



Research Paper

## New Foundations (Natural Language as a Complex System, or New Foundations for Philosophical Semantics, Epistemology and Metaphysics, Based on the Process-Socio-Environmental Conception of Linguistic Meaning and Knowledge)

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**ABSTRACT:** In this article, I explore the consequences of two commonsensical premises in semantics and epistemology: (1) natural language is a complex system rooted in the communal life of human beings within a given environment; and (2) linguistic knowledge is essentially dependent on natural language. These premises lead me to emphasize the process-socio-environmental character of linguistic meaning and knowledge, from which I proceed to analyse a number of long-standing philosophical problems, attempting to throw new light upon them on these grounds. In particular, I criticize the use of expressions such as 'absolute truth', 'absolute existence' and 'the thing in itself', arguing that they lead to what I call 'the ultralinguistic paradox' (a fatal antinomy). In the same way, I review a number of mainstream topics in philosophical semantics, epistemology and metaphysics, reformulating them in terms much more naturalistic – and less mysterious – than usual.

**KEYWORDS:** Absolute existence, absolute truth and absolute knowledge; Human natural cogno-language (Huncol); Linguistic idea; Process-socio-environmental conception of linguistic meaning and knowledge (Social conception of meaning); Rationality; Relativism to cognitive-linguistic reference frames (Colref relativism); Translinguistic concepts and propositions; Ultralinguistic paradox (Ulpar).

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### I. INTRODUCTION

1.1 Which of these four does a proposition resemble the most?

- (a) an elephant,
- (b) a plane,
- (c) a tennis game,
- (d) a thought in God's mind.

I suggest that you answer this question now, before reading any further. Then, if you are completely sure that your answer is the correct one, I suggest that you stop reading this paper at once – I have nothing to say to you. If, on the contrary, you are unsure about your answer, whatever it may have been, please proceed to the next section. Finally, if you are eager to know which answer I think is the correct one, you can look it up directly in paragraph 12.5.

1.2 The present article is an attempt to provide new foundations for philosophical semantics, epistemology and metaphysics, on the basis of two commonsensical premises:

- (1) natural language is a complex system rooted in the communal life of human beings within a given environment;
- (2) linguistic knowledge is essentially dependent on natural language.

These premises may seem too simple to yield any interesting conclusion, but the way in which they have been (and still are) ignored in a significant part of the philosophical literature makes it necessary to put the focus on them.

**1.3** In what follows, I provide a brief summary of each of the sections of this article. In Section 2, I introduce a comparison between motion events and linguistic communication events, arguing that we are still very much ignorant of the inner workings of natural language relative to what we know about physical motion. I then point out that, for as long as we lack a sufficiently precise and sophisticated theory about how natural language works, any general philosophical discussion dealing with it will necessarily have to be conducted in rather vague and inconclusive terms.

**1.4** In Section 3, I characterize natural language as a complex system that essentially depends on the communal life of human beings, and I emphasize the intimate relationship existing between linguistic knowledge and natural language. In Section 4, I highlight the process-socio-environmental character of linguistic knowledge and meaning. In Section 5, I explore one particular consequence of overlooking all these facts, namely the antinomy generated by the use of the expression ‘the thing in itself’ and similar phrases. I propose to call this antinomy the ‘ultralinguistic paradox’.

**1.5** In Section 6, I argue that truth and meaning are always relative to what I call ‘cognitive-linguistic reference frames’, showing the impossibility of ‘absolute truth’ and ‘absolute metaphysics’. In Section 7, I examine those truth and existence claims that are *not* made from an absolute perspective. I argue that these claims can be taken as simply declaring one particular reference frame to be superior to another and that as long as they are interpreted as such, they are legitimate and non-paradoxical. In Section 8, I criticize some of the main traditional conceptions of truth, for either falling into the ultralinguistic paradox or at least ignoring the role of the natural language complex system in truth attributions. I also hint at how the notion of a true statement could be reconstructed in terms of the state of the language complex system. In Section 9, I do something similar with respect to the notion of rationality. In Section 10, I do the same with respect to fictional discourse.

**1.6** In Section 11, I apply this whole perspective to the philosophy of mathematics. In Section 12, I do the same with the notions of linguistic idea, proposition, scientific innovation and ‘final science’. Lastly, in Section 13, I close the paper with a list of eight tips (or ‘commandments’) and a few concluding remarks.

## II. MOTION EVENTS AND LINGUISTIC COMMUNICATION EVENTS

**2.1** I am holding a stone in my hand. I drop it and the stone falls to the ground. What has happened? According to a certain approach, there is nothing deep or mysterious to be discovered about this event: stones just tend to go down unless something prevents them from doing so. Hence, at the moment I drop the stone, it falls down quite naturally until it encounters something that stops its descent. However, according to another (more sophisticated) approach, there is an invisible action-at-a-distance force: the force of gravity. This attracts both the stone towards the Earth and the Earth towards the stone – with the same intensity and in opposite directions – and acts in accordance with Newton’s law of universal gravitation and his three fundamental laws of motion. There are much more sophisticated accounts to be given of this event, of course, but this is good enough for the comparison I want to draw.

**2.2** Now, consider two people speaking by phone from distant places. One of them says to the other, ‘It’s raining here’. The other responds, ‘OK’. What has happened? According to a certain approach, there is nothing particularly deep or mysterious to be discovered about this event: the speaker has communicated to the listener that it is raining at the place where the speaker is situated and the listener has confirmed understanding, by means of a natural language, English. On a more profound level, however, there is an array of processes that have to be taking place for the English language to exist, for the speaker and the hearer to be competent at it and for them to be able to communicate that particular piece of information, processes of which we cannot currently claim to have more than a very faint idea. Should we ever be capable of providing a description-explanation of linguistic communication events that enjoys a degree of exactness and sophistication anywhere near what Newton provided for motion events, our present perspective on philosophical semantics, epistemology and metaphysics will no doubt be greatly affected.

**2.3** In the absence of such a detailed approach, this paper will make do with a much vaguer conception, one that we shall call ‘the process-socio-environmental conception of linguistic meaning and knowledge’ (‘the social conception of meaning’, for short). Needless to say, our discussion will be nowhere near as persuasive as it would be were it based on the sort of precise account that Newton provided for motion events. Indeed, Newton himself did not earn his place in the history of physics by merely proposing a philosophy of motion – a philosophy according to which e.g. motion in the sublunary and superlunary realms was subjected to the same laws – but by formulating those laws in a detailed and extremely revealing way.

## III. NATURAL LANGUAGE AS A COMPLEX SYSTEM

**3.1** In the sequel, I shall state a number of straightforward facts about natural language. As we shall see, the process-socio-environmental conception of linguistic meaning and knowledge consists in little more than putting these facts together and emphasizing them. The conclusions we shall draw, however, may come as a surprise to some. ‘From commonsensical premises to illuminating conclusions’ will be our motto throughout.

**3.2** English and other natural languages are human products. Moreover, they are social products: they are products of the communal life of human beings. We humans are biological beings; we have vital needs and a natural tendency to satisfy them. The environment in which we live and the manner in which we deal with it are crucial to satisfying our needs.

**3.3** Furthermore, we humans have cognitive and communication capacities, many of which develop, of course, prior to the acquisition of language. Indeed, babies communicate from birth through sounds, facial expressions and body movements. At a later stage, the acquisition of language interlocks with these capacities and greatly enhances them, making natural language not only a vehicle of communication but also a vehicle of knowledge. A great part of human knowledge is indeed linguistic knowledge, inasmuch as it is substantiated through (and hence depends upon) natural language. On the other hand, there is also a great deal of human knowledge that is non-linguistic: the ability to walk upright is an obvious example of a non-linguistic cognitive and motor ability.

**3.4** Human knowledge (both linguistic and non-linguistic) plays an essential survival role for us. Human communication (both linguistic and non-linguistic) as well as communal life itself also play an essential survival role. In this regard, we humans are basically alike. We have similar needs (e.g. the need to eat), we experience similar feelings and emotions (e.g. fear of the dark) and we have natural ways of expressing them (e.g. crying when we feel pain). These expressions are to a certain degree universal, i.e. alike for all humans, independently of time or culture.

**3.5** With these and other ingredients, a certain complex system (a set of community interaction processes) arises, which we call 'natural language'. As is typical of complex systems, a natural language system exhibits a strong coupling to its environment (the environment is crucial to fixing the reference of our words). Besides, there is a mutual influence between the components of the system and the system itself. Thus, communal life is an essential ingredient for natural language to exist and, at the same time, natural language contributes to shaping communal life in many ways (the appearance of social institutions, for instance). 'Natural language' is, indeed, an eminently social phenomenon.

**3.6** In view of the intimate connection between linguistic knowledge and natural language, we could well speak of 'natural cogno-language' (or 'natural cognitive language', or some other compound expression) rather than 'natural language' alone. Similarly, linguistic knowledge appears to be so radically different from non-linguistic knowledge (given that the former, but not the latter, requires the existence of the complex system of language) that we could well avoid speaking of 'human knowledge' without making explicit whether we mean it to be linguistic or non-linguistic. And finally, for the same sort of reasons, we could well avoid speaking of 'cognitive agents' without specifying whether we mean them to be cognitive-*linguistic* or not. We shall stick to these three conventions (save on a few, obvious occasions) for the rest of the present paper.

#### IV. THE PROCESS-SOCIO-ENVIRONMENTAL CONCEPTION OF LINGUISTIC MEANING AND KNOWLEDGE

**4.1** For obvious reasons, any serious study of human natural cogno-language ('huncol', for short) must be conducted within huncol itself. Therefore, when studying huncol, the object of study and the vehicle for encoding and communicating the study are bound to be basically the same. Related paradoxes arise in other areas of research. Thus, people who investigate illnesses can themselves get ill and people who investigate the force of gravity are, under normal circumstances, under the influence of this force.

**4.2** Furthermore, many studies of huncol focus on one particular cogno-language, often the same as that in which the study is being conducted. In such cases, even if the authors of the study take into account the cogno-language's differences from others, it may happen that their familiarity with huncol in general, and with the cogno-language they are using in particular, has a misleading effect on them. Here is where the 'process-socio-environmental conception' comes into action.

**4.3** By emphasizing that linguistic meaning has a processual character as well as a social character and an environmental character, we attempt to counterbalance the misleading effect of the paradox just mentioned. Thus, people who investigate linguistic meaning are advised to keep in mind that what we call 'natural language' (i.e. huncol) emerges from a set of processes of interaction in a community of cognitive-linguistic agents with one another and with the environment. Furthermore, they are advised to distance themselves as much as possible from the kind of 'immediate perspective' that their own competence as users of huncol in general – and of the cogno-language they are using, in particular – may prompt in them.

**4.4** Finally, we must also point out that, as happens with any complex system, huncol is an intrinsically dynamic reality. Indeed, given the number of components of the system and the number of interactions between them, any huncol is in constant evolution: the state of the system in its most active areas will vary in significant ways from one moment to the next.

## V. THE ULTRALINGUISTIC PARADOX

**5.1** Given that we lack the kind of detailed account mentioned in Section 2, we are not in a position to provide substantial clarification of any of the problems we shall touch on throughout this article. I will, however, make significant corrections to some of the most widespread philosophical approaches to them, by the simple expedient of bringing attention to the facts highlighted in sections 3 and 4.

**5.2** We shall begin by examining the distinction so frequently made in the philosophical literature between ‘things as we know them’ and ‘things as they are’ (or, equivalently, between ‘the world as we know it’ and ‘the world as it is’, ‘our ontology’ and ‘the ontology of the world’, ‘the thing as we know it’ and ‘the thing in itself’, etc). All these dichotomies have something in common: the knowing subject is explicitly alluded to in the first side of the dichotomy (things as *we* know them, *our* ontology, etc), while it is absent in the second (things as *they* are, the ontology of *the world*, etc). The implication is that the first side of these dichotomies characterizes a sort of knowledge or representation that is dependent on the knowing subject, while the second side characterizes a sort of knowledge or representation that is independent of it. But is this latter idea at all coherent?

**5.3** Following the convention we made at the end of Section 3, we shall divide the discussion of these dichotomies into two parts, one in which the sort of knowledge or representation under consideration is taken to be linguistic, and another in which it is not. We shall begin with the latter. Consider the case of a mouse that, at a given time, knows how to get out of a maze by a certain route, but ignores that there is a second way out, one that it has never explored so far.

**5.4** In such a case, it makes perfect sense to say that ‘the mouse knows how to get out of the maze by a certain route’ as well as to say that ‘there is a second way out of the maze of which the mouse does not know’. These are standard ways to convey our (linguistic) knowledge about the (non-linguistic) knowledge of the mouse, based on science and observation. Then, we can perhaps go one step further and say that ‘the maze as *the mouse knows it* has one way out’, in contrast to ‘the maze as *we know it* has two ways out’. By doing this, we would be comparing two different instances or states of knowledge: the non-linguistic knowledge of the mouse about how to escape the maze, and the linguistic knowledge that we humans have of the maze from our perspective as observers.

**5.5** Next, let us assume that, with appropriate training, the mouse becomes acquainted with the second way out of the maze, and acquires the habit of escaping through this exit as well as the first one. This being so, we can then say that ‘the mouse now knows both ways out of the maze’ and perhaps even that ‘the maze as *the mouse knows it* now has two ways out’. However, by saying this we would again only be comparing two different instances or states of knowledge: the non-linguistic knowledge of the mouse about the maze before the training took place, and the non-linguistic knowledge of the mouse after that training. The concept of ‘the maze as it is’, understood as something different from ‘the maze as known by one particular subject at one particular time’, appears to be impossible to reach by this route.

**5.6** If we now turn our eyes to linguistic knowledge, the notion of ‘the thing as it is’ (or ‘things as they are’, as opposed to ‘things as they are known by a particular subject at one particular time’) seems even more difficult to approach. Indeed, *anybody* who makes *any* claim is already, by the mere act of making it, anchoring it to a particular language and cultural context, in turn grounded in an huncol complex system – the system within which the claim in question is being made. Thus, the very idea of talking about ‘things as they are’, as something independent of ‘things as we know them’, is incoherent. We can only know things in the way *we* know them at a particular time, and we can only talk about how things *are* by expressing what *we* know (or what we believe to know) about them at a particular time.

**5.7** In sum, there can be no knowledge without a knowing subject, there can be no linguistic knowledge without a language, and there can be no language without an ongoing complex system sustaining it. Pretending otherwise leads to what we can call the ‘paradox of transcendent knowledge’ and, more specifically, to the ‘paradox of transcendent *linguistic* knowledge’. It is this latter paradox that I propose calling ‘ultralinguistic paradox’ or ‘ultralinguistic antinomy’ (‘ulpar’, for short).

**5.8** We cannot travel through language to a place that is over and above language. The complex system of language does not allow itself to be used, so to speak, as a shuttle to escape from it. We cannot be dressed and naked at the same time – we cannot ‘wear the dress of language’ and ‘be language-naked’ at the same time. It is as simple as that.

## VI. COGNITIVE-LINGUISTIC REFERENCE FRAMES

**6.1** It follows from what we have just said that we cannot talk about knowledge, linguistic meaning, truth or existence in an absolute way, but only from a particular language and state of knowledge, to which our claims will be anchored. Thus, although it is true that the Earth existed well before the appearance of *Homo sapiens* and hence before any form of human natural cogno-language, the *claim* that the Earth exists depends on a particular cogno-language (or a group of them, specifically those that allow for this claim to be formulated) and therefore

it cannot be said to exist prior to them. This is a straight consequence of the facts alluded to in sections 3 and 4. Indeed, any linguistic item (whether it is a claim, a statement, a sentence, a proposition, etc) is strictly dependent on the existence of the huncol complex system or systems to which it belongs. Linguistic items are mere emergences or ‘effervescences’ of huncol complex systems and therefore they cannot exist without them.

**6.2** We have just pointed out that the existence of the Earth long predates the existence of the claim that the Earth exists. From this, it follows that the existence of the Earth long predates the *truth* of the claim that the Earth exists. The reason is simple: no claim can be true prior to its own existence. Indeed, both the claim and the truth of the claim are dependent on the existence of the huncol system or systems to which the claim belongs. The same can be said about our knowledge of the claim, our assertion of the claim, etc: they all depend on the existence of the huncol system or systems to which the claim belongs.

**6.3** That said, there are occasions on which we want to explore how a claim depends not on an huncol complex system as a whole, but on a particular state or fragment of it (such as a scientific field of study, a technical jargon, a theory or a particular viewpoint). Interestingly, some such fragments turn out to be ‘translinguistic’ (or ‘multilinguistic’), inasmuch as they have counterparts in other natural languages, between which there are relevant interactions and similarities. This suggests the concept of a ‘cognitive-linguistic reference frame’ (‘colref’, for short). By default, the huncol to which an assertion belongs will always be a colref for that assertion, but we shall often be interested in exploring other, more tailor-cut colrefs for a given assertion in different respects.

**6.4** The concept of a cognitive-linguistic reference frame is inspired by Newtonian mechanics. In Newtonian mechanics, as is well known, the difference between rest and uniform linear motion is not absolute, but depends on the observer’s frame of reference. Likewise, in the approach to meaning and knowledge that we are exploring here, no truth or existence claim (in fact, *no claim at all*) can be addressed in the abstract, as from an absolute perspective, but only in relation to a particular cognitive-linguistic reference frame. This is what I shall call ‘relativism to cognitive-linguistic reference frames’ (‘colref relativism’, for short).

**6.5** Adopting colref relativism implies the end of ‘absolute metaphysics’, i.e. the sort of metaphysics concerned with transcendent questions such as ‘the ontology of the world’, ‘the true nature of reality’ or ‘carving nature at its joints’. Instead, its smaller sibling, ‘non-absolute metaphysics’ – less ambitious, but more firmly grounded – must take its place. Non-absolute metaphysics deals with restricted questions such as ‘the ontology of *this particular colref*’, ‘the way in which reality is depicted within this colref’, ‘the way in which nature is carved within this colref’ and so forth, as well as with unrestricted but non-absolute questions, such as ‘the way in which ontology is organized in huncols and colrefs in general’.

**6.6** In sum, the anchoring points of linguistic communication (including our cognitive equipment, our communal life, our environment, etc) are elements that, at the same time,

- (a) make it possible for linguistic communication to exist;
- (b) determine or restrain linguistic communication, inasmuch as no piece of linguistic communication can be abstracted from them (hence, any piece or instance of linguistic communication is relative to those anchoring points and, in this sense, ‘non-absolute’);
- (c) are themselves influenced by the action of linguistic communication and in constant evolution and transformation in consequence of this action.

**6.7** Colref relativism applies to the study of huncol and colrefs themselves, as much as to any other topic. Thus, if we were to conduct a study today about the use of the term ‘phlogiston’ in 17th- and 18th-century chemistry, we would attribute this term a deceptive (albeit not completely ineffective) role in the scientific colref of the time. Indeed, we would not say that the people who used this term back then were actually interacting with phlogiston, but only that they believed they were. And then, we would describe the sort of experiments they carried out in terms of post-Lavoisier chemistry, pointing to those aspects of the language they used that were effective and those that were not, as seen from our present perspective. This is quite different from what we would do if we were to conduct the same study in the times of phlogiston theory and we were supporters of it.

**6.8** Therefore, the way in which we account for the role of the environment with respect to one particular colref will always be relative to another colref: the colref from which that account is given. As a consequence, the more we know about our environment, the better we can describe the way in which huncol interacts with it. And the same can be said of our knowledge of colrefs and huncol in general: any claim about a colref or a huncol (in fact, *any claim at all*, as I have already emphasized) is relative to and dependent on the particular huncol and colrefs from which that claim has been made.

**6.9** Colref relativism also applies, finally, to each and every assertion made in the present article. Indeed, I do not intend what I am saying here to be true in an absolute sense, but only in relation to the reference frames that surround it (most notably, current academic English and current analytic philosophy). And even in relation to these frames, I do not pretend my claims to be indisputable, but merely tentative and debatable steps towards a fairly unexplored direction. (More about this in 9.2.)

## VII. CONFLICTING CLAIMS

**7.1** Expressions such as ‘things as they are’ are sometimes used simply for emphasis, without implying that an absolute truth has been stated and hence without becoming a victim of the *ulpar*. Thus, in claims such as ‘Contrary to what we have imagined, *things as they are* have ruled out that possibility’ or ‘*The fact of the matter* is that you are wrong and I am right’, the speaker is not necessarily assuming an absolute perspective on truth. They could simply be comparing two different states of knowledge (what we had imagined versus what we know now, what you believe versus what I believe) and declaring one of them to be distinctly superior to the other.

**7.2** In a similar way, it is legitimate to assume that the theories and views of current science are in general terms better than its contenders, as long as we do not intend this to hold in an infallible or absolute way. The same can be said of our assertions and views in everyday discourse against those that oppose them. Thus, it is possible to endorse one particular instance or state of linguistic knowledge over another with no commitment to the sort of ultralinguistic assurance we have just criticized. In so doing, ‘true’ or ‘correct’ must be taken to mean ‘the best we have’ (i.e. the best theory we have, the best viewpoint we have, the best colref we have), or even better, ‘the best we *believe* we have’. Thus, by asserting things like ‘Phlogiston theory is false’ or ‘Phlogiston is not real, oxygen is’, we may just be conveying that post-Lavoisier chemistry appears to us to provide a much superior colref than pre-Lavoisier chemistry, with no commitment to the absolute truth of either theory, or to the absolute existence of anything.

**7.3** A number of questions arise at this point. What does it mean for a colref to be ‘superior’ to another? What does it mean for an assertion to be true or false within a particular colref? And how can a discussion between two opposing claims be rational, when each claim is based on a very different colref? These are the questions we are just about to address.

**7.4** To start with, we must point out that, given any pair of conflicting claims, there will always be one colref that they have in common and two other colrefs with respect to which they differ. Indeed, for two claims to be in conflict, there must be something that they have in common (which will determine the colref that they share) and there must be something in which they differ (which will determine the two separate colrefs to which each claim is linked). Thus, ‘Oswald killed Kennedy’ and ‘Oswald did not kill Kennedy’ share the topic of Kennedy’s assassination, but point to two different scenarios for that crime, which in turn may serve as different reference frames for further claims on the same topic.

## VIII. THE NATURE OF TRUTH

**8.1** We can venture that truth is some kind of ‘fit’ (or ‘adjustment’) between the content of a linguistic statement in its context of utterance and the huncol to which it belongs. Such an adjustment would make that statement particularly suitable as a communicative tool in that context, by contrast with statements that would have been false (or statements that would have been neither true nor false, or only vaguely true, etc) in that context. The latter statements (i.e. statements that are false in a given context of utterance, or neither true nor false, etc) appear to have a lower status as working tools of the system, given the eroding effect that they may have in the short or long term on the network of interactions. These are no more than loose and tentative conjectures, of course, but they make sense from the point of view of language as a complex system and they are the kinds of hypotheses that a more thorough investigation should make precise and put to empirical test.

**8.2** By contrast, when some philosophers define truth as ‘correspondence with reality’, they are either pointing to the obvious (‘a statement is true if and only if it is true’) or hinting to the sort of ultralinguistic approach we have just refuted (‘a statement is true when it matches a transcendent description of reality’). The former is trivial and theoretically unfruitful, while the latter simply does not make sense (a ‘transcendent description’ would have to be a ‘languageless linguistic description’, which is a contradiction in terms).

**8.3** On similar grounds, we can dismiss attempts to define truth in terms of a one-to-one correspondence between a statement (or a proposition) and a so-called truthmaker for it. Thus, there have been attempts to explain the truth of ‘The rose is red’ as a consequence of the fact that the rose is red, or as a consequence of ‘the redness of the rose’. The problem with these attempts is that they ignore the role of the huncol complex system that sustains the existence of the statement or proposition in question. In this respect, it must be noted that in the case of statements (i.e. declarative speech acts), there is no doubt that each one belongs to a specific language; and in the case of propositions (i.e. statements’ meanings), unless we are willing to embrace an ultralinguistic conception of them, we must regard them as dependent on the language or languages to which the statements they are meanings of belong.

**8.4** In effect, if we were to point to a single fact as a ‘truthmaker’ for ‘The rose is red’ (either taken as an English statement, or as a proposition rendering the meaning of various statements in English and other languages), it would have to be a comprehensive fact of colossal dimensions. Indeed, such a fact would have to encompass every relevant detail of the corresponding huncol or huncols as well as every detail of the relevant context, including the rose in question. The fact that the rose is red would be a part of that big fact and a very

important one; but in the end, only a tiny part of a gigantic fact. Failing to see this leads to a very myopic view of the whole situation.

**8.5** Likewise, when some philosophers attempt to define truth in terms of ‘coherence between statements’, they are not only neglecting the role of sense-perception as a source of information, but crucially failing to address the question of where both truth and coherence spring from. Indeed, our ability to judge that  $p$  is coherent with  $q$  is as mysterious as our ability to judge that  $p$  is true. Hence, the attempt to reduce the latter to the former, even if it worked, would not be a great step forward. What we need, instead, is that both concepts (coherence and truth) are accounted for within a precise description of the huncol complex system from which they both emerge.

**8.6** Something similar can be said about accounts of true statements as ‘statements that are pragmatically useful to believe’. This again loses perspective of huncol as a complex system, a system that will have its own internal constraints over and above the utility of a particular statement for the cognitive-linguistic agents, whatever we take this utility to be. Hence, it is those constraints, rather than the agents’ utility, that we should primarily consider.

## IX. RATIONALITY AND RELATIVISM

**9.1** What we need, in sum, is a new vocabulary – yet to be invented – that allows us to describe the state of a huncol system in relation to the cognitive-communication requirements that are placed upon it on each occasion. If we drive a car at an appropriate speed on an appropriate road, it will run smoothly, whereas if we push it to the limit (because we drive it too fast, or on too rough a track, etc), it will become unstable. Similarly, huncol complex systems sometimes run smoothly and sometimes unsteadily, depending on the demands that each cognitive-communication event places on them.

**9.2** Unlike cars, however, huncol complex systems are *flexible*. Thus, after stretching into one direction for some time, the system may become stable again in a new configuration. In writing this paper, for instance, I am attempting to place a certain strain on the fragment of huncol I am using, and I am deliberately doing it with the aim of improving and expanding that fragment, in relation to the cognitive-communication interactions that pertain to the problems at hand, most notably the nature of huncol itself. Hence, my discourse is meant to be at the same time dependent on the huncol and colrefs to which it belongs, and an attempt to change them from within. Although there is a certain paradox involved, it is a tolerable one – there being no contradiction – in contrast to the ultralinguistic antinomy.

**9.3** Then, in order to tell the difference between statements that are simply false and those that are propelling the huncol system towards a new direction, we need to look at the evolution of the huncol system in the long run. And the same can be said about ascertaining whether one such new direction is for the better, i.e. whether it is going to enhance our cognitive-communicative capacities in any relevant sense. Pragmatic factors will no doubt play a role in this, but they cannot be addressed independently of their contribution to the performance of the system, or of the limitations that the system’s internal constraints will place on them. The use of the new vocabulary (yet to be invented) that I have just mentioned would greatly help in addressing all this.

**9.4** Following this path, we may one day provide – at last – precise definitions for notions such as ‘pursuit of truth’, ‘approximation to the truth’ and ‘growth of knowledge’ in a clear (naturalistic, non-circular and non-absolute) way. The same can be said about the nature of cognitive-linguistic rationality, i.e. rational discussion and rational deliberation, as well as the compatibility between rationality and relativism.

**9.5** Indeed, as we have already seen, any conflict (however small) between two claims involves a dilemma between two different cognitive linguistic reference frames. Then, a plausible explanation of how we face such dilemmas (i.e. a plausible explanation of what we do in order to make up our minds about the existing alternatives) is that we make some sort of unconscious calculation, or ‘guess’, about how well each colref would work in the long run, if it were to be adopted by the relevant linguistic community. Such a calculation could well be the core of a pure rational decision.

**9.6** A number of additional factors may interfere with this process, however. For example, there may be a conflict of interest, such as the reluctance of the author of a theory to recognize the superiority of a rival theory. Furthermore, some decisions may be influenced by a tendency to choose the alternative that we think is going to be adopted by the community as a matter of fact, rather than the one we think would do best (a tendency to swim with the stream, so to speak). Moreover, some decisions may be influenced by the opposite tendency, i.e. the tendency to disregard those alternatives that we think are going to be adopted, even if we think they are the ones that would do best (a tendency to swim *against* the stream). By swimming with the stream, we may be unconsciously looking for protection (looking for the approval of the community), while by swimming against the stream, we may be unconsciously looking for attention (looking to stand out).

**9.7** In addition, we all probably have a tendency to be to some extent conservative or dogmatic, i.e. unwilling to give up our preconceptions, especially stronger ones. By disregarding alien views, even without

being sufficiently acquainted with them, we save ourselves the time and effort to consider them in detail and protect ourselves from the threat to our self-confidence that readjusting our beliefs may bring with it. This tendency may be necessary as a matter of mental economy and psychological self-assurance (given that our mental and psychological resources are limited), but at the same time it constitutes a constraint on purely rational thinking. The optimal balance between rationality and relativism could well lie in some sort of equilibrium (or inflection) point between all these opposite forces.

## X. FICTIONAL DISCOURSE

**10.1** In a work of fiction, there are objects that, being unreal, are just like real ones. These are fictional instances of non-fictional objects (i.e. the invented objects are not there, but they are similar to objects that do exist). Occasionally, a work of fiction may also contain some completely invented entities (e.g. a carpet that flies) and introduce new names for them ('flying carpet', 'magic carpet'). But even then, the text is built on the common ground of the cogno-language to which it belongs, and the invented terms are derivative from it. Moreover, from the moment readers become acquainted with these new terms and they start playing an active role as communication tools between author and readers, they themselves become part of the system, to some degree.

**10.2** On the other hand, as we have already emphasized, huncol systems are very context-sensitive: they are strongly dependent on their environment. Indeed, they depend on us, humans (the cognitive-linguistic agents of those systems), in order to be in operation and to 'stay alive', while we depend on the environment to survive. Furthermore, our perceptual and manipulative interplay with the environment is essential to the way in which huncol works. Therefore, the meaning of our words and statements is always anchored, to a greater or lesser extent, to our interplay with the environment and to the environment itself.

**10.3** This applies to all kinds of human linguistic communication, including fictional discourse. Thus, although expressions like 'magic carpet' or 'zombie' do not correlate to anything in the environment, they can be explained in terms of real objects ('carpet that flies', 'reanimated corpse that moves awkwardly') and their use is anchored to the complex system of language, which is in turn strongly linked to the environment. The same can be said, of course, about the so-called embedded narrative or nested fictional discourse.

**10.4** Once we have shaken off the dream of absolute truth and absolute existence, logical and ontological questions reappear in a still difficult but much less mysterious shape. The task ahead, then, is to explain the role that the different logical and ontological levels or categories (such as 'object', 'property', 'relation', 'fictional', 'non-fictional', 'material', 'immaterial', 'causally effective', 'causally inert', 'spatio-temporal', 'non-spatio-temporal', 'more theoretical', 'more observational', 'more fundamental', 'more incidental' or 'with a greater or smaller practical utility') play in the dynamics of the huncols and colrefs in which they operate.

**10.5** This will no doubt be difficult and it will require that we are in possession of a sufficiently precise and sophisticated description of huncol in the first place. However, it may enable us to dissolve – at last – the typical 'realist versus anti-realist' dispute over different fields of phenomena (i.e. the sort of crude metaphysical dispute about *what there really is*), replacing it with the much more concrete and tangible question of 'which ontology performs best in a given huncol and colref, all things considered'.

## XI. THE ONTOLOGY OF MATHEMATICS

**11.1** All this applies as well, *mutatis mutandis*, to mathematics. Indeed, although the phrase 'infinite set' does not seem to correlate to anything in the environment, its meaning can be explained in terms of real objects and operations ('a collection of so many things that cannot be counted as 1, 2, 3 and so on, no matter how far we go'). Moreover, the use of such a phrase is anchored to a huncol complex system, English, which is in turn strongly linked to the environment.

**11.2** There are mathematical concepts that are even more abstract and whose connection to daily objects is even more remote (e.g. 'inaccessible cardinal'). However, there is always a route to making their meaning comprehensible, starting from ordinary terms (indeed, this is what mathematics texts and teachers do, in order to introduce newcomers to the subject). These more abstract concepts are also structurally dependent on the huncol complex system or systems from which they emerge (English or whatever), thus being bound to the context-sensitivity of these systems, despite appearances to the contrary.

**11.3** Even so-called formal mathematics (i.e. mathematical theories as translated into formal languages) has an intrinsic dependence on ordinary mathematics and hence on huncol itself. Indeed, mathematicians working in formal theories rely on ordinary mathematics (i.e. mathematics as conducted in technical but not completely formalized jargon) in order to convey the underlying motivation for their theories as well as to specify the configuration of the corresponding formal systems, both at the syntactic level (fixing the symbol manipulation rules) and at the semantic level (establishing what it means to be a model of a theory in that system). Without these accompanying explanations, the formal theory would be reduced to a set of dead marks on a piece of paper or a computer screen.



**11.4** Then, the old mystery about ‘the ontological nature of mathematical objects’, as well as the two related mysteries of ‘how we have epistemological access to such objects’ and ‘how we manage to make reference to them’, appear very much to dissolve under this perspective. Indeed, mathematical objects (as well properties, etc) are postulated by huncol systems or colrefs, just as any other entity that is part of our cogno-linguistic repertoire. Hence, it is obvious that we can know them and make reference to them, simply because they are part of our cognitive-linguistic culture. Besides, all mathematical entities have *some* connection with the environment, as we have just seen, despite their lack of causal power or space-time location.

**11.5** On the other hand, it is quite common that a mathematical object that has been defined in a certain way is later redefined in other terms, or reference to it is circumvented by means of a detour. Thus, natural numbers can be redefined as sets, infinitesimals were replaced by the limit concept by the end of the 19th century, etc. We may be tempted to think that such cases tell us something about ‘the essence’ or ‘the raw material’ of the mathematical world. However, as we have repeatedly argued, it is an illusion to talk about ‘the essence of the world’ as seen from an absolute perspective. All we have in such cases are two or more colrefs: the colrefs prior to the revision and the colrefs subsequent to it. Our task, then is to judge which one is the most convenient to adopt (i.e. which one will make the huncol system run more smoothly) for a given purpose, or in a given context of use.

**11.6** The applicability of mathematics to empirical science is another classical mystery in the philosophy of mathematics that very much dissolves under the social conception of meaning. In this regard, we must begin by recalling that mathematics has always been, from its first stages until the present day, inspired and urged by a need to solve practical problems. In order to tackle these problems, an ontology of immaterial objects and properties was thus progressively introduced. And then, at some point (and here is perhaps where the oddity really lies), some people discovered that such an ontology appeared to have a life of its own, and began to devote their time and effort to studying it for its own sake.

**11.7** Seen in this light, pure mathematics can be compared to the work of a craft maker who, having plenty of spare time, plunges into the crafting of tools that have no practical use, but are somehow inspired or suggested by those that have. Some of these creations may end up having unexpected applications, as has happened so often in the history of mathematics. For instance, non-Euclidean geometry was conceived in the 19th century from a theoretical interest (not in response to a practical need), only to find an application of capital importance many years later, when Einstein used it for his general theory of relativity.

**11.8** The debate over the indispensability of mathematics for natural science is clearly misguided, then, inasmuch as it is taken as a route to discover whether mathematical entities ‘really exist’ (i.e., whether they exist in an absolute way). Even if we could replace, say, real numbers as quantitative measuring tools in physics by second-order logic notions, and even if we could do it with no loss of descriptive, explanatory or predictive power, that would not mean that real numbers are less ‘real’ in any absolute sense. It would only mean that we have at our disposal two colrefs for measuring quantities in physics, one with real numbers and another without them, and that we would have to decide which one works better (i.e. which one makes huncol run more efficiently, all things considered) on each particular occasion.

## **XII. WHAT ARE PROPOSITIONS AND LINGUISTIC IDEAS MADE OF?**

**12.1** Let us now turn to scientific innovations in general. Applying the social conception of meaning, it appears that when somebody makes an innovation or a discovery in science (let it be within mathematics or outside it, let it be an object, a property, a fact, a proof, a technique, a new application of existing knowledge, etc), they are effectively devising a new pattern of interaction within the relevant cognitive-linguistic community. Then, if the discovery in question is not communicated to the rest of the community, or is communicated but disregarded by it, the new pattern will not catch on. By contrast, if the new pattern *is* adopted, it will typically undergo many modifications and refinements over time.

**12.2** In either case, however, no scientific discovery is exclusively pointed to the ‘discovered object’. On the contrary, at the core of any scientific discovery there is a set of new patterns of cognitive-communicative interaction in the scientific community: patterns of interactions that the discovery, if acknowledged as such by the scientific community, will bring with it. As a consequence, all scientists, including mathematicians, are essentially ‘social technologists’, whether they know it or not and whether they like it or not; and all scientific discoveries, both within and outside mathematics, are essentially inventions of new patterns of socio-environmental interaction.

**12.3** The same is true of innovations in every-day cogno-language (which are, by the way, essentially the same as those of scientific cogno-language, albeit with a much lower level of rigour, generality and sophistication). Indeed, according to the social conception of meaning, propositions appear to be, in essence, nothing other than patterns of interaction within a given cognitive-linguistic community.

**12.4** The same can be said about linguistic ideas in general (which should be distinguished from ‘non-linguistic ideas’, such as intuitively using a certain shade of colour at a place in a painting, or a certain sound in

a musical composition). Indeed, according to our view, to have a linguistic idea is to devise a new pattern of socio-environmental interaction, to try to convince others that one's idea is correct is to try to make them adopt that new pattern, and 'to use' or 'to entertain' an already known idea (or an already known proof, technique, etc) is to put such a pattern into practice, or to mentally prepare oneself to do it. Of course, one does not need to be conscious of any of this in order to make a scientific discovery, to have an idea, etc.

**12.5** The time has come to return to the quick 'semantic ideology test' with which we started this paper. The question was 'Which of these four does a proposition resemble the most? (a) an elephant, (b) a plane, (c) a tennis game, (d) a thought in God's mind'. Now we can see that the correct answer, at least from the point of view of the process-socio-environmental conception of linguistic knowledge and meaning, is (c). Indeed, although propositions are very different from tennis games (given that they require a different context, they involve different interactions and they usually last much longer), they are still more similar to them than to any of the other options. Answer (d), in particular, is too Platonic (i.e. it is 'metaphysical' in the bad sense, in the sense of absolute metaphysics). Answer (a) is too naturalistic, as it overlooks the social character of language (and hence of propositions, as language-based creatures). And answer (b) is simply misguided, as it overlooks the processual character of language and hence of propositions. Only tennis games, like propositions, essentially consist in a structured set of socio-environmental interactions.

**12.6** On the other hand, many concepts and propositions are 'translinguistic' in the sense introduced in Section 6, insofar as they can be expressed in (and hence belong to) several languages. Thus, 'It is raining' points to the same proposition as 'Está lloviendo' and 'rain' points to the same concept as 'lluvia'. However, no concept or proposition is 'ultralinguistic' in the sense introduced in Section 5, because no concept or proposition is over and above every human language. Neither concepts nor propositions are, so to speak, 'floating entities'. Rather, they are always anchored to the huncol complex systems to which they belong and to which their destiny is tied.

**12.7** In addition, given that huncols are complex systems, the adoption of a new linguistic idea (i.e. the adoption of a new pattern of interaction) will typically bring with it changes in different parts of the system. Then, the incoming idea will be more or less innovative (or revolutionary) depending on how deep such changes are. Indeed, there are innovations that fit in well with the existing patterns, extending them in a new direction without bringing about deep changes into them, more or less as a jigsaw piece fits into a jigsaw puzzle and helps complete it without modifying the previous pieces. But there are other innovations that require deep modifications of the system, making the decision as to whether or not to adopt them much more difficult, both at an individual and at a community level. We have already discussed the background of such decisions, which will themselves be dependent on the particular colref from which they are made, and liable to be revised from a different colref at a later stage.

**12.8** Notice, in this respect, the superiority of our approach over attempts to define the notion of scientific improvement directly in terms of epistemic values, such as 'simplicity', 'generality' or 'empirical adequacy'. Indeed, by overlooking the role of the complex system operating in the background, these other approaches can only aspire to tell half the story. Besides, it turns out that without making reference to the complex system in question, it is extremely hard to tell how the relative weight of the different epistemic values must be accommodated on each given occasion (i.e. whether simplicity should prevail over generality or the other way round, etc). And if that was not enough, the task of defining these values without making reference to the complex system turns out to be almost as difficult as defining the concept of scientific improvement itself.

**12.9** Before concluding, a few words are in order regarding the idea of a 'final science'. From the point of view of the social conception of meaning, the closest we can get to a final science scenario would be a situation in which our scientific colref about a given realm of phenomena remains unchanged and unchallenged for a very long period of time, despite continuous efforts by the scientific community to find flaws in it, or ways to make it more perfect. This would be the closest we can get to the possession of an 'absolute knowledge' (or an 'absolute truth') about anything.

**12.10** However, it must be noticed that even in such a scenario, the knowledge in question would be dependent on the huncol complex system sustaining it, including the corresponding community of cognitive-linguistic agents. Hence, it would not be 'absolute knowledge' in the sense of being independent on the knowing subject. And, in any case, for all we know about the history of human knowledge and language, the expectation that we shall ever reach such a state with respect to any realm of phenomena is extraordinarily remote.

### **XIII. EIGHT 'COMMANDMENTS' AND A FEW CONCLUDING REMARKS**

**13.1** The time has come to bring this discussion to a close. The same kind of analysis that we have applied here to the notions of 'truth', 'meaning', 'language', 'knowledge', 'rationality', 'ontology', 'fiction', 'science' and 'mathematics' can be easily applied, *mutatis mutandis*, to many other notions. And the same line of argument that we have used here in order to denounce the ultralinguistic paradox and related notions (such as 'the thing in itself', 'absolute existence' and 'absolute truth') can be easily applied to many other philosophical

concoctions. After all, what we have been doing is nothing more than applying commonsensical reasoning to commonsensical premises. And what we have been doing is just a sample of what can be done.

**13.2** Therefore, we could be opening the way to other studies in philosophical semantics, epistemology and metaphysics, in which the premise that human natural cogno-language is a complex system presides over the whole investigation. Taking such a premise as a starting point and bearing it in mind all throughout suffice, in my opinion, to launch an in-depth renewal of these three subjects, making them much more naturalistic and empirically based than usual.

**13.3** The following is a list of tips (or ‘commandments’) to be kept in mind in this respect, at least for adherents to the process-socio-environmental conception of linguistic meaning and knowledge:

- (1) Do not talk about human knowledge without specifying whether you mean it to be linguistic or not.
- (2) Do not talk about ‘what there is’ in the abstract, without referring it to a particular domain or cognitive-linguistic reference frame, such as a language, a theory or a viewpoint.
- (3) Do not address the question of ‘what there is’ inside a given domain, without taking into account the utility that the corresponding communication patterns may have in relation to our interests as human beings (such as our natural inclinations, our adaptation to the environment or our communal life).
- (4) Do not address the question of ‘whether this is really true’ (or ‘absolutely true’, ‘approximately true’, ‘closer to the truth than its alternatives’, etc), without taking into account the utility that the corresponding communication patterns may have in relation to our interests as human beings, such as those listed in (3).
- (5) Apply tips (3) and (4), in particular, when addressing questions such as ‘Do mathematical objects really exist?’ or ‘Where does the truth of mathematical propositions come from?’
- (6) Avoid the ultralinguistic paradox, by bearing in mind that natural language is a complex system and hence anything we express (or communicate) through natural language will be subjected to the dynamics and internal constraints of this system.
- (7) In particular, avoid talking about ‘how things are in themselves’, as opposed to ‘what we linguistically know about them’.
- (8) Bear in mind that the above tips can only be applied from a particular cognitive-linguistic reference frame rather than in the abstract, and that anything that we say in this respect (in fact, *anything we say at all*) is liable to be revised from a different reference frame at a later stage.

**13.4** Having said all that, the truth is that I do not expect that a real breakthrough will arrive until we have at our disposal a sufficiently clear and rich theory about how the huncol complex system works. We are still very far from that. Indeed, we do not even know how to describe the meaning of a simple statement such as ‘It is raining’ in non-trivial terms, in a way that unravels the network of perceptions and interactions that such a statement (as uttered in normal circumstances) encapsulates.

**13.5** When such a theory arrives (i.e. when we devise a first scientific theory about huncol), we may be in a position to provide much more precise definitions of the tentative concepts that have been put forward in this article, as well as much more streamlined formulations of the views that have been expressed here (and empirical evidence for or against them, as the case may be).

**13.6** It would be a noteworthy discovery, for example – the kind of ‘new truth’ that today few philosophers hold or even contemplate – if we could one day establish that when people talk about the truth of a statement, they are unknowingly alluding to a certain state of a social complex system. The same could be said if we were to one day establish that when people discuss the existence of an object, they are unknowingly alluding to the suitability of certain patterns of communicative and manipulative interactions for the achievement of certain goals, with regard to their natural needs, their social inclinations, their adaptation to the environment, etc.

**13.7** I invite those to whom such hypotheses are too odd or counter-intuitive to compare them to such unexpected and counter-intuitive discoveries of classical physics as the law of inertia (i.e. the tendency of moving objects to keep moving in a straight line at a constant speed unless acted upon by a force), or the law of action and reaction (i.e. the fact that whenever an object exerts a force on another, the latter simultaneously exerts a force on the former, which is equal in magnitude and opposite in direction). By making such a comparison, I do not mean to imply that linguistic communication and linguistic knowledge are subjected to the same kind of mechanistic laws as Newtonian mechanics. What I am trying to say is that linguistic communication and linguistic knowledge are far more complex than meets the eye, and philosophy needs to address them with a view to illuminating their complexity, rather than trivializing it.

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