's teaching. The sentence "Milan is walking" creates an illusion of mutual separateness of Milan and the walking. Without Milan, there would not be any walking, and without walking, it would be a different Milan. "Milan" and "is walking" are inseparable, but under the language influence we can imagine that someone named Milan exists independently on the walking and the walking can exist independently on Milan. Linguistic differences hide the real inseparability of factors of happening.

Language also creates an illusion of unchanged Milan. Even though Milan is not walking, he is still considered Milan, so his basic identity stays unchanged and untouched by various activities expressed by verbs. But in fact, we are changed by our actions (karma). Assignment of language role of unchanged Milan whose identity is not changing considering time and actions, leads to postulation of an unchanged "me" (atman); substance remaining permanent from life to life (this argumentation belongs to Buddhist critics of traditional Brahma philosophical schools). Metaphysics rises from linguistic constructions. "Milan" and "the walking" are neither anything separate nor identical; the middle way should be kept.

This leads to correlative perception. Understanding of the "game of black and white" means that explicit contrasts are always implicit allies. Such relation between identity and difference is later called by Shankara, another Indian thinker, non–duality. Language cannot get over duality, like a picture cannot overcome its two dimensions. But as thank to perspective we can see depth in the picture, understanding of non–duality opens up a new perspective of reality.

2.3 John Locke

M. Morris begins its book on philosophy of language by the introduction of eight thesis summarising the most important features of Lock's comprehension of language. When John Locke (1632 — 1704) started to examine the content of mind — the idea in human mind — it brought him to a certain conception of language. Some features of his concept were accepted by later thinkers led by mathematician and logician Gottlob Frege (1848 — 1925) and they continued with them, whereas others were rejected. Let's introduce the abovementioned thesis:

(L1) Nature of language is determined by its function.

(L2) The function of language is to enable communication.

(L3) Thinking is considered to be what is communicated by means of language.

(L4) Words mark components of what is communicated by means of language.

(L5) Components of thinking are ideas.

(L6) Ideas of one person cannot be perceived by a different person.

(L7) A relation between words and what they indicate is accidental.

(L8) Words in their essence do not carry a meaning.

As M. Morris shows, thesis (L1), (L2), (L7) and (L8) were taken to the analytical tradition, whereas others were not.

Gottlob Frege was troubled by the idea that at the end, mathematic proofs should be based on something as subjective and omissible as thoughts in heads. Therefore he radically changed some aspects of long accepted and relatively natural Lock's conception of language.

Recommended Literature

BONDY, E.: *Indická filosofie*. Praha : Vokno, 1997, pp. 126 — 149.
CHENG, A.: *Dějiny čínského myšlení*. Praha : DharmaGaia, 2006, pp. 101 — 128.
MORRIS, M.: *An Introduction to the Philosophy of Language*. New York : Cambridge University Press, 2007, pp. 5 — 20.

3. Frege I: Logic (Concept Script)

Keywords: *predicate logic, proof, axiom, concept script*

3.1 Mathematical Proofs and Logic

Gottlobe Frege can be considered the "father" of analytical philosophy. But his original intent was not to answer philosophical questions. He rather wanted to strengthen the foundations of mathematics: to elaborate proofs and to create an inventory of proper logic steps in inference. For us to understand the motivation behind his theoretical work and how is this related to philosophy of language, it will be good to think for a moment about what a proof really is.

In logic, proof is understood as inference of some assertion, called *conclusion*, from other assertions, which are *premises*. These premises can be sentences we have proven earlier or they can be the so–called *axioms* — sentences considered as true without the need to prove them. *Proof* is therefore a sequence of steps through which we get from premises to the conclusion.

The approach, used for the first time by Greek mathematician Euclid (he lived in 4th century BC) in his *Elements* for creation of the system of geometry, got gradually established in mathematics. With the help of proofs, he inferred all known statements of geometry from five postulates (axioms). Such approach to construction of certain theory is therefore called axiomatic approach.

For a mathematical proof to be valid, it cannot be done randomly, but certain rules must be observed. These rules must be included in proving by implication, as Euclid did. In that case we are observing them, but we have not recorded them anywhere. But if we have not explicitly expressed them, how do we know, if we followed them in a specific proof? To be able to clearly determine at all times whether we followed these rules of proof, it would be good to create their list, to make an inventory of them. And exactly this was one of Gottlobe Frege's goals.

His motivation was to ensure validity of proofs in mathematics. For us to be able to clearly verify if the proof was valid, it would be good to decompose it to such steps, which would be evident to be valid. If, however, some step was not evident to be valid, it would not be certain, if the proof as a whole is valid either. Again, to determine whether given step of the proof is valid, we would look at whether it has the valid form, i.e. we would compare its form with the list of valid forms (schemes) of derivation, and if we found this scheme in this list, it would be clear that this step is valid.

So Frege wanted to find such schemes for individual possible steps of proof, for which their validity would be evident. Nevertheless, the obviousness of validity of these forms in case of all of them cannot have the form, which would consist of being on a list. To avoid an infinite regress, it is necessary to announce at least one of these lists of schemes of inference as the list of valid schemes of inference without deriving it from another list. Such list is called the list of *essential* rules of valid inference. Of course, it would be good if schemes on this list would be as "self–evident" as possible, obvious for all or for at least most of people. But we will not discuss here the problem how and if something can be evident in this direct way.

3.2 Schemes of Inference

It is a huge progress to have a list of essential valid schemes of inference. Because if they are really valid, we can determine validity of any proof with the help of this list.

It is known that at the level of propositional logic, it is possible to define the propositional logic system so that there is only one axiom defined through one logical operator and one inference rule. Such system was created by French logician J. G. P. Nicod (Gahér, 2003, p. 94). This system is created artificially with the goal of having minimum premises, however, his creator achieved it at the expense of great complexity. The obviousness of his axiom is out of question.

Frege set in his system 6 axioms and one inference rule. We will show it through notation used in today propositional logic (Gahér, 2003, p. 95):

$(q \rightarrow (p \rightarrow q))$
$(p \rightarrow (q \rightarrow r)) \rightarrow ((p \rightarrow q) \rightarrow (q \rightarrow r))$
$(p \rightarrow (q \rightarrow r)) \rightarrow (q \rightarrow (p \rightarrow r))$
$(p \rightarrow q) \rightarrow (\neg q \rightarrow \neg p)$
$(\neg\neg p \rightarrow p)$
$(p \rightarrow \neg\neg p)$

Frege set *modus ponens* as the inference rule:

$p \rightarrow q$
$\underline{p}$
q

His system of propositional logic included, apart from these basic elements, also the rule of substitutions (Gahér, 2004, p. 95).

With the help of said basic elements, we can infer all other valid rules of inference and all necessarily true forms of statements (theorems of propositional logic). If we succeed in decomposing given proof into steps, which all will be done according to these rules or will contain such necessarily true forms of statements (axioms or forms purely derived from axioms — theorems), it will be certain that given proof is valid.

We could ask, however, why should we concern ourselves with logic, if we want to find validity in mathematics? The answer is, that if we want to ensure validity of proving in any field of science, we have to turn to the field that is concerned with what true proving is, and exactly such field is logic. Although it might not be obvious at the first glance, we use rules and laws of logic in mathematics too. If, for example, one assertion follows from another, and this first assertion is valid, then the second assertion must be valid as well. This is, however, description of the rule called *modus ponens*, which, as we have already seen, Frege included as basic one in his system. Whenever we think like this (in any science, including natural sciences), we are using this rule. Naturally, we can use it as if "intuitively" and its abstract scheme does not have to tell us anything, unless we have some training in more abstract logical thinking. Even in mathematics we can do inference according to this rules without being aware that we are using something, that was define by logicians as one of valid schemes of inference.

3.3 To Understand the Language of Nature

Because there are many logical systems, with certain amount of simplification we could say that logic is in certain (implicit) way included in mathematics (but obviously also in every contemporary scientific system, including the theory of natural sciences), because it is necessary to use also logical rules and logical axioms

or theorems in mathematical inference. Let's also consider that mathematics and mathematical proof are necessary also in empirical sciences, for example in physics, which practically would not do without mathematics. Galileo's statement should be mentioned in this regard, that the book of nature is written in mathematical language. With this assumption, one of the basic feature of incredibly broad and fruitful research programme that successfully continues already for three centuries and which we call modern sciences, is established.

> We could say that our successes in the study of world we live in are very powerful support for assertion that our universe speaks certain language. However, this language is neither Slovak, nor English, nor Chinese, but the language of mathematics. But if the language of mathematics is so important, this fact is partially transferred to logic as well.

Why only partially? Although the founders of analytical philosophy on the turn of 19^{th} and 20^{th} century cherished the hope for that it would be possible to derive the whole mathematics from logic, later it turned out it is not possible. Also the set theory is needed for it. But as notices one of the most important philosophers of analytical tradition, Willard van Orman Quine (Quine, 2004), this fact does not create a problem from epistemological standpoint. However, not all axioms of the set theory are as obvious as we would desired (at first sight, they do not seem any obvious to us). But as we already mentioned before, Frege wanted to find such very foundations of mathematics, which would be obvious.

3.4 Predicate Logic System

In the previous text we mentioned Frege's formalisation of propositional logic. With regard to this type of logic, we have to give Frege credit for its re–discovery. Although this logic was being developed already by Stoics, however, in Frege's period it was in fact forgotten. Moreover the logic, whose formal and symbolic form Frege created, was broader and richer than propositional logic. Frege created theoretical system that formally grasps what we call predicate logic today. This logic contains whole classical propositional logic. We can thus conclude that in his effort to ensure validity of mathematical proofs, Frege re–discovered the propositional logic and discovered predicate logic, whereas he grasped them also formally with a symbolic notation. Just this fact alone is enough, according to many, to secure him a permanent place in the history of logic, mathematics, but also philosophy.

Frege did not record statements, inferences and proofs in the same way as we do it in predicate logic today. He named his notation method *concept script*. Frege's notation method and the modern notation method are in fact positively mutually convertible. The modern notation is simpler and clearer, therefore we will use it in the following text. Reader interested in Frege's notation can become familiar with it also in detailed monograph dedicated to G. Frege's logic (Kolman, 2002). But we can in fact say that Frege's concept script is actually modern predicate logic.

We can assemble all necessary schemes of inferences in predicate logic with the help of operators of negation, conjunction, disjunction, implication and equivalence (which correspond to commonly used principles of our thought) and with the help of quantifiers "for all" (this quantifier is called universal quantifier and today it's denoted with the symbol "∀") and "there is at least one" (this quantifier is called existential quantified and today it's denoted with the symbol "∃"). Also in case of quantifiers, just one would be enough, because to say that *something holds true for all items* is the same

as say there is *no item for which it would not hold true*. In the same way it is possible in Frege's system to record predicates and individuals. With the help of Frege's notation it it therefore possible to express all valid schemes of inference in predicate logic.

In conclusion, let's summarise in brief how does this all relate to philosophy of language. Frege wanted to elaborate mathematical proofs even more. Work on this task brought him not only to creation of modern logic, but also to think deeper about basic terms of mathematics, which is a number, for example. When he began to ask: What is the meaning of the word "number"? and How are we using this word?, he initiated a line of thought typical for the philosophy of language.

Recommended Literature

KOLMAN, V.: *Logika Gottloba Frega*. Praha : Filosofia, 2002.
MILLER, A.: *Philosophy of Language*. London: Routledge, 2007, pp. 1 — 22.
MORRIS, M.: *An Introduction to the Philosophy of Language*. New York: Cambridge university press, 2007, pp. 21 — 48.
PEREGRIN, J.: *Kapitoly z analytické filosofie*. Praha: Filosofia, 2005, pp. 31 — 67.
PRIEST, G.: *Logika*. Praha : Dokořán, 2007, pp. 10 — 28.

4. Frege II: Reference (Bedeutung)

Keywords: *denotation, meaning, individual, predicate, function, domain of definition, concept*

4.1 The Reference of Proper Names and Single–argument Predicates

Frege assigns to language expression something he calls *reference* (*Bedeutung* in German). But it should be noted that Frege used different terminology than it is used today. Frege uses this expression to describe something we would call *denotation* today. We would also say that the language expression refers to what Frege calls reference.

According to Frege, individual types of expressions correspond with respective types of references. For Frege, the reference of proper name is the object described by this proper name. For example, the reference of the expression "Socrates" is, according to Frege, the specific person, who is called like this and lived in the times of ancient Greece in Athens. Similarly it applies to definite descriptions too, in this case: "Greek philosopher who was a teacher of Plato, husband of Xanthippe, and was sentenced to death in Athens".

For Frege, the reference of such expression is also one specific object, which is again the mentioned Greek philosopher. It would hold true also if someone in Athens, in the period when Socrates lived, would have pointed at him and had used for it, for example, the expression "this man". The specific separate things, which is the reference of expressions "Socrates" and "Greek philosopher who was a teacher of Plato, husband of Xanthippe, and was sentenced to death in Athens", is reference of this expression as well.

We would record these expressions in the language of modern symbolic logic, founded right by Frege, with the help of individual constant, e.g. "a" (we will use lower case letters from the beginning of the alphabet "a", "b", "c", "d", etc. for individual constants).

However, in language we often express also properties of things or relations between things. Frege calls such language expressions *predicates*. If we take, for example, the following sentence:

Socrates is mortal.

then we understand the expression "... is mortal" as predicate that expresses the property *to be mortal*. As we can notice, in this expression is an empty space, marked with three dots "...", in which we could put some other expression, referring to specific object. The set of things to which it is reasonable to assign the property of *mortality*, is the maximum possible *domain of definition* of our predicate. It is a set of elements whose names we can put into the empty place in the expression "... is mortal". To define this place, we do not have to necessarily use the expression "...", but we can use also another expression, e.g. "x", which would have the same function for us. Then we could record the considered predicate for example like this:

x is mortal

We can take *x* as a variable, as something, instead of which certain element from certain set, called domain of definition of our predicate, can be substituted. Such use of predicates is similar to using functions in mathematics. And Frege really came with the idea to understand predicates as functions. For example in mathematics, the function *f(x) = 2x* has certain domain of definition (let us choose the set of natural numbers) and certain *range* (it will also be a set of natural numbers). Any element from the domain of definition can be substituted for the variable *x*. The variable *x* is also usually called the argument of function *f*. If for I we substitute, for example, the number *3*, the value of said function will be the number *6*. We usually record it as follows

f(3) = 6

but for the purposes of further explanation, we can express it like this:

f(3) ——> 6

The symbol "——>" expresses the fact that the function with given argument on the left side of this symbol has the value which is written on its right side.

We can also understand our predicate *x is mortal* as a function, whose domain of definition can be, for example, all living being (that means that we could substitute the proper names of living beings or certain descriptions referring to a living being or expressions as "this" and "this dog", etc. for the expression "x"). We described the argument of this function as *x*. We use the letters "F", "G", "H", etc. to denote predicates in modern denotation. Because it is an analogy to use of functions in mathematics, we can record the expression "x is mortal" as follows:

F(x)

where “F” denotes the predicate *to be mortal*. Socrates is also a living being, he is therefore an element of the domain of definition of our function *F*. So the expression “Socrates” can be substituted for the expression “x”, which corresponds with substituting x with Socrates. If we describe Socrates within the language of modern symbolic logic with the individual constant “a”, we can record the expression *Socrates is mortal* in this language as follows:

F(a)

Our function should, however, gives us certain value, which depends on its argument. In this case Socrates was the argument of the function, but what was its value? Frege proposed that we considered as values of functions, which correspond to predicates, always one of the truth–value *True* or *False*. The value of function *F* is in case that its argument is Socrates, the value *True*. We can record it as follows:

F(a) ——> True

If we want to express it less formally, for clarification, we can write also

F(Socrates) ——> True

or:

Mortal(Socrates) ——> True

or:

Socrates is mortal ——> True

In this denotation it is clear that the function, corresponding with the predicate, actually becomes a *statement*, should we substitute the variable with a suitable individual (a suitable individual is an individual from its domain of definition). So the fact that it refers to truth–value is quite understandable. We can express it also in the following way: because in logic we call that what can assume the truth–value as statement, therefore for Frege the meaning of statements is one of the truth–value *True* or *False*. For example, the meaning of specific statement “Socrates is mortal” or its formal denotation “F(a)”, is the truth–value *True*.

However, the expression “x is mortal” (or, if we wanted to emphasize that “x” actually refers to an empty space, we can write “... is mortal”) is not a statement. Unless we put in the place marked with the expression “x” a name of some entity out of the domain of definition, we cannot say, if this expression is true or false. This expression therefore cannot be a statement and its meaning probably would not be one of the truth–values. According to Frege, the meaning of such expression is just the function from the domain of definition to the range, about which we we said it corresponds with the predicate. The meaning of predicate is therefore the function that always returns as value one of the member of set {*True, False*}. Frege also calls that what has a meaning such functions, *concepts*. We can understand it like this that, for example, the predicate expressing certain property defines which objects fall under the concept, which corresponds with given expression. The reason is that given predicate assigns to individuals having this property the value *True* and those not having the property, value *False*. So for example the predicate *x is mortal* assigns the value True right to those objects in the world, which fall under the concept *mortal*, i.e. those, which are mortal; on the other hands, to objects for which it is not true that they are mortal, it assigns the value *False*. Thus in fact, we can translate the label “concept script”, given certain freedom, as “predicate script”, or “formal and symbolic language to talk about predicates”; or else: “predicate logic”.

4.2 The Reference of Multi–argument Predicates and Logical Operators

However, not only one–argument predicates exist (those that have only one argument, such as the predicate *x is mortal*) but also multi–argument (those having 2, 3 or more arguments). One–argument (or also unary) predicates express properties, such as *mortal*, *red*, *big*, etc. But with certain level of abstraction, as a property can be understood not only what we express by adjectives in the language, but also what we express in it by nouns (a predicate can then be, e.g., *x is mammal*) or what we express with verbs (e.g. predicate *x is running*). Multi–argument (binary, trinary, etc.) predicate express relations between things, e.g. *x is taller than y*, or *x gave z to y*, etc. We could transcribe such predicates into the formal language of predicate logic as follows:

Predicate	Predicate notation in formal language
x is taller than y	V(x, y)
x gave z to y	D(x, y, z)

Also in this case the predicate can correspond with the verb, as for example the predicate *x is lying to y*, and so on. The meaning of such expressions are also functions of sets, from which we select elements, which we will substituted for given variables into a binary set {*True, False*}. In case we substitute all variables with some singular expressions (i.e. such, corresponding to individual constants in predicate logic), we will get statements. E.g. if we label the Gerlachovský Peak with the individual constant "b" and Mount Everest with the individual constant "c", then we can record the following sentence like this:

The Gerlachovský Peak is taller than Mount Everest V(b, c)

This is already a statement, i.e. an entity, for which it worth to ask about the truth–value. In our case, this statement acquires the truth–value *False*:

V(b, c) ——> False

Because by meaning according to Frege we understand today what we usually describe as denotation, then we can say that the (Frege's) meaning or the denotation of this sentence is the entity *False*.

Frege thus understands adjectives, nouns and verbs as possible predicates. But in language, there are also,e.g. conjunctions, such as "if ..., then ...", "..., or ...", "... and ..." etc. Some of them have a prominent position in propositional logic, we call them logical operators and write them with the symbols such as material implication ("→"), disjunction ("∨"), conjunction ("∧"), etc.

We can understand logical operators as functions, however in this case they are functions, for which the set of truth–values {*True*, *False*} is not only their range but also their domain of definition.

In predicate logic, apart from individual variables (which we recorded with letters from the end of alphabet "x", "y", "z", etc., i.e. variables, which can be substituted with individuals, specifically separate things such as *Socrates*, *Bratislava*, *Atlantic ocean*, etc.) we have also propositional variables, which can assume one of the truth–values *True* or *False* and which we will record with lower case letters "p", "q", "r", etc. We can then formally rewrite the following expressions like this:

"It is not true, that p"	¬p
"If p, then q"	p → q
"p or q"	p ∧ q
"p and q"	p ∨ q
"p if and only if q"	p ↔ q

With regard to expressions from ordinary language (left side), the expressions “p” and “q” mark places, which we can substitute with some language expression, whose meaning is some element from the domain of definition of given function. The elements of domain of definition of logical functions are the truth–values, so we can substitute “p” and “q” with certain statements (because statements are language expressions whose meaning are truth–values). With regard to formal notation (right side), here too are the expressions “p” and “q” expressions whose meaning are truth–values. Therefore the expressions “p” and “q” “*represent*” the statements. Because, according to Frege, the meaning of statements are truth–values, then we can *substitute* variables *p* and *q* with just the truth–values. Let us further note, that we choose different expressions (“p” and “q”) instead of one expression (“...”) also because in case of logical operators, the order of arguments in general matters. Specifically, the order of arguments is important in case of implication.

If we substitute propositional variables with any of truth–values, logical functions, to which we will apply these propositional variables, will return to us as value one of the truth–values. For us to see more clearly the similarity to predicates, which are also functions for Frege, we recorded the statements in the second column by putting the truth–values into the given function with prefix notation:

¬True ——> False	¬(True) ——> False
True → False ——> False	→(True, False) ——> False
True ∨ False ——> True	∨(True, False) ——> True
True ∧ False ——> False	∧(True, False) ——> False
True ↔ True ——> True	↔(True, True) ——> True

Like in the case of predicate functions, if we put in the expression “If p, then q” language expressions whose meaning are elements

from the domain of definition of the implication function (i.e. some statements), this expression too becomes a statement.

4.3 Principle of Compositionality

> Frege strived for the so–called *principle of compositionality* that says the meaning of expression is fully determined by the meaning of its parts, to hold true in his system.

According to this principle, the meaning of statement we get after substituting “p” and “q” in the expression “If p, then q” must depend on meanings of all elements of this composed statement. The meaning of statements substituted for “p” and “q” will be truth–values, the meaning of expression “if p, then q” is the function called *implication*, which after substituting *p* and *q* with truth–values returns one of the values *True* and *False*. If we substituted “p” with the statement “Socrates is human” and “q” with the statement “Socrates is mortal”, we get this statement:

If Socrates is human, then Socrates is mortal.

The meaning of the statement “Socrates is human” is, in Frege’s concept, the truth–value *True*. The meaning of the statement “Socrates is mortal” is also *True*. The meaning of the statement “If p, then q” is the function called *implication*, which assigns truth–values to truth–values as follows:

p	q	p ® q
False	False	True
True	False	False
False	True	True
True	True	True

Because the statement is composed of three parts, “p”, “q”, and “...→...”, which are interconnected like this: $p \rightarrow q$, it will have the truth–value *True*, which for Frege is the meaning of said statement. As we see, this meaning was fully determined by its elements (“p”, “q” and “...→...”) and their arrangement ($p \rightarrow q$).

4.4 Quantifiers and Their Importance

In language, we can also find expressions like “all”, “everyone”, “some”, etc. Let us take, for example, the following sentence:

Everything is related to everything.

According to what we have already said, we can see the predicate *x is related to y* in it. We can record it as “S(x, y)”. Today, when noting the expression “For all x holds true, that...” we use the symbol called universal quantifier: “∀”. Then we can formally record the expression “For all x holds true, that ...” e.g. like this: “(∀x)...”. However, there is one problem here. In the part of expression marked with “...”, it is predicated of the same, of which it is predicated in the part marked with “(∀x)”. Therefore, from now on we will use the expression “α(x)” instead of the expression “...”. This will represent for us a certain grammatically correctly created expression of predicate logic, in which is at least one free occurrence of the variable *x*. We could also say that we have placed the symbol “x” in the expression “α(x)” because we wanted to note that this expression refers to the same to which the expression “For all x holds true, that...” refers — therefore in both expressions the symbol “x” occurs.

Then we can record the previous sentence as follows:

(∀x)(∀y)S(x, y)

We can read this notation like this: for all pairs of things (*x* and *y*) it holds true that they are related. Of course, such notation does not exclude that we can substitute *x* and *y* with also with the same object, i.e. that in some cases $x = y$. But we do not have to mind this in case of our statement, as long as we do not mind that each thing is related to itself as well.

Likewise, we could formally record the sentence “Some things relate to each other” with the help of symbol called existential quantifier: “∃” which we use in noting the expression “For certain x holds true that α(x)”. Such expression can be formally recorded as “(∃x)α(x)”. Then we can record the sentence “Some things are related to each other” like this:

(∃x)(∃y)S(x, y)

But what is the meaning of expressions “(“x)α(x)” and “(∃x)α(x)”? Let us not forget that the expression “α(x)” actually means to us the place, where we can put some grammatically correctly created expression of predicate logic, which contains at least one free variable *x*, i.e. at least one place, where we can again put a name of some certain separate thing. That means that by adding the expression “(∀x)” or the expression “(∃x)” before the expression ”α(x)”, we still do not get a statement. We get it only in the case, when we substitute “α(x)” with some grammatically correctly created expression of predicate logic, which contains at least one free variable *x*, i.e. which contains by itself at least one place, where we can again put a name of some certain separate thing. If we do not make such substitution, we have to regard the place marked with the expression “α(x)” as a variable, but not as an *individual* variable (because we cannot put any individual there), but as a variable, which can be substituted with some expression containing at least one predicate and at least one free occurrence of the variable *x*.

Let us assume, for simplicity, that “α(x)” will have the form “F(x)”. That means that we could substitute the variable α(*x*) with some unary predicate containing the variable *x*. α*(x)* is now practically a “predicate variable”, whose domain of definition are unary

predicates). We can then understand the expression "(∀x)α(x)" as the name of function that returns as value one of the truth–values and its argument must be some unary predicate containing the variable *x*. We can express it also when we say that it is a second–order function.

We can explain this with the help of the term *extension of function*, as used by, e.g. A. Miller (Miller, 2007, p. 14). Under the extension of function with *n–1* arguments, we have in mind the set of *n–tuples*, whereas each *n–tuple* is created so that some possible value of *k–th* argument of given function always corresponds with its *k–th* element *(1 < k < n–1)* and the value of this function for given combination of arguments corresponds with its *n–th* element. E.g. the mathematical function *f(x) = 2x*, which we shown above, has then this extension:

{(1, 2), (2, 4), (3, 6), (4, 8), ...}

Because Frege understands predicates as functions too, also they have extension in our defined sense. E.g. the predicate *x is human*, which we note with the expression "H(x)", has the following extension:

{(Socrates, True), (Plate, True), (Sandy, False), ...}

Then the predicate *x is taller than y (T(x,y))* has the extension:

{(Gerlachovský Peak, Mount Everest, False), (Gerlachovský Peak, Empire State Building, True), (Mount Everest, Gerlachovský Peak, True), ...}

But also implication, for example, has extension, because it is function, according to Frege:

{(False, False, True), (False, True, True), (True, False, False), (True, True, True)}

What is then the extension of the function *(∀x)α(x)*? Because we understand *α(x)* as a variable which can be substituted with one–argument predicates with the variable *x*, we can substitute it with, e.g. predicates *H(x) (x is human)*, *M(x) (x is mortal)*, *D(x) (x is dog)*, etc. The quantifier, because it is a second–order function, then should assign truth–values to these predicates. The universal quantifies assigns them to individual predicates in the following way: if the given predicate assigns to all elements of universe of consideration the value *True*, then the universal quantifies assigns to this predicate the value *True* as well; otherwise the universal quantifier assigns to this predicate the value *False*. If for us the universe of consideration are living beings, then the extension of universal quantifier is this:

{(H, False), (M, True), (D, False), ...}

Why? The universal quantifier assigned to the predicate *H(x)* the value *False* because the predicate *H(x)* does not assign to all elements of the universe of consideration the value *True*. Not all living beings are in fact humans. For example, the dog called *Sandy* is not a human and therefore the predicate *H(x)* assigned to this dog the value *False*. But from this results that the predicate *H(x)* assigns the value *True* not to all elements of the universe. And therefore the universal quantifier assigned to the predicate *H(x)* the value *False*. But as all living beings are mortal, the predicate *M(x)* assigns to all values from the universe of consideration the value *True*. Therefore the universal quantifies assigned to this predicate the value *True*. And under the same rule it assigned the universal quantifier to the predicate *D(x)* the value *False*. This predicate indeed assigns the dog called *Sandy* the value *True*, but there are elements of the universe of consideration, to which it assigns *False*, e.g. to the separate things *Socrates* and *Plato*.

The existential quantifier is also a second–order function, but it assigns to individual predicates the values *True* or *False* in other way than the universal quantifier. It assigns *True* to them only when if given predicate is assigning to at least one element of the universe the value *True*. Failing that, the existential quantifier assigns to given predicate the value *False*.

So also the meanings of quantifiers are functions, but functions of predicates into truth–values. Naturally, the expression with quantifier is a function only if we do not substitute the "predicate variable" with a specific predicate. Like in case of other functions, if we substitute this variable with a specific predicate, the expression with quantifier becomes a statement. Let us note that this holds true only if the resulting expression does not contain any free variable, which in our simplified case is always met, because we allowed to substitute a*(x)* only with unitary predicates with the variable *x* only. The meaning of the resulting statement will of course be again one of the truth–values.

Frege's objective was to find a formal language for the notation of logical relations in ordinary language, whereas he was interested mainly in such logical relations, through which we could check if the proofs (mainly mathematical proofs) are valid. Therefore in case of language, he was interested in what was substantial with regard to his objective. Due to that in his analysis he is not proposing the transcription of imperative or interrogative sentences, but declarative sentences only. He also does not propose a formal transcription for all types of expressions that can be found in sentences (he does not propose e.g. transcriptions of interjections).

We can summarize the way Frege is assigning to types of expressions in language important to him, types of meanings, as follows:
(1) *Nouns, adjective and verbs* can be understood as *predicates* and their meanings are, according to Frege, *functions of sets of individuals into the sets of truth–values.*
(2) *Proper names and numerals,* but also *expressions containing word like "this...", "that...",* etc. can be understood as *singular terms* and their meanings are *objects, to which we refer with the help of these terms* (i.e. such objects we call their denotations today).
(3) *Conjunctions* can be understood also like names of *functions out of the set of truth–values into the same set.* Their meanings are therefore such functions.
(4) The meaning of expressions like *"all ... are ..."* or *"some ... are ..."* are *functions of predicates into the domain of truth–values.*
(5) The meaning of whole *statements* is, according to Frege, *one of the truth–values* (the one concerning in the specific case is fully determined by the significant elements of that statement).

Recommended Literature

GAHÉR, F.: *Logika pre každého*. Bratislava : Iris, 2003, pp. 159 — 217.
MARVAN, T.: *Otázka významu. Cesty analytické filosofie jazyka*. Praha : Togga, 2010, pp. 13 — 29.
MILLER, A.: *Philosophy of Language*. London : Routledge, 2007, pp. 1 — 22.
MORRIS, M.: *An Introduction to the Philosophy of Language*. New York : Cambridge University Press, 2007, pp. 21 — 48.
PEREGRIN, J.: *Kapitoly z analytické filosofie*. Praha : Filosofia, 2005, pp. 31 — 67.

5. Frege III: Sense (Sinn)

Keywords: *sense, semantics, idea, two–level semantics*

5.1 The Relation Between Sense and Reference according to Frege

But with regard to semantics, Frege was not satisfied with describing in just with the term "reference". For some reasons, he felt compelled to introduce also another term concerning semantics — the term of *sense* (*Sinn* in German). We will try to explain in following lines what he had in mind with this term and what motivation led him to its introduction.

Frege postulated a principle that says if we substitute one expression with another expression with the same meaning, then the meaning of the statement, whose part was the original expression, should be the same as the meaning of statement that was created from the first expression by substituting the first expression with the second one. But it seems that some such substitutions are problematic.

Let us take the following sentence as an example:

Jana thinks that the Evening Star is shining in the sky.

According to Frege's theory, the meaning of the expression "Evening Star" is indeed an object to which it refers, i.e. the planet Venus. But this object is, at the same time, the meaning of another expression, the expression "Morning Star". This term too refers to the planet Venus. But if we substitute the former expression with the latter, we get this sentence:

Jana thinks that the Morning Star is shining in the sky.

Yet it is possible that Jana does not know that both of these terms refer to the same object, to the planet Venus. In this case, however, the statements will have a different truth–value, different meaning. But this is violating the mentioned principle that should naturally be valid at all times, therefore also when Jana does not know, that both expressions refers to the same object.

Moreover, the *informativeness problem* arises. Let us imagine that Jana does not know that "Evening Star" is the name of the same object we call "Venus" too. But Jana knows several things about Venus, e.g. that it is a planet of our Solar System. If we tell Jana the sentence:

The Evening Star is the planet Venus.

Jana will learn something. But if we tell her the sentence:

The Evening Star is the Evening Star.

she will not learn anything new. Nevertheless, all these expressions ("Evening Star", "Morning Star", "Venus") have, according to Frege, the same meaning, they refer to the same object. However, this is problematic, if we assume that Jana thinks about meanings of these expressions, because in this case she would be thinking always about the same thing. If the object of Jana's conclusion or thinking was in case of these expressions their meaning, she would have to be *thinking about* Evening Star, Morning Star and Venus always at the same time, she would have to be *thinking about* the one object, because according to Frege it is the shared meaning of

all these expressions. Moreover, in such case, the previous two sentences would have to be equally uninformative for Jana. Yet this is not true.

The informativeness problem manifests itself also in that we are able to understand also the expression whose denotation, i.e. what Frege calls reference, we do not know. In the same way, we are able to understand a sentence whose meaning, i.e. the truth–value, we do not know. Let us consider, for example, the sentence:

The oldest human on Earth is having a walk at the moment.

Because we do not know the meaning of the expression "the oldest human on Earth" (i.e. we do not know to which specific human it applies at this point) and because the meaning of the whole sentence depends also on the meaning of this expression, we neither now the meaning of this sentence, i.e. its truth–value. Despite that, we understand this sentence. So can semantics be reduced to talking about reference (in Frege's sense) only?

Frege therefore introduces another term — *sense*. Therefore all expressions will have not only meaning, but also sense. The meaning of the expression will be the method how is its meaning given, or more precisely the method, by which we are determining the denotation of given expression.

So for example the sense of the expression "Evening Star" will be the brightest object of evening sky. The sense of the expression "Morning Star" will be the brightest object of morning sky. Therefore we will select the denotation (the reference for Frege) of the expression "Evening Star" in such way, that we find the brightest object of evening sky. However, the way how we choose the denotation of the expression "Morning Star" is different: in this case, we have to find the brightest object of morning sky. The ways of choosing denotation are different, i.e. the *senses* of these expressions are different. But the referent, the meaning of these expressions is, by coincidence, the same: it is the planet we call "Venus".

Similar thing applies to, e.g. mathematical expressions. Both the expression "3 + 3" and expression "2 + 4" refer to the same abstract object, to the number *6*. Therefore they have the same *reference*, which is exactly the number *6*. But they refer to it in different way, so they have different *sense*.

5.2 Thought according to Frege

The sense of whole statements is, according to Frege, the *thought*. But by thought he does not have something subjective in mind, but he understands it objectively. This objectivity of that, what is the sense of sentences we are saying, lets us understand each other. With a sentence, we are expression a thought (which is its sense), but the meaning of the sentence is its truth–value. Therefore we do not have to know the meaning of the sentence (its truth–value) in order to understand it. To understand a sentence, we just need to know its sense. In case of the sentence "The oldest human on Earth is having a walk at the moment" we need then to know the sense of the expression "The oldest human on Earth" and the sense of the expression "... is having a walk". The sense of the expression "the oldest human on Earth" is the way how we assign this expression its meaning, i.e. the way how we define, which individual it describes. The sense of the expression "... is having a walk" is also the way how we assign this expression its meaning, i.e. the way how we assign this predicate the function that assigns separate things the truth–value *Truth* when these individuals are having a walk right now and assigns them the value *False*, if they are not having a walk right now.

Frege's semantics is therefore two–level, Frege assigns each expression both the *reference* (what is usually called denotation today) and the *sense* (what is usually called meaning today).

Frege made a tremendous job in the field of semantics. While building his theory, he himself was finding weak spots, questions, he did not know answers to. Otherwise, other thinkers were gradually finding such spots. Uncertainties concerned mainly the sense of proper names, the sense of expressions in indirect context and criteria of the identity of thoughts (Marvan, 2010, p. 26 — 29). In following text, we will have a look on some attempts for solution of these uncertainties.

Recommended Literature

KOLMAN, V.: *Logika Gottloba Frega*. Praha : Filosofia, 2002, pp. 64 — 79.

MILLER, A.: *Philosophy of Language*. London : Routledge, 2007, pp. 1 — 22.

MORRIS, M.: *An Introduction to the Philosophy of Language*. New York : Cambridge university press, 2007, pp. 21 — 48.

PEREGRIN, J.: *Kapitoly z analytické filosofie*. Praha : Filosofia, 2005, pp. 31 — 67.

WIGGINS, D.: Meaning and truth conditions: from Frege's grand design to Davidson's. In: HALE, B. — WRIGHT, C. (eds.): *A Companion to the Philosophy of Language*. Oxford : Blackwell Publishers, 1997, pp. 3 — 28.

6. Russell I: Definite Descriptions

Keywords: *proposition, denotation, definite description, logical analysis.*

6.1 Denoting

But another important analytical philosopher, Bertrand Russell (1872 — 1970) perceived Frege's two–level semantics as problematic. Why should be words assigned two different semantic entities, *reference* and *sense*? He found the concept of sense unclear and so he tried to avoid its introduction when describing semantic properties of language expressions.

Russell is proposing a view on semantics that is different from Frege's. (Russell, 1903, 1905) Although he, like Frege, considers names as indication of things (the meaning of names are, according to him, objects to which these names refer), but he does not take predicate expressions as names of functions, but as names of concepts (the meaning of given predicate expression is therefore the respective concept). The meaning of statements are, according to him, not the truth–values, but *propositions*, which he sees as conglomerates of entities that refer to individual words, from which is the statement made up.

However, Russell is later again approaching the two–level semantics. Concepts can actually relate not only to other concept or names of things, but also to objects themselves. Russell calls this relation of concepts to objects *denoting*. That is, any concept can be devised so that it refers to some object. Moreover, different concepts can in some cases refer to the same object. Predicate language expressions therefore relate not only to concepts, but through them they can relate to objects, i.e. in fact, two types of entities belong to them: concepts and things (if they denote anything).

To clarify it, it will be good to start with the analysis of how is Russell logically analysing one special type of expressions, the so–called *definite descriptions*. According to Russell, this type of express actually does not behave as proper names. For example, according to him, the expression "the current French king" as if would not be a proper name, referring to one object, to one specific person. Let us consider the sentence:

The current French king is bald.

If we have understood the expression "the current French king" so that it refers to some object, then we should mark it, according to Frege's concept, with an individual constant, e.g. "a". On the other hand, we should understand the expression "x is bald" as the marking of the predicate *x is bald* and we could mark it with the expression "B(x)" in formal language. Then it would be necessary to transcribe the selected statement as follows:

H(a)

Is this statement true or false? There is no French king at the moment after all. According to Frege, if some element of the sentence has no meaning, the sentence as a whole has no meaning as well; i.e. that sentence has no truth–value. If it had a truth–value, then it should be either true or false. But it seems obvious that we

cannot say about the previous sentence that it is true. But if on the other hand this sentence should have the truth–value *False*, its negation should be true. It also seems that its negation is the sentence:

The current French king is not bald.

which can be recorded, according to Frege, as:

¬H(a)

But this sentence should be true, if the original sentence was false and this sentence is truly its negation. But it seems that we are not able to say that.

In case of Frege, we can still understand this sentence, even though we are not assigning any meaning to it, because this sentence has still one entity of another semantic category assigned, namely its sense. For Frege, the expression "current French king" has a sense too, although it has no meaning, i.e. it does not refer to any object. But according to Russell, the meaning of any previous sentences is none of the truth–values, however it is a proposition, some sort of compound of two entities, which refer to expressions "the current French king" and "... is bald". The expression "the current French king" should have some object as its meaning, namely the current French king. The expression "... is bald" has the concept of *baldness* as meaning. As the statement "The current French king is bald" is like an image of proposition, which is its meaning, then the connection between expressions "the current French king" and "... is bald" should be the same as the connection between the current French king and the concept of *baldness*.

However, there is no French king at the moment. The expression "the current French king" does not refer to any object, therefore it should have no meaning. Should the *isomorphism* between the statement and proposition be valid and the sequence of symbols

"The current French king is bald" truly be a statement, then this statement cannot have any truth–value today.

This, however, is a problem for Russell, because he insists on the *principle of the excluded third*, which he describes as that for every meaningful statement it should hold, that either it is valid or its negation. Yet M. Morris remarks in this regards (Morris, 2007, p. 51) that maybe we should be talking rather about *the principle of bivalence* in this case. Actually, today a distinction between the principle of bivalence, which says that each meaningful sentence should have just one of two truth–values and the principle of the excluded third, which says that each statement being in form of $A \vee \neg A$ is tautology (i.e. it always is a true expression, regardless of what expression we substitute A for and regardless of the truth–value of expression A) is made. He also remarks that it is possible to devise a logical system also in such way, that on one hand, the law of the excluded third is valid in it, but the principle of bivalence is not. On the basis of that he claims that it is possible to argue in favour of the opinion, that what Russell is talking about in this regard, concerns rather the principle of bivalence than the law of the excluded third.

Anyway, for Russell is important that both above mentioned statements have the truth–value, if they even are meaningful sentences. This assumption is sound, because we can understand these sentences and we normally use sentences of similar type (containing expression not referring to any existing object).

However, as we have already said, if the sentence "The current French king is bald" is to be an image of a proposition, we have trouble with determining what corresponds to the element marked with the expression "the current French king". But is our assumption correct that this ordinary language sentence truly represents some preposition well? The proposition is in fact some possible element of reality, some possible arrangement of things, which if exists, then the statement representing it is true, and if not, then the statement representing is if false (the opposite is then true for

the negation of this statement). What if our ordinary language sentence does not represent any possible proposition well (an therefore it does not represent even the given hypothetical proposition, which we thought it represented), i.e. what if the proposition it would represent well, is not possible?

It seems that this statement represents well the proposition *B(a).* But if the individual *a* does not exist, then it is not possible that *B(a)* is true, but it is not possible that *¬B(a)* is true. The sequences of symbols "B(a)" and "¬B(a)" of the formal language are not possible proposition given the world in which the individual *a* does not exist, because in such world neither the proposition *B(a)* nor *¬B(a)* is possible.

6.2 Logical Analysis

We can take another path, though. Let us assume that our sentence does not represent well some suitable proposition. Let us assume that the logical structure of what we wanted to express in ordinary language is not clearly visible in the ordinary language sentence. Let us explore the possibility that this logical structure is different from *F(a)*, i.e. let us try to explore some other transcription of our statement, one that would represent some proposition that would be possible (that would be some possible relation between things or some possible pertaining of some properties to some things) and at the same time suitable (i.e. such, about which it could be asserted, as good as possible, that it has such logical form, which was vaguely "meant" by our sentence in ordinary language).

Let us have a look then on the following logical analysis of the sentence "The current French king is bald", as proposed by Russell:

$$(\exists x)(K(x) \wedge H(x) \wedge (\forall y)(K(y) \rightarrow (x = y)))$$

where we mark with the expression "K(x)" the predicate *x is the current French king*. The quite complicated transcription into

formal language, shown above, expresses that there is at least one such thing that is the current French king and is at the same time bald, and it concurrently asserts that all things, which are the current French king, are identical with this thing; i.e. this expression asserts that there is *just one* such thing, which is a French king and that this thing is bald. So Russell's record is not acting as designation of certain object that has to exist. If there is no French king, then this expression neither looses meaning, nor it becomes false.

This example of formal transcription of statement shows well also why Russell in fact speaks about *logical analysis*. The form this expression has in ordinary language, does not have even to resemble its logical form. Thus, the transcription of the statement from ordinary language into formal language is not always a trivial task.

An expression in ordinary language can in fact hide its logical form, as we can just see on our example. The logical form of this statement is hidden, it hardly shows in ordinary language. Therefore effort has to be exerted to acquire this logical form. We need to, so to speak, think about what does the expression "mean" (in terms of its logical structure) and we should get mislead by its form in ordinary language.

But the fact that the logical form of the previous statement is so different from its form in ordinary language contains also additional consequences, not obvious at the first sight. Ono of them is that its negation is not a statement.

The current French king is not bald.

We can discover this, when we negate our formal record:

$$\neg(\exists x)(K(x) \wedge H(x) \wedge (\forall y)(K(y) \rightarrow (x = y)))$$

This expression means, that

It is not true that there is just one current French king, which is bald at the same time.

As we have seen, this statement is not identical with the statement "The current French king is not bald", we can adjust this expression:

$$(\forall x)\neg(K(x) \wedge H(x) \wedge (\forall y)(K(y) \rightarrow (x = y)))$$
$$(\forall x)(\neg K(x) \vee \neg H(x) \vee \neg(\forall y)(K(y) \rightarrow (x = y)))$$
$$(\forall x)(\neg K(x) \vee \neg H(x) \vee (\exists y)\neg(K(y) \rightarrow (x = y)))$$
$$(\forall x)(\neg K(x) \vee \neg H(x) \vee (\exists y)(K(y) \wedge \neg(x = y)))$$
$$(\forall x)(\neg K(x) \vee \neg H(x) \vee (\exists y)(K(y) \wedge (x \neq y)))$$

Statement written in this way means, that for all things, *at least one of these three assertions holds true*:

(1) given thing is not the current French king
(2) given thing is not bald
(3) there is a thing that is the current French king, but which is different from the given thing (i.e. there is some other thing that is the current French king).

Such situations allow many options, however it does not allow that neither (1) nor (2) nor (3) held true about some thing. It thus does not allow that it is true, at the same time, that some thing is the current French king, that it is bald and that it was just one. If there is more than one current French king, this sentence is true. It is also true, if there is none. And if there is just one current French king, but not bald, it is true as well.

Let us have a closer look on one of these options, on the one valid at this moment. At this moment, the empirical situation in our real world is such, that there is no French king. In that case, the sentence

$$(\exists x)(K(x) \wedge H(x) \wedge (\forall y)(K(y) \rightarrow (x = y)))$$

is false, because it is true that there is no current French king:

$$\neg(\exists x)K(x)$$

from this assertions follows also the validity of that there is no current bald French king

$$\neg(\exists x)(K(x) \wedge H(x))$$

As long as there is nothing that would be the current French king and bald at the same time, neither it is true that there would be *just one* such thing. Hence the following assertion is true, which already is the negation of the original statement:

$$\neg(\exists x)(K(x) \wedge H(x) \wedge (\forall y)(K(y) \rightarrow (x = y)))$$

This sentence is thus really true, as long as there is no French king, while *its* negation (i.e. our original statement) is on the other hand true, under this condition.

In general we can say, that in case of the analysed Russell's transcription and its negation, the problem does not lie in that these sentences, expressed in formal language, would violate requirements that (1) each statement had a truth–value and that (2) negation of each statement had the opposite truth–value as this statement. Neither the violation of the law of the excluded third nor the situation that we are forced to say that given sentences have no meaning occurred.

But let us notice that it does not follow from Russell's logical analysis of the expression "the current French king" that this expression is description of some object. For no such object has to exist. The meaning (denotation) of such expression is thus not any object.

Let us examine this expression closer: To get its formal record, we will use the formal record of the expression "The current French king is bald". Yet if we remove the expression "x is bald" from this statement, we should be left with this expression:

"The current French king ...".

i.e. an expression with some kind of empty space for something we want to say about the current French king. Let us make a removal in our formal language. In that case, we remove the expression "B(x)" that is the name of the predicate *x is bald* in formal language. By doing so we get:

$$(\exists x)(K(x) \wedge \ldots \wedge (\forall y)(K(y) \rightarrow (x = y)))$$

However, if we want to mark the place from which we have removed the expression "B(x)", like we did it above, we can write this formal expression like this as well:

$$(\exists x)(N(x) \wedge \alpha(x) \wedge (\forall y)(N(y) \rightarrow (x = y)))$$

This formulation has the advantage that the expression "a(x)" preserves the information that what we are saying in this place of our expression, we are in fact saying *about the same object*, about which we are saying that is the only current French king. This connection is secured in such way, that there is the same symbol "x" in the expression "a(x)" as is in the remaining part of expression on those places of its, where is it being said about the object we are substituting the variable *x* with, that it is the current French

king and that there is just one such object. But the expression "α(x)" thus describes the variable that can be, in predicate logic, substituted with grammatically correctly created expressions containing at least one free occurrence of the variable *x*.

Like in the previous part, let us simplify the situation at this point in such way, that we will assume that we could substitute the expression "α(x)" only with expressions describing unary predicates, as is the case, e.g. with the predicate *B(x)*. Then the *α(x)* is in fact a predicate variable, which can be substituted with predicates expressing some property.

The expression "the current French king ..." is therefore an unsaturated expression, which is not a statement by itself. This can be clearly seen on its formal record. Unless we substitute the predicate variable *α(x)* with any specific predicate, the previous formal record is not a statement, thus it is not an image of some proposition. If, however, we substitute *α(x)* with some predicate, a statement will be created. Although, his truth–value will depend on various things. If, for example, there is no object, which is the current French king, a false statement will be created after the placement of any predicate into the expression "the current French king". If there are more current French kings, then it is true again that the statement we get by substituting α*(x)* with any predicate, will be false. If there is just one current French king, then this statement will be true, if at the same time this king has the property expressed by respective predicate we are substituting a*(x)* with, and will be false, if it does not have such property.

Lastly, let us still mention that we should not get fooled by the form of the expression "the current French king" in ordinary language. This expression does not contain space for placement of predicate in this form, but this can be explained in such way, that in case of such expression, the ordinary language fails to express the logical structure of given expression well, similarly as in the case of the whole sentence "The current French king is bald".

Differences in constructing semantics between Frege and Russell arise to certain extent also from their different motivation. Logical analysis for Frege was mostly the tool to visualize the phenomenon of implication and the process of proving. He was interested in more strictness of mathematical proofs, mainly in that their interpretation is not based on factual process of human thought, which is too subjective and elusive for solid knowledge to be based on it. Russell's motive, on the other hand, was to engage logic in our discovery of outer world. That is why he abandons Frege's strict antipsychologism, i.e. strict differentiation between the examination of implication (based on the analysis of language, not thought) and the examination of processes of thought (which can be the subject of psychology, neurosciences, cognitive sciences) (Peregring, 2005, p. 84).

Recommended Literature

MARVAN, T.: *Otázka významu. Cesty analytické filosofie jazyka.* Praha : Togga, 2010, pp. 31 — 45.
MILLER, A.: *Philosophy of Language.* London : Routledge, 2007, pp. 23 — 89.
MORRIS, M.: *An Introduction to the Philosophy of Language.* New York : Cambridge university press, 2007, pp. 49 — 73.
PEREGRIN, J.: *Kapitoly z analytické filosofie.* Praha : Filosofia, 2005, pp. 69 — 93.
PRIEST, G.: Logika. Praha : Dokořán, 2007, pp. 37 — 44.

7. Russell II: Proper Names and Logical Atomism

Keywords: *proper names, representationism, logical atomism, language, world*

7.1 Proper Names

Russell, however, expands his understanding of certain descriptions also to proper names. These are for him actually hidden certain descriptions, so that also in their case it in fact concerns unsaturated expressions of this type, such as the expression "the current French king".

For this reason is for him, for example, the name "Socrates" just a hidden certain description. We can understand it, e.g., as an expression, which is equivalent to, e.g. the certain description "Greek philosopher who was a teacher of Plato, husband of Xanthippe, and was sentenced to death in Athens". So the formal shape of this expression will have the same form as had the expression "the current French king". Its logical analysis could therefore look like this:

$$(\exists x)(So(x) \wedge \alpha(x) \wedge (\forall y)(So(y) \rightarrow (x = y)))$$

Where the expression "So(x) marks the predicate *x is a Greek philosopher who was a teacher of Plato, husband of Xanthippe, and was sentenced to death in Athens*. Also in this case the statement, which is created through substitution of the variable a*(x)* with some predicate, is false, as long as the predicate *So(x)* cannot be truthfully said about any object. If we take is like that Socrates is no longer alive, then this individual exists no more, then all sentences of the type

Socrates α(x)

are false, regardless of what predicate we substitute the variable a*(x)* with. If we thus substitute it with, e.g. the predicate *x is a man* (formally, we will mark it with the expression "M(x)") the sentence

Socrates is a man.

will be false. In formal record we would express it like this:

$$(\exists x)(So(x) \wedge M(x) \wedge (\forall y)(So(y) \rightarrow (x = y)))$$

But let us imagine, that we are living in the age when Socrates lived, or that we are assigning existence as if in terms of timelessness to all things that existed at least once. Then the sentence "Socrates is a man" is true. But it really depends on various things, as the logical analysis of this statement shows. The fact that the individual — which should have the property *to be a Greek philosopher who was a teacher of Plato, husband of Xanthippe, and was sentenced to death in Athens*, if it existed — would at the same time have the property *to be a man*, is just one of them. Other assumptions (which must be all valid at the same time for the sentence "Socrates is a man" to be true) are:

— there is at least one individual, which has the property *to be a Greek philosopher who was a teacher of Plato, husband of Xanthippe, and was sentenced to death in Athens*

— each thing, for which it is true that *it is a Greek philosopher who was a teacher of Plato, husband of Xanthippe, and was sentenced to death in Athens*, is identical with the thing, about which the rest is being said

But let us have a look also on the other problem, concerning proper nouns. What if a name that refers to some fictional entity, e.g. to the name "Santa Claus", occurs in the expression? From the point of view of Frege's approach, we have to assume — if we want that sentences, in which it occurs, had meaning, i.e. the truth–value according to Frege — that given individual, which we mark with some individual constant, exists, at least in some sense: maybe it exists within some theory, some discourse, some book, some mythology, etc. but it has to exist in some way. We can say it also like this, that individuals must have pre–theoretic existence. This results also in that we cannot write:

$$\neg(\exists a)$$

if we want to write something grammatically correct within the predicate logic. Such expression is not allowed in it at all, it is not created properly according to rules of expression creation in predicate logic. But how can we then express, e.g. the following sentence?

Santa Claus does not exist.

If we marked Santa Claus e.g. with the individual constant "a", it seems that for transcription we should use precisely the above mentioned formal record, which is, however, not grammatically correct in terms of predicate logic.

In Frege's concept, the sentence "Santa Claus does not exist" has no meaning, for the expression "Santa Claus" has no meaning. It is that this expression does not refer to any object and therefore no

object, which would have been its meaning, is assigned to it. Then the whole sentence cannot have any meaning, i.e. truth–value.

Because, however, Russell requires observance of the principle of the excluded third, also the statement "Santa Claus does not exist" should be either true or false. That Santa Claus does not exist can be said with the predicate *x is Santa Claus*. We can make transcription on the basis of these relations between expressions of ordinary language and symbolic language of logic:

Ordinary language	*Formal symbolic language of logic*
... is Santa Claus (*or:* x is Santa Claus)	$S(x)$
Santa Claus (...) (*or:* Santa Claus a(x))	$(\exists x)(S(x) \wedge \alpha(x) \wedge (\forall y)(S(y) \rightarrow (x = y)))$
Santa Claus does not exist.	$\neg(\exists x)S(x)$

It is appropriate to make two remarks. Firstly: we do not have to use the transcription of the expression "Santa Claus" in this case because the situation gets simpler by that we just need to say that there is no such thing, which would be a Santa Claus. Nevertheless, we present its transcription for comparison.

Secondly: in these transcriptions, "x" marks an empty space, where a name of some individual can be put and "a(x)" marks a space, where we can put name of some term, written in the formal language of logic. Here we can see again that individual empty spaces are not of the same type, but they are specific also by names of what things they can be substituted with. Apart from that, they are also specific by what position they take within the whole expression. That is why, e.g. Gahér says that "*a variable ... is not only an unspecified empty space.*" (Gahér, 2003, p. 178) We could see the situation also like that the variable is a specified empty space. This space is specified by where it is located in given expression, in which expression it is located and names of which objects can be put into this place.

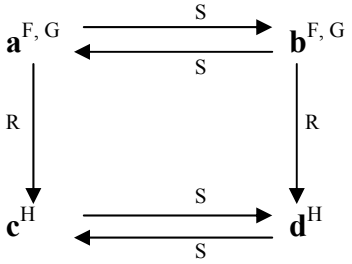
7.2 Logical Atomism: Language Should Represent the World

We can call Russell's view on the relation between language and world *representationalistic*. Also the term *logical atomism* is used to describe Russell's concept, which should express the fact that because the language of logic consists of names of objects and concepts (names of concepts are names of properties and relations) and because between it and the world some kind of *isomorphism* (language represents the world, or at least it should) exists, then the world too consists of, in a sense, objects, relations and properties.

Of course, we should not forget that which objects have which properties and which relations are between which objects, is an element of the world, i.e. we should not forget about something that could be called "relations" of objects and properties and "relations" of objects and relations. These "relations" are expressed on the language level by that, which names occur together with which predicates in statements describing the world.

Let us try to illustrate this view on the relation between language and world with this example. Let us imagine a very simple world, consisting only from several objects, properties and relations. In the picture, we will mark individuals with individual constants, because for simplicity, we will firstly describe this world with proper names of individuals. We will have four objects in our universe, *a, b, c, d*; three properties *F,G, H*; and two relations between two possible objects *R, S*. We can depict our simple world, marked as $World_1$, for example with the following picture:

$World_1$:



If we do not use any variables to record all facts of this universe, but only predicated and individual constants, we can record these fact as follows, as elements of the sent, which expresses all basic ("atomic", so to say) facts about this universe:

M_1 = {F(a), G(a), ¬H(a), F(b), G(b), ¬H(b), ¬F(c), ¬G(c), H(c), ¬F(d), ¬G(d), H(d), R(a, c), ¬R(c, a), R(b, d), ¬R(d, b), ¬R(a, b), ¬R(b, a), ¬R(c, d), ¬R(d, c), ¬R(b, c), ¬R(c, b), ¬R(a, d), ¬R(d, a), ¬R(a, a), ¬R(b, b), ¬R(c, c), ¬R(d, d), ¬S(a, c), ¬S(c, a), ¬S(b, d), ¬S(d, b), S(a, b), S(b, a), S(c, d), S(d, c), ¬S(b, c), ¬S(c, b), ¬S(a, d), ¬S(d, a), ¬S(a, a), ¬S(b, b), ¬S(c, c), ¬S(d, d)}

As atomic statements we understand now all statements that contain exactly one predicate and at the same time do not contain any variables or logical operators. Then we can say that the set M_1 is a set, in which for each possible atomic statement, either it itself or its negation can be found. This set unambiguously represents one possible distribution of properties and relations over individuals of that world. We can understand it also as a set, which assigns every atomic statement a truth–value in the following way: it assigns the truth–value *Truth* to the statement, if it belongs to elements of the set and the truth–value *False*, is its negation belongs to elements of the set. The fact that it assigns truth–value to every atomic statement means, that for every atomic statement it is true that either it or its negation has to be the element of the set.

The set M_1 is the set of statements, which represent atomic proposition of our world. These statements are images of these propositions in formal language and there should be isomorphism between them and propositions of our $world_1$. It is one of maximum consistent set of atomic statements and their negation, which can be assembled for the world of four individuals, three properties and two relations between two possible things. A conflict would be the result of addition of any additional atomic statement or its negation would. If, for example, we added the statement S(b, c), a conflict would occur between it and the statement ØS(b, c), which already is in the set M_1.

Let us notice too that our description of universe contains all information. It contains also statements that say that some individual *does not have* certain property, or that there *is no* relation between certain individuals. Thus, it represents also propositions of this type: propositions, that some individual *does not have* certain property; propositions, that there *is no* relation between two objects. These are also facts that create that world. We could therefore say that they are "conglomerates" of objects and properties or relations that do not belong to these objects. But the fact, that certain object *does not have* certain property, is a fact, which comprises that world in the very same way as the fact, that certain object *has* certain property. Or, if we want to consider as conglomerates of some objects and some properties and relations only such compounds of objects and properties or relations that exist in that world, then we could derive the set M_1 from these facts about these conglomerates and *from that they are all facts about such conglomerates*.

Recommended Literature:

MILLER, A.: *Philosophy of Language*. London : Routledge, 2007, pp. 23 — 89.

MORRIS, M.: *An Introduction to the Philosophy of Language*. New York : Cambridge University Press, 2007, pp. 49 — 73.

PEREGRIN, J.: *Kapitoly z analytické filosofie*. Praha : Filosofia, 2005, pp. 69 — 93.

8. Russell III: Knowledge by Acquaintance and Real Proper Names

Keywords: *knowledge by acquaintance, non–existence, proper names, sense perceptions*

8.1 Knowledge by Acquaintance

But what is the situation of a hypothetical individual that does not exist? However, what is an individual without features and relations to other individuals? If they are nothing without them, to unambiguously determine the specific individual, would it be enough to have the description that would univocally determine them, i.e. a specific description? And ultimately, do we need any proper names to describe individuals; if the individual is nothing without their features and relations to other individuals? Or, could names of individuals be just definitional abbreviations of appropriately selected descriptions specifying the very individual we want to call by the expression?

Nevertheless, let's take note of the fact that in our $world_1$ it can be selected no specific description that would define any of individuals making them. We can distinguish in it between two types of individuals; one type consists of individuals initially called *a* and *b*, and the other type is made by individuals originally called *c* and *d*. The reason is symmetry. Because of that we cannot distinguish between the abovementioned pairs of individuals as far as we want to specify them by a description. Seeing that $World_1$ is not

symmetric in the vertical direction, we can distinguish between two types of individuals.

If we were part of this world, then we could distinguish individuals, as long as being part of the world would necessarily mean that we can directly perceive some individuals. Strictly speaking, the necessary condition of the possibility to define all other individuals of the world by some descriptions is that we could refer to at least one by pointing at them. However, this statement has one more condition; the individual we pointing at cannot be on the axis of symmetry of this world (if there is no individual lying on the axis of symmetry — which would be caused by non–existence of the axis, because the world is not symmetric — this cannot come about for sure).

The reason for the need to directly refer to an individual we have described is not Russell's motif for allowing the only ones to behave as proper names with expressions by which we refer to subjects by pointing at (such as expression "this", "this man" etc.). We think though that the previous description can help understand why at least in this case allowing of proper names is the right step. In some cases, anyway, it is an inevitable step on the way to determine all other individuals by some descriptions.

In Russell's terminology, it could be said that we have to be directly *acquainted* or *confronted* (the latter is used by Peregrin (Peregrin, 2005, p. 83.) with some subjects. Russell uses for this type of knowledge of the subject the *knowledge by acquaintance* expression. The motif for introduction of this kind of knowledge was, among others, the fact that he was an empiricist, and all knowledge had to come out from the experience. This experience has to be processed by our cognitive apparatus, whereby Russell considered logics being part of the apparatus as well, because, from the experience with the world, it is necessary to get more general knowledge.

8.2 The Only Real Proper Names (Expressions Used in Pointing at an Object)

As long as we can indicate at least one individual (that does not lie on the axis of symmetry of the world) by an expression owing to we can point at it, the situation is getting better. According to Russell, it is the only case when we can use the subject indication strategy that is used with proper names. In this case only it is guaranteed that the object exists. In other situations the proper name could have no referent. As long as by proper name we indicate something we are pointing at, i.e. what we perceive, this problem can never emerge.

It is necessary to say that sole perception is a certain designing of a conception not necessarily corresponding to reality. It is not an entirely direct and errorless contact with subjects, therefore the situation in which the constructions refer to nothing real, is in perception yet possible. This is why Russell considers real subjects of pointing for subjects we can refer to by the "this" expression. According to him, in existence and nature of the entities we cannot be wrong, therefore with these objects we can safely use the reference strategy used with proper names.

In order to avoid epistemological questions we do not want to deal with now, let's not to be engaged in the nature of individuals in our world$_1$. Let's not deal with the question, whether it's sense perceptions, or some fundamental elements of the world that could also be outside us. Let's presume that we are able to point at an object of the world by the expression "this". It can be the object originally labelled by the expression "a". In this case the object has the name but as it is getting it now based on pointing, let its name be the expression "this". The original names of the subject ("a", "b", "c", "d")

could be forgotten and the features of the individual (which has the "this" name) can be written down as follows:

F(this)
G(this)
¬H(this)

Obviously it is the same transcription strategy as in the previous records of the facts on the world$_1$. The strategy can be used in the transcription of all expressions telling on subject labelled by the expression "this". We can use it in the transcription of statements telling about its relations. We have to say about this subject that it toward itself has none of the relations *R* and *S*. Expressions originally as *ØR(a, a)* and *ØS(a,a)* can be written down as follows:

¬R(this, this)
¬S(this, this)

However, we cannot use this strategy when recording facts regarding other individuals. How should we record the other facts? We can use Russell's analysis of the sentences containing certain descriptions. If *N* is the feature with the only one individual, we can say about the individual through the feature as follows:

$$(\exists x)(N(x) \wedge \alpha(x) \wedge (\forall y)(N(x) \rightarrow (x = y)))$$

where a(x) is a certain grammatically correctly created expression of predicate logics that contains at least one occurrence of the variable x; it is the expression we want to say about the object. If we want to say about the individual originally labelled by the "b" expression, we would like first to say about it that it has features *F*, *G* and has not feature *H*. So, we want to create three statements, which will gradually contain expressions F(x), G(x) and ¬H(x) in the place of α(x). What is indeed in this case a unique feature that has

only the individual originally labelled by the expression "b"? What else should we substitute instead of "N(x)"?

We can use any feature that has the individual originally labelled by the "b" expression and only this individual has it. In this very point it will help us that by pointing we could label the individual originally labelled by the expression "a". The individual originally named *b* is the only one individual relation to the individual that we point at, the *S(this, b)* relation. We could also use other relation, e.g.: *S(b, this)*. Even though the relation of the same type (type *S*) is concerned, it is not the same relation.

As we would like to avoid proper names of objects in the world$_1$, we have (besides the individual we have pointed at), to use variables. We have selected (arbitrary) the *x* variable, so we have to use it at determination of the individual by means of a unique fact valid about it. Therefore we have to use the expression "S(toto, x)". Afterwards we get the expression:

$$(\exists x)(S(\text{this}, x) \wedge \alpha(x) \wedge (\forall y)(S(\text{this}, x) \rightarrow (x = y)))$$

This is not a statement, but an incomplete expression used to tell about the individual. It is incomplete, because it contains the variable a(x). As a consequence, it is not possible to determine its truth value (as it depends on what is substituted for the variable). That is why it cannot be a statement.

In order to get a statement, we have to substitute for the variable some grammatically correct created expressions of the predicate logics. If we want to record that individual having a relation *S(this, x)* with the individual labelled by the expression "this", has the feature *F*, we have to substitute the expression "F(x)" for a(x), and get:

$$(\exists x)(S(\text{this}, x) \wedge F(x) \wedge (\forall y)(S(\text{this}, x) \rightarrow (x = y)))$$

The similar thing is valid even though we would like to express that the individual has feature *G(x)* and has feature *H(x)*:

$$(\exists x)(S(this, x) \wedge G(x)) \wedge (\forall y)(S(this, x) \rightarrow (x = y)))$$
$$(\exists x)(S(this, x) \wedge \neg H(x) \wedge (\forall y)(S(this, x) \rightarrow (x = y)))$$

In case we would like to talk about the individual that has originally been labelled c, we have to find a feature unique for this individual. It could be feature *R(this, x)*. Then we record the facts that this individual has not features *F* and *G*, and has feature *H*, as follows:

$$(\exists x)(R(this, x) \wedge \neg F(x) \wedge (\forall y)(R(this, x) \rightarrow (x = y)))$$
$$(\exists x)(R(this, x) \wedge \neg G(x) \wedge (\forall y)(R(this, x) \rightarrow (x = y)))$$
$$(\exists x)(R(this, x) \wedge H(x) \wedge (\forall y)(R(this, x) \rightarrow (x = y)))$$

A little more complicated it is with the individual originally labelled as *d*, because the individual has no direct relation to the individual we refer to by the expression "this". We could introduce it through the relation with some individuals labelled before, or in this case, we can use a little more complicated facts valid in the world$_1$. Regarding the individual we are talking about is valid that it is the only one having no relation to the individual labelled by the expression "this", neither the relation *R(this, x)*, nor the relation *S(this, x)*. So a searched, unique feature could be e.g. *(¬R(this, x) Ù ¬S(tjis, x))*. Then we can talk about its features as follows:

$$(\exists x)(\neg R(this, x) \wedge \neg S(this, x) \wedge \neg F(x) \wedge (\forall y)((\neg R(this, x) \wedge \neg S(this, x) \rightarrow (x = y)))$$
$$(\exists x)(\neg R(this, x) \wedge \neg S(this, x) \wedge \neg G(x) \wedge (\forall y)((\neg R(this, x) \wedge \neg S(this, x) \rightarrow (x = y)))$$
$$(\exists x)(\neg R(this, x) \wedge \neg S(this, x) \wedge H(x) \wedge (\forall y)((\neg R(this, x) \wedge \neg S(this, x) \rightarrow (x = y)))$$

However, formulation of the relation will be more complicated in general. The situation is relatively simpler, if we talk about a relation of an individual with the individual we refer to by the

expression "this". For example, with the transcription of the relation originally recorded as *R(a, c)*, we substitute the expression "R(toto, x)" for "a(x)" expression, and we get:

$$(\exists x)(R(this, x) \wedge R(this, x) \wedge (\forall y)(R(this, x) \rightarrow (x = y)))$$

As in this case we coincidentally express the very fact used in the definition of the individual originally labelled as *c*, we used the expression "R(this, x)" two times in a conjunction. So, the overall expression could be even simpler:

$$(\exists x)(R(this, x) \wedge (\forall y)(R(this, x) \rightarrow (x = y)))$$

However, in the case of the record of relation previously recorded as *R(c, a)* a similar simplification will not be possible, so we have to use the following expression:

$$(\exists x)(R(this, x) \wedge \neg R(x, this) \wedge (\forall y)(R(this, x) \rightarrow (x = y)))$$

The transcription of the relation previously recorded as *ØR(b, c)* will be more complicated, because for talking about both respective subjects we need to use variables and at the same time it has to be told about both of them by means of its unique characteristics:

$$(\exists x, y)(S(this, x) \wedge R(this, y) \wedge \neg R(x, y) \wedge (\forall z)(S(this, z) \rightarrow (x = z)) \wedge (\forall w)(R(this, w) \rightarrow (y = w)))$$

By using this strategy it is possible to transcribe all the statements from the set M_1. If we can determine by pointing at least one object not lying on the axis of symmetry of the world, then the new can completely determine the world by some descriptions, in which we use the only real proper name.

If the world is asymmetric, then this only one proper name would not be even necessary, but it would be enough to have

predicates, quantifiers and logical connections for entire description of this world. Every subject of the world is thanks to asymmetry really unique (even if we suppose that subjects are nothing without its features and relations to other subject) and therefore it can be defined by an utterance that is true about itself only. This world could be created, for example, if we exclude individual *d* from the world$_1$ and therefore all the relations and features it exists in. Thinking over the way we could record all the facts regarding the world without using proper names (individual constants), could be left for the reader.

8.3 Non–existing Subjects

What would be the situation of subject that does not exist? How could we record a statement that talks on this non–existing individual? We can use Russell's logical analyses of certain descriptions, while as a supposed unique feature we introduce a feature that no individual of the universe does not fulfil. For example, in the world$_1$ there is no individual that could have concurrently features *F* and *H*. The expression referring to the individual typical by this feature would seem to be like:

$$(\exists x)(F(x) \wedge H(x) \wedge \alpha(x) \wedge (\forall y)((F(x) \wedge H(x)) \rightarrow (x = y)))$$

where α(x) is part of the expression, where we would substitute what we want to say about the only individual that we can substitute for the variable *x* so that the created expression is true. The expression, as we mentioned, is incomplete. It means that we cannot say that it refers to an object. We can say this only: it is an expression which would refer to an object if there is just one object with features *F* and *G*. If α(x) is valid with reference to the object, this expression would be true, otherwise it would be false. But if there is not just one object, the entire expression talking on object α(x) will be false regardless what we specifically substitute for α(x).

Note that if we want to talk about non–existing object by means of its proper name, it would not be possible. We cannot point at it, because it does not exist, and therefore we cannot use an expression like "this", etc. But we cannot even use the proper name in a typical meaning, which substitute in the formal language would be an individual invariable, such as "e", because, as said before, in this language it cannot be said for example ¬(∃e), if we want to keep its grammatical rules.

Based on our simple model world, we hope, is well seen some of substantial points of Russell's teaching. We can also see that between these worlds and their descriptions (e.g. world$_1$ and set M$_1$) are like a perfect "equivalence" of a certain type we called isomorphism. The language of symbolic logics describes (represents) this world in a perfect way. So, as every single world like this consists of subjects, features and relations, and possibilities how these basic entities are "connected", also the symbolic language consists of the subject names, feature names and relations and possibilities how to connect the names into the statements. The formal language consists of certain logical atoms. This fact corresponds to the picture of the world made from some analogical atoms.

Recommended Literature

MILLER, A.: *Philosophy of Language*. London : Routledge, 2007, pp. 23 — 89.
MORRIS, M.: *An Introduction to the Philosophy of Language*. New York : Cambridge University Press, 2007, pp. 49 — 73.
PEREGRIN, J.: *Kapitoly z analytické filosofie*. Praha : Filosofia, 2005, pp. 69 — 93.

9. Russell and Frege: Russell's Paradox and Type Theory

Keywords: *self reference, paradox statement, paradox of a liar, Russell's paradox, set theory, type theory*

9.1 Russell's Paradox

Russell is along with N. A. Whitehead also an author of the significant masterpiece *Principia Mathematica* (Russell — Whitehead, 1910–1913), in which they used modern symbolic logics in order to establish mathematics systematically, formally, and symbolically. In the piece of work they strived to avoid a problem discovered by Russell in Frege's system, and which is commonly called *Russell's paradox*.

We can outline the paradox in its modern version, because the version is simpler and more elegant, than its version in Frege's system. A reader interested in the exact form of the Frege's paradox can take a look at Kolman's monograph on Frege (Kolman, 2002, p. 229 — 234).

Let's define set *m* as *the set which all sets that are not elements of themselves belong in*. Mathematically, we can define the set as $m = \{x \,½\, x \not\subset x\}$. The problem lies in the fact that if set *m* is defined this way, the statement

$$m \in m$$

becomes a paradox. The statement means that 1) if we presume that it is true, we can prove that it is false; and 2) if we assume that it is false, we can prove that it is true. Therefore we say it is a paradox.

Let's show why. First of all, let's presume that the statement is true, i.e. $m \in m$ is valid. The statement says that *m* is an element of *m*, i.e. *m* belongs to the set *m*. However, with each set belonging to the set *m*, it is valid that it is not an element of itself. So, it is valid with the set *m*. The fact we could write down as

$$m \notin m$$

is contrary to our presumption $m \in m$.

Nevertheless, if we presume that our presumption is not valid it means that the set *m* is not an element of itself. However, each set that is not an element of itself, belongs by definition of the set *m* to the set. So, even the set *m* should belong to the set. It means though that $m \in m$ *is valid*, which is contrary to our presumption that $m \in m$ *is not valid*. So, again we come to a dispute. So, regardless of whether we presume that statement $m \in m$ is true or not, it always raises a dispute. This statement is really a paradox.

In Frege's system, there is a mistake of the same type. It was just Russell who drew Frege's attention. Frege tried to dispose of the mistake, but didn't manage to come to solution satisfying him. But as Peregrin says (Peregrin, 2005, s. 64), in principle the mistake is not non–removable when creating the type of system built by Frege, and its presence in Frege's system does not deteriorate all Frege's theoretical results.

As Russell and Whitehead were aware of the paradox, they strived to avoid it in their own system. Russell considered the source of the problem certain characteristics present also in the following paradox statement:

This statement is false

It is a paradox statement, similar to the above mentioned statement „m ∈ m".

If we presume that it is true then what it says should be true. But what it says is that it is false, so it should be false. But if we, by contrast, presume that it is false, than what it says is not true. Subsequently, it is not true that it is false which means it is true.

We can see that similarly as statement "m ∈ m", statement "This statement is false" is paradox. Both statements have, beside paradoxicality, also something else in common; they contain *self reference*. By self reference of a statement we mean that the statement refers to itself; or "it says about itself".

Russell's paradox begins when a notion can belong or not to itself, i.e. if *it is allowed to assign or deny the notion to itself in the symbolic language*. Similarly, with functions, the analogous problem would emerge if *a function could have itself as an argument*, i.e. if *one of elements of its domain of definition could be itself*. In case of sets the problem would emerge when in the system it would be allowed to construct a statement stating that *a specific set belongs, or does not belong to itself*.

9.2 Type Theory

Just this was a problem according to Russell and in his work *Mathematical logics based on type theory* (Russell, 1908) he proposed his solution of the problem. He and Whitehead elaborated on that in detail in the introduction to work *Principia Mathematica*,.

Russell wanted to prevent the situation that a statement could state about itself by means of so–called *type theory*. He proposed to distinguish between statements of various orders. If a statement states about other statements, the statements have to be the statements of the lower order than the statement itself. We can imagine that *statements of order 0* are *statements that can state about anything, except for statements. Statements of order 0* can never state about themselves. If we want to state anything, we have to do it by means of *statement of order 1* that are *statements about statements of order 0*. If we want to state about *statements of order 1*, we have to continue with one order higher, and our statement has to be comprehended as the statement of the higher order, *statement of order 2*. This way it arises a certain hierarchy of statements which provides for that any statement would state about itself. This way a creation of the abovementioned paradox is avoided.

An analogical hierarchy can by created for functions. In predicate logics the hierarchy could have the following form: Let *the functions of the first order* be the *functions which argument could only be individuals, but never any functions*. Let *the functions of the second order* be *the functions which arguments can only be the functions of the first order* etc. In case of this hierarchy of functions there cannot be a function that is an element of its own domain of definition. There cannot be a notion that could be stated about itself (i.e. attribute it to itself, or deny to itself).

As one of versions of the abovementioned paradox concerns sets, modern attempts on axiomatization of the set theory had to figure out the problem. We can see that Frege's and Russell's theoretical work also touched mathematics except for philosophy and logics. As it was led by the requirement of exactness and accuracy

(which they mainly tried to ensure by the formalization of the problems they dealt with), it brought permanent and firm results, which either stayed in a form until now or, in case of errors, were rectifiable many times. In any case, it was possible to build on their work not only in philosophy, but also in the fields like logics or mathematics.

Recommended literature

KOLMAN, V.: *Logika Gottloba Frega*. Praha : Filosofia, 2002, pp. 209 — 234.
PEREGRIN, J.: *Kapitoly z analytické filosofie*. Praha : Filosofia, 2005, pp. 32 — 93.
PRIEST, G.: Logika. Praha : Dokořán, 2007, pp. 45 — 52.
SVOBODA, V. — PEREGRIN, J.: *Od jazyka k logice. Filozofický úvod do moderní logiky*. Praha : Academia, 2009, pp. 315 — 370.

10. Logical Positivism

Keywords: *logical positivism, pseudo–problem, state–description, meaningfulness*

10.1 Verifiability Criterion

The movement, usually called logical positivism or logical empiricism, was inspired, apart from older empiricists and positivists, mainly by Russell and Frege. Several prominent philosophers who can be included in this philosophical movement, established in 1920 the so–called *Vienna circle*. Rudolf Carnap, Otto Neurath, Moritz Schlick, Kurt Gödel, Alfred J. Ayer, Hans Hahn, Karl Menger and others were its members. Also for example Ludwig Wittgenstein, whose *Tractatus logico–philosophicus* was revered by the members and used to read from it for a certain period, was in contact with them.

One of the most important philosopher of this movement, Rudolf Carnap (1891 — 1970), ventured even further, than Russell, in his stands concerning the critique of traditional philosophy. In his opinion, we can divide all traditional philosophical questions into two types: 1) to those, that can be in principle solved by science (so they could be assumed by science, as soon as it will dispose of resources for their solution) and 2) to those, which in reality are no problems at all. We can call problems that fall under this category, *pseudo–problems*.

But how can we tell pseudo–problems from real problems? We can reformulate this question like this: how will we distinguish, which questions are meaningful and which are not? For this reason, the criterion of meaningfulness of statements became important for logical empiricists. That is, certain statements as possible answers correspond to questions. If it is not possible fundamentally determine the truth–value of possible answers to given question, it means, that it is not possible to answer such question.

The so–called *verifiability criterion* of meaningfulness of statements is characteristic for logical positivists. It can be expressed like this: *the sense of statement is the method of its verification.* Because verification is in fact the determination of truth–value of the statement, then the sense of statement is in fact the method, how to determine its truth–value. That meant that if there is no way how (at least in principle) to determine the truth–value of some statement, this statement has no sense.

According to positivists, science is concerned with whether is given statement true. Philosophy is concerned, whether it is meaningful at all, i.e. if its truthfulness can be determined (at least in principle) at all. It analyses language and statements in it to find out, if they have absolutely any sense. Only after this analysis can science proceed to studying whether is given statement true or false. This is then vicariously applied to whole theories, for they are actually sets of statements.

This is also related to how logical positivists understood the nature of cognition. The basic idea of their approach can again be represented with our simple model $world_1$. Logical positivists imagined that the foundation of our cognition are sentences, which capture our observations or experience. Because they were

empiricists, they did not want to admit any other source of our cognition and our science than empirical experience. Of course, they acknowledged also the status of mathematics and logic, but we will get later to this point.

The notion of logical positivists about the cognition was such, that on the basis of sentences, capturing our observations, we are creating more general sentences, hypotheses and theories, which become part of science. It would be ideal if we could derive our theories from our observations. Then all our scientific knowledge would be based on such foundation, which is the least dubious from all possible foundations, in the following sense. The fact that something like sensory perception and sensory experience exists, is much less dubious than the fact that there is, for example, some purely rational cognition or perception of some realm of ideas etc. The majority of non–empiricists too acknowledge that senses really exist and provide some (although maybe imperfect) knowledge.

First, let us then imagine some very idealized model of our cognition, based on the above described $world_1$. Let us notice, that following sentences about this model world are true:

$$(\forall x)(F(x) \rightarrow G(x))$$
$$(\exists x)F(x)$$
$$(\exists x)G(x)$$
$$(\exists x)H(x)$$
$$\neg(\exists x)(F(x) \wedge H(x))$$
$$\neg(\exists x)(G(x) \wedge H(x))$$
$$\neg(\exists x)(F(x) \wedge G(x) \wedge H(x))$$
$$(\forall x, y)((F(x) \wedge F(y)) \leftrightarrow (G(x) \wedge G(y)))$$
$$(\forall x, y)((F(x) \wedge F(y)) \rightarrow S(x, y))$$
$$(\forall x, y)((G(x) \wedge G(y)) \rightarrow S(x, y))$$
$$(\forall x, y)((H(x) \wedge H(y)) \rightarrow S(x, y))$$

and so on.

We could call statements, such as $(\forall x)(F(x) \rightarrow G(x))$ some sort of "physical laws" of the world$_1$. They are not logical laws, they are not valid on the basis of axioms and rules of our logical system (predicate logic). But they predicate something *general*, so they are some sort of laws after all. They are such laws that are valid for *all* items in the world$_1$, they are not necessarily valid in every world, which can be exhaustingly described with the means of predicate logic. They are not even valid in a specific subset of worlds describable in predicate logic, which is defined by that every world in it consists of four individuals, three properties and two relations.

Of course, in predicate logic the assertion $(\forall x)F(x)$ cannot be derived from the assertion $F(a)$. Neither there is any such rule among rules of predicate logic:

$$\frac{F(a_1) \wedge F(a_2) \wedge \ldots F(a_n)}{(\forall x)F(x)}$$

However, if we knew that *all* individuals have the property *F*, we could deservedly derive the assertion $(\forall x)F(x)$ from the assertion $F(a_1) \wedge F(a_2) \wedge \ldots F(a_n)$ (of course, if $a_1, a_2, \ldots a_n$ are all individuals in that world). It would be true also vice versa, which could be written, for example, as follows:

$$((a_1, a_2, \ldots a_n \text{ are all individuals of universe}) \wedge F(a_1) \wedge F(a_2) \wedge \ldots F(a_n)) \leftrightarrow (\forall x)F(x)$$

Under the condition that we knew the truth–value of all atomic statements about that world, we could execute a programme, in which we would derive all other possible assertions (of course, to derive all true assertions, we would need an infinite amount of time, because the number of statements, that can be derived in propositional and predicate logic from even finite set of certain other statements, is infinite) from these atomic assertions or their negations (in cases when is the given atomic assertion false). And this is exactly in essence the idea of logical positivists.

10.2 State Description

> Carnap introduced in his work *Meaning and Necessity* the term *state–description. "A* ***state description*** *in a semantical system denoted S_1, is a class of sentences in S_1 which contains for every atomic sentence either the sentence or its negation but not both. Such a sentence is called a state description, because it gives a complete description of a possible state of the universe of individuals with respect to all the properties and relations expressed by the predicates of the system. It thus represents one of Leibniz's possible worlds or Wittgenstein's possible states of affairs."* (Carnap, 2005, p. 26).

According to this definition, our set M_1 is in fact a *state–description*. But it would be good to perceive what we called world$_1$ from a new perspective. World$_1$ is in fact just one of big number of possible distribution of three properties and two relations over four individuals. If we now perceive these four individuals as certain *universe of individuals* (set of individuals), we can understand the world$_1$ as one of its possible states, which may or may not occur in our universe.

Naturally, each such world (which can now assume different states) is defined not only by the number of individuals but also by the number of properties and numbers and sort (by sort, we have in mind the "arity" of respective predicate, i.e. how many arguments it has) of relations in it. So what we are going to call world from our new perspective, could be defined like this:

$SV = \{a, b, c, d, F^1, G^1, H^1, R^2, S^2\}$

Therefore the world for us will be the set of individuals and predicates (the superscript expresses the "arity" of respective predicate).

The set M_1 is one possible *state–description* of the world W. The $world_1$ is one possible *state* of the world W. Let us notice though, that we can derive from M_1 all possible statements, true for the state $world_1$, as long as we know that M_1 really contains all atomic statements (or their negations). The state–description contains all information about given state of the world. We can derive from it the truth–value of any statement, which is meaningful for the world W.

So we came to the term of meaningfulness. What does this term mean within our very idealized model for description of relation between the language and the world and also for the description of cognition? The list of meaningful statements "for the world W" is determined by two things: grammar rules of formal language, which we use to describe the world W, and the world itself, i.e. the set W. So it has to be said that meaningfulness is determined with respect to the pair of things: 1) certain language and 2) certain world. On the basis of this fact we can derive, that for example sentences

$$F(a)$$
$$G(a)$$
$$R(b, c)$$
$$\neg(\exists x)G(x)$$
$$(\exists x)H(x)$$
$$(\exists x)(F(x) \wedge H(x))$$
$$(\forall x)(F(x) \rightarrow G(x))$$

are meaningful statement with respect to the world W and the language of predicate logic. We can equally determine also that following sentences are not meaningful statements with respect to the world W and the language of predicate logic (with respect to both at once):

$$F(e)$$
$$T(a, b, c)$$
$$\neg(\exists x)$$
$$(\forall x)(F(x)G(x))$$
$$E(g)$$
$$\{\{a\ F(a$$
$$(\forall x, y)((A(x) \wedge B(y)) \rightarrow C(x, y))$$

Sentences "$\neg(\exists x)$", "$(\forall x)(F(x)G(x))$" and "{{a F(a" were not meaningful with respect to the world W, because they were not grammatically correctly created expressions of predicate logic (formulas of the language of predicate logic). The remaining expressions contained names of objects not existing in the world W ($\forall F(e)$", "E(g)"), or names of properties that are not possible in W ($\forall E(g)$", "("x, y) ((A(x) ∧ B(y)) → C(x, y))"), or names of relations that are not possible in W ($\forall T(a, b, c)$", "("x, y)((A(x) ∧ B(y)) → C(x, y))").

Let us notice that all sentences, which were meaningless with respect to the pair (predicate logic, world W) are sentences, whose truth–value cannot be determined. They are sequences of symbols, for which the way to determine their truth–value with respect to the pair (predicate logic, world W) is not possible. On the other hand, it is possible for all meaningful statements.

10.3 Meaningfulness

Let us now understand by *meaningfulness*, with respect to certain pair of some language and some world, the property, that there is an unambiguous way to define the truth–value of this statement, if we know that language, that world and state–description of that world; by *meaninglessness* of certain statement we understand the property that the truth–value of that statement cannot

be determined even with full description of that language, world and state–description. This property is, so to say, "fundamental". By this we have in mind that certain statement could be meaningful with respect to the pair (predicate logic, W) also if we did not know full state–description of that world, i.e. if we did not know such basic set of information, from which everything about this world could be derived. In other words, even if we did not know everything about the state of that world. Also under these circumstances it could be true that *if* we knew the state–description of this world, *then* we could unambiguously define the truth–value of that statement.

Let us notice, that in our simple idealized model of the relation between language and world, we were forced to include some language as well into our description. We had to describe meaningfulness as a property no only with respect to certain world, but with respect to world + certain language. If we were talking only about meaningfulness with respect to some world, someone could rightfully object: "But what if the expression "{{a F(a" has meaning in some language, whereas this statement has truth–value, if we take is as a description of something in the world W?" We would have to answer: "Yet it predicate logic, it has no meaning". However, by saying this we would actually admit that the meaningfulness is relative not only to the world, but also to the language.

Hence language too is important for the cognition of the world, not only how the things are in terms of experience. Language as a construct we use to grasp the world is therefore some kind of second substantial element of cognition. Let us recall Russell in this connection, according to which we use not only our experience, but also logic in our cognition. We can draw an analogy with our simple model of relation between language and world and say: in cognition, we need to find out not only what things exists and what properties they have and what relations between them they have, but we need to find out also some kind of language (which will have to apparently include some logic).

This brings us to the importance of non–empirical disciplines, such as logic and mathematics. We are finding out that thing we can perceive on one hand purely as constructs (languages, mathematical and logical systems), are at the same time necessary for cognition of the world (for empirical cognition). Of course, it can be objected, that other animals do not have any language, or at least language of the time, as have we, humans, but still are discovery (they discover, for example, their surroundings). We can therefore say at least that languages or symbolic system are necessary for scientific *cognition* of the world. So that even an empiricists has good reason to acknowledge mathematics and logic, if he thinks that scientific cognition of the world is possible and valuable.

Because our cognition is relative also to language, it seem that we can create many languages, many systems, which could serve us to describe the world. Carnap admits that we can choose the language and even the logic we can use to describe the world. In this sense his attitude appears to be an attitude of a relativist. On the other hand, he is of course an empiricists too.

Let us notice, that if we chose a language, the truth of statements in it will be determined not only by this language, but also by the world. Thus the relativeness of our description of the world with respect to the languages does by no means mean that this description would be determined by the world itself. If we take a good look on how thing are in our model example, we will find out, that although our description of the world depended on the chosen language, the world itself did not depend on it at all. However, can we ask the following questions: is any language suitable for description of a certain world? What if that language is not complex and rich enough? And if we can use multiple languages to describe

certain world, are they not in fact same or unambiguously convertible from one to another?

Recommended Literature

CARNAP, R.: *Význam a nevyhnutnosť*. Bratislava : Kalligram, 2005.

FIALA, J. (ed.): *Analytická filosofie. První čítanka I.* Plzeň : Fakulta humanitních studií, Západočeská univerzita, 1999, s. XIX — LI, 14 — 58.

MILLER, A.: *Philosophy of Language*. London : Routledge, 2007, pp. 90 — 125.

PEREGRIN, J.: *Kapitoly z analytické filosofie*. Praha: Filosofia, 2005, pp. 95 — 122.

11. Theory of Speech Acts

Keywords: *philosophy of ordinary language, speech act, status function, symbolization*

11.1 Ordinary Language Philosophy

Richard Rorty divided the philosophers of the linguistic turn into two big groups, according to what conclusions they drew from the discovery that the structure of the world and the structure of the language do not correspond. He called the way of philosophising of the first group **the ideal language philosophy**. It meant, in respect to language, that language must be improved, repaired, or a new language of science must be created. In this group we can put B. Russell, R. Carnap or earl Wittgenstein, the logical positivists movement. The centres of this approach were mainly Cambridge and Vienna of the first half of 20th century.

He called the way of philosophising of the second group **the ordinary language philosophy**.

This group emphasized that it is necessary to understand the functioning of the ordinary language. Late Wittgenstein, G. Ryle, J. L. Austin, P. Grice, J. R. Searle can be considered as their representatives and its centre was Oxford.

Gilbert Ryle (1900 — 1976) wrote in 1932 an article "Systematically misleading expressions", in which he analyses, similar to logical positivists, the relation between language and reality and points out to situation, when the language is misleading us. Unlike logical positivists, he sees no reason why should we change language because of that. To analyse it is enough.

Let us show an example of a misleading expression:

There are no flying dogs.

Ryle calls this type of misleading expression quasi–ontological. In his opinion, we say nothing about flying dogs in this way. To better understand the state of thing, we can express the same sentence in another form, which is more suitable to this state:

Nothing is a dog and a flying being at the same time.

In this case, his analysis practically does not differ from Russell's in this case. Ryle became know through application of his approach to human mind. Frege and his followers avoided it. Ryle thinks, that talking about human mind is also misleading, in his opinion it is a category mistake. The relation between mind and body is, in his opinion, similar to the relation between university and its buildings. Let us imagine that someone comes to Oxford and wants to see the university. He will be shown all departments, libraries, dormitories and laboratories. He sees all that with interest but in the end he asks: Good, but where is the university?

11.2 Importance of Social Context for Meaning

Probably the most known manifestation and result of the ordinary language philosophy became the theory of speech acts by John L. Austin (1911 — 1960). He focused in it not on the study of language as a tool of expression and preservation of (mainly scientific) knowledge, but on the study of its actual use. He paid attention to language not as an abstract system, but rather as specific ways how we use the language, in which contexts, situations, because without that, in his opinion, we cannot understand the meaning. Peter F. Strawson pointed out to the importance of context already before him. Austin considered as important to classify the speech acts. If entomologists take pains with the categorization of bugs, philosophers should, in his opinion, resolve to categorize the speech acts.

We can see utterances from various viewpoints. Each means emphasis on another aspect of the utterance. Utterance as a **phonetic act** means that by uttering the sentence we make certain sounds. We can analyse and record these sounds, study their physical properties. When we speak about the **phatic act**, we emphasize that the uttered sounds have the form of words and sentences of certain language, in which they mean something. Today, we can create programmes that recognize in the sound the words of a language. Finally, with the **rhetic act** we emphasise that we are stating something.

More famous is Austin's classification of rhetic speech acts. **A perlocutionary speech act** means the utterance of a meaningful sentence, with which we are saying something. By reserving a **illocutionary speech act**, we emphasise the way how we utter the sentence with the same content. The same idea can be used in speech as a question, order, reply, information, decision, description, judgement, critique, challenge, provision... In language, the necessary context is sometimes substituted with punctuation marks, which attach at least the most common contexts to the idea. Let us show these simple examples:

Did they convict him?
They convicted him.
Convict him!
The court convicts you...

To express other illocutionary acts, it would be necessary to express the context in more detail. In a specific situation, the context is usually obvious to those present.

Finally, under **perlocutionary speech act**, Austin has in mind such speech act, through which something is done, for example, we persuade someone, we convict someone, we oblige someone, etc. It can be successful or unsuccessful, according to what the act was aiming at succeeds or not.

Austin's thoughts on speech acts were further developed by the American philosopher John Rogers Searle (born on 1932). Searle has a broad scope in the philosophy, he contributed significantly to the philosophy of language, philosophy of mind and social philosophy. He became known with his "Chinese room" argument, focused against "strong" version of artificial intelligence. He proceeds from the assumption that we live in one world and that within the boundaries given by our evolutionary equipment, this world is comprehensible to us even though the sceptical approach in modern philosophy is still quite popular.

Searle tried to explain with methods of analytical philosophy the relations between mental states, language and social reality. We can notice a difference with respect to Frege's approach. With respect to his motives, Frege strictly separated mental states (thinking) from language and he was absolutely not interested in the social reality represented by institutions.

Let us go back to Searle and his more complex view on language. As philosopher, he was not interested in specific questions, but questions of the whole, which he calls frame questions. According to Searle, many social realities (money, property, government, courts, university, marriage) exist only thanks to our conviction that they exist. He asks: What maintains the institutions?

In his opinion, we are creating and maintaining the institutional reality through collective assignment of status functions, their long–term acknowledgement and acceptance. If the society ceases to acknowledge the status functions, the respective institutions will collapse, cease to exist. The **status function** has the following form: *X counts as Y in context C.* Let us have an example:

This piece of paper counts as a 10 Euro bill in the Slovak Republic (and everywhere money are used).

Simply said: human social reality is constituted by what people think and what they has has, on the other hand, origin in how they talk with each other and how the interact. Therefore language, according to Searle, plays extremely important role in creating human social reality.

Searle notices another important social role of the language, which he calls **symbolization**. As humans, we have the ability to use one thing for substitution, representation or symbolising another thing. The symbolising property of language is an important condition of institutional facts. Knife's ability to perform the function of a knife proceeds from its physical properties but human cannot hold the office of a president just on the basis of physical properties. Behind this lies the collective recognition of a status function represented with words: "This gentleman is president". To recognize an object as an object with status function serve the **indicators of status** (a ring, a badge, an identity card...) In Searle's opinion, they are of language nature, the symbolize even though they do not need to use words for that.

Ordinary language philosophy disrupted with its approach the traditional division into semantics and pragmatics of language. Semantics should have studied relations between language expressions and the relation between signifier — signified, pragmatics again studied relations between language expressions and those using or interpreting them. However, to understand the meaning of the sentence, it is often neces-

sary to include something from the context and the context is not considered a factor of semantics factor (apart from the case of context of other sentences in the text), but mostly of pragmatics (for example, the role of language in creation and maintaining institutions). So while the ordinary language philosophy contributed significantly to understanding the role of the language wherever the interpersonal relations are important, the ideal language philosophy made possible the development logic, mathematicisation of science, computer science and artificial intelligence.

Recommended Literature

AUSTIN, J. L.: *Ako niečo robiť slovami*. Bratislava : Kalligram, 2004.

MARVAN, T.: *Otázka významu. Cesty analytické filosofie jazyka*. Praha : Togga, 2010, pp. 165 — 180.

MORRIS, M.: *An Introduction to the Philosophy of Language*. New York : Cambridge University Press, 2007, pp. 231 — 270.

PEREGRIN, J.: *Kapitoly z analytické filosofie*. Praha : Filosofia, 2005, pp. 167 — 180.

SEARLE, J. R.: *Myseľ, jazyk, spoločnosť*. Bratislava : Kalligram, 2007.

12. Willard van Orman Quine

Keywords: *analyticity, syntheticity, empiricism, meaning, pragmatism, naturalisation of epistemology*

12.1 Analytic and Synthetic

The American philosopher Willard van Orman Quine (1908 — 2000) can also be placed among the most important philosophers of the philosophy of language. Despite that he was an empiricist (like logical positivists), he took a critical stand towards the traditional empiricism. In his paper *Two Dogmas of Empiricism* he called two of the central aspects of traditional empiricism dogmas and tried to disprove them. As the first dogma he called the conviction that statements can be divided into *analytic* and *synthetic*. The notion that statements can be divided like that, was traditionally accepted as accurate, however, according to Quine it is not valid, because the line between analytic and synthetic statements cannot be clearly defined. The second dogma of empiricism is, according to him, *“”**reductionism**: the belief that each meaningful statement is equivalent to some logical construct upon terms which refer to immediate experience”* (Quine, 2005, p. 36).

The distinction between analytic and synthetic statements is part of the philosophical tradition since the times of Immanuel Kant. In the mentioned paper, Quine analyses in his opinion the most important proposals for division of statements into these two categories. Because in the analysis of each of these proposals he comes to that it is not functional, he concludes that statements cannot be divided in the mentioned way.

To explain Quine's thinking, we will have a closer look on first two parts of his paper *Two Dogmas of Empiricism*. We will just mention other proposals for defining analyticity, which Quine analyses. We would like to recommend to the reader, interested also in the analysis of these remaining proposals, to immerse directly in the Quine's text. There he will find also a more elegant description of what follows; we hope, however, that our analysis will aid the reader in understanding the part of Quine's text, to which we are now going to pay closer attention.

Kant defined analytic statement as a statement that does not assign to the subject anything more than what the subject already conceptually contains. Quine does not find this way of defining analyticity satisfying, because 1) it can be applied only to statements that have *subject–predicate form* and also because 2) the term *containing* is not precisely defined, so it is not clear, what it actually means. So to be able to study the issue of analyticity, he reformulated Kant's definition of analyticity as follows: "a statement is analytic when it is true by virtue of meanings and independently of fact" (Quine, 2005, p. 37). Now we see that this division is present in logical positivism too, which we described above. We talked there about that the study of meaning and potential determination of truth and falsehood of those statements, whose truth depends only on axioms and rules of inference of given system, belongs to philosophy.

Certain statements indeed seem to be true on the basis of meanings: logic and mathematics contain statements that are true regardless to empirical facts. Or at least it seems as first glance, because when describing logical and mathematical systems, we use

the terms *true* and *false* as well. So it appears that philosophy too could reveal truths, but only those, which are valid regardless the empirical situation, because the study of world is surely a necessary prerequisite for discovery of empirical truths. Then even the metaphysics may be possible, unless we would say that statements that are true on the basis of logical relations, in fact say nothing and have no content. Of course, this does not have to mean that they are useless, they can in fact be necessary so that others, not necessarily true statements, could even create some system of logically connected statements.

Because logical positivists did not revere metaphysics, they could have always said that statements, whose truth cannot be determined (not even in principle), have no sense; and the could have said about statements, which are necessarily true, that they are true only in such sense that they are derivable from the axioms of system, through the defined rules of system, what still does not imply that we are acquiring some knowledge through pure reason or by examining some realm of non–empirical truths. Even in case we consider Gödel's incompleteness theorems, we can say that the expressions "true" and "false" have other meaning, if we use them purely in description of symbolic language (which we take as a construct), than if we use them in making statements about the world. We can say that a true statement is such, with the help of which, assuming it is true, we can never derive, with the help of other true statement and system's rules of inference, any statement, which would not be true. However, according to Quine, it is not possible to distinguish between analytic and synthetic statements, therefore the boundary between science and metaphysics collapses. Statements cannot be in fact divided into meaningful and meaningless in absolute sense, because the statements that would not make any sense in one system of statements, could make sense in some other system. We will see that according to Quine, it is possible to modify the system in order to maintain the truth of some statement (and therefore also its meaningfulness) in various ways and thus it is

possible, in principle, to save the truth and meaningfulness of any expression. This, however, does not mean, that it will really happen with every statement, for in fact we dispose of various willingness to give up statements. We can cling to some statements so much, that they seem analytic.

12.2 Analyticity and Meaning

Quine is in *Two Dogmas of Empiricism* concerned mainly with the issue of *meaning*. He reminds Frege's distinction between the meaning (sense in Frege's terminology) and denotation (reference for Frege). This distinction can be applied not only to singular expressions, but to predicates as well, because also in their case it can be distinguished between extension and intension. The extension of expression is the set of objects for which is the given statement true. For example, the expression "x is human" is true for all humans. Its extension is thus the set of all humans. Therefore, the extension of general expression is analogous to the denotation of singular expression. The intension of general statement is its meaning. It is obvious that two predicates can differ in meaning, yet they can have the same extension.

Meanings are thus different from objects of the world, for the objects of the world are either denotations of expression or elements of their extensions. So it could seem that meaning is an entity of completely different type than entities creating the physical world. But Quine does not like the concept that meanings should be some entities creating some kind of other, non–physical realm of meanings. How to grasp meanings, grasping of which seems to be an inevitable condition for grasping the analyticity?

Quine proposes to solve the whole problem of meaning at the level of language. Let us not grasp meanings as objects, but reformulate talking about meanings to talking about language formations.

We define the term of *meaning* only through terms of *synonymy* and *analyticity* as follows: let us assume that some two expressions have the same *meaning* only when they are *synonymous*; we then define analyticity with the help of the term synonymy and some other terms, which should be clearly defined as follows: let analytic statements be such statements that are one of the two following types:

1) logical truths (such as the sentence "No unmarried man is married", that are true due to their structure and due to the fact that we understand certain expressions as logical constants, which have firmly defined properties determining the dependence of their truth–value on truth–values of their components.

2) statements we can make from analytic statements of the first time in such way, that we substitute some expression with its synonym (such as in the sentence "No bachelor is married", in which we substituted the term "unmarried man" with its synonym "bachelor").

But if we want to clearly define the analyticity, we should clearly define the term of synonymy, to which we are now trying to reduce the term of meaning. In this context, Quine is responding to the views of R. Carnap, who was his teacher. Carnap actually defined analytic statements as such that are true in all *state–descriptions*. In case of our world W, we could then show as examples of analytic statements these:

$$(\forall x)(F(x) \vee \neg F(x))$$
$$(\exists x)(G(x) \rightarrow G(x))$$
$$(\forall x)((F(x) \wedge (F(x) \rightarrow G(x))) \rightarrow G(x))$$

and so on.

These statements are true in every possible state–description, not only in M_1. However, let us remark that our world W, because it is defined as a world with four individuals, three properties and two binary relations, it not the only possible world describable in predicate logic. It is also true that all statements, which are always true in predicate logic, will be true also in any possible world that could be defined in the way as we define the world W, i.e. by stating all individuals and predicates and their arity.

This definition of analyticity is good, however it does not suit all languages. In the case of synonymous expressions, there are predicates, which are not mutually independent. But if the own set of some atomic statements should correspond to every predicate, several atomic statements would not be mutually independent. This would lead to the following issue.

Let us imagine we have predicates "x is an unmarried man" and "x is a bachelor". If we assume that these predicates are mutually independent, then there has to be a state–description, in which the statement "Peter is an unmarried man" is true and the statement "Peter is a bachelor", is false. Then the statements "unmarried man" and "bachelor" should not be synonyms, though.

But if we want to assume that these expressions are synonyms, given predicates should not be independent. Then these sentences, however, should not be both atomic sentences, because in case of atomic sentences it is assumed that they are mutually independent. Yet both sentences, in case we would like to record them formally and mark individual expression in a different way, for example like this:

x is an unmarried man	U(x)
x is a bachelor	B(x)
Peter	a

should look like this:

Peter is an unmarried man	U(a)
Peter is a bachelor	B(a)

These sentences, however, look like atomic sentences. As long as we are recording both predicates in the above mentioned way, there is no dependency between the transcribed sentences in terms of predicate logic itself. Nevertheless, we consider these expressions as synonymous (we can take this as the assumption of our consideration), therefore there should be some dependency between them.

So the mentioned Carnap's definition of analyticity is suitable only for the language, in which are atomic sentences mutually independent and in which different sentences with identical meaning are not transcribed as different atomic sentences. Yet in a language where synonymy exists, some atomic expressions would have to be either mutually dependent or the synonymous sentences would have to be formally transcribed with only one expression, so that only one atomic statement corresponds to synonymous sentences. But such language would not represent synonymy by itself. Nevertheless, then we could not model and clearly grasp the term of synonymy through it, so our main problem would not get solved. The problem is in fact the very analytic sentences of second type, which are based on synonymy. To define analyticity of these sentences, it is therefore necessary to define the term synonymy. Languages that do not model synonymy, will not actually help us.

12.3 Analyticity and Definition

Quine examines also another possibility, how to define analyticity: let us try to reduce analytic statements of second type to analytic statements of first type with *definition*; let us try to understand synonym in such way, that it is created through definition. This

method is, according to Quine, unproblematic only if the definition is actually a full introduction of synonymy. If we simply introduce a new term into the language or if we simple establish that certain expression will be synonymous with some other, everything is all right. This is happening also in artificial languages, where we can, for example, introduce certain expression as an abbreviation for another expression.

However, synonymy in natural languages has other sources too, it cannot be fully reconstructed as a definition in such sense, in which is this term used in artificial languages. It is, for example, possible to understand the definition as *explication* as well. In this case too, the expressions are synonymous, but their synonymy is not purely a creation of who defines one of these expressions with the second one. Synonymy, created as a result of explication, is already based on certain previous synonymy, that existed in the language already before the explication and which was therefore not created by this explication. Let as take as an example the definition "Human is a social animal". The *definiendum* "human" becomes, thanks to this definition, the synonym of the expression "social animal", which is the *definiens* of this definiendum. However, we did not introduce some completely new connection between this definiendum and definiens, but we only refined the meaning of definiendum, i.e. the meaning of the expression "human". But this expression has even before had some partially unclear meaning, which overlapped in part with the meaning it acquired through explication. So there was some synonymy already before explication. Therefore in this case, synonymy cannot be explained in full with explication.

There is also a synonymy, existing in natural languages, but which is not created neither through definition in the sense, in which this term is used in artificial languages, nor is it shaped through explication. An empirical researcher of given language can notice this synonymy e.g. in a monolingual dictionary. Nevertheless, this does not explain what this synonymy really is.

A lexicographer only records, between which expressions of the language exists synonymy, but he does not specify criteria, by which we could define it. So he does not even provide us with criteria to be subsequently able to define analyticity, which could emerge through this synonymy.

According to Quine, the reduction of the term synonymy with the term definition is not possible. The sameness of meaning cannot be explained in the way that the expressions are synonymous due to being connected through definition , i.e. due to fact that one of them is a definiendum and the second a definiens in some definition.

12.4 Dogma of Analyticity and Syntheticity: Conclusion

Quine therefore turns to another possible understanding of synonymy: synonymous are expressions that can be mutually interchanged within certain statement without changing the truth conditions of this statement. But not even this solution is satisfactory. Eventually, he turns back to Carnap and comes to the conclusion that the analyticity cannot be defined even with semantic rules, which we can use for the definition of analyticity in individual artificial languages (in which these semantic rules can be different), as Carnap did. On the basis of that none of the previous proposals for distinguishing analytic from synthetic worked, Quine declares the conviction that such distinction exists, as metaphysical part of the faith of empiricists.

So if we do not want our philosophy to contain this dogma, we should give up this distinction, although it looks reasonable at first glance. It seems, after all, that the truth of given statement does not depend only on the way things are in the world, but also on the meaning individual expressions, comprising a sentence, have; so it

seems that sentences have some *factual* and some *language* component. Some statements will then, it seems, should have zero factual component, such as statements of logic or mathematics. They should be true purely on the basis of axioms of logic or mathematics and on the basis of their rules of inference. These should be analytic statement — however, we failed to define them in a reasonable way.

> Quine therefore claims, that no statement is in reality resistant to revision; no statement is necessarily true. On the other hand, it is theoretically possible to maintain every statement as true, if we make changes somewhere else in our system of statements.

That is to say that Quine understands a certain system of statements as a network, whose connections are created by logical relations between statements. We can illuminate this network metaphor with the following example. We are studying some physical phenomenon, but our measurements lead to sentences that are inconsistent; there is no way to describe in theory we have at the moment, what we are observing without producing a contradiction. Should we give up this theory or, e.g. the logical principle of contradiction? It seems to be easier to give up that theory, because it would be more difficult to create some other logic, in which we could retell our whole other knowledge and at the same time to describe this new studied phenomenon as well. But in principle, we could give some logical principles up too and recreate other parts of that network, which would contain statements we believe in. Then we could keep the original theory and sentences, in which we have expressed the results of our experiments; and these sentences would not have to be inconsistent any more, if our new system of logic could not contain the contradiction of the type as in the classic logic. In principle, this possibility seems to be present.

12.5 Dogma of Reductionism

The second dogma is the dogma of *reductionism*. It survives, according to Quine, in the assumption that *"each statement, taken in isolation from its fellows, can admit of confirmation or infirmation at all. My countersuggestion ... is that our statements about the external world face the tribunal of sense experience not individually but only as a corporate body.* (Quine, 2005, p. 61). As we have seen, the verification criterion of meaning, respected by logical positivists, considered the *statement* as the unit of meaningfulness — and it should be decided just about individual statements, whether they are meaningful. But Quine claims that units of meaningfulness should not be statements but some bigger systems or sets consisting of statements. Now it shows, that both dogmas are very closely related, because if it is true, that we can save the truth and also meaningfulness of each statement by chaining the truth or meaningfulness of other statements, then we cannot understand a statement as an unit of meaning, as long as we perceive it by itself. To maintain the truth or meaningfulness of this statement, we would have to change the truth or meaningfulness of other possible statements (other sequences of symbols), whereas at least some of them must contain also those expression, which contained the statement we want to save. This means we are changing its meaning. But if it is possible to do this, it means, that some part of experience or some meaning cannot correspond to some statement (as a sequence of symbols in language), unless we take into account the whole system of statements, whose part is the given statement. But by it the epistemological programme that wanted to show, how it is possible to assemble meaningful sentences from some basic expressions according to certain rules that would refer to some meanings or experience, collapses. No certain expression or certain meaning can, in fact, correspond to any statement, perceived by itself.

We could therefore say that not *statements* have factual and language component, but only big *sets of statements* have factual and language component. The language component can be understood as a language, consisting of vocabulary and grammar and derivation rules and eventually logical axioms. The factual component can be understood as a certain set of statements, to which we are assigning the truth on the basis of experience, i.e. some empirical theory expressed in given language. Statements by themselves, regardless of any theory, thus have no meaning. By theory we understand some pair, consisting of language and a set of statements, formulated in this language — those we consider true, but not purely on the basis of eventual logical axioms or logical rules. Therefore, theory is not only a set of statements, but a set of some sequence of symbols. This set of statements would have no meaning without certain language. But language itself, regardless of whether we consider some of its statements true, also does not tells about any reality. To be able to tell with the help of it something about the reality, we need to assign truth to some of its statements. And this is the creation of theory.

The unit of meaningfulness can therefore be only a theory, something that is created on one hand on the basis of language, and assignment of truth to some statements of this language on the other hand. Therefore Quine says that "the unit of empirical significance is the whole of science." (Quine, 2005, p. 62). If we imagine that all scientific truths are exactly those statements, to which we are assigning truth, and that at the same time we have a language that contains a vocabulary and grammar and derivation rules and in which these scientific rules are expressed, the science will in fact be a theory in the above described way. Let us leave the problem, that assertions of the modern science are not unified in one theory, aside for now.

But not even this distinction into language and factual component is absolute. Why, as a matter of fact, we could not change also the language itself, apart from the truth–value of some assertions, if we want to build the understanding of some new phenomena in the science? Why could we not change the vocabulary or grammar

rules or derivation rules of the language, with which we are scientifically describing these phenomena? Is should be allowed, in principle, if we do not want to artificially thwart the path to better understanding of the reality. Of course, now we have primarily in mind the language created by science in order to understand the reality. But, after all, neither natural languages are resistant to changes to their vocabulary or grammar rules (or derivation rules, to the extent in which such rules can be considered in connection with natural languages at all).

Quine therefore says that "total science is like a field of force whose boundary conditions are experience. A conflict with experience at the periphery occasions readjustments in the interior of the field." (Quine, 2005, p. 63). But what does the term "at the periphery" mean? Is it not again a reference to empirical statements as opposed to analytic ones? Quine, however, explains this term in more detail as well: the statements at the periphery are those, for which it is likely, that we will adjust their truth–value, if we have just certain experience. Let us notice that this is actually as if "*naturalistic*" understanding of syntheticity and analyticity. These properties are now not understood absolutely, but they express only the willingness of us, humans, to adjust the truth of some of our assertions on the basis of some of our experience. This so–called "naturalized" analyticity is in fact only an empirically detectable relation of us, humans, to certain statement: our tendency to not change its truth–value under any circumstances. And as "naturalized" syntheticity we could understand, on the other hand, as such empirically detectable relations of humans to certain statement: the tendency to change the truth–value of this statement, if they have just the specific experience.

So it cannot be said that some statements are in principle synthetic, in principle bound to experience. But then it

should be said that experience is not in principle bound to these statements. That means that it does not fully define its truth–value. Nonetheless, because the truth–value of statements creating our science is related to these only "naturalized" empirical statement, it too is *finally undefined* by experience.

Another consequence of these considerations is that there are no fundamentally necessarily true sentences, there is no area in which *metaphysics as acquisition of a priori valid knowledge* could exists. On the other hand, *metaphysics as the activity of acquisition of thematically defined knowledge* (such as *acquisition of knowledge about God, freedom and immortality*; Kant called the solving of these issues as its final purpose) cannot be separated from science, because its area of study cannot be separated from the area, which is studied by sciences. So our scientific study invaded this area and we can decide about the existence of metaphysical and mythical entities. However, not with the help of finding truth of individual statements about them, taken individually, but with the help of assessment of whole theories, in which these entities are postulated. We can ask: does that system help us, postulating such and such entities, in predicating our experience and in coping with the stream of these sensual experiences, in handling them? Yet together with given theory, also the entities postulated by it collapse (like gods of Olympus, Centaur, ether, phlogiston, etc.) or they acquire gravity, even though we could not see them directly (such as quarks, neutrinos, etc.).

12.6 Pragmatism and Naturalisation of Epistemology

According to Quine, as a result of abandoning these empiricist dogmas, we come to *pragmatism* as well. Not only the introduction of

certain theoretical constructs or their components, but introduction of anything as what we are going to insist on (as if it was analytic), is a thing of *pragmatic* decision depending on which conceptual tools are suitable for reaching the goals, we have set in the science.

This all strikes also the epistemology, which should become *naturalized*, according to Quine. As we have seen, the way how we create our description of the world, our science, is in fact dependent, apart from our experience, also on our willingness to give up rather the former, than the latter assertions. So if we want to find out how our cognition works, we have to study empirical things, such as, for example, this willingness (or lack thereof). We need to study in general, how we are building our description of the world in reality. It is not possible to study the process of our cognition without using empirical research. We need to study real human beings and real cognitive processes, which are running in them. Otherwise we will not recognize the cognition. Because there are no fundamentally analytical judgements, there are also not a priori truths per se. Therefore we cannot rely on some a priori knowledge, not even in epistemology, but we have to use the best *empirical* knowledge we have. And because the best empirical understanding is the understanding of sciences, this understanding should be used. So, for example, in understanding of our science and how it works, we have to use the knowledge of exactly the same science, because 1) we do not have better empirical knowledge and 2) there is no non–empirical knowledge in absolute sense, because there is no fundamental boundary between analytic and synthetic.

Therefore Quine in his next influential article *Epistemology naturalized* (Quine, 2004) proposes such scientific programme for epistemology that will make it part of scientific research of cognition, mainly part of psychology, but also linguistics; it can be said, in general, that it will make it part of cognitive science.

Recommended Literature

MARVAN, T.: *Otázka významu. Cesty analytické filosofie jazyka*. Praha : Togga, 2010, pp. 133 — 163.

MORRIS, M.: *An Introduction to the Philosophy of Language*. New York : Cambridge University Press, 2007, pp. 194 — 230.

PEREGRIN, J.: *Kapitoly z analytické filosofie*. Praha: Filosofia, 2005, pp. 179 — 202.

QUINE, W. V. O.: *Dve dogmy empiricizmu*. In: QUINE, W. V. O.: *Z logického hľadiska*. Bratislava: Kalligram, 2005, pp. 36 — 67.

References

AUSTIN, J. L.: *Ako niečo robiť slovami*. Bratislava : Kalligram, 2004.

BEDNÁRIKOVÁ, M.: *Úvod do kognitívnej lingvistiky*. Trnava : Filozofická fakulta TU, 2013.

BONDY, E.: *Indická filosofie*. Praha : Vokno, 1997.

CARNAP, R.: *Význam a nevyhnutnosť*. Bratislava : Kalligram, 2005.

FIALA, J. (ed.): *Analytická filosofie. První čítanka I*. Plzeň : Fakulta humanitních studií, Západočeská univerzita, 1999.

GAHÉR, F.: *Logika pre každého*. 3. doplnené vydanie. Bratislava : Iris, 2003.

HALE, B. — WRIGHT, C. (eds.): *A Companion to the Philosophy of Language*. Oxford : Blackwell Publishers, 1997.

CHENG, A.: *Dějiny čínského myšlení*. Praha : DharmaGaia, 2006.

KOLMAN, V.: *Logika Gottloba Frega*. Praha : Filosofia, 2002.

MARVAN, T.: *Otázka významu. Cesty analytické filosofie jazyka*. Praha : Togga, 2010.

MARVAN, T. — HVORECKÝ, J. (eds.): *Základní pojmy filosofie jazyka a mysli*. Nymburk : OPS, 2007.

MILLER, A.: *Philosophy of Language*. London : Routledge, 2007.

MORRIS, M.: *An Introduction to the Philosophy of Language*. New York : Cambridge University Press, 2007.

PEREGRIN, J.: *Kapitoly z analytické filosofie*. Praha : Filosofia, 2005.

PRIEST, G.: Logika. Praha : Dokořán, 2007.

QUINE, W. V. O.: Epistemology naturalized. In: QUINE, W. V. O.: *Quintessence. Basic Readings from the Philosophy of W. V. Quine*. London : The Belknap Press of Harvard University Press, 2004, pp. 259 — 274.

QUINE, W. V. O.: Dve dogmy empiricizmu. In: QUINE, W. V. O.: *Z logického hľadiska*. Bratislava : Kalligram, 2005, pp. 36 — 67.

RUSSELL, B.: *The Principles of Mathematics*. Cambridge : Cambridge University Press, 1903.

RUSSELL, B.: On denoting. In: *Mind*. ISSN 0026–4423, Vol. 14, 1905, No. 56, pp. 479 — 493.

RUSSELL, B.: Mathematical logic as based on theory of types. In: *American Journal of Mathematics*. ISSN 0002–9327, 1908, Vol. 30, No. 3, pp. 222 — 262.
RUSSELL, B. — WHITEHEAD, A. N.: *Principia Mathematica I, II, III*. Cambridge : Cambridge University Press, 1910; 1912; 1913.
SEARLE, J. R.: *Myseľ, jazyk, spoločnosť*. Bratislava : Kalligram, 2007.
SVOBODA, V. — PEREGRIN, J.: *Od jazyka k logice. Filozofický úvod do moderní logiky*. Praha : Academia, 2009.
THAGARD, P.: *Úvod do kognitivní vědy. Mysl a myšlení*. Praha : Portál, 2001, pp. 76 — 94.
WOLF, M. P.: Philosophy of Language. In: *Internet Encyclopedia of Philosophy*. [online]. 2009. [cit. 12. 7. 2012]. Available on the internet: <http://www.iep.utm.edu/lang–phi/>. ISSN 2161–0002.

RNDr. Mgr. Reginald Adrián Slavkovský, Ph.D.
Mgr. Ing. Michal Kutáš, Ph.D.

Introduction to Philosophy of Language

First edition

Peer reviewers
Prof. Silvia Gáliková, Ph.D.
PhDr. Dezider Kamhal, Ph.D.

Proofreading · PaedDr. Ľubomír Rendár, Ph.D.
Graphic © Ladislav Tkáčik

fftu

Publisher
Faculty of Philosophy and Arts · Trnava University in Trnava
Hornopotočná 23 · 918 43 Trnava
filozofia@truni.sk · Http://fff.truni.sk

in cooperation with

Towarzystwo Słowaków w Polsce
ul. św. Filipa 7 · 31–150 Kraków
zg@tsp.org.pl · Http://www.tsp.org.pl

ISBN 978-83-7490-614-2