Abstract and Concrete Individuals and Projection

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ABSTRACT: Two kinds of individuals are distinguished: abstract and concrete. Whereas abstract individuals belong to our conceptual sphere, concrete individuals (i.e. particulars) individuate the world of matter. A subject investigating the external world projects abstract individuals onto concrete ones. The proposal offers a solution to various metaphysical and epistemological puzzles concerning individuals, e.g., the Ship of Theseus, the Polish Logician, problems with reidentification, or proper names.

KEYWORDS: Individuals – particulars – reidentification – Polish logician – Ship of Theseus.

Dedicated to Pavel Cmorej on the occasion
of his 80th birthdays

1. Introduction

One of the central concepts of metaphysics is the concept of individual. An individual is considered to be something which has (instantiates, possesses) certain properties. Contemporary analytical metaphysics develops several conceptions of individuals which basically differ with regard to how they approach these properties (if they are accepted at all).

It is not the aim of this paper to polemicize over these various conceptions. Our point of departure shall be the conception that explicates properties and other attributes via *intensional logic using possible worlds*, i.e. properties are

identified with functions from modal factor, called "possible worlds", into classes of individuals – these classes are extensions of a property.[1]

In the spirit of set-theoretic jargon it is sometimes said that an individual is anything that is the subject of predication applied via singular terms (cf. e.g. Stalnaker 1984). In intensional logic, the *predication* of a property to an individual is naturally interpreted as belonging of the individual to a class of individuals which is an extension of the property.[2]

This 'opinio communis' held by theoreticians of this branch leaves many ontological and epistemological questions open; it is these which theoreticians from other branches like to address. The goal of this paper is to present answers to some of them. The paper thus adopts a general viewpoint, exploiting possible application of the adopted proposal (rather than arguing in details *pro et contra* any such application). This methodology conforms to Russell's (1905) according to whom (philosophical) theory should be tested by its capacity for dealing with puzzles.

In the next two sections, I propose the key notions and ideas of my proposal, viz. the distinction abstract/concrete individuals and the notion of projection. Then, I apply it to some famous metaphysical puzzles (e.g. the Ship of Theseus, the Polish Logician, etc.) and discuss selected epistemological issues (e.g. reidentification). The last section provides a brief conclusion.

2. The distinction between abstract/concrete individuals and projection

Let us begin with a situation in which a subject decides to carry out the external study of the outside world, via *empirical investigation*.[3] The subject

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[1]   Cf. e.g. Montague (1974); for recent reflection of metaphysical aspect of Montague's work see Williamson (2015). I must point out that I entirely refrain from the idea of (Carnap's) individuals-in-intension, Montague's individual concepts, Hintikka's individuating function, though I presuppose and occasionally refer to intensional (possible worlds) framework. I focus exclusively on individuals; I utilize individuals even while solving puzzles which are solvable by deploying individual concepts (etc.).

[2]   Such model-theoretic explanation of predication is usually attributed to Montague (1974).

[3]   This and two following paragraphs are written quite in the style of philosophers and

wishes to discover the nature of certain entities (individuals), i.e. to determine facts within a certain slice of reality. Empirical facts, such as that X is a man, or X is not a man, are certainly contingent.[4]

A subject who wishes to carry out the determination of facts, or in other words to discover which properties individuals possess, must have a palette of individuals at his disposal in advance. In order to use a microscope to discover whether sample X or sample Y currently has an empirical property F, the subject must also know X and Y.

For this reason, the *universe of discourse* must be *previously given*, determined within the sense of the set-theoretic enumeration of all these individuals. This also means that it is *known a priori which individual* is X: it is simply that X.[5] Of course, it does not make any sense that empirical investigation is required to enable us to discover that X is actually X.

Nevertheless, such claims, despite their reasonableness, raise a certain degree of unease. How is it, for example, possible to know X if it is brought to me in the laboratory pressed between two pieces of glass?

I believe that it isn't difficult to solve such issues providing we make use of the following distinction. I propose that *a priori* available and therefore known individuals be considered *abstract individuals*, whereas individuals found in external reality are understood by us to be *concrete individuals*.[6]

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logicians following e.g. Carnap, while some stress rather the notion of empirical investigation of (possible) circumstances, e.g. Tichý (1971) whom I follow here. Other, e.g. Hintikka (1967), rely rather on the notion of modal or epistemic actual state and possible alternatives, yet the very idea is the same – individuals has to be given (and thus known) before we consider sets of possible circumstances ('model sets') in which they occur.

[4]   To be sure, a sentence such as "The U.S. president is a man" has not only extensional, but also intensional reading – on which whoever happens to be the U.S. president is necessarily a man. A prerequisite of such reading is that the subject term "X" is a description, not a proper name as I presuppose throughout the whole paper.

[5]   The claims from this paragraph were repeatedly proposed by Tichý, e.g. (1971; 1988).

[6]   I owe the distinction individuals/particulars to Cmorej, who exposed it in several of his papers, e.g. Cmorej (2001).

This distinction does not directly solve the problems addressed in this paper by itself, however. The most fundamental thing here is the concept of the *projection* of abstract individuals onto concrete individuals. By projection I mean that e.g. the subject preparing to study a sample enclosed between two glass slides has abstract individual *X* available for consideration, and through an act of thought connects it in a certain way with this piece of the world of matter, the material individual lying between the glass slides. The concrete individual is a piece of matter that can be experienced by the senses, and it is onto this object that the abstract individual is projected.

Epistemologically speaking, we use abstract individuals to 'indicate' concrete individuals. They serve us in a conceptual way for the distinction of one concrete individual from another concrete individual (I will return to this issue later).

Let us say right away that this association of abstract individuals with concrete individuals – i.e. projection – is *not explicable* within our intensional (possible worlds) framework. It is rather one of its prerequisites.

3. Development of the proposal

To return to the question raised a moment ago, the differentiation of abstract and concrete individuals solves the problem of *acquaintance* well. It is manifest that not all concrete individuals, i.e. pieces of matter, are known to the subject – she is not familiar with them. This reflects the pre-theoretical opinion that the subject can be acquainted only with certain individuals.

Acquaintance with abstract individuals is however fully in conformity with the idea that knowing an individual means knowing the numerical identity of this individual, which is something that empirical investigation naturally cannot contribute to.[7]

Another advantage of this distinction is the explanation which considers as true the common sense opinion that individuals are divisible to segments, but also the theoretical requirement for individuals to be *unanalysable*. Concrete individuals are characterised by their divisibility to their material segments

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[7]   Of course, due to the vastness of the universe, and also to the time and other constraints on the options open to the subject, she does not make cognitive contact with every abstract individual in the universe.

and, on the other side of the coin, concreteness. Abstract individuals, on the other hand, are characterised by their separateness from the world of matter, and also their simplicity – being of course elementary conceptual entities –, or in other words, unanalysability.

As an example, let us add that while a concrete individual, e.g. a human subject, has arms growing from his trunk, and these are naturally also concrete individuals, nothing like this can happen to abstract individuals. In other words, while the world of matter is composed of 'lumps' of matter knitted together by strong bonds, the universe of discourse, i.e. a collection of abstract individuals, is nothing like that.

It can be said that abstract individuals 'mimic' concrete individuals. For example, every composite or aggregate of concrete individuals has its conceptual correlate in the sphere of abstract individuals. This is not of course literally true, as abstract individuals respect our rigorous limitations and do not form accretions when imitating accretions of concrete individuals.

In a similar way: while concrete individuals act upon themselves, e.g. in a causal manner, and cause changes to one another as regards what they are instances of – e.g. if X hits Swiss watch Y with a hammer, at which point Y ceases to be a device for measuring time – such incidents understandably do not happen to abstract individuals.

The discussed distinction provides an advantage in solving well-known doubts over the rationally justified claim regarding the *necessary existence* of all individuals.[8] This actually only refers to abstract individuals, and not concrete individuals.

While abstract individuals are characterised by permanent and unchanging existence, 'ceasing to exist', or however it is called, is symptomatic of concrete individuals. In my opinion this 'ceasing to exist' means that a concrete individual, if it were perhaps a man, ceases to be a 'particular' of the property of BEING

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[8]   In every reasonable metaphysics the Principle of Identity is valid, i.e. for every x, $x = x$. Instantiation obtains, e.g. $X = X$, from which we derive by the Rule of Existential Generalization that there exists an individual x such that $x = X$. It is exactly this tautology that apparently provides the statement that "The individual X exists", from which it follows that the existence of an individual is the property fo BEING AN INDIVIDUAL x SUCH THAT THERE EXISTS AN INDIVIDUAL y SUCH THAT $y = x$ (cf. also e.g. Salmon 2005 on this issue). The extension of this property is at all circumstances one and the same: it is the universal class of individuals. Every individual must necessarily have this property.

HUMAN and becomes, e.g. via cremation, a 'particular' of another property. The existence of an abstract individual is thus somewhat formal, while the existence of a concrete individual entails the occurrence of change in that of which it is a particular.

On the basis of the following resultant etymological digression we may notice other support for my proposal. The term "particular" originates from the Latin word "particular", which means 'small part', i.e. particle. In later Latin the word "particularis" means 'partial'. This corresponds with "being a separate part of a whole", so it corresponds well with what I mean by the concrete individual. In contrast, the word "individual" comes from the Medieval Latin word "individualis", which is connected to "individuus", or literally "inseparable", and is used in the sense of 'being a different entity' or 'being an inseparable entity'. This fits what I consider as an abstract individual very well.

Typical concrete individuals found in the world of matter include individual people, animals, plants and technical devices such as cars. It is symptomatic of these concrete individuals that they are 'particulars' of more general entities such as (the kinds, properties) HUMANS, DOGS, CARS, COMPUTERS, etc. For abstract individuals this is not so symptomatic. Individual X does not have any such automatic relationship to the (logical model of the) property of BEING HUMAN or BEING A CAR. In short, this X is not characterized by being a particular instance of a certain property.

In order to avoid any misunderstandings: I am the last person who would claim that within the framework under consideration an individual may be without properties. This framework includes basis which contains (abstract) individuals, truth values, possible worlds and real numbers, and also all functions above them, i.e. including all properties.[9] This also means that individuals are in extensions of many varied properties: at the same time as X loses a certain property which it possessed in a certain possible world, it immediately gains a different property.[10] Note, however, that concrete individuals always have certain features, which is independent of our conceptual representations.

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[9]   For a defence of this logical framework as useful for empirical investigation see Oddie (1986) and Tichý (1988).

[10]   For more on this point, see Cmorej (2006), Raclavský (2008a) and Schmidt (2015).

4. Solution to some famous metaphysical puzzles

Our distinction also solves other more famous and difficult problems. For example, there is the famous puzzle of the *Ship of Theseus*. Imagine two very similarly built ships X and Y, both built from wooden planks. We exchange one plank from the ship X for a plank from the ship Y, and then place the plank taken from the ship X into the hole left by the plank taken from the ship Y. Then, we continue to do this until all the planks from one ship have been exchanged with all the planks from the other ship. Now, which ship is X and which is Y? For those who consider an individual as being made up by definition from other individuals (here they are individual planks, or a class of these), a serious problem arises.

According to the present conception, however, abstract individual X was projected onto one of the ships, and abstract individual Y onto the other. We can truthfully state about X that it is made up of planks P_1, P_2, …, P_j, i.e. it has appropriate properties (e.g. HAVING P_N AS ITS PART, where $1 \leq N \leq j$). For Y it is the same, though the planks are P_k, …, P_z. During the course of the exchange, individuals X and Y simply lost one group of properties, though they gained another – i.e. that which was originally instantiated by the second individual. However, the identities of abstract individuals X and Y still remained the same.

For those who would like to 'lie their way out of' the Ship of Theseus, I have the example of the widow's diamond ring – a case which very likely may have actually happened, and so isn't just some kind of 'counterfactual nonsense'. This widow had her late husband X cremated and took the urn of ashes home. She did the same with her husband Y. Then she read about a certain service by which such ash can be crystallised into a diamond. She brought both urns to the staff of that firm: they carefully mixed the ash from both urns together and then exposed it to high pressure in some kind of autoclave to create a crystallised diamond, which the widow then placed in her ring. Where in the diamond is X, and where is Y?[11]

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[11]   Of course, someone will pipe up and say that X is no longer X after being turned to ash. However, this is a contradiction to the completely obvious common sense opinion that X has been turned to ash via cremation and that his widow has the right to take X home from the crematorium.

A similar solution can be found to the well-known problem of the '*fluid individual*' – this is not an official term, but it represents a family of similar examples – which over the course of time loses one of its parts (i.e. it loses one of its properties), though it gains other parts. From my point of view, [12] the individual has a fixed identity, because we have not defined the individual as a sum of specific things (be they individuals or 'properties'). It is a mereologist who proposes the opposite way. [13]

If Y is a class containing (or not containing) X, then "$X \in Y$" is an expression which is analytically true (or false). However, the sentence "P_1 is part of X" is of course a *contingent* sentence, since it talks about the accidental relationship between two individuals. It does not express that one individual belongs to another in the sense "$P_1 \in Y$". Abstract individuals are simple (unanalysable), and are *not composed* of anything.

The fairly well-discussed so-called *Polish Logician problem* also does not arise within our framework. [14] The Polish logician claims that any individual X is made up of parts that are other individuals $X_1, ..., X_n$ or in other words one individual X is a class of individuals, i.e. $X = \{X_1, ..., X_n\}$. The problem is that any subset of X is also an individual, so the universe cannot stabilise for any of them. While a 'Carnap supporter' has, if his universe contains three individuals X, Y, Z, three individuals, namely X, Y and Z, the 'Polish logician' has seven of them, these being $X, Y, Z, X+Y, Y+Z, X+Z, X+Y+Z$. The Polish logician operates from the point of view that the combination of two individuals creates another, different individual.

I can accept the proposal of the Polish logician at most in the case of concrete individuals. In the universe of discourse, as opposed to that of the Polish logician, this kind of growth giving rise to new (composite) individuals has no place. In the universe there are n abstract individuals, and no more. The elements of the power set of the universe of discourse are classes of abstract individuals, and never other, 'new' abstract individuals. On the other hand, I will not abandon the intuition captured by the Polish logician that in my conception every (possibly composite) concrete individual corresponds

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[12]   So differing from current approaches, cf. e.g. Sider (2001).

[13]   For much less trivial mereological conceptions see e.g. the classical work by Simons (1997).

[14]   For a recent discussion of this famous problem see e.g. Putnam (1988) or Van Inwagen (2002).

to one abstract individual. Nevertheless, the number of abstract individuals is still *n*, and the universe does not 'swell up' through the combination of concrete individuals.

While we are here, it is time to discuss the *cardinality of the universe* of discourse. If we are considering the empirical investigation carried out by all sciences and cognitive activities, where abstract individuals are projected onto concrete individuals, we can only conclude that the universe is infinite. Because abstract individuals can be projected onto any, even the tiniest, part of someone's arm, the connected pieces of that arm, etc. As soon as we start investigating concrete individuals on a drafted line, it is clear that for the sake of completeness we are going to have to project a massive quantity of abstract individuals. Intensional logic and also metaphysics delineating the framework for empirical investigation for the whole of our knowledge must clearly constitute the universe of maximum size.

This of course does not mean that during any minor investigation carried out by a given subject they have to project all possible abstract individuals. It is certainly possible to imagine a subject who only projects a very small quantity of abstract individuals onto the mass of the external world because it suffices for the investigation she wants to carry out.

Let us consider another very interesting problem for which our distinction once again demonstrates its advantages. It is Quine's example of the *River Caÿster* (cf. Quine 1950). Quine himself was puzzled by the fact that it will probably be inevitable to hypostatise abstract individuals.

A materialist would be glad to state that the individual that is the River Caÿster is one and the same as the drops of water which pass between its banks. However, those drops which are supposed to make up the identity of the River Caÿster flow out of it into the Aegean Sea. A materialist would therefore propose that the River Caÿster is one and the same as its watercourse. The thing is, it makes perfect sense to state that the watercourse of the River Caÿster has also changed over time, so its identity, tied to the watercourse, must also have changed.

Whatever arbitrary empirical support we use for the identity of the River Caÿster, it is clear that through all inconvenient counterfactual circumstances the River Caÿster will still be the River Caÿster, even without a materialist guarantee of its identity. I maintain that 'hypostasis' is absolutely inevitable. Basically, an abstract individual exists for the River Caÿster which we project onto a certain flowing mass of water, including perhaps the watercourse itself.

The material River Caÿster changes fluidly, while the abstract River Caÿster remains the same, with an identity given by its numerical 'is-ness'. Let us notice now that it was right that we did not identify projection with ostension, though it was tempting. Ostension is an empirical act and such a 'pointing finger' cannot fulfil the far more conceptual role of the act of projection.

5. Some epistemological issues

Once again we have a nice epistemological correlate connected with *semantics* ('the language of our thoughts'). Consider the sentence "Etna is a volcano". It is about a definite thing, Etna, which is ascribed to have a certain property. Let us imagine that the material Etna collapses into two halves, west and east. The sentence "The western half of Etna and the eastern half of Etna make up the whole Etna" is not only about those two halves, but also again about Etna as it is.[15] The semantics of the word "Etna", that conceptual thing with which we virtually interact in our minds, is totally unchanged by the results of unfortunate course of events in the empirical world of matter. If it changed, i.e. if instead of one thing we suddenly conceptually interacted with other things, our thoughts would have no continuity.

This is why I am promoting the fact that when external reality 'changes', abstraction gives us fixed points: the changes are just transformations that rotate around these fixed points. From here one can see why a semanticist wishing to defend the meaningfulness of his discipline often begins a line of reasoning within purely metaphysical territory. If our semantic entity was identified with changing entity, a discipline such as logical semantics would be absurd. A fixed universe is thus assumed, and never one 'in flux'.

As is well known, logical semantics (or: logical analysis) of natural language is part of logic, which in turn coincides with metaphysics. Determination of the class of correct arguments, those that transmit truth from their premises to their conclusions, cannot take place without understanding what the sentences are saying. This is what logical semantics is for. It certainly is not its task to add something to the contents of sentences which is not strictly given there. And so the sentence "*S* is contemplating Etna" must be understood in

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[15]   In developing the Etna example, I have relied on Tichý (1988). A number of related issues were discussed by Šebela (2008), Cmorej (2008; 2010) and Raclavský (2009).

such a way that the meaning of "Etna" is construed as (relatively) simple entity
– the sentence does not speak about various facts *S* possibly knows about Etna
– about Etna's volcanic structure, geological composition, or about its long
history etc.[16] The thought contains the entity "Etna" as a *bare*, *simple* object.[17]

More precisely, I understand those simple entities that are parts of thoughts
being primitive one-step modes of presentation, let us write them "*E*" where
E is an entity yielded by the mode of presentation **E*.[18] These primitive modes
of presentation, e.g. *Etna, clearly present immediately exactly the given ob-
jects. This mode of presentation of individuals is *a priori* in that it has no con-
nection with the random state of the world. Also, this presentation does not
take place on the basis of the determination of any empirical properties.

The grasping of an abstract individual by the intellect is thus explicated as
a relationship according to which the subject *S* focuses on individual *X* as *X*
and the thought – that *S* contemplates *X* – contains **X*. This thought does not
directly contain the individual *X*.

This element of anti-Russellianism is, as it can be justified which I am not
going to do here, epistemologically praiseworthy. Note, however, that it also
does not amount to recent Neo-Fregeanism according to which the individual
is only represented indirectly in thought by the objectual correlative of a de-
scription. * not only keeps the individual out of the thought, it is direct enough
not to muddy the thought with that which certainly does not belong there –
exactly that descriptive element.

Let us turn our attention to the obvious fact that we carry out empirical tests
on material concrete individuals, and never on abstract individuals. Only con-
crete individuals can be studied in a laboratory under individual microscopes
that are also material. In this way, we arrive at the question about what we
attribute properties to – to abstract, or to concrete individuals?

The most bizarre extreme, which is "to neither of them", can be easily dis-
missed. Also dubious is the duplication of 'abstract properties' with 'concrete

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[16]   As maintained already by Frege e.g. in his dialogue with Russell, cf. Salmon –
Soames (1988). According to Russell, however, an individual is a constitutive part of a
proposition/thought.

[17]   A viable conception of bare individuals is definable, cf. e.g. Moreland (1998), or
Raclavský (2008).

[18]   The proposal is, of course, Neo-Fregean in spirit, see Tichý (1986; 1988) for its
development.

properties'. Regardless perfect parallelism between the abstract and concrete realms, this would seem to be a waste of time worthy of Occam's razor. Moreover, to date no clear reasons have been presented as to why properties should be 'lying around' in the material world – just many reasons against this, actually (cf. e.g. Oddie 2001). While we can meet a concrete individual which is a cow, it is unlikely that we will bump into cow-ness at all. Analogously, gold-ness cannot be encountered, only pieces of gold, i.e. concrete individuals which are gold.

We would also certainly dismiss the proposal that there are two classes of properties (both being abstract entities): one set is applicable to abstract individuals, and the other to concrete individuals.[19] This would mean that our basis *B* would contain a bizarre universe holding both abstract and concrete individuals. I therefore incline towards the claim that we only assign properties to abstract individuals.

It is because predication is a conceptual matter, something which is dependent on our thought, and hence, language. This is in accordance with the view how the world of matter can be explicated within the intensional (possible world) framework. A world of matter as such can be naturally explicated by universe of discourse, whereas world as world of facts (which consists in fulfilling properties by individuals) is best explicated by possible worlds as collections of facts.[20] Note that the facts we recognize in the empirical world correspond to 'wrinkledness' (in the broadest sense) of external matter. The facts are thus formed partly by our conceptual apparatus.

Let us go on to observe the benefits of our theory of projection and abstract/concrete individuals in the field of epistemology. It is clear that every subject has available to them all proper names ("*X*", "*Y*", …), their meanings (**X*, **Y*, …), and their denotata, abstract individuals (*X*, *Y*, …). What is unavailable to a given subject, however, is knowledge as to which concrete individuals that person or other subject engaged in investigation is projecting abstract individuals onto. There truly is uncoordinated confusion in the projection carried out by various subjects.

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[19]   A proposal similar to this was offered in Gahér (1999), a paper which indirectly induced elaboration of the present proposal.

[20]   The dual approach to the explication of the notion of world was firstly noticed by Lewis (1923).

As a rule, the resultant problem is that of *reidentification*.[21] While one subject is projecting X onto a certain piece of matter, another subject is projecting X onto a different piece of matter. The result of this is that for the great majority of material objects, i.e. concrete individuals, we basically do not know 'which individual it is'. We just do not know which abstract individual has been projected by someone onto which piece of matter.

Of course, we know very well which individual X is – it is an abstract individual that is one and the same as X. The point of e.g. someone presenting us with the phrase "I am X" is not to convey the fact that is *a priori* available to all that $X = X$, but that it is onto him, as a concrete individual, that our community projects the abstract individual X.[22]

The connection of projection with *naming* by the community of speakers (i.e. investigators of the world) is of great importance. The famous (not only Kripke's 1979) problems of proper names, which I feel are fundamentally epistemological, can be explained very plausibly. Pierre basically does not know that the name "Paderewski" (or "London"/"Londres"), which refer to certain abstract individuals, have a connection with this or that material object (Paderewski$_1$, the politician, Paderewski$_2$, the pianist, whereas in fact Paderewski$_1$ = Paderewski$_2$). Our current community does not know onto which concrete individual an abstract individual such as Aristotle should be correctly projected. We do not know onto which concrete individual we should project an abstract individual which is the denotatum of a 'fictitious name', such as Anna Karenina; etc.

6. Concluding remarks

In the present paper, I have tried to articulate something that in a certain sense cannot be properly articulated. We have considered what is *external to theorising*, yet at the same time this was in fact also a certain form of theorising, i.e. we were inside a theory. The following concluding remark has a similar type of partial circularity – which is in accord with Fitch's (1946) observation that many philosophical theories are irremediably circular in this way.

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[21] The proposal I am going to expose shares several points e.g. with Hintikka (1967), Hintikka – Hintikka (1989). Note, however, that I am not investigating cross-world identification though this problem is related to the problem of reidentification.

[22] I have borrowed the example from Tichý (1983), who derived a rather different observation from it.

The theoretician's individuals are actually simply abstract individuals – many examples of this have been presented above. It would be considered overly extravagant to insist that the individuals with which the theoretician is concerned are not material. There is no reason here to resist the generally-held opinion that individuals are material. However, as soon as fundamentally ontological and also epistemological problems arise, such as those which we have discussed above (the Ship of Theseus, the River Caÿster, the Polish Logician, etc.), I recommend shaking off our habit of considering individuals as being exclusively material. It is exactly here that I am convinced that theoreticians should concern themselves only with abstract individuals.

Acknowledgement

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