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CONFRONTATION OF REISM
WITH TYPE-THEORETICAL APPROACH
AND EVERYDAY EXPERIENCE

1. Grzegorzczyk's project for merging reism with type theory

Quine's famous essay "On What There Is" starts from the following remark.

A curious thing about the ontological problem is its simplicity. It can be put in three Anglo-Saxon monosyllables" 'What is there?' It can be answered, moreover, in a word – 'Everything' – and everyone will accept this answer as true.

Obviously, such accord is only apparent, since each philosophical doctrine offers its individual answer on what this *everything* does comprise. However, the strategies of justifying their claims have something in common. Each philosopher tries to distinguish a category of entities whose existence would be most certain, beyond any doubt, and then – on this basis – to demonstrate the existence of other kinds of entities. Let the elements of such a basic category be called *prime existents*¹ The history of philosophy can be summarized through mentioning kinds of entities which were acknowledged as prime existents by particular thinkers: by Plato – universal ideas; by Aristotle – substantial individuals; by Democritus – atoms; by Descartes – his own mind; by Hume – sense data; by Brentano (in one phase of his development) – mental phenomena, etc.

What in the Aristotelian idiom is called *individual substances* can be translated into vernacular English as individual things or, even simpler, *things* – Latin *res*.²

¹ In the use of the term "individual substances" I follow Moran's [2000, p. 35] account on Brentano's ontology.

² Dictionaries contain a long list of everyday meanings of "thing". Among them are

Thus Aristotelian ontology might be called reism, but in fact this designation has come into use owing to Tadeusz Kotarbiński. He termed so a specially strict form of reism which restricted the realm of existence to those things which are physical tridimensional bodies in space and time; hence another term he used to denote his view is *somatism*. Still another name is *concretism*.

There are a number of Andrzej Grzegorzczuk's writings in which he introduces himself as a telling follower of reism. However, his involvement is different from that of Kotarbiński. The latter held firmly his tenet as the last decisive word of philosophical wisdom, and focussed his attention on defending principles of such materialistically oriented reism. With Grzegorzczuk there is no stress on materialistic orthodoxy; instead, he cares for the culture of rational thinking, and sees reism as a possibly useful tool for this purpose. In pursuing this goal, he is like an earnest researcher who gets deeply engaged in a thought experiment; that of adopting reism for the dissemination of logical culture. In this enterprise, he looks attracted by reism, and with empathy embraces it as if his own position. However: with the proviso that one succeeds in transforming Kotarbiński's rigid reism into a more flexible tool of efficient thinking.

In his book devoted to applications of logic in real human life, under the expressive title "Logic – a Human Affair" [1997], Grzegorzczuk endorses reism but with the said proviso. This runs as follows (p. 12):

The style of writing I have chosen in this book may be called **reistic**. It is reism in a liberal sense. The sense will be explained in a moment.

When employing the term *liberal*, Grzegorzczuk displays the awareness that in an innovative way he is combining Kotarbiński's manifesto with his own epistemological and ontological vision, and his logical expertise. Grzegorzczuk's own explanation of liberalizing is to the effect that the reistic style of describing the world can be exhibited in a more technical way, to wit, with recourse to Russell's simple theory of types. Its core gets explained by Grzegorzczuk in a way quite similar to the formulation found in Kurt Gödel's article "Russell's mathematical logic" [1944, p. 126] (I quote Gödel to give – by the way – some taste of the classics of mathematical logic). Gödel's text runs as follows.

the following: a separate and self-contained entity, an action, any attribute or quality considered as having its own existence, a piece of information. It is the first item in this enumeration that gives rise to the philosophical reistic meaning of "thing".

By the theory of simple types I mean the doctrine which says that the objects of thought [...] are divided into types, namely: individuals, properties of individuals, relations between individuals, properties of such relations, etc., with a similar hierarchy for extensions [i.e., classes, called also sets].

Consequently, the theory of types admits of quantifying variables of any type, not only those of the type of individuals. These classics are disregarded by Kotarbiński [1957] who puts the following rigid restriction on quantifying variables other than those ranging over individuals; he writes what follows.

The [acceptable by reism] system [of quantification logic] is devised from a standpoint which does not admit of binding by quantifiers other variables than individual ones. This restraint is to prevent the use of the existential quantifier with respect to predicate variables. For this would entail the existence of some entities other than individuals; namely, sets denoted by predicates, while – in fact – individuals are the only existents. [p. 158, ad hoc translation by W. M.]

When taking into account that the very core of type theory consists in allowing quantification within each type – sets (as extensions of predicates), sets of sets, etc. – Grzegorzczuk’s type-theoretical enhancement of reism seems to be like reforming one party’s dictatorship through converting it into pluralistic democracy; it would be rather turning the system upside down instead of a limited correction.

However, the term “reism” can be used in a legitimate way, following its Latin etymology, without sticking to the orthodoxy established by Kotarbiński. A way out should be found with the catchword “Back to Aristotle”, following Grzegorzczuk’s [1959, p. 8] suggestion that the Russellian theory of types may be seen as a modern counterpart of the Aristotelian idea of categories of being.

Let’s note how these theories are related and complete each other. The theory of types has the enormous advantage that successive types are being introduced in a systematic manner, according to a uniform procedure, and without any upper limit (up to infinity). However, being a mere formal system, a syntactic framework, this theory does not tell what entities constitute the type of basic elements, called *individuals*, that is, the lowest type. As individuals there may be taken numbers, atoms, apples, points, situations, Platonian ideas, events, sense-data, minds, mental states, etc. What will be chosen depends on an intended semantic interpretation of the basic set.

Now let’s go back to Aristotle, and ask about his interpretation of the lowest type, i.e., lowest category. He establishes a hierarchy of types as well,

but much restricted in number. For he takes into account only those which we can perceive in the limited range of our experiencing reality. Thus his categorial framework is less embracing, as being concerned with one actual world, not with a multitude of possible worlds (each having basic elements of its own). In this world there is no uniform systematic procedure of entering new types on the basis of preceding steps, but each step has to be considered separately, with ontological intuition.

Why does the Aristotelian system of categories deserve to be called reistic? Let us start from noticing that Aristotle distinguishes the primary kind of reality from secondary kinds, and this primary (so to speak, complete) attaches to the lowest category alone, while different secondary kinds (less and less remote from completeness) get distributed among remaining types. In such a framework, the reistic component consists in identifying the basic elements (that is, completely existent) with things. They are called *primary substances* and form a universe which includes things in the modern reistic sense.

The Aristotelian categorization can be connected with a type-theoretical categorial framework owing to the Russellian distinction of *complete* and *incomplete* expressions. The former denote higher types (classes, properties etc.) while the latter denote individuals. This semantic distinction can be transferred to the ontological level, and be applied to respective entities as denoted by said kinds of expressions. Thus things will be called complete entities, while classes, or properties – incomplete entities. An alternative stipulation is due to Alexius Meinong who for the kind of reality possessed by properties employed the term “subsistence” (German *Bestand*).³

Now the difference between the original strict reism and liberal reism can be concisely expressed as follows. Liberal reism – in the Aristotelian vein – acknowledges two modes of reality, complete and incomplete, or (in another idiom) existence and subsistence, attached to the lowest type (individual things) and the higher types (classes etc.), respectively. On the other hand, strict reism denies the very idea of subsistence (or, incompleteness in being) as one of the justified modes of reality, claiming instead that only individual things, conceived as physical bodies, constitute the whole of the real world.

Despite all these divergences, there is a feature common to type theory and strict reism. It is the notion of the individual as being at the bottom of the ladder of types. Significantly, *we are forced to consider individuals as*

³ The prefix “sub” (meaning in Latin “under”) in “subsistence” hints at a secondary sort of actuality. More on this notion – see Bergmann [1964], Findlay [1963], Simons [1992].

the basis of our logic when we use quantifiers and predicates.⁴ This feature is characteristic of the whole of modern logic, including type theory as its eminent representative; strangely enough, it is alien to the Aristotelian syllogistic, which in a rather Platonian manner is oriented toward universals. Such a preference for individuals in constructing logic appears to be the rational nucleus in the programme of reism.

2. Tenets of strict reism and its perplexities in the face of scientific theories

The confrontation I have in mind occurs with respect to any scientific theory which involves abstract theoretical concepts, remote from our everyday perceptions of such tridimensional bodies as trees, stones, buildings. Theoretical concepts to be taken into account may be light, heat, magnetism, electricity, gravity, entropy, and so on. In the present Section the main tenets of strict reism are formulated, and discussed with reference to some scientific concepts which prove very resistant to the demands of reistic correctness. This is why one can speak of perplexities.⁵

Kotarbiński takes advantage of the list of ontological categories proposed by Wilhelm Wundt at the end of the 19th century. It includes: things, states of affairs, relations and properties. This original list does not include events and processes; presumably, they are subsumed into the states of affairs; it is clear, however, that it was Kotarbiński's intention to treat them as non-things. His strict reism consists in affirming the existence of things and denying any existence to the remaining items from the list. This can be summed up with the following statements.

[SR1] Any object, that is, whatever does exist, is a thing.

[SR2] No object is a state of affairs (including events and processes), relation or property.

[SR3] x is a thing if and only if x is a resistant and extended object (a material body).

On account of SR3, Kotarbiński also termed his view *pansomatism*; the term derives from the Greek “pan” (all) and “soma” (body). Thus, pansomatism

⁴ This maxim is borrowed from Peter Simons [2005, p. 43]

⁵ In the paragraphs of this Section which are concerned with reistic tenets, I follow Jan Woleński's [2012] article on Reism in Stanford Encyclopedia of Philosophy: <http://plato.stanford.edu/entries/reism/> (I do not use quotation marks since the citation is abbreviated, and also in other ways non-literal). When speaking of perplexities, I follow my own line of reasoning.

claims that all objects (i.e., whatever exists) are material bodies. He used interchangeably the terms “reism”, “pansomatism” and “concretism”, the last indicating that things should be construed as concrete objects, which is to say, individuals, as opposed to the rest of the categories listed in SR2.

Some comments on each of the points will be in order. As to SR1, the phrase “any object” should be understood as “whatever exists”, and the copula “is” as one to express equivalence.

As to SR2, a serious puzzle arises about the question of how we should discern those properties, states of affairs, etc., which are possible and attach to some things, from those which are impossible. The impossible ones are defined as those which are not able to exist. Correspondingly, the possible properties should be defined as being able to exist, and consequently, those who actually attach to something should be regarded as belonging to reality in the way termed subsistence, or incomplete existence, as considered above (§1). Subsistents are no figments, but in the reistic setting there is no way to tell and justify the difference.

Special attention is due to processes as a category of particular importance in sciences. What about such processes as waves in some medium, as water, air etc. where “water”, “air” etc. are mass terms? Do mass terms really denote things in the sense of strict reism?⁶

Even worse, what about the non-mechanical type of wave, like electromagnetic waves, which do not require any medium? Instead, they consist of periodic oscillations in electrical and magnetic fields generated by charged particles, and can travel through a vacuum.⁷

Should a vacuum be counted along with things? Democritus would presumably answer in the affirmative, but what about Kotarbiński? Putting scientific doubts aside, we encounter similar perplexities when experiencing processes without any individual thing as their substratum in our everyday experience; such are river, wind, light, heat etc. As not being properties of anything, should they be regarded as things, or rather as no-things?

Among items omitted in SR2, but also thought with reism as nonexistents, there are sets or classes (the two terms are used in the present context interchangeably, according to stylistic convenience). Implicitly, they belong to the forbidden zone, since classes are defined by relevant properties, hence

⁶ A penetrative discussion of the peculiarities of mass terms is found in Simons' [2005] paper “Mass Logic”.

⁷ Even in the Newtonian theory of light, which is closer to reism because of defining rays as streams of particles (hence microscopic solids), there appear concepts from the reistically forbidden language (italicized in the following quotation), to wit: “*Sine* of incidence is in a given *ratio* to sine of *refraction*, for every ray considered apart.” – Newton’s “Opticks”, Proposition VI, Theorem V.

having to share with the latter the status of nonexistents. Integer positive numbers, in turn, when conceived as properties of classes, have even a stronger reason for non-existence.⁸

Concerning SR3, the vagueness of the word "resistant" leads to some questions formerly raised in the comment on SR2. Are mechanical waves resistant? True, liquids and gases are resistant, but the waves themselves as propagated in such media are just transitory configurations of particles, being more like geometrical forms than tough pieces of matter. Strict reism leads to even more troubling puzzles when it comes to considering gravity; these cases will be discussed, as especially interesting, in the next Section.

Reism as a system of ontology gives rise to its semantic counterpart – to the effect that expressions referring to properties, relations, classes etc. are not regarded as genuine names; they are called therefore apparent names or onomatoids. In these terms the semantic thesis of reism is stated as the following principle.

[SR4] Only sentences with *genuine names* have a meaning. Those with apparent names are meaningless, unless they are translatable into sentences containing genuine names alone. Owing to such translation apparent names can be wholly *eliminated* from the language. If we use them, this is only for practical reasons without any theoretical necessity (e.g., for the sake of greater conciseness).

For instance, the sentence "Wisdom is a property of some people" has sense owing to the fact that it can be translated into the sentence "Some people are wise" where no apparent names (i.e. "property" and "wisdom") occur. If such elimination is not available, then the utterance containing apparent names is devoid of any sense.

SR4 when taken jointly with SR1 and SR3, would have disastrous consequences for the whole of our science, since mathematics as well as natural and social sciences ought to be regarded then as meaningless. Even the simplest arithmetical sentences, say (A) " $1 > 0$ ", must be regarded by a reist as nonsensical, as the apparent names "1" and "0" cannot be eliminated by replacing A with any sentence about bodies; that is entities existing in time and space. Also set-theoretical utterances would lose the rank of meaningful sentences; nobody can manage to get rid of the word "class", e.g. in the following string of words: "There is a class of such classes that no one of them is its own element".

⁸ The verdict concerning the non-existence of classes is explicitly stated, e.g., with Kotarbiński [1957, p. 157f].

The lack of sense in the language of natural and social sciences would be equally evident. Consider the following sentence: “The maximal speed of communicating the content of a message cannot exceed the speed of light”. According to SR4, the apparent names “speed”, “content”, “light” should get eliminated in favour of the names of tough resistant bodies – as sole constituents of a sentence which would express exactly the same thought. Is it a tractable task? Such an attempt does not seem to have any chance, even for the most sophisticated followers of reism. But, ultimately, the answer is up to them.

3. The small case study of gravity – to exemplify the notion of abstract constituents

Let us compare three assertions concerning gravity: one due to Newton [1687], another one to Leibniz (as an opponent of Newtonian theory on the grounds of natural philosophy), and still another to Kotarbiński – to be labelled, respectively, as AN, AL and AK (A for “assertion”).

AN: There exists the force of gravity.

- On the premise that multiple application of the law of gravity in all areas of the universe has not yielded any counterexamples.

AL: There does not exist a force of gravity.

- On the premises that (L1) the acting of such force would have been an action at a distance, while (L2) there cannot be any action at a distance.

AK: There does not exist a force of gravity.

- On the premises that (K1) gravity would have been a relation between bodies, while (K2) there cannot exist any relation between any objects (compare SR2 above in §2).

AL and AK look like identical assertions, but in the context of their premises they obtain different meanings. The AL denial of gravity is supported by a view belonging to the philosophical foundations of physics; with Leibniz this view included the basic regulative principle that it is factually impossible for any body to exert an action at a distance. On the other hand, the rejection of gravity by AK derives from the ontological tenet that any relation is condemned to non-existence, hence gravity too.

Now, the homework to be done by the followers of reism would consist in getting rid of (what they think as) apparent names (italicized below in LG) from Newton’s Law of Gravity.

Confrontation of Reism with Type-theoretical Approach...

LG: Every *point mass* in the universe attracts every other point mass with a *force* that is directly proportional to the *product* of their *masses* and inversely proportional to the *square* of the *distance* between them.

Let us recall the scientific meaning of terms used in the above statement.

Mass is the quantity of matter in a body regardless of its volume or of any forces acting on it. The term should not be confused with weight, which is the measure of the force of gravity acting on a body. Under ordinary conditions the mass of a body is regarded to be constant, while its weight not, since the force of gravity varies from place to place.

A *point mass* means a point particle with a nonzero mass and no other properties or structure (likewise, in the theory of electromagnetism there appears the notion of particles with a nonzero charge).

A *force* is that which can cause an object with mass to change its velocity, i.e., to accelerate, or which can cause a flexible object to deform.

In order to account for meanings of the terms italicized in the definitions above, we shall need a special notion; it seems not to have appeared so far in the literature, but shall prove indispensable in confronting reism with the reality handled by science.

Let's note that when speaking of mass, point mass, and force, we mean some constitutive parts of bodies. Let us call them *constituents*. They are parts since they are somehow *in* bodies, being different from the whole of the body in question. They are constitutive since they are necessary to constitute a body. However, they are parts which are not able to exist in separation from their wholes, while, for instance, a car's wheels can exist separated from the car. In this sense, we say that a wheel is a *concrete constituent* of car. Consequently, it is in order to say that the mentioned masses, forces etc. are *abstract constituents* of bodies. A more familiar example, taken from everyday experience, is that of perceiving surfaces. The surface of the moon is a constituent of the moon, but it cannot exist in separation from the moon itself; hence it is no concrete constituent, but an abstract one.

Another handy expression to account for this ontological relation is the Platonian term *participation* (Gr. *metechein*, but taken in a sense which is reverse (not to say "perverse")) to that in Plato's "Parmenides" and other dialogues (cp. Scheffel [1975]). To wit, with Plato individual concrete things participate in universals, while in the here – adopted usage (akin to Aristotle's) universals participate in individuals. Such a reversal reveals in what sense the view here expounded can be regarded as liberal reism: reism

for that anti-Platonic point, and liberal for not denying reality to universals conceived as abstract constituents.

The notion of abstract constituent fits into the categorial framework of the theory of types, since abstract constituents form a kind of property (the main idea of the theory of types has been sketched in §1). Thus the surface of the moon is a property of the moon as a solid, and the line being a perimeter of this plane is the plane's property. Hence an abstract constituent of a whole which is of type n , belongs itself to type $n + 1$, like in the case of properties of bodies (as their abstract constituents). Let this be exemplified by a rough (with ad hoc numbering) calculation of types of objects involved in the process of gravitational attraction.

Let's agree that any body in the universe belongs to the lowest type, labelled with number 1. Hence its mass, being its abstract constituent, is of type 2.

A point mass being an abstract constituent of mass, is of type 3.

Gravitational attraction acting with a certain force is a relation between point masses, hence it is of type 4.

Force of attraction is a property of attraction processes, hence it is of type 5.

Every next type number marks a higher level of abstraction in the above sequence of abstract constituents. With this fact in mind, a kind of arguing "ad hominem" (i.e., appealing to personal considerations) will be in order. A person who considers that there is in the universe the force of attraction, will be ready to acknowledge that there are abstract constituents in reality. On the other hand, one who claims that no abstract objects can participate in reality is bound to deny reality to the force of gravity, independently of how great is the scientific merit of this concept.⁹

The same is to be said of many other abstract theoretical concepts in science. Each of us is free in her/his worldview either to believe that there are abstract constituents, or to believe that they are not the case, being just mental figments which in a mysterious way prove astonishingly fruitful in perceiving and mastering physical reality.

⁹ Such a radical attitude is typically represented by Nelson Goodman [1967, p. 214] in the following statement. "[I] do not presume to restrict the scientist. The scientist may use platonic class constructions, complex numbers, divination by inspection of entrails, or any claptrappery that he thinks may help him get the results he wants. But what he produces then becomes raw material for the philosopher, whose task is to make sense of all this: to clarify, simplify, explain, interpret in understandable terms."

4. A type-theoretical approach to analysing systems, esp. domains of discourse

No philosopher should be expected to hold the same views in every period of his philosophical development; this would contradict the very idea of intellectual evolution. On the other hand, in such evolution there is usually an aspect of continuity, and that ought to be also taken into account by commentators. This I shall try with respect to Grzegorzczuk's [1963, Polish] paper on *applications of the logical method of formally analysing domains of discourse* in the sciences, technology and economy".

The concept of a domain of discourse is patterned on that described by Grzegorzczuk in his textbook [1974] on mathematical logic; there are found typical examples of *domains* or *systems* or else (still another term) *structures* studied in arithmetic and algebra with the use of notions provided by logic (allied with set theory); hence the use of the phrase "the logical method". The paper [1963] is meant to extend this method over other, possibly all, domains of discourse – with the purpose of making their concepts more precise.¹⁰

Before looking at how the Author deals with some examples of domains (structures, systems), it will be in order to consider a methodological reflexion closing his paper. This is worth special attention, since there shines through it a conflict between the reistic and the pragmatic approach in doing science. Let the core of the latter be summed up by the Chinese proverb *Black cat or white cat: if it can catch mice, it's a good cat*. Suppose that reism is a white (this means somehow a nicer) cat, and there is a theory disapproved by reism which nicely proves its mettle (catches mice); such a pragmatic reason justifies employing that theory as a good black cat.

The said reflexion is occasioned by using the term "internal states" by Grzegorzczuk in describing such structures as machines and organisms, though speaking about states of affairs is by reism forbidden as meaningless. Now, in the light of this Chinese wisdom, let us read the following passage of his article [1963, p. 73] which might be entitled: *a pragmatic justification of the acknowledgement of abstract constituents*.

Somebody may try to challenge the introducing of internal states, saying that the mode of existence of such objects is suspect from a philosophical point of

¹⁰ A trait of continuity can be seen not only in the mentioned connection between publications of 1963 and 1974, but also in the fact that the same didactic intention guides the study of 1963 and a later book [2007] – both dealing with applications of logic in human affairs.

view (for instance, may be, from the reistic point). However [...] with respect to the description of a particular phenomenon it is often very convenient to introduce parameters whose mode of existence encounters numerous difficulties from an ontological point of view. A classical example is provided with the concept of the geometrical point, which is philosophically hardly conceivable in reistic language, but it functions as the basis of calculus, and the whole of technological applications of mathematics rests on this concept. [Ad hoc translation by W. M.]

In spite of being aware of the conflict between a pragmatic approach and reistic orthodoxy, the Author does not give up his methodological pragmatism. The core of his pragmatism consists in treating properties as if they were individuals, if only this proves efficient in analysing a system. Let me explain this with the help of the notion of abstract constituents (as discussed above in §3).

And thus, e.g., the visible surface of the moon is its property whose reality consists in being an abstract constituent. It is the moon's constituent since it belongs to the moon as a solid, and it is abstract as there cannot be surfaces outside solids. The moon's surface, as its property, in turn, has the properties of having such and such shape, of being colored etc. Let's consider its color, say, gold. The property of being gold, as not being able to occur outside a surface, is – in this example – an abstract constituent of the lunar surface. Goldness, in its turn, may be more or less vivid, more or less deep, and so on. Such properties form a certain set of abstract constituents of colors; we call them abstract (let me recall this once more) since, for instance, vividness of color cannot occur independently outside a color.

Such a lunar story in a simple way exemplifies the type-theoretical hierarchy of properties (see Gödel's definition in §1). One recognizes properties of an individual self-contained thing (the moon's solid), then properties of these properties, which again possess properties of their own. According to the strict original reism, such higher-type objects are mere mental figments which cannot form any non-empty set. Grzegorzczuk's [1963] practice of system analysis demonstrates the pragmatic unavailability of higher-type entities. He considers non-empty sets of elements of different types, without any fear of climbing higher and higher up this ladder, and owing to such a procedure he obtains a cognitively fruitful, hence pragmatically recommendable, picture of a domain of reality.

Such a domain is specified by the following components: (1) the set, or more sets, of individuals as basic elements, sometimes with some individuals distinguished by their names, (2) the list of properties and relations to be

predicated of individuals, (3) specified apart, there are many-one relations, that is, functions; those in mathematics are necessary for computing, while in empirical systems – for establishing constant dependencies, for instance, causal connections, as a basis for making predictions. The most schematic presentation of such a system is as follows (the label SS abbreviating “the Schema of a System”).

SS: $\langle X_1, \dots, X_k; R_1, \dots, R_m; F_1, \dots, F_n \rangle$.

Among the examples analysed, there is a piece of painting. In the first segment in SS, Grzegorzcyk puts the following sets of basic elements, that is, individuals: (X_1) the set of colored spots which constitute the given picture, (X_2) the set of all possible shapes which can attach to colors, (X_3) the set of all possible colors.

What is curious in this description is its overtly anti-reistic feature. Its basic elements, or individuals, are no things – in the sense of tridimensional bodies. The analysis starts from abstract constituents of the piece of painting: spots, colors, geometric shapes. Such a proceeding can be justified only by stipulating that instead of an absolute concept of the individual, one deals with a relative one, that is to say, relative to the system under study. In a full order of types, one that starts from self-contained individuals is basic; the colors and shapes would be objects of a higher order. However, if they are what the analysis starts from, then basic elements are allowed to be treated as relative to the system in question. Such a proceeding can be compared to a quick going up the stairs, when one jumps two steps at once, with one leap; then the second step is for him like the first. In the further description of the given painting there appear relations between the mentioned abstract constituents (playing the role of individuals), for instance the ordering relations of being a clearer color and being a more saturated color; also the function to attribute a shape to a spot, and so on.

Another case discussed by the Author is language as a system whose basic set (that of all individuals taken into account) consists of symbols; as being written tokens. Symbols are things in the strict reistic sense, hence no tactics of reisation is here necessary. However, in describing a language one needs another liberalizing move, to wit, a hierarchy of sets (classes): the set of all admissible (in the language of question) concatenations of symbols divides into certain categories (parts of speech), each category being a class which divides into subclasses, etc., and thus we obtain a set of categories, hence a higher type set containing other sets as its elements.

Special interest is due to the structure called by the author machine or automaton. It nicely fits into the idea of Turing's machine (whose enormous impact upon current scientific thinking is beyond any question). This structure includes two sets of basic elements: (i) internal states of the machine and (ii) the tokens, hence material objects, which it produces. While the latter are things in the reistic sense, the former belong to the category of states (possessed by things) which strict reism excludes from the scope of reality. Thus one treats internal states of a machine as basic elements on a par with physical tokens produced by the machine; the same applies to "living machines", namely organisms.

A still further departure from strict reism is found in Grzegorzczuk's description of the process of production as performed by machines. He acknowledges the process itself as an object to be described, and defines its basic set as the collection of all possible conditions needed to produce an output. In this way, such abstract entities as are conditions of a process get promoted to the rank of basic elements; that is, individuals, in the structure being described.

There are even more abstract entities in Grzegorzczuk's repertory of examples, to wit: (1) games, (2) the whole of some country's economy, (3) the mental life of a human. As basic sets of individual elements we have, respectively, (1') a class of game situations, (2') a class of human economic activities, (3') classes of human reactions (to stimuli from a certain class), and classes of human dispositions (to act accordingly to certain conditions).

When dealing with such analysis of systems that reveals their highly abstract constituents, one may understand the pangs of reistic conscience as testified by the Author in the passage (see above) which I titled "a pragmatic justification of the acknowledgement of abstract constituents". In fact, there occurs a confrontation of reistic tenets with an actual practice of research in which the type theoretical approach proves necessary. This approach commits us to treat abstract constituents as legitimate elements of empirical reality.

There is another source of such commitment, namely resorting to what Grzegorzczuk calls *everyday experience*. In his intention it should have supported tenets of reism. However, some second thoughts lead to the realization that abstract constituents of bodies are present to us even in our everyday experiences.

5. How does the acknowledgement of abstract constituents comply with everyday experience?

Andrzej Grzegorzczuk belongs to those philosophers who in high esteem hold what they call everyday experience.¹¹ His view can be truly rendered by the maxim which is due to Thomas Reid: *I acknowledge that a man cannot perceive an object that does not exist.*¹²

This maxim provides us with a relevant context to explain the sense of the expressions “object” and “there is” which in the foregoing narrative were used without such a reflexion. For the sake of academic communication it is recommendable to follow the usage practised by the classics, and these are – in our issue – Russell and Meinong. Both use the term “object” (German “Gegenstand”) for absolutely everything. Some objects exist, some subsist, and some neither exist nor subsist (as for the concept of subsistence, see § 1 in the text referring to note 3, and in §2 a comment on SR2).

In using the phrase “there is”, a reasonable strategy seems to be the following: *let the quantifier expression “there is/are” involve – in its domain of quantification – any object which either exists or subsists.* Thus, when suitably paraphrasing Reid’s principle, we could obtain a handy idiom to render his idea more exactly: A man cannot perceive an object that does not exist or does not subsist.

In a more explicit way, the thus modified Reid’s Maxim (RM for short) will be rendered by the conditional RM or, equivalently, RM*.

RM: If an object neither exists nor subsists, then it cannot be perceived.

The same in the form of sentential schema: $(\neg e \wedge \neg s) \Rightarrow \neg p$.

RM*: If an object can be perceived, then it either exists or subsists.

This is not a suggestion which might be welcome for strict reism, since any idea of something like subsistence is, obviously, alien to it. But what about liberalized reism? Could it acknowledge this idea as its own? To address this issue, let us refer to Grzegorzczuk’s [1997] statement which I label with the letters ECR to mean *Epistemological Criterion of Reality*.

ECR: [1] We grasp reality directly only in our human every-day experience. Hence the first task of a philosophical system is to produce a philosophical

¹¹ This orientation is shared by quite a number of authors who highly appreciate what they call common sense, or appeal, as did prominently Gilbert Ryle [1949], to the arbitration of a natural language.

¹² Quoted after Simons [1992], p. 159.

language suitable for a consistent and coherent description of this macro-everyday-reality. This reality is the first thing, which may be meant as something that is **given** and that we should report on. [p. 8]

[2] The reality of every-day experience comprises: things *with* different properties, connected by different relations, making up different sets. [p. 12, numbering and italics by WM]

In the original text, part 2 is underlined with bold type to hint at the importance of this point. In context, however, one does not find any comment to explain which of many meanings of “thing” in ordinary English is the one the Author has in mind. Fortunately, we find an explanation with Grzegorzcyk [1959]. This runs as follows:¹³

An object is said to be a thing if it is tangible, spatial, weighing and lasting, as are tables, stones, trees, houses, people, animals. [p. 10]

The key role in ECR/2 seems to be played by the monosyllable “with”. Should it mean that the properties of things, as well as relations between things, hence their abstract constituents, belong to the reality grasped (according to ECR/1) by everyday experience? By using “with” instead of “and” the Author might have meant that properties etc. are not perceived in the same way as are things, but nevertheless they together do belong to the field of perception. And this way of their belonging gets, in the present discussion, rendered by “subsistence”.

Before considering how far this may comply with Grzegorzcyk’s intention, let’s consult our own bodily senses and our inborn common sense, with the help of the following story.

Nice instances of abstract constituents can be found in the heavens. There we observe objects from a constant angle, without any opportunity to change it and to see the object from another side, and so to obtain additional information as a premise of inference. To wit, in the reasoning which occurs with changing the angle, we infer that the front of a building, observed a moment before from another angle, is only one of the surfaces of the solid in question, and thereby our experience, having been merged with an inference, involves some foreign elements. However, due to our choosing some heavenly objects for observation, we can obtain pure, most indubitable, sense data; now even a radical empiricist cannot impair the sensory trustworthiness of our experience.

¹³ Not having found anything like this statement in the book of 1997, I make use of a much earlier text, but then the question arises: whether the later Grzegorzcyk would have agreed with himself earlier? For the moment, the question must remain open, hence the interpretation which follows should be regarded as hypothetical.

Nobody will doubt that when observing the moon, the sun, or other heavenly entities, we perceive them not as solids but as twodimensional planes. If one wishes to stick to the reistic orthodoxy, one is committed to assert that planes do not exist. A plane has, for instance no weight, which according to Grzegorzcyk (following Kotarbiński on this issue) is necessary for existing as a thing. But how to account then for the fact that the moon's twodimensional surface is given in our every day (and even everynight) experience? No other way out seems to be available than the admitting that planes are not things to exist inependently but are abstract constituents which are present in things. Theirs is not complete existence but some sub-ordinate way of being, which appropriately can be (following Meinong's usage) termed as subsistence. A case like that of the moon makes us aware that to be subsistent, likewise to be existent, is sufficient to be given in experience, including the everyday mode of experiencing. And this is the moral Reid's maxim RN* is to tell us.

Could Grzegorzcyk give a nod when listening to this story? In his texts, I did not encounter any explicit utterances in this matter, but his intention of liberalizing reism would find the second realization, besides that of adopting the theory of types. Moreover, these two steps would complete each other. If one rejected RM*, then only the objects of a lower type could be experienced, since those from higher levels would be pure figments. Then how should we distinguish, for instance, such geometric objects as planes, lines or points from such as rectangular circles?

Grzegorzcyk notes in his paper of 1963 (quoted above in §4) that the concept of the geometric point functions as the basis of calculus, and the whole of technological applications of mathematics rests on this concept. It is a good pragmatic reason to see points as some constituents of reality, in contradistinction to rectangular circles. How to account for this pragmatically justified differentiation? The suggestion which results from this paper's discussion is to the effect that rectangular circles do not exist, solids belong to existents, while points represent the category of subsistents as being abstract constituents of something that exists.

This might be the standpoint of liberal reism. It would remain reism because of the firmly held priority of individual things as forming the basic type. And would become liberalized owing to admitting abstract constituents into the sphere of reality in the role of subsistent abstract objects; this should be justified by their pragmatic fruitfulness as well as their ability to be perceived in everyday experience.

And this may be a fitting answer to Quine's question: *What is there?*

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