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On the false ontological consensus

Abstract: The objective of the research was to check whether False Consensus Effect (FCE), shown in much research, is also valid for ontological decisions. Test participants, faced with an ontological dilemma, made a choice three times, which of the 3 item set (Cracow City, Me myself, the Universe) refers to something most real. The research conducted first among psychology students ($N=116$), then replicated on mathematics students ($N=126$) and middle-aged people ($N=106$). Results: 1) All groups chose the Universe most seldom (4%-11% subjects), the remaining two "objects" were chosen with similar frequency, 2) FCE occurred in all groups and in reference to each choice, 3) with people who made inconsequent choices (16% of test participants), FCE was notably higher ($p < .001$) in comparison to people making consequent choices, 4) FCE with inconsequent people turned out to be higher ($p < .01$) even in comparison with "the smallest minority", people who (consequently) chose the Universe.

Key words: False Consensus Effect, qualitative vs quantitative ontology, Ontological Uncertainty Effect.

Motto:
Reality is merely an illusion, albeit a very persistent one.
Albert Einstein

INTRODUCTION

"Humans constantly seek to establish what is real and to achieve a valid and reliable understanding of the world" – says Gerald Echterhoff in his foreword to a special number of *Social Cognition*, dedicated to shared reality (2010, p. 273). We gladly accept this phrase as our own. The most optimistic part is the fact that the basic question: "What is real?" is no longer the domain of philosophers, and some outsiders. It is also known, that on their way to understand the world people make mistakes and are very often biased (see Brycz, 2004). One of the manifestations of this bias is the *False Consensus Effect* (FCE), meaning a tendency to project own views and preferences to other people, i.e., to overestimate the number of people, who

share our views, choices or behaviours. Starting with the research of Ross, Greene and House (1977), the occurrence of FCE was confirmed in most research, regardless of their specific subject and the sort of group researched. This raises the question whether the effect also appears in reference to ontological decisions. Ontological here would mean connected with existence or non-existence, way of existing or a degree of existence.

The presented article is rather not typical, it is partly empirical and mostly theoretical one. Our main intention (which can be seen rather in the background of our efforts) is to make a bridge between questions considered usually as philosophical ones and the empirical approach, or more exactly – between so called "experimental philosophy" (Alexander, 2012) and empirical psychology. Nevertheless, the objective of our research was to establish whether FCE also occurs when making decisions about the issue: "What is more real: Cracow City¹, the Universe² or Me myself?" We were also interested whether FCE in middle-aged adults (40-60 years old) will be as strong as with students, i.e.,

¹ Cracow is a historical city in southern Poland (Europe), where the subjects were studying.

² Both the Universe and Me myself seem to be especially interesting "objects" for many reasons. The "common denominator" of all three notions is, that they are all individual ones, although they differ in many other respects.

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young adults (19-24 years old). The research done so far (i.a., Yinon, Mayraz & Fox, 1994), suggest that FCE is weaker with older people. It may be expected that with age, people extend also their knowledge about “individual difference”, because they have had more opportunities to interact with considerably different persons, and - in the consequence - they have become less egocentric. If so, that the false consensus should be weaker in that group than among young people.

Starting with the research, we have known very little about people’s ontological preferences, i.e., what decisions are the most common and on what factors it depends. Apart from FCE and their magnitude, we would get more information on distribution of ontological preferences, which problem still seems to us very interesting *per se*. We should add, that due to the lack of similar studies, the research is of pilot character.

When assessing reality, should we expect a far-reaching factual consensus (which leaves little space for false consensus), or should we expect a large variations of opinions and an unsubstantiated belief in their common occurrence? Contradictory intuitions are possible in this matter. On the one hand, we might claim that in basic matters, people tend to agree, at least in a given culture circle. We might expect that being immersed in the same culture is a factor that uniforms our views on existence or non-existence of broadly understood “objects”. On the other hand, looking at the problem through the prism of individual differences, we might expect differences between people to be so universal, that they should also appear in this case.

Let us also notice, that ontological issues are rarely a matter of everyday discourse. It might be so, because that makes for a difficult conversation topic. Apart from that, until the interlocutors are immersed in common psychology, possible view exchanges might be interpreted differently. They might be interpreted in categories of norm and abnormality, without searching for difference in views and varied ontological preferences. No occasion for such discourse should make it more difficult to correct self-imagination in reference to other people’s ideas, which, could, consequently, strengthen the volume of the effect. Perhaps due to their illusory obviousness, ontological preferences are rarely also the subject of psychological research. First, let’s discuss some issues connected to the way ontology is understood and let us sketch a way of thinking connected to the answer to “What is real?” question. We will form some arguments supporting *gradual point of view*, or the reasons to perceive “being real” in gradual terms (less vs. more) rather than zero-one (real vs. non-real). Further on, we will remember some findings and interpretative hypotheses about FCE, formulated within a couple of decades’ worth of the effect research, starting with the classic work *The ‘false consensus effect’. An egocentric bias in social perception and attribution processes* (Ross, Greene & House, 1977).

ONTOLOGICAL ISSUES IN QUALITY AND QUANTITY PERSPECTIVE

Some psychologists, upon hearing the word “ontology” feel slightly confused, since they believe that they have found a philosophical text. Being researchers, they do not want to divulge into “metaphysical speculations”. Yet ontology does not have to be something strange, weird and dissuasive. Referring to Wilhelm Gotfried Leibniz (Couturat, 1903, p. 512), we may consider ontology as “science of something and of nothing, of being and not being and the mode of thing, of substance and accident”. To put it differently, ontology could take care of deciding the matters connected with existence, non-existence and different modes of existence (of what we believe to exist in a way). In modern times, Gruber (1993) put it extremely simply, saying that “ontology is an explicit specification of a conceptualization”.

It should be noted, that apart from more or less traditionally understood general ontology, we presently talk more often about specific ontologies – specific for a given branch of knowledge. It is not hard to notice, that a complete and unambiguous conceptualization, or ontology, is required by databases, library, www or mental illness catalogues (Ceusters & Smith, 2010), geographical interest objects, etc. Ontology also slowly enters the social sciences area, especially at the borderline of technology and education (Chen, 2009), psychology, i.a., in the context of stress and emotions (Robichaud, 2003; Yan, Bracewell, Ren & Kuroiwa, 2008; Khoozani & Hadzic, 2010), or even social work (Aymer & Okitikpi, 2010).

If ontology is understood as a systematic and complete conceptualization – of reality as such, or only of its narrow, specific part, it is then of explicit character, presuming the presence of idea categorisation processes. It would be a mistake, however, to narrow down ontological issues to a verbal-idea level and explicit choices, articulated in language. Opting for the broader understanding of ontology, we may divide all ontological decisions (ones that presume existence or non-existence of something) into *explicit* and *implicit* ones. If somebody is planning something, i.e., what they will do on 12 September 2016, then they act as if they assumed that their mode of existence, or their “ontological status” is not going to change in the meantime, as if both will not cease to exist. Similarly, if somebody, driven by internal motivation, starts praying, then this move is dictated by ontological belief about the existence of a higher power and its potential influence to the events important to them. Each of those examples contains an ontological decision, manifesting in observable behaviour, although the decisions may be taken spontaneously and on the basis of unclear criteria, which is difficult to define precisely. They are often based on subjective beliefs or feelings, for which we cannot say when and why they appeared, but we still keep acting as if they were valid and based on solid premises. The implicit ontology, which anchors our spontaneous behavioural decisions, seems more interesting from psychological point of view than intellectually declared worldviews.

In typical situations of everyday life, we spontaneously refer to different ontological orientations, depending on the context. Probably, we most often use the vision of reality called by Lawrence LeShan (1977) *sensoric mode of being*, when we make decisions about existence or non-existence of something, based on sensory evidence and reducing the reality to a physical, spatial and temporal world image. However, very often we succumb to the illusion that we act on the basis of the sensory data when the exact opposite takes place. The testimony of senses is more frequently subservient to our beliefs, than a right in itself. We rather see what we know, than know what we see.

And so, in the study kept in Piaget clinical experiment convention (Mudyń, 2000), the test participants first chose among 4 element idea set, which refers (in their opinion) to something most real. In the next step, they chose the idea relating to the least real “object”. It turned out, that people who considered a given object for the most “real”, when asked to substantiate their choice, frequently reach for the sensoric arguments, in belief, that they see, feel and experience its existence at all. Things were reverse with objects considered “least real”. To specify: if among the set: *the Universe, Me myself, Cracow City, Planet Neptune*, somebody chose *the Universe* as the most real object and *Me myself* as the least real object, they said in justification of their viewpoint, for instance: “*We can see the Universe, but not ourselves – we need a mirror for that*” (M, aged 19). If somebody believed the Universe to be the least real (which happened relatively more often), they also claimed sensory data in their justification, but in a different way. As in, for example: “*I have no contact with it [...] I have never seen it, it's too big*” (M, aged 22). Similarly, in the case of a different idea set. The people who believed that the most real object is “God-creator” were willingly using sensoric arguments, saying, for instance, “*I can see the results of his actions everyday*” (M, aged 22), “*I feel the presence of God all the time*” (F, aged 24), “*I feel his hand, he has control over everything*” (M, aged 22). Whereas people, who thought that “God-creator” refers to something least real frequently referred to lack of sensoric justification – “*I haven't seen him, I have not felt his presence*” (F, aged 20).

To sum up, the presence of sensoric arguments (I can see, hear, feel, etc.) referred to all objects, but it was not a consequence of their specificity or concrete nature, only a result of belief in their reality.

For the sake of the presented text, let us assume that “to exist” is “to be real” and to negate the existence of something, is to believe that it is unreal. Adopting such an attitude allows us to draw close traditionally understood ontology and common language and, consequently, allows us to make an empirical problem out of ontological issues. Let us note that the question: “What is real for who?” is not a philosophical question, but a psychological or sociological one. In order to tackle this question empirically, we do not have to solve a philosophical dilemma: “What is truly

real?” or “What really exists and what does not?” Unlike philosophers, the representatives of social sciences must be interested in “subjective realities” of different people, even if due to simple behavioural and social consequences.

Those “subjective worlds” may appear unimportant, since until we are immersed in our “subjective reality”, we simply treat it as unquestionable, and thus objective (Mudyń, 2007). Or at least do that in greatest majority of standard situations, to which we react in a spontaneous, automated way.

The issue of “subjective realities”, or rather a multitude of subjective worlds is still not simple, and may not be simple. We need to order it a little bit, thus simplifying it. But first we must see its complexity. With wishful thinking, it would be convenient to accept that all can be divided into two zero-one categories: real and unreal or existing and non-existing. Regardless of where we put the line between real and unreal, our interlocutor could easily protest. They might remark, that if we start a discussion about “unreal things”, thus making them an object of a discourse, then we bring them into existence, at least as a content of the discourse. And what are we to do with fiction, or rather different kinds of fiction? Is Sherlock Holmes (for instance) somebody real? Rather not³, although we know who he is and what he's like and there are many monuments reminding about his existence, including the Sherlock Holmes Museum in London on Baker Street 220b. Popular ontology tempts us to use simple divisions into facts vs. myths, in order to juxtapose the real with the fictional. We cannot yield to that temptation, since there are many arguments pointing to the fact, that fiction is an important part of every social reality. Also the one we are living in, the one we are immersed in. Fiction is not just dwarves, dragons and characters from Greek mythology. It is also ideologies and world views, the existence of which is a fact, but substance of which cannot be equalled to “empirical facts”.

Since fiction exists in some manner, there might occur an idea to differentiate various types of existence or “levels of existence”. Different ways of existence or different versions of “being real” might be named and ordered. History of philosophy convinces us that the idea, otherwise substantiated, was taken up and put to life by different philosophers, starting with Aristotle, who differentiated ten idea categories, i.e.: *substance, quantity, quality, relation, place, time, location, state, action, being affected* (Aristotle, 1990, p. 34). On the other hand, Wilhelm Wundt (1906), proposed to reduce basic categories to four: *objects, characteristics, states and relations*. This way or another, until we focus on differences, trying to include all elements, aspects or manifestations of reality in a finished set of varied idea categories, we might say we do *qualitative ontology*. Further on, we might “sharpen” earlier established categories (by specifying the criteria of belonging to a given category), making a step towards formal ontology. This direction of search and the problems, are better left to

³ Although the research commissioned by a UKTV Gold television station on a sample of 3000 British people in 2008 demonstrated that for 53% of test participants Sherlock Holmes is a historical figure and then very real ... <http://uktv.couk/gold/stepbystep/aid/598605> (Retrieved 28 February 2008).

other researchers, especially those, who construct detailed ontologies, allowing for description of content in specific areas of reality or human activity.

ONTOLOGY FROM QUANTITATIVE PERSPECTIVE

The attention of the authors is absorbed by a different, complementary question: “Is it possible and is it justified to think of what is real in quantitative terms?” To simplify: is “quantitative ontology” possible? Could we not skip or minimise idea categories, thus bypassing disputes born from inevitable arbitrariness of the proposed solutions? Can something seem (subjectively) more real than something else? We think, yes. Here are some arguments. Let us start with the simplest and the most obvious.

As we know, we are ready to ascribe different subjective probability to future events, i.e., who will win in the presidential election, will unemployment decrease next year, will the spring come sooner, etc. Popular language allows us to equal an event’s subjective probability and the evaluation of its reality. If we believe that “tomorrow will be another day”, we treat this assumed event as something very real and we act as if this future event was indeed an element of the reality. If we judge probability of an event for below 5%, we might say it seems rather unreal to us. If we disbelieve the existence of something completely, we say it’s unreal. On other occasions, confronted with unexpected but subjectively very important facts, people react in style of: “I know, but I still cannot believe it”. So even though I know (on the intellectual level), it still seems unreal for me.

We may, of course differentiate various “modes of existence”, different levels or kind of reality. Until we do so, we are within the convention of qualitative ontology. If we dare to order those, previously enumerated, “modes of being” by *intensity of existence*, or by the answer to the question, what exists more and what less, we are introducing *quantitative aspect* to ontological studies. This direction of thinking appears in the pages of philosophy history as *gradualism*. It assumed a kind of gradualisation of entities, from those which exist the most and in a way unconditioned by anything (the Absolute) to those which exist in a weaker sense of this word, in a relative manner. This direction of thinking is connected with the names of Philon of Alexandria (10 B.C.-40 A.D.), Origen (186-254 A.D.) or Avicenna (980-1037 A.D.).

Apart from individual concepts of those philosopher, we may, for our own use, specify this point of view, referring to different criteria which order (and thus evaluate) different modes of existence. Some of those may correspond to “ontological intuition” of some people and manifest themselves when life decisions are made. We may, for instance refer to the time of duration as a criterion, believing that what is eternal is more existent than what (only) exists in a limited time space. We may look for a criterion of “existence intensity” in the degree of autonomy in relation to the rest of the Universe; then the more autonomic, less conditioned by the outside circumstances object would be more real out of two objects compared.

Quantitative approach to ontology issues does not depreciate *qualitative ontology*, focusing on differences in types of existence. If we believe in the existence of a common denominator for all “existences”, or all forms of being, we may, if need be, abstract from the differences, or from quality. We easily differentiate, for instance, machines from vegetables or works of art. Nevertheless, from the viewpoint of a truck driver or a bridge-designing engineer, it’s the weight of the load and bridge strength that matter - the sort of items being transported is unimportant. We ought to think, that in many situations, when analytic information processing is not “turned on” because of various reasons and we react to different signals spontaneously, the kind of reaction (decision) depends more on the quantity of data on a given subject, than on content specificity. Sometime the number of associations is more important than their content. Whereas social polls about, for instance, trust for individual politicians suggest that “the degree of familiarity” resulting from frequency of exposure influences not only their popularity, but also (which is not very rational) the degree of trust, respect etc.

FALSE CONSENSUS EFFECT (FCE). SOME FINDINGS, SOME INTERPRETATIONS

The classic article *The false consensus effect: An egocentric bias in social perception and attribution processes* (Ross, Greene & House, 1977) was published quite some time ago. Numerous research (the peak of which was in 1990s) and metaanalyses (Marks & Miller, 1987; Gross & Miller, 1997; Yinon, Mayraz & Fox, 2001) prove that FCE is a rather universal phenomenon, independent on, sex, age, nationality of participants and test methods used. Symptoms signalled then i.e., that it occurs only among adolescents, especially those, who study psychology (Sears, 1986), turned out to be useless. Apart from the research conducted on students, the “egocentric bias” also showed up in research done on many other specific groups, such as nurses, chronic mental patients, elderly adults (70-93), as demonstrated by Yinon, Mayraz and Fox (1994), nationally representative telephone survey ($N=1251$) in Switzerland (Morrison & Matthes, 2011) and many others. It seems that conclusions drawn by the author of the first metaanalysis Mullen, Atkins, Champion et. al. (1985), on the basis of 115 experiments have not lost much of their validity (see also Marks & Miller, 1987; Mullen & Hu, 1988). Those authors believed, that the results are independent on the group researched and kind of questions (choices made). However, false consensus effect appeared dependant on the number of questions the test participants answered (it decreased with the number of questions) and on the order of questions asked (it decreased when test participants first estimated answers of others and only then marked their own preferences). FCE concerns not only views (i.e., Wojciszke, 2006), but also preferences (i.e., Gilovich, 1990), attitudes (Crano, 1983; Sherman, Chassin, Presson & Agnostinelli, 1984; Fabrigar & Krosnick, 1995), prejudices against others (Watt & Larkin, 2010), desirable or undesirable situations (McFarland & Miller, 1990), behaviours (Ross, Greene &

House, 1977; Suls, Wan & Sanders, 1988; van der Pligt, 1984) and performance outcomes (Alicke & Largo, 1995).

Already within the first 10 years there appeared several interpretative hypotheses of the effect, such as: 1) selective exposure⁴ to stimuli (we meet people of the same views more often), 2) higher cognitive accessibility of own views than others', 3) way of situation information processing, connected with basic attribution mistake, 4) motivational factors, justifying the popularity of our own views and preferences. Belonging to minority, as we know, often results in negative social consequences, and overestimating universality of own views settles us in the feeling that they are right and increases or protects self-esteem. We ought to agree with 1987 metaanalysis authors (Marks & Miller, 1987), that the hypotheses mentioned are rather complementary than exclusive.

Some time later attempts were made to question range of this effect and undermine the validity of its name, suggesting that the consensus effect is not that "false", and using own preferences as suggestions when estimating the preferences of others, especially with no feedback ought to be considered a rational acting strategy.

A conclusion of next metaanalysis authors is especially inspiring. This metaanalysis was based on the results of 128 research (Gross & Miller, 1997), and stated that perceived consensus of own preferences and presumed preferences of others depends on the volume of actual consensus. Borderline value under which overestimating or underestimating of the social consensus starts would be the "golden ratio", i.e., an actual consensus on the level of 61, 8%. Therefore we could say, the consensus perceived is distorted in two directions, so as to get maximally close to the golden ratio (the same that is used for a golden division of a segment and ratio of a shorter rectangle side to the longer). Let us also note, that the right proportion also appears in the context of the famous Fibonacci sequence where quotient of previous number divided by the next number is close to the ϕ value or the golden ratio (Corbolan, 2010). It turns out that the traces of the golden ratio may be found not only in masterpieces of paintings (starting with the Mona Lisa by Leonardo da Vinci), in architecture or in rectangular credit cards, but more importantly, in nature itself. We may find it in the so called logarithmic spiral, visible in the snail shell shape or a blooming rose or event in proportions of left-winding spiral to right-winding spiral in which the sunflower seeds are set (Corbolan, op. cit., p. 9-17).

If the golden ratio also refers to the false consensus effect as well as aesthetic and natural preferences of constructions created in nature by plants and animals, *it may mean that FCE is not just a psycho-social phenomenon, it is rather a manifestation of a more universal rule present in the natural world.*

Taking into account that FCE is a psychological construct, it is understandable, that the occurrence of that effect and its range is being explained by referring to other

psychological concepts. Trying to explain a well documented fact that FCE increases with minority options, i.e., the less people actually share our opinion or preference, the more ready we are to overestimate its popularity. Here, authors invoke motivational arguments (ego defence, self-esteem increase), and cognitive arguments (minorities, which frequently represent radical opinions or rare preferences are more salient and harder to miss). Bogdan Wojciszke (2001), on the other hand, on the basis of abortion allowability research results, performed twice on Polish national sample of 1050 people, proposes a term "belligerent minority syndrome". This syndrome includes, apart from overestimating popularity of own (minority) views occurrence, also a stronger belief about their righteousness and moral superiority. All interpretations mentioned, although seemingly justified, have a common denominator - they refer to social and psychological phenomena and constructs. We may not yet rule out the possibility, that all psychological correlates are a manifestation of a deeper mechanism or rule, the nature and universality of which exceeds psychology.

The research done shows that if the actual consensus is high, FCE disappears, or turns into its opposite, false uniqueness. Let us hypothetically assume that in an alleged research where test participants would decide whether they prefer sweet or salted grapes, 95% of the group would opt for sweet grapes. In that situation, even if all test participants (which is not very probable) had a tendency to overestimate their preferences and believed that 100% of the population shares them, FCE could not manifest, since the difference between actual and estimated consensus could not exceed 5% due to mathematical reasons. Let us further note that the imagination of salt grape lovers would be in an opposite situation - it would be impossible to underestimate frequency of own preferences, whereas overestimating (when the decision is made in the area of 95%) is both possible and also quite probable. It is then hard not to agree with the conclusion proposed in the title of a classic article (Mullen & Smith, 1989), that, above all, FCE is a function of an actual consensus. It seems that the question: How to separate mathematical reasons (regression to mean) from psychological ones still remains open.

Ontological question, as far as they do not overlap with religious issues and do not concern the belief in existence or non existence of the God are rarely disputed. As a consequence, they also have at their disposal a minimal amount of information about other people's views on this issue. This circumstance may make it harder to correct own imaginations about other people's views, which, consequently, may increase the size of FCE. On the other hand, the deficit of the information at hand and the uncertainty connected with it may provoke people to assess social consensus more carefully, and lead to FCE weakening or its reduction. The main objective of the research was, to dispel that doubt.

⁴ We should also remember the selective disclosure phenomenon, which consists of disclosing only those opinions, which we expect to be consistent with our interlocutor's views (Kitts, 2003)

METHOD

The first study was conducted in a group of psychology students, then replicated in two different groups – mathematics students (study 2) and middle-aged people (study 3). The procedure was the same in all three groups.

In the first stage test participants were confronted with the original projection method Real-Non(real) (RN-02), which is used to assess the so-called life orientations, and to provide the answer to the question: What is the most important for an individual? The method is designed (Mudyń, 2010) as a projective tool, in which – instead of answering a direct question – the subject has to decide what kind of abstract object seems to her/him the most real (from among the concepts presented in the set). The RN-02 Inventory consists of 58 sets of concepts referring to various objects and aspects of human activity. These sets are configurations of concepts belonging to different ontological orientations. Each concept appears three times in different sets. Six ontological orientations refer to Spranger's typology of values, which are: *economic, theoretical, aesthetic, social, political, and religious*. It should be stressed that one set of concepts is unique as it consists of notions which do not belong to any of the distinguished life orientations, and furthermore – which is an exception – content elements of this set were always the same, i.e., Cracow City, Me myself, the Universe. This distinctive set appears three times, and what changes is the order of particular concepts.

There are some premises lying behind the method. It is assumed that: 1) If something is important for an individual, it seems for him/her more real, in comparison to things which are relatively unimportant or indifferent to him/her, 2) The term "reality" (or something real) is by nature very indefinite and even ambiguous, so it must be specified by an individual user, 3) This means that "reality" itself is a kind of projective stimulus, which must be somehow interpreted by the user. 4) There is interdependence between the dominant ontological orientation and preferred values; this primarily applies to implicit values.

Generally, ontological orientation can be understood as the individual's tendency to selectively concentrate on a specific aspect of his/her own life activity (economic, social, religious, etc.), which leads to the belief in the high reality of given references in the external world.

The presented text focuses on one of the method's elements, which is choosing the most real element three times from the set of: Cracow City, the Universe and Me myself. It should be noted, that the kind of choices made in this set is not counted in results of any aforementioned life orientations. This set is an additional, complementary element of the RN-02.

In the second stage of the study, with reference to three items (which are in fact different versions of the same question) of the questionnaire completed before, test participants were asked to assess the percentage of people in your class⁵ who probably reached similar conclusions. In

one of the groups – as part of *post factum* control procedure – test participants were asked to recall what (in the case of this set) made them pick out the most real object. The researchers were particularly interested in the responses of those subjects whose choices were inconsistent.

Study 1

Participants

First-year psychology students took part in this research as part of their course on Cognitive Processes. There were 116 participants, including 97 women (84,0%) and 19 men (16.0%) aged 19-24 ($M=20.2$; $SD=1.2$).

Method

Test participants completed a specific type of questionnaire, i.e., RN-02 Inventory, in which they had to indicate in each set a concept which, according to them, refers to something more real than the other concepts. After that, test participants were provided with the following written instructions: *In the questionnaire which you have completed, among other sets from which you were choosing the most real "object", one set appeared three times: Cracow City, the Universe, Me myself. In your opinion, what percentage of people in your class made the same choices as you did in this set?*

Finally, in order to obtain information about cognitive processes accompanying the questionnaire completion, each person was asked to take a stance on the following two issues:

1. Write down what made you choose a particular object in this set as the most real?
2. If in another encounter with the same set, your choice was different, recall what made you pick out something else than before.

Results⁶

It must be remembered that test participants who were examined three times made a choice from a set of three concepts, in which only their order changed. Although most people (about 80%) made their choices consistently, some respondents changed their preferences in another encounter with the same set. Theoretically speaking, there are ten different configurations of the options provided. They have been enumerated in Table 1, which presents the number (and percent) of people in the group, who made particular choices, as well as the average estimated percentage of people who, according to test participants, picked the same options. Let's remember that there were different configurations of choices.

The obtained results, i.e., the percentage of respondents making particular choices (actual consensus),

⁵ In the third group (people in middle age) we used expression "in your age".

⁶ Some of the results submitted in this article were also presented at the International Conference "Motivation i Social Contexts: Theory and Practice"(30.06-02.07.2013, Cracow).

as well as the estimated consensus (the percentage of subjects who made the same choices) are presented in Table 1. Student's *t*-distribution was used to compare the mean from the group with the assumed mean (the actual frequency in the population). If the number of people representing a particular variant of choices was smaller than 8, *t*-value was not calculated.

The first three configurations of choices can be described as *consistent choices*, while others (4-10) as *inconsistent choices* (mixed), in which test participants at another attempt chose a different object than before. In total 21 respondents made inconsistent choices, which constitutes 18% of the sample group.

With reference to Table 1, it should be noted that a similar percentage of test participants consistently picked Cracow City and Me myself – 39.8% and 37.1% respectively. But only 4.2% of test participants chose the Universe as the most real object. It is also worth mentioning that three of the possible variants of inconsistent choices, namely 4.6 and 9 did not appear in this group.

It should be noted that the expected number of people making the same choices was overestimated in each case, regardless of the configuration. These discrepancies were becoming more conspicuous, at times even spectacular, in the case of less popular options (variants 2, 5, 7, 9 and 10). It must be ascertained then that FCE occurs also with reference to ontological issues, and more specifically, when assessing the degree of reality of the compared objects. Differences between the actual and estimated consensus, in the case of accordingly numerous configurations of choices (1, 3 and 5), proved to be significant at least on level $p < .0001$.

As for test participants' responses, which were obtained *post factum* and referred to the first question (*what were you guided by when choosing in this set a particular object as the most real*), they were convergent. Like in previous studies, in which attempts were made to determine the criteria behind choices made, test participants willingly referred to "the testimony of the senses", i.e., sensory data. It might be said that they tend to succumb to illusion, they are mainly guided by the testimony of the senses. "The main criterion of my assessment was what I can see, notice or experience in one way or another" (F, aged 20). Many people were convinced that their choices were obvious and unquestionable – "There is nothing more real to me than me myself" (F, aged 23).

In participants' responses we were trying to find also hints on inconsistent choices, when, somebody picked (for example) Cracow City for the first time (as the most real object), and in the next encounter with the same set, something else was chosen, e.g., Me myself. Did not it result from absent-mindedness or other distractions?

Generally, it can be said that the very process of making choices out of the changing sets of concepts forced test participants to modify their original understanding of reality, leading them to expand the preliminary, intuitive "definition" of reality. Some people indicated that in their responses. "Cracow appears to me to be something very real because it is what surrounds me and where I am almost every day. It was my first association and my first choice. But the second time I had doubts. I was considering whether I should pick Me myself this time. I did it the third time because I decided that as a matter of fact, it is I who is the most real in Cracow City" (M, aged 24). Another person

TABLE 1. Comparison between the actual and estimated consensus in the group of psychology students, including the type of choices made

Choice type	The object chosen as the most real (the number of choices)			The number of people (N)	Actual consensus (% of people)	Estimated consensus (% of people)	p (two-sided)
	Cracow City	The Universe	Me myself				
1	3x	-	-	47	39.83%	56.64%	.0001
2	-	3x	-	5	4.24%	35.4%	-
3	-	-	3x	43	37.07%	60.36%	.00001
4	2x	1x	-	-	-	-	-
5	2x	-	1x	8	6.7%	52.88%	.0001
6	1x	2x	-	-	-	-	-
7	1x	-	2x	5	4.24%	40.0%	-
8	-	2x	1x	-	-	-	-
9	-	1x	2x	5	4.24%	56.25%	-
10	1x	1x	1x	3	2.54%	65.0%	-
Total				116	100%		

– “Choosing a particular object I was mainly guided by whether it is perceived by at least one of the senses (and preferably by all of them), if it is tangible, visible, etc. At the moment of changing my choice I was under the impression that another object is more real and discernible” (F, aged 22). Taking into consideration the responses of those who made “inconsistent” choices, as well as the direction of changes (these people usually started with Cracow City and finished with Me myself), one gets the impression that some people recall their own existence with some delay. The process of searching for the most real is usually oriented by an implicit assumption that reality is in a way something “external”.

No significant differences were noted in the FCE magnitude connected with test participants’ gender. In the case of women, FCE was found to be slightly higher ($M=25.3\%$) than in the case of men ($M=22.7$), no statistically significant difference.

Considering that psychology students – as is often believed – are a specific group because they devote more attention and reflection to human behaviours and cognitive processes, it was decided that the same study would be replicated in a different group: first-year mathematics students of AGH University of Science and Technology (AGH - UST) in Cracow. The mathematics students, as we can observe while having classes with them, manifest different cognitive styles and different interests than psychology students. They are also more familiar with operating number vales, assessing probability inclusive. That is why we expected they may differ (from psychology students) also while assessing the consensus. Moreover, as pointed out in another research, the profile of education may be important – students of physics differ significantly from law students in their ontological choices (Mudyń, 2007

Study 2

Participants

First-year mathematics students of AGH – UST, 126 people (60 women and 66 men) aged 19-22 ($M=19.3$; $SD=0.9$). Studies were carried out individually or in small groups on university premises.

The method

Similar as in the first study. Test participants completed RN-02 Inventory, then they estimated the percentage of students in their year who made the same choices as they did in the recurring set: Cracow City, the Universe, Me myself. This time researchers did not use a control procedure concerning the criteria taken into account while making choices.

Results

Results, that is the type and frequency of choices made and estimated percentage of respondents choosing in the same way, are presented in Table 2. (two-sided)

It should be noted (Table 2) that regardless of the choice variant, the estimated consensus was clearly higher than the actual one. This time detailed information about the type of inconsistent choices was not provided, although just like in the previous group, discrepancies between the actual and estimated frequency of particular configurations were even bigger than in case of consistent choices. In the case of some type of inconsistent choices (what is not presented in Table 2), where the size of particular subgroups was big enough, FCE turned out to be significant on level $p = .001$ or higher. Inconsistent choices (in various configurations)

TABLE 2. Comparison between the actual and estimated consensus in the group of mathematics students, including the type of choices

Choice type	The object chosen as the most real (the number of choices)			The number of people (N)	Actual consensus (% of people)	Estimated consensus (% of people)	p (two-sided)
	Cracow City	The Universe	Me myself				
1	3x	-	-	40	31.7%	51.9%	.001
2	-	3x	-	14	11.1%	31.3%	.02
3	-	-	3x	48	38.1%	61.0%	.0000
4-10	All inconsistent choices in total *			24	19.1%		
Total				126	100%		-

Note. *We have concluded that in case of the inconsistent choices calculate the average estimated consensus would be problematic or even misleading because the particular subjects s estimated their own, specific types of inconsistency (not any types of inconsistent choices)..

were made by 24 people, which constitutes 19.1% of the whole group.

A comparison was made between the magnitude of women's and men's FCE. Similarly as in the previous group, an average false consensus effect among women ($M=31.1\%$) was found to be higher than among men ($M=21.8\%$). This time differences between mean values turned out to be significant – $t(124)=2.03$; $p < .05$.

Study 3

Participants

The study involved 106 people (53 men and 53 women) aged 40-60 ($M=49.6$; $SD=4.6$). This group, which was diverse in many respects, included people living in Cracow City or small towns in southern Poland, having different jobs and representing various levels of education.

The method

Similar as in the previous studies, but test participants estimated the universality of their choices with reference to the population categorized as "people of your age". Unlike in previous studies, where the question was about the estimated frequency of one's own choice "in your year class", this time there is no direct measure of the actual consensus with reference to people belonging to this age group. So, we assumed that the distribution of results in the sample can be used as the acceptable estimator of the distribution in the population of middle-aged people.

Results

Results concerning the actual and estimated frequency of choices are presented in Table 3.

As we can see (Table 3) similarly as in the previous two groups, the estimated consensus was higher than the

actual one, regardless of choice type, for both consistent and (especially) inconsistent choices. This time the percentage of respondents making inconsistent choices was slightly smaller (10,4%) than in the group of mathematics students. Differences between the actual group consensus and the estimated consensus are statistically significant from $p < .01$ in the case of people choosing the Universe, $p < .001$ in the case of subjects picking out Me myself, and $p < .00001$ for those opting for Cracow City.

Also a comparison was made between the magnitude of women's and men's FCE. Although women's FCE was slightly higher ($M=22.7$) than in the case of men ($M=19.9$), the difference is not significant.

Summary of results obtained in three test groups (psychology students, mathematics students and middle-aged adults)

Let's start with emphasis on what is common in the results of the tested groups. In each group some part of people made inconsistent, mixed ontological choices when answering the questions about which of the three named "objects" seems to be most real. In the successive groups these answers were accordingly: 18, 0%, 19, 1% and 10, 4% of the respondents. In all groups regardless the kind of the choices made the estimated consensus was overestimated without exception. In all cases where the number of people making the certain choice allowed estimating the significance of the difference, these differences appeared to be statistically significant at the confidence level $p = .02$ through $p < .01$ and $p < .001$ up to $p < .00001$ inclusive. In all groups (if taking into account consistent choices) the least often chosen object was the Universe. In all groups FCE was slightly higher in women than men (and among the mathematics student this difference appeared to be significant, $p < .05$).

TABLE 3. Comparison between the actual and estimated consensus in the group of, middle-aged people including the type of choices

Choice type	The object chosen as the most real (the number of choices)			The number of people (N)	Actual consensus (% of people)	Estimated consensus (% of people)	p (two-sided)
	Cracow City	The Universe	Me myself				
1	3x	-	-	35	33.0%	56.6%	.0000
2	-	3x	-	9	8.5%	46.3%	.01
3	-	-	3x	51	48.1%	59.4%	.001
1-10	All inconsistent choices in total			11	10.4%		
Total				106			

For further comparisons it can be helpful to use the pooled Table 4, including only the corresponding values in relation to so-called the consistent choices.

With reference to Table 4 it is worth to note that the middle-aged adults in comparison with the two student's groups more often chose Me myself as the most real object (48,1%). It may be assumed that for the students, due to the typical for adolescence identity crisis, the "Self" is not sufficiently crystallized yet and therefore seems to be less real.

There were the mean values of FCE magnitude compared within the tested groups with taking into account all possible choices. FCE was calculated in such a way, that firstly for each person there was a calculation made for the difference between the actual frequency of the adequate type of choice within the group (expressed as the percentage) and the estimated frequency of such a choice made by a certain person, and then the obtained differences were averaged for all people in the given group. The carried out ANOVA (3x1) didn't show the differences in FCE magnitude within the three compared groups - $F(3,45)=1.07$; $p = .34$.

Considering the fact that within each of the tested groups some part of people, and accordingly 17.9%, 19.1% and 10.4%, made inconsistent choices, it was decided to make comparison of FCE magnitudes of inconsistent persons with the persons making consistent choices. The comparisons were made separately for each of three groups by using *t*-student for the independent groups. The results are shown in Figure 1. (See next page)

In the first group (psychology students) so-called inconsistent choices were made by 21 persons and consistent choices by 95 ones. The corresponding means were $M=45.07$ ($SD=26.79$) and $M=20.37$ ($SD=23.78$); $t(114)=4.21$; $p < .00001$. In mathematics student group the inconsistent choices were made by 25 persons, and consistent ones by 101. The corresponding means are $M=44.86$ ($SD=21.60$); $t(124)=4.27$; $p < .00001$. In the group of middle-aged adults the inconsistent choices were made by 11 persons, and consistent ones by 95. The corresponding means are $M=47.48\%$ and $M=18.32\%$; $t(104)=3.86$; $p < .0001$.⁷

Significant and even spectacularly higher FCE among people making inconsistent choices in comparison with the people, who chose consistently, as well as repetitiveness and stability of these differences gives food for thought. However, it has been known for a long time, especially since Gross and Miller (1997) meta-analyses, that overestimation of compliance is the issue of minority, whereas underestimation (which, according to these authors, starts above 61.8% of actual consensus) is the domain of majority.

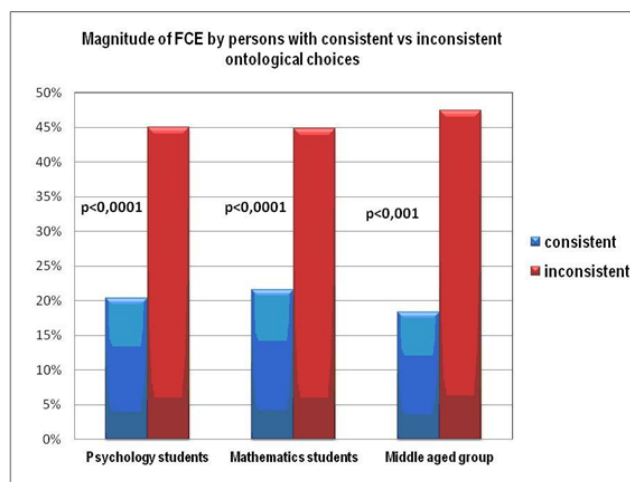
When we think about it, the simplest interpretation of the evidently higher FCE of inconsistent choices would be the justification of this fact with the relative rarity of such choices (jointly it refers only to 16.1% of the respondents). However, in our research the actual consensus has never crossed (or even has been close to) this magical border. The relatively highest consensus occurred within *middle-*

TABLE 4. Comparison of the actual and estimated consensus within all tested groups in relation to the consistent choices

Object recognised as the most real	Psychology students <i>N</i> =85(116)			Mathematics students <i>N</i> =102(126)			Middle-aged adults <i>N</i> =95(106)		
	Actual consen.	Estim. Consen.	<i>p</i>	Actual consen.	Estim. Consen.	<i>p</i>	Actual consen.	Estim. Consen.	<i>p</i>
Cracow City	39.8%	56.6%	.0001	31.7%	51.9%	.001	33.0%	56.6%	.0000
Universe	4.2%	35.4%	-	11.1%	31.3%	.02	8.5%	46.3%	.01
Me myself	37.1%	60.4%	.0000	38.1%	61.0%	.001	48.1%	59.4%	.001
All types of inconsistent choices	17.9%	-	-	19.1%	-	-	10.4%	-	-

⁷ Each time one used double-paged test *t* for the independent groups. Leven's test showed homogeneity of variances in both groups; distribution of FCE values close to normal.

FIGURE 1. Comparison of FCE magnitudes for persons making consistent (i.e. choosing always the same object) vs. inconsistent choices within psychology students, mathematics students and middle-aged adults



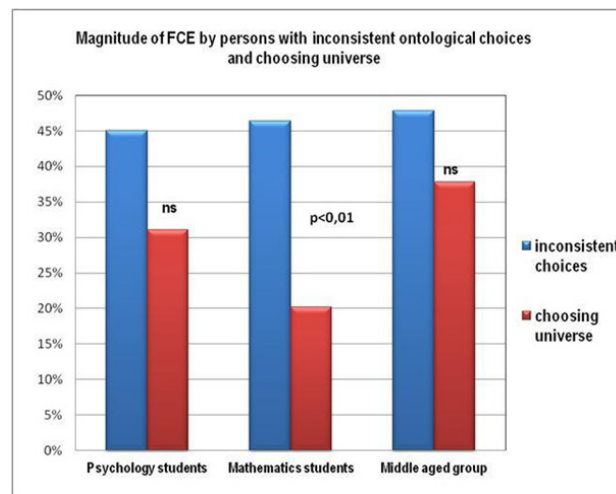
aged group, where 48.1% of the respondents chose Me myself as the most real object. Luckily, we also have at our disposal the results of the other “minority”, namely the persons that consistently were indicating the Universe as the most real object. Such persons (in all groups) amount to 28 i.e. (8.1%). Thus, we have decided to compare FCE magnitude of “inconsistent persons” with the persons that (consistently) were choosing the Universe. The comparison of the average FCE magnitude within the mentioned groups is shown in the Figure 2.

It turns out that in all groups FCE was higher among the persons making the inconsistent choices in comparison with the persons choosing the Universe, and in case of the mathematics students only this difference turned out to be significant ($t(36)=2.99; p < .01$). Considering the fact, that group sizes were small (which in part explains lack of significant differences in the remaining groups), there was also made a comparison of the average FCE results among all inconsistent persons ($N=56$) with all persons choosing the Universe ($N=28$) jointly i.e., without considering their belongingness to the group. The difference turned out to be statistically significant. The corresponding values are: $M=46.09$ vs. $M=27.80; t(82)=3.05; p < .001$. And therefore, the FCE appeared to be almost twice as high for the case of the inconsistent choices as for the choices of the Universe, even though (what is worth emphasising) that there were twice less people choosing the Universe, and that they represented definitely “smaller minority” than the indecisive persons making inconsistent (mixed) choices. It means that we have to search for other explanations referring to the increased FCE in persons making the inconsistent choices. Anyway, we can talk here about something of a kind of Effect of Ontological Uncertainty (EOU) that is the doubts about the ontological status of the objects being compared.

GENERAL DISCUSSION

If we assume, that we are dealing here with rather poorly investigated effect than with the artefact,

FIGURE 2. The average FCE values of persons making the inconsistent choices vs. persons choosing the Universe within the particular groups



it opens up a wide field for speculation and provokes as well as encourages the further researches on EOU determinants. Generally, all possible explanations may invoke in the first place either to (meta)cognitive factors or to emotional-motivational determinants (and personality). Let's start from the cognitive level. It can be said that while performing a task, which requires making difficult choices, the respondents had to confront the situation of “ontological dilemma”. One should ask if by changing their primary choice in the following attempts, they would behave rationally or rather quite opposite. The change of the former position was the result of taking into account some other cognitive perspective (what was mentioned by some persons in their further statements) or an attempt to deal with the dilemma situation in a compromise manner. It would refer mostly to those few people ($N=5$), who always were choosing a different object from the tree comparable objects. It could be said, that people making the mixed choices acted contrary to the well-documented Commitment and Consistency Rule (Cialdini, 2001), which makes that we try to fit our further reactions to the previous behaviours and declarations. What is more, making the choice (and announcing of the decision) usually leads to intensification of the conviction about its accuracy. And although “being a consistent person” is connected with many psychological benefits (reduces the use of the resources), and yet from the cognitive point of view it is not rational strategy. Modification of the previous decisions or correction of the former choices seems to be more rational. It can also be a sign of bigger adaptability. But why otherwise rational strategy would lead to bigger distortions of the judgements, in terms of stronger overestimation of universality of one's own options?

Anyway, the intriguing question returns – who are those people making the inconsistent (or maybe just changing) ontological choices? What makes them different from the remaining? Maybe those are the relativists, who know better than the others about arbitrariness of different

evaluations depending on the criteria resulting from the context or purpose of the comparisons made. Maybe those are people who are used to make use of many perspectives (points of view) regardless on the type of case, which is the subject of consideration and estimation? Perhaps people may be divided into mono-perspectivists and poli-perspectivists. By accepting more than one perspective, we start to see the limitation of each of them and (at least situationally) we become the relativists. It happens at the expense of feeling of obviousness and definiteness about the arising judgement or estimate. Referring to the task our respondents were confronted with, it would be the awareness that none of the single choices in the matter “What is the most real” is not entirely “real” or justified.

Relativistic thinking is often considered as a manifestation of reaching the postformal stage of cognitive development in post-Piagetian terms. It is also considered as one of the aspects of wisdom (Pascual-Leone, 1983, 1990; Kramer, 2003; Baltes & Staudinger, 2000). It is characterised by awareness of relativity, uncertainty and often by paradoxical nature of reality as well as awareness of logical thinking limitations with reference to solving complex human problems. It is accompanied by awareness of subjectivity of knowledge and inability to direct and thorough recognition of the world, unfiltered by the gained concepts and current knowledge (Kramer, 2003). Relativistic thinking justifies modification of the previous decisions resulting from “limited certainty” about one’s own judgements, consequently leading to so-called inconsistent choices. It doesn’t explain though why the relativistic inclinations would have increased FCE, in other words lead to overestimation of one’s own statement about ontological matters that is EOU. Especially since Bauman and Geher (2003) researches have shown that FCE is getting smaller if the respondents had been presented with different points of view of different matters prior to the test.

Trying to understand EOU we can also shift our attention towards the factors of emotional-motivational and personality features. Perhaps people making the mixed choices are characterized by higher level of neuroticism, and “changeability of decision” is connected with emotionally disturbed balance of mind, impulsiveness as well as excessive self-criticism and low self-esteem. While focusing on the individual differences one should necessarily take into account *uncertainty orientation*, treated as a constant disposition of personality and cognitive style as well as correlated with it Big Five dimension that is *openness to experience* (Hodson & Sorrentino, 1999). The fact that different people are uncertainty reduction-oriented at different degrees and also that it results in numerous motivational and social consequences, which was indicated in many researches (see Hogg, 2007). It seems that low self-esteem, which is not necessarily understood as declared self-assessment but rather treated as implicit self-esteem that is determined by *implicit measures*, is related with uncertainty. In colloquial language the opposite of a self-confident person is a shy one.

Both directions of investigations to answer the question: “Who are the people making the inconsistent

choices”, lead to the concept of uncertainty. And although uncertainty can result from different reasons and refer to different matters, yet it seems to be key issue. Uncertainty can be anchored in meta-cognition that our knowledge is limited and therefore different statement about the same matter may also be justified because “it depends”. It can also be anchored in low self-esteem. Regardless of the origins and causes of uncertainty, its consequences can be similar – they increase motivation in order to reduce it. Overestimation of universality of one’s own preferences performs such a function that is by reducing uncertainty it protects self-assessment, which is sensitive to depreciation, and reduces discomfort. Looking at the issue from a genetic (developmental) point of view, one can come to the conclusion that being the relativist and habitual consideration of many points of view is, in fact, more sophisticated in cognitive way strategy of dealing with uncertainty. Generalized feeling of uncertainty and self-incompetence, in other words low self-esteem, can motivate also to more careful, more “defensive” (because regarding different points of view), relativistic processing of information. An opposite strategy would be dogmatic and stiff following of radically simplified, black and white view of the world that is offered by radical ideologies.

The carried out research showed unequivocally that FCE is also present with reference to ontological matters, regardless character of a group, its participants’ sex and age. More specifically, FCE was present both among students (young adults) and also among middle-aged people. And although it is difficult to find here any direct comparisons, it seems that this aspect of ontological decisions, which was a subject of our study, “produces” even stronger effect of overestimation of one’s own universality than in a case of the research regarding less basic matters. Perhaps it is caused by bigger information shortfall about the views of other people, in other words, bigger uncertainty. If EOU – which is revealed despite the lack of expectations on our part – is manifested by the inconsistent choices, it suggests that FCE magnitude is a function of uncertainty degree.

And although uncertainty (especially situational) may be the effect of the cognitive factors, yet the explanations of FCE magnitude (and its adaptational function) should be found rather within motivational factors.

DIRECTIONS FOR FURTHER RESEARCH

Considering the fact that the most interesting yet unexpected result of the reported researches turned out to be EOU, interpreted in categories of uncertainty, the further research need to check if it will be possible to replicate this effect with reference to other important objects, being compared with respect to the same question: which one seems for you to be more real? Undoubtedly, it is worth to control the degree of subjective certainty of the respondents after the choice has been made and assessed in terms of its universality. It would be advisable to simplify the procedure and to allow the respondents to use an option in kind of “I have no opinion”.

In view of the obtained results, there seems to be the crucial concept of uncertainty. More specifically, different aspects and kinds of uncertainty, whether understood situationally or treated as a constant disposition of personality, as well as tolerance of uncertainty and preferred strategies of uncertainty reduction. Uncertainty may relate to a specific domain or have non-specific character, somehow generalised, as the result of an overall assessment of one's own competences and sense of self-esteem. Therefore future studies should control these features or personality dispositions, which relation to uncertainty seems likely, though not obvious. We mean such variables as level and stability of self-esteem, fear and neuroticism, the concept of self-efficacy, clarity of one's own social identity and perceived social support as well as *need for cognitive closure* (Webster & Kruglanski, 1994). Another variable, which is also associated with certainty vs. uncertainty, would be conviction that the others share or don't share our vision of reality (Kashima, Kashima, Bain et. al., 2010). We learn about this particularly while communicating. Last but not least we should necessarily mention on existential-phenomenological approach (Mudyń, 2012 and the notion of *ontological security* introduced by R. D. Laing in his classical work *The Divided Self* (1960).

Anyway, the differences within the range of individual ontological orientations still seem an issue that is intriguing and little surveyed. Paraphrasing the statement of Queen of Hearts from *Alice's Adventure in Wonderland*, it is tempting to say that ordinary people are also able to imagine six non-existent things and believe in their existence, even before breakfast. They are also able to deny the reality of objects, which are not interesting or not important for them. The fact that the Universe was hardly ever chosen as 'the most real object', convinces us that the whole can be understood as less real than its component parts; and also that - time after time - logic loses to the clarity of the imposing notions.

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