

## **Verbally Constructed Reality and Alternative Realities through Communication – An Exploration**

Paul Rastall  
Independent Scholar, UK  
Formerly, University of Portsmouth, UK

### **Abstract**

Science tells us that reality as we experience it and ultimate physical reality are different. It also tells us that we can imagine other physical possibilities, and that perceptions of reality can differ. However, much of our everyday reality is constructed verbally or by other semiotic means – not just perceptually. What can our knowledge of language tell us about the language/reality relation? Can we conceive of different experiences of reality constructed by verbal or other semiotic means? How can such thought experiments help us to understand language as it exists? Small model languages and imaginary semiotic means are used to explore the issues and some possibilities for changed communicational parameters leading to alternative views of reality are considered.

**Keywords:** language, reality, truth, mental models, model languages

## Introduction

This paper is an exploration with a thought experiment. There is no formally stated hypothesis and not much in the way of empirical testing; it is mainly a form of questioning and imagining. It is important to understand that the paper does not claim to be an addition to knowledge through research. It is concerned with the limits of our understanding and asks whether we can conceive of other forms or experiences of reality *by changing the parameters of communication*. It is, perhaps, more similar to a Wittgensteinian language game.

We know that there are limits to human perceptual abilities, but the paper considers whether we are limited also by our means of communication and, if so, what the limitations are and whether alternative forms of communication might lead to different experiences of reality. Does language lead to a false sense of reality or prevent access to reality? Exploring how different realities might be conveyed linguistically (or by other semiotic means) can highlight features of natural languages and their limitations. Naturally, that involves some speculative thinking and abstracting the communicational input to our sense of reality from the perceptual input.

## Reality

The term “reality” is, of course, a difficult and controversial one. We can distinguish our everyday reality, reality as it appears to us in our ordinary lives, from the “ultimate” physical reality revealed by science – the world of atomic particles and forces, organic and inorganic chemistry, bodily processes not observable to the eye, and so on. Science extends what is observable by technology and explicable through quantificational modelling. Our senses are too limited to observe this ultimate physical reality, and what we perceive is constructed by our brain processes. In everyday terms, we can notice the gradual withering and decomposition of a flower over a period of hours or days, but not the processes of change happening every second or fraction of a second, or in chemicals and molecules beyond our level of perception, let alone atomic or gravitational forces. We can read a text, but not be aware of the complex cognitive processes involved in its recognition and interpretation. Science tells us that “reality is not what it seems” (Rovelli, 2016; 9 and 224 *ff*). Nevertheless, science tells us that the physical world and all its processes are one connected reality. This scientific view is a modern version of monist philosophy that has emphasised the oneness or interconnected totality of existence since Parmenides in the west and the earliest Zen philosophers in the east. The idea is clearly expressed by – among others – the philosopher, F.H. Bradley (1897). We live in a world of appearances which are dependent on our perceptual range and the forms of our cognition– the ways our brains work. Everyday reality as we perceive it, and as we conceive it, depends on, and is a function of, complex physical processes beyond our perceptual abilities and awareness, but connected to the world around us. That is, reality as we experience it is also part of a single totality of existence.

We typically feel separate from external reality as observers or as participants in events or the world around us. Philosophers such as Kant and Husserl have distinguished the “empirical” subject from the “transcendental” subject in order to account for the “paradox” that, as knowing subjects, we are both in the world and part of it *and* we are the “creators” of a world of understanding in our minds (Carr, 2017, p. 115). The world of understanding we create in our minds – our reality – as “knowing subjects” appears to be separate from the physical processes of cognition, but science would tell us that the world as we represent it to ourselves in everyday life is also a function of unobservable physical processes, and a matter of constant change.

Much of the world seems relatively stable to us, but it is beyond our perceptual range to see the flux of reality (as Rovelli noted in the same context as above). Our mental models of the world as we know it also seem relatively stable—changes are generally small and not noticeable. Their stability can be maintained as something relatively constant only by using energy to counteract entropy. Our verbal associations would degrade into disorganisation if we did not expend a lot of energy to maintain them—the brain accounts for about 20% of all our energy needs.

Physical science ignores, however, the role of communication/semiosis in the process of our construction of reality. While communication must rest on a physical basis, it involves degrees of conventionality and all of the social and semantic associations in our verbal (and other semiotic) resources. This raises the question of the sign function; that is, how verbal form and meaning are linked. For followers of Saussure, the meaning of a form and the form of a meaning are simply different ways of looking at the same thing in conventional language (Saussure, 1972: 97 *ff*). The Saussurean view of the sign and its mass of associations in the sign system are consistent with physical science in *not* offering a magical formless meaning. Our verbal meaning is a way of representing a verbally constructed reality through the semantic perspective on the sign in its many associations. The sign – from the point of view of the signifié – *is* the meaning, and is our verbally constructed reality.

Of course, our everyday reality is different for each individual, so we must distinguish between the specific individual reality and generalisations about what is broadly common to us. But we must also distinguish between ever-changing experiential reality and the relative constancy of our mental models of reality, our expectations and construction of the world. We expect the street or garden to be largely “the same” as it was before or the car to be in the garage where we left it; your friend or colleague is expected to be the “same” person as yesterday; an orange is not expected to taste like pasta but like other oranges. However, we know that there are constant changes to everything and everyone. Our experiential reality is constantly updated through interaction. Indeed, scientists such as Rovelli (2015, p. 18) assert that (physical) reality *is* the interaction of entities. We cannot know about the ultimate constituents of the universe except through their interactions; they come into being through interactions, and those interactions are the physical basis of our everyday reality. Our mental models of reality (Johnson-Laird, 2006) are temporary and appear to us to be long-lasting only because of the scale on which we observe them and because of the limitations of our perceptions. But even on an everyday level, it is clear that our updating of mental models of reality comes through perceptions or through communication, or both. Thus, we might see that there is some change on a well-known street (e.g. road works) or we might be told *there are road works up the street*, or we might both hear the works and be told of them, or see a conventional road sign indicating road works. In all cases, there is some semiosis involved. The semiosis might be the energy transmissions involved in natural indices such as the sounds associated with road works, or we might see a typical warning triangle with the symbol for road works, or the semiosis may be verbal. This awareness of the world around us, our everyday reality – whether perceptual or communicated – is also a matter of constant interactions of many sorts, notably the interaction of (qualitative/interpreted) information with our mental models.

The question of what we regard as real invites the question of what is *unreal*. We regard as unreal, most obviously, things which are not supported by relevant evidence – that is, little green men on Mars – or, secondly, things which are not consistent with known processes. Thus, we know that the magician does not really cut his assistant in two and put her back together again. Thirdly, we regard as unreal things which have no practical consequences in a given

respect. There is no legal difference if we travel from Paris to Rouen, but if we travel from Paris to Geneva there is a legal difference. Thus, the border between France and Switzerland may be an arbitrary line with no clear physical differences on either side, but it is a reality. £10 is a reality but it may indifferently be a £10 note or two £5 notes: there is no “real” difference in value. Clearly, our ideas of the real can change as we become aware of new facts (e.g. about the artistic abilities of Neanderthals), processes (such as new mobile communication technologies, a fantasy not so long ago), or of new distinctions with practical consequences (such as new tax regulations). We now have some criteria – evidence, processes, and consequences – with which to test variations in reality constructed by changing the parameters of communication. Dreams and hallucinations can seem very real, but they are not generally seen as “real”; their contents lack evidence, contain irrational processes, and have no practical consequences. Their contents also are not inter-subjectively experienceable or testable; that offers a fourth criterion. In literature or fantasy, we can “suspend disbelief” to see the *realism*, or relevance, of the content through comparison with real-world issues; the criteria for factual statements do not apply in those cases. We can accept that there was no real, that is, historically evidenced, Anna Karenina, good Samaritan, or Cinderella, but we can see the reality of the issues that are found in novels, parables, fairy tales. Literature creates realities in a “discussion world” that is entirely semiotic. Communication creates the “unreal” that we treat as real for that discussion world. Verbally constructed reality and ultimate reality are clearly not identical, just as perceptual reality and ultimate reality are different.

Reality as we construct it, of course, is of many sorts, as the philosopher Karl Popper asserted (1972, pp. 37 *ff*). Here we are concerned with the everyday reality of evidence, processes, and consequences insofar as they are *communicationally* constructed and intersubjectively experienceable. This implies a concern with the limitations of our everyday semeiosis.

## Communication

Broadly, we can say that all models of human communication involve (1) a physical means of transmission of a signal including the energy transmissions from the cognitive processes of the sender through the nervous system to muscular execution in the creation of speech or writing, sound or light waves (physical contact in Braille or touch) and the “reverse” processes in the receiver<sup>1</sup>, (2) some set of connected conventions for communication, and (3) some social context for communication including the interpersonal relations, previous discourse, and social situation of the participants in communication. (The well-known model of Shannon and Weaver (1949) is typical but does not contain the component of social context insisted on by many scholars subsequently.) It follows that, if we are to change the parameters of communication, we must consider those three areas as possibilities.

## Physical means

Different realities in experience are conceivable, and in some cases possible. Our perceptions of reality are limited by our sensory limitations, as we have seen. Our reality would be different if our perceptions worked in nano-seconds rather than fractions of a second – we would notice small-scale changes to a decomposing flower (and ourselves). If we could detect high-frequency waves, we could perceive a world in sonar “vision” through echo-location in the dark like a bat. If we could detect electrical fields, we could detect living things in the way that a duck-billed platypus (*ornithorhynchus*) can (although proximity to power lines would be a problem). In actuality, we know that there can be different perceptual experiences of reality

---

<sup>1</sup> Or other physical mechanisms such as smell or touch for non-verbal semeiosis.

through altered states of consciousness. Such states can be induced by drugs, sensory deprivation, and extreme forms of meditation or self-denial, for example. The issue here is whether the parameters of communication can be altered to create a different experience of reality. It should be obvious that the answer is “yes” at least as far as the physical means of communication are concerned– the first factor in communication considered above. We can change reality as we experience it by changing the perceptual input in such a way that our brains work differently (with drugs, for example), but we cannot change our perceptual range, although we can imagine such a change.

### **Communication systems**

However, this paper starts with the assumption that a significant part of our reality – that is, reality as we experience it in everyday life, at the “macro-level” of experience we have described– is verbally constructed, and asks whether other verbally (or semiotically) constructed realities are conceivable– and what they might be like, that is, whether we might experience reality differently through *communicational*, rather than perceptual, means. (The emphasis is on language here but changing the parameters of communication systems implies different mechanisms of semeiosis.) This means considering the second systemic and third social factors in communication. As an example, we can arrive at different experiences of reality through art. Surrealist painters, such as Dali, attempted to release unconscious associations through distorted or juxtaposed images precisely in order to create alternative experiences of reality. In surrealism, the parameters of semeiosis are changed through images, their juxtaposition, and their associations, that is, through symbols and natural indices. It challenges what we consider to be “real”. It should also be obvious that different communities and societies constitute different realities through their various norms and regulations. In some societies, for example, there are coming of age rituals which are absent in others, or which are found in other forms. Thus there can be different realities of **social context** also. But here we focus mainly on verbal systems of communication for the creation of reality and any consequences for social relations.

### **Verbally Constructed Reality**

The assumption of a verbally or semiotically constructed reality seems relatively uncontentious, although the relation of language and reality is not. The relation between language and reality is controversial and has been a matter of debate since early Greek philosophy. Without going too far into that debate here, one might make a few points from a *linguist's* point of view.

Firstly, for the linguist, there can be no radical separation between language and reality, as seems to be assumed in some forms of empiricist philosophy, especially those concerned with a correspondence theory of truth; that is, where truth is taken to be a function of language on the one hand and the factual world on the other. That is the position of truth-functional semantics (e.g. Davidson, 2005). For the linguist, language **is** a reality and everyday reality is to a large extent linguistically constructed. Language plays a key role in our construction of, and orientation in, reality as we know and experience it. This means, first that truth cannot be a simple relation between language, on the one hand, and factual reality on the other, because what we perceive as reality depends to a large extent on language. This is obvious with ethical or attitudinal statements such as *Justice is good*, or *Economic growth is desirable*, where we must know the meanings of *Justice*, *good*, *economic growth*, and *desirable* in order to determine what constitutes our sense of reality in those spheres of existence and, hence, the truth of the statements, as well as any particular real-world states (or instances) that they refer

to. Indeed, we need to know what “truth” means here since there can be numerous perspectives on the above propositions. But even in the well-known Tarskian example (for the investigation of experiential/empirical truth) of “*Snow is white* if and only if snow is white” we need verbal means to determine what counts as snow and white in the external world<sup>2</sup> (and what does not) before we can determine whether the statement corresponds to the factual state of affairs, and *vice versa*; the statement and the factual state are asserted to be logically equivalent (“if and only if”). However, second, not all of our reality is concerned with statements, either factual or value-based. We have the realities of requests, promises, warnings, and so forth, in various sorts of speech act. Furthermore, as Foley (1997, p. 74) says, language has “colonized” our brains. Many brain functions have been adapted to language behaviour, which is, as it were, our normal *modus operandi* in all areas of life.

Effectively, our reality (i.e. reality-as-we-experience-it) is highly dependent on language. Another demonstration of this is that language is also a means to *extend* our experience of reality. For example, the use of striking imagery by outstanding poets such as Baudelaire, Rilke, or Pasternak creates new perspectives on reality. Also our understanding of the world is advanced through *scientific* discourse. The information that, for example, DNA analysis of hair samples shows that the so-called yeti or abominable snowman is a kind of bear creates a new understanding of this myth. The same could be said of any form of reportage. Consequently, an important role for linguistics (and semiotics more generally) is to address the issue of how language constructs reality at the everyday or “macro-level” of experience, and how it interacts with perceptual reality and new information. However, the *extension* or change of our reality through linguistic means is not the same as changing the *parameters* of our communication. We leave aside here the physical basis of language behaviour in the mass of brain connections and their patterns which give rise to our experience of language and also the deeper or “micro-level” of scientific/quantificational understanding – a different form of reality accessible only to relatively few scientists.

Language, as we know it, exists at the “macro-level” – *our awareness of utterances and texts in ordinary speaking and reading*, although that “macro-level” may have several “layers”. Thus, in everyday terms we can speak in terms of a rising and setting sun, or the sun being very bright or dull, or the sun breaking through the clouds, but know that our ordinary experience of the day is an illusion which does not correspond to the reality of the earth rotating about the sun, and that the relative appearance of the sun depends on meteorological conditions; it does not “break through” clouds<sup>3</sup>, but we “know what we mean”, that is, what experience is referred to. Degrees of scientific understanding, as well as varying perspectives, create these layers of reality. Our everyday experience of language is on the “macro-level” of spoken sentences or utterances, and written texts of all sorts. That verbal experience also involves various dimensions concerned with the form of utterances (their register or social association) and different layers of meaning (central or “connotational”) and their function in current discourse. Those are things we are aware of on an everyday level. Of course, absence of scientific layers of understanding can be associated with verbally created myths, for example, about what happens to the sun at night or how it is “regenerated” each day, or how the physical world (e.g. of crops) can be influenced by propitiation rituals, which are realities for some communities.

---

<sup>2</sup> Davidson (2005, pp. 220 *ff*) moves toward this view with his idea of “truth in a language”, but I think he still underestimates the role of linguistic conventionality. Truth in ordinary language statements, in my view, is a matter of coherence between statements and our everyday experiences rather than correspondence to “fact” (Rastall, 2011).

<sup>3</sup> In English, one speaks of *the sun trying to come out* on a dull day. Factually, we know this to be nonsense; but we all “know what we mean”, that is, what is the everyday experience referred to.

To some extent we all live in a world of myths– who has not “wished upon a star” or crossed fingers for luck?

If we can accept that language to some extent constructs our everyday reality, then let us also accept for the purposes of discussion the idea of “model-dependent realism”. This is explained by Hawking and Mlodinow as follows:

According to the idea of ‘model-dependent realism...our brains interpret input from our sensory organs by making a model of the outside world. We form mental concepts of our home, trees, other people, the electricity that flows from wall sockets, atoms, molecules, and other universes. These mental concepts are the only reality we can know. There is no model-independent test of reality. It follows that a well-constructed model creates a reality of its own. (2010, pp. 216–7)

Language is a way of modelling reality. This position is close to that of the mental models approach of Johnson-Laird (e.g. 1983, 2006) or Kintsch and Van Dijk (1983). It should be clear that the position adopted by Hawking and Mlodinow is also very similar to the idealism of the philosopher, George Berkeley (1710/1910) in which we can have no direct knowledge of the outside world, since all knowledge comes to us through the medium of our senses (“ideas” in his wide sense of the word). For Berkeley, *esse est percipi* (where *percipi* is also taken in a wide sense). For Hawking and Mlodinow, the dictum might be *esse est intelligeri*. As Berkeley made clear, this does not mean we must be solipsists, but that perceiving and understanding is our only route to knowledge of the external world. Linguists, who deal in communication between people and about the perceptual world, can hardly deny the existence of the external world or other people.

We have known for a long time that the way we perceive things depends on the construction of our brains. Thus, our perception of grass as green depends on the reflection of light in a certain wavelength in the spectrum, and the interpretation of that light energy in our brains as “green”. We make an everyday perceptual model of the world in which grass is green; that model is also a function of numerous hermeneutic/semiotic processes, in the form of natural indices mediated through the senses. Naturally, there is some surprise when we find that grass is black in the dark or that other creatures see a different spectrum in which grass is not green, or do not see in colour at all. We name our colour experience *green* and *green* becomes a way of constructing our visual experience of plants, walls, cars, and so on, and metaphorically approaches to the environment or permission to act. The greenness of grass may seem to be a reality, but we are misled by verbal expression into attributing qualities in reality which are merely appearances. But similarly, our experience of language is also the construction of our brains. For example, what we perceive as discrete “speech sounds” is an interpretation of continuous sound energy by our brains represented as “speech sounds”. Discrete speech sounds do not exist in external reality; they are constructions of our brains- again, reality is not what it seems.

Hawking and Mlodinow focus on the world of physical things as we perceive them and as we construct our understanding of them. They are less concerned with everyday interactions and communications which constantly update our everyday mental models, but their position can be extended to our everyday, macro-level experience. Thus, we have mental models of reality as we experience it, and hence expectations about it. Those models are constantly updated as we receive new information. That view is similar also to the philosopher David Hume’s account of our belief in the continued existence of entities and states that we are not currently

perceiving. As Hume points out (1748/1968, pp. 189 *ff*), there must be some constancy in our repeated perceptions (e.g. of a garden) and some coherence in any changes; they must be explicable. If the grass in the garden looks darker in colour than our last view of it, we understand that the change is due to changing light conditions, for example. Hume's view implies a mental model for comparison to take place.

However, as we have seen, a significant part of the input for our construction of reality is verbal, as in the case of our sense of justice or economic growth (or conveyed by some other semiotic system, such as a warning light or car alarm). Furthermore, our way of *representing* our mental models is verbal. I can tell you what I know about grass, birdsong, or DNA analyses of hair samples, and the information can be added to, confirm, or disconfirm your mental model. Mental models are constantly updated and adjusted as we make sense of *perceptual* input. The appearance of clouds in a clear blue sky heralds a change in the weather, that is, our model of the current weather and how we expect it to develop. Clouds become an index of the weather in the perceptual world. But language does the same thing through symbolic means. An utterance such as *The bin men have been*<sup>4</sup> or *The wind has blown down the daffodils in the garden* serves as input which leads to an adjustment of our mental models, and hence expectations, and to actions such as taking in the rubbish bin or emotions such as disappointment<sup>5</sup>. It is this verbal input to, and organisation of, our models that Hawking and Mlodinow underestimate. It is, however, mentioned, but not investigated, by Maslin (2017, pp. 150 *ff*). Our sense of reality on this view is, as Rovelli (2015, p. 18) has said in a different context and we noted above, a matter of interactions between perceptual and/or communicational input and existing mental states. This is why we need to consider the role of language in effecting changes in mental models and behaviour.

There are certain things we know about verbal communication which are relevant to the discussion of language and reality. As noted above, we also know that utterances too – as we perceive them – are models that are dependent on our brain processes. As noted, “speech sounds” are constructs from sound energy as it is perceived and processed by our brains. But there are many other layers of modelling of utterances, the grouping of sounds and their identification as verbal units (morphemes, words, etc.), the mutual relations of verbal units, the qualitative values in different parameters of meaning. All of those processes involve huge numbers of verbal associations as well as links to the perceptual world. More abstractly, we can make models of those associations and their patterns to give an account of language. Such models range from the simple ideas acquired at school and the socially acquired aesthetic values (“educated”, “posh”, “northern”, “lower-class”, etc.) through to advanced theoretical models. In all cases, we have models for the purpose of understanding supposed (but unobservable) real-world models.

Another thing we know is that multiple “universes” are constructed verbally. When we discuss anything – a poem, housing, the cost of butter, democracy, evolution, belief systems in Papua New Guinea... – we make a “world” of verbally expressed ideas. In the area of scientific rational debate, Popper (1972:31*ff* and 235 *ff*) called that the “argumentative function” of

---

<sup>4</sup> This is an example of the verb *to be* carrying an implication of some fulfilled purpose as in *Father Christmas has been* (i.e. and delivered presents); *the plumber has been* (to mend a tap); *the woman next door has been* (to deliver a message). It is the implication which updates the mental model. If the binmen have been then the domestic rubbish has been removed and I can put the bin back in its usual place. My reality has been updated.

<sup>5</sup> In this sense, language is a “power” (Rastall, 2006); it has the capacity to bring about change...or be changed by the verbal input of others in the spread of verbal “memes”.



language<sup>6</sup>. But it should be obvious that the creation of a verbal world goes beyond the critical discussion of ideas in science, or – as Popper describes – rational problem-solving and the control of the environment; it also involves all aspects of the social world. In all cases of the verbal construction of a “world” of discourse, we can start from an initial utterance, statement, or text, which is then commented on. The verbal starting point is “reified” or “objectified” so that it can be treated as a counter in a discussion from various points of view (See Strawson, 1971, and Mulder, 1993). Effectively, it becomes a citation form, or component of a discussion world. It is not just statements which can be the starting points for discussion worlds, of course. Any speech act – promises, exclamations, requests, and so forth – can be discussed.

When the French linguist Martinet (1962, p. 3) asserted that “function is the criterion of linguistic reality”, for example, it is obvious that he was attempting to encapsulate the functionalist approach to linguistic analysis and particularly the idea that nothing is “real” in language unless it has a “function”, that is, it is separately relevant to communication. But Martinet’s view is clearly open to discussion. We can ask what is meant by “function” and “linguistic reality”, and one can ask whether there are non-functional linguistic realities. Grammatical relations, for example, do not “commute” in the usual functionalist sense (they are not mutually substitutable in the same context like *present* vs. *past tense* in *we walk/walked*), and aesthetic register values or socio-linguistic regional varieties are “realities” but scarcely “functional” in the narrow sense. The point here is that the debate about functional approaches and the validity of a functional view of language involves taking Martinet’s dictum *and creating a verbal discussion world around it*, not to mention discussion of the discussion (e.g. in a thesis or article, as here). We can discuss the *applicability* of Martinet’s approach in linguistic description, but his theoretical concepts are non-empirical; they are verbally created reference points. The same would be true of discussing the literary or ethical aspects of the fairy-tale, *Cinderella*, and the concepts needed for that discussion, or the concept of democracy in political theory. These are examples of verbally constructed realities.

Yet another thing we know is that languages vary in their conventions for communication. Whatever one’s position on linguistic relativism and universalism, any translator or speaker of more than one language will know many cross-linguistic differences. Among many examples, there is a range of possibilities for naming kinship relations as well as verbal means for expressing real-world roles (e.g. case and non-case systems) and perspectives on states and actions. Thus, we find four words for “brother-in-law” in Russian reflecting different relationships with no hyperonym – (*šur’in* (“wife’s brother”), *d’ev’er’* (“husband’s brother”), *z’at’* (“sister’s husband”), *svojak* (“wife’s sister’s husband”)) – , distinctions of elder and younger brother and sister in Chinese (*ge<sup>1</sup>ge/ di<sup>4</sup>di, jia<sup>3</sup>jie/ mei<sup>3</sup>mei*), as well as the aspectual distinctions in Russian, for example, *b’egat’/b’ežat’/pob’ežat’* – “run”– indefinite, imperfective, perfective). A person *is six* in English, but *a six ans* (“has six years”) in French and *jemu (or jei) šest’ let* (“to him/her (are) six years”) in Russian. However we look at it, verbal conventions vary from language to language and *give different perspectives on reality*, for instance in notions of kinship or the ways actions are considered<sup>7</sup>.

One does not have to accept the Sapir-Whorf view in its entirety to see that, if language helps to create our mental models and sense of reality, then differences in verbal conventions raise the possibility of differences in “model-dependent reality” due to variations in verbal

<sup>6</sup> “Argument function” is preferable as the reference is to rational discussion, not vexatious dispute. For a discussion of Popper’s ideas, see Rastall (2017).

<sup>7</sup> This fact of linguistic relativity is one of the reasons why one should not accept an equivalence between language and fact, as is implied by Tarski (above).

conventions. For example, we may conceive of a “day” as the time between one midnight and the next midnight as in English, *day*, but a “day” might also be the time from one sunset to the next, as in the Jewish tradition or in Malay, where *malam Selasa* (“night of Tuesday”) means *Monday* night, that is, the period of darkness after sunset on Monday to sunrise on Tuesday. There can then be variation in what is considered a “day”. Similarly, time may be considered in a 60-year cycle as in the ancient Chinese tradition rather than as a linear progression. (The issues around the Sapir-Whorf view are well discussed by Carroll (1973, pp. 1–34) and Lyons, 1977, pp. 245 ff.)

On the other hand, it is clear that in some respects the ways in which languages help to create our sense of reality are very similar. We have already considered imagery, discussion, and scientific information. Another obvious example is the naming of parts of the environment and the naming of states, events, and actions. Conventional distinctions in the way naming is done vary, as we have seen; concomitant determiners vary (articles and cases occurring with naming expressions), verbal aspect and modality (personal or impersonal) vary. But all languages, and hence the sense of reality of all people, involve *some* form of naming, and hence the classification of the world into discrete components. Thus, naming is one of the language features that contribute to our sense of reality.

Now, philosophers have long said that language is “misleading”, and that language must be analysed to determine “what is really meant”, that is, to arrive at a more accurate statement of facts. Ewing (1951, p. 37 ff) is one of many philosophers to explain their reservations. Empiricist philosophers such as Russell (1912/1940) drew attention to the difference between conventional expression and objective fact. Logical symbolisms such as that of Whitehead and Russell (1910) and Wittgenstein (1922) were intended to represent more accurately the structure of reality. While everyday verbal behaviour is clearly not “misleading” in that in practice people understand each other perfectly well for practical purposes, it is true that language is not an accurate reflection of objective facts and processes, as we saw in the example of expressions about the appearance of the sun. Linguistic conventions impose distinctions and perspectives on experience which are fundamentally arbitrary and vary from language to language. Examples include differences in tense or number systems and expressions for kinship. Language is for communicating everyday practicality and social relationships, not representing ultimate reality. Thus, we may take the view that the reality constructed by verbal means for everyday purposes does not correspond to actuality. In that respect, the necessary and useful conventionality of language is misleading in relation to physical reality and events. The physicist Rovelli, for example, states that “We slice up the reality around us into discrete objects. But reality is not made of discrete objects. It is a variable flux” (2016, p. 224). Rovelli is pointing to the fact that our perceptual abilities do not allow us to observe this continual flux of being, but also to the role of verbal conventions in our naming of parts of the world. That is, while conventionality in language is a practical necessity for advanced communication, it creates false impressions which are not consistent with ultimate physical reality. This, in turn, suggests that, if the parameters of verbal communication were changed, then we could see reality differently as a result. This goes beyond exchanging one set of conventions for another, as for example when we express time relations with respect to completeness/incompleteness/indefinacy as in Russian rather than by reference to relevance/irrelevance to the present as in the English distinction between present perfect and past. As with the construction of symbolic systems, we can try to think of different systems of communication.

## Alternatives

Physicists try to consider alternative realities or universes, where different physical laws apply, for example, by changing the values of physical constants (such as the constants of the electromagnetic or gravitational forces). This helps in the understanding of the special features of our universe. One might ask whether we can imagine alternative verbal (or semiotic) realities in which communication does not have the central features of human natural languages. What kind of reality would be constructed? As Rovelli (above) suggests, we live in a world of named entities such as mountains, waters, valleys, and so forth. but the recognition of such entities is verbally constructed. There is a well-known (possibly provocative or deliberately paradoxical) Zen statement by the Song dynasty monk Qing Yuan Weixing, which is nevertheless instructive. It is quoted by Wang Keping as follows:

Before I had studied Zen for thirty years, I saw mountains as mountains and waters as waters. When I arrived at a more intimate knowledge, I came to a point where I saw that mountains are not mountains and waters are not waters. But now that I have got the very substance, I am at rest. For it is just that I see mountains once again as mountains, and waters once again as waters. (2008, p. 132)

This is a philosophical perspective in line with the ideas of physicists working at an atomic or quantum level. On an everyday, superficial view, there is a mountain, but on reflection there is no mountain. I take this to mean (among other things<sup>8</sup>) that in everyday life we make a sharp distinction between subject and object, and we recognise objects in the environment as separate from us and distinct (as Rovelli says). We tend to accept the everyday verbal classification of things as a matter of convenience. However, by looking harder and expanding the object of perception into the widest context and questioning our preconceptions, we might realise that the environment is a continuity without discrete boundaries. Where does the mountain begin and the plain or valley end? What differentiates a mountain from a hill? So it could be said that no mountain or waters exist as discrete objects without our conventional verbal distinctions for naming— reality and conventional communication do not coincide.

Conventional verbal distinctions are rather “broad-brush” and involve a lot of indeterminacy. As Antal (1976, pp. 51–2) pointed out, we think of the Danube as one “thing”, but of course it changes in many respects over time and all the time. “It” can be identified using our verbal decision to give a changing (broadly similar) reality a fixed name. This is a practical necessity; otherwise the name would change constantly with the changes in the river or we could not recognise *Danube* because of real-world changes, and *mutatis mutandis* for any other name. Furthermore, humans are part of the overall totality and not completely detached observers (again a position of idealist philosophers from Parmenides onwards), however convenient the “objective stance” may be in helping our understanding<sup>9</sup>. In linguistic analysis, it is important to remember that we are *internal* to the communication process and not purely detached

---

<sup>8</sup> Qing may have been referring to the Buddhist idea of the ‘inherent non-substantiality’ of phenomena. For many Buddhist scholars, phenomena are “just names” – see Dalai Lama, 1999, pp. 109 *ff* and hence ways of classifying the world of appearances.

<sup>9</sup> As Ewing (1951, p. 245) points out, we must in practice select a limited number of variables in any explanation or study in order to make progress. We cannot consider every phenomenon in its limitless number of respects. We thus see everything partially rather than its wholeness. For example, we might look at a sign from the point of view of morphology or its syntax or its connotation or its role in discourse, each separately for the purposes of analysis, although the sign actually takes its place in a mass of different associations in the totality of a language.

observers. We use our speech processing and knowledge of verbal associations to perform analyses.<sup>10</sup>

In other words, our verbally created reality and “real”, ultimate reality are, as many philosophers and scientists have said, quite different, and language conventions are central to “divorcing” language from (ultimate, physical) reality. This suggests that one could have a form of communication which more exactly mirrored ultimate reality or that different forms of communication might misrepresent reality in different ways.

### **Other Communicational Realities**

We know that other communicational realities exist, just as we know that there are other mental models for orientation in other environments. Thus, ants communicate and act collectively through pheromones. Clownfish living in coral reefs and bats operating with sonar have mental models of *their* environment in ways and using semiotic means that we cannot experience. We cannot be part of the communicative or environmental “worlds” of ants, bats, or clownfish— we can only try to understand them; their reality is different from ours. We cannot escape linguistic conventionality, but we can try to understand different verbally constructed realities. So, how can we explore them? Can they tell us anything about the limitations of natural languages in constructing reality?

One way forward is simply to imagine a language *without* selected features of real languages and another is the possibility of constructing small model languages as ways of exploring our assumptions<sup>11</sup> and other possibilities. That is, we can change the parameters of communication— at least in a thought experiment.

Two of the advantages of real languages are signs embodying abstract concepts and the mass of signs naming different identifiable objects in the world around us.

### **Abstraction**

We could imagine a language *without* abstract signs/concepts. It would be a language without the signs— *fairness, kindness, compromise*, and their opposites, *injustice, cruelty, force*, and so on, and also without the signs *love, hatred, sympathy, indifference*, and so forth. A world without those signs would construct a reality in which there could be no sense of another as a person<sup>12</sup> and in which only material considerations existed along with instinctual responses to benefit/disadvantage, power, danger, opportunity, for example. There would be no constructs, such as “good” and “evil”, “justice” or “morality”, or the hypostatized entities that go with them— and without the discussion worlds about them. Thus, not only would we change the verbal system, we would also change social relations.

It is difficult to conceive of complex reasoning without abstract signs. The sign, *reason*, itself would not exist. The discussion world and this article would not exist. Our relations could involve bonding as well as competition for resources, cooperation for mutual benefit, and instincts to satisfy natural desires, as well as simple exploitation of connections of cause and

---

<sup>10</sup> The idea of applying “procedures” to a “corpus” of data in the ideal of the well-known American linguist Zellig Harris (1951, pp. 1–24) was never workable. All of his “shortcuts” in analysis showed his presuppositions about verbal reality stemming from being part of the communicational reality, rather than being a detached observer.

<sup>11</sup> For the notion of ‘small model languages’ see Rastall 2015 and the discussion in *Language under Discussion*.

<sup>12</sup> Of course, there have been racist societies in which the humanity of outsiders or those of different appearance has been denied, but also such notions as personality, identity, rights, values would not exist in the case in question.

effect in the way that some corvids can use tools (but not discuss them). It would be a language at a primitive stage of development with a limited reality without any discussion world or verbal problem-solving. Insofar as we could test those conclusions, it would be necessary to devise a notion of, for example, good or identity, using only non-abstract language, but that would be impossible as *good* or *identity* would be absent from a language without abstractions. Terms such as *good* and *identity* imply the capacity for abstraction in self-referential (or “meta-linguistic”) language.

Again, we could imagine a language without question words *why*, *when*, *how*, and so on, and without the corresponding expressions to answer (*because*, *at*, *by*, etc.). Without an alternative means of questioning and reasoning, we would have a reality of factual states, but not objectively comprehended connections, or even the sense that questions can be used for exploration and discussion. This could be tested by trying to reason without those expressions. In fact, natural languages do have alternative means for questioning and reasoning through the juxtaposition of sentences. Thus, we could eliminate *why* and *because* but still say *Fred went home. Give me the reason/ Fred went home. He felt sick*. Such a juxtaposition involves intuiting the connection of consecutive utterances— in fact a feature of all language behaviour. A further possibility (described by Spector, 1979) is reasoning with juxtaposition and *unstated* premises. *You can't play outside. It's pouring with rain* contains the suppressed, unstated premise *You don't play in the rain/ You can't play when you will get wet*. So, simply excluding words for reasoning and questioning would not preclude reasoning, but merely make it more cumbersome because questioning and reasoning operate with the self-referential function to link, compare, and contrast statements into complex arguments.

However, we can imagine a language in which there could be no reasoning by juxtaposition in this way or any other, but only unconnected statements and directives— *Rain! ... Don't play.... There are bananas.... Climb the tree....* Similarly, we could imagine a language without counterfactuals of the sort *what if Napoleon had won at Waterloo?* or *what if Genghis Khan had died at the age of three?* The exploration of alternative scenarios can extend our thinking in the imaginary or fantasy world (as we have noted), but would be absent from a language without counterfactuals. We could not ask if alternative forms of communication could exist.

### **Naming**

A reality in which we could not specify particular objects in the environment through *naming* would be a continuity in which we could perceive, but not refer to, parts of the world around us. One could imagine that a dog can “see” London<sup>13</sup> as a passing continuum of visual impressions, but a dog could not name benches or Big Ben or know what they were; they would be incomprehensible items in the environment. A dog, on the other hand, would create a smell map of London; a reality for the dog which is beyond human perceptual abilities and therefore a different reality from ours.

In many animal communication systems, there is no representational (or symbolic) function, so there is no naming. There is only expression (symptomatic function) and address (signalling function).<sup>14</sup> Thus, robins (*erithacus rubecula*) perform territorial singing as an address (warning) to other male robins and an appeal (attraction) to female robins. They express “anger” with twittering when their space is invaded, for example, by humans, but they cannot

<sup>13</sup> Or Naples. Quine (1960, p. 16) claims ‘there is nothing linguistic about seeing Naples’, but knowing what we mean by Naples – where does it begin and end? – and what it is to see it or name its parts are very clearly linguistic – how much do you have to see and from which perspective, tourist, sociologist, inhabitant...?

<sup>14</sup> I am using Bühler’s (1934) classification of the functions of the speech act for convenience.

name (or consequently discuss) components of their environment, although they have a very good mental map of it. Like dogs, they live in a different reality from ours.

An intermediate case might be modelled by a set of basic naming expressions and the rule that any pair could be combined to create a metaphor for other environmental realities, i.e. we could have a small model:

$\langle \{head, foot, end, light, sky, land, water, day, night, \dots\}: (x,y) (x R y) = name \rangle$ ,  
where  $(x,y)$  is any pair of words and  $R$  is a relation of combination.

We could have, for example,

*land water = lake, sky water = rain, sky foot = horizon, head foot = body, day night = time, land end = shore, water head = spring, night light = moon, land sky = world*, and so forth.

We can imagine a reality consisting largely of comparisons and linkages. Metaphors are, of course, very common means of communicating (Lakoff and Johnson, 2003). Metaphorical combinations of the sort in the above little model are in fact quite common in Malay, where we find such expressions as *anak mata* (“child of the eye” = pupil), *anak panah* (“child of the bow” = arrow), *kaki langit* (“foot of the sky” = horizon), *ayer mata* (“water of eyes” = tears) as well as combinations representing collectives or abstractions, *ayam-itik* (“chicken-duck” = “poultry”), *kursi-meja* (“chair-table” = “furniture”), *tanah-ayer* (“land-water” = “fatherland”), and so on. Metaphors involving some form of comparison or metonyms involving, for example, *pars pro toto* (e.g. *redbreast*, *goldcrest*) rapidly become forms of conventional naming and lose their force of imagery, but at least initially present a different signifier-signified relation (as also in the Malay examples), that is, one which is partially motivated by either a key feature or a point of comparison (see Ullmann, 1972, pp. 218–220 for a discussion), as opposed to a “natural” connection in the case of clouds and rain or an “unmotivated” connection of form and content (e.g. *sparrow*, *hill*). Metaphors also involve a degree of conventionality. The indirect (comparative) nature of naming through metaphors can be seen as one of the ways in which language is divorced from reality; that is, it is not a direct representation of reality and involves selected imagery; we have an imaginistic reality.

The limitations of our metaphor model are obvious. There are simply too many recognisable environmental objects to which one might want to refer; the set of non-metaphors has to be very large. However, we could imagine languages in which a relation of resemblance,  $R^{like}$ , was used more systematically, for example, for expressing specific types of action, or for description. For example, we could have a set of animal metaphors formed from naming an animal with the relation,  $R^{like}$ , and another expression such as an adverbial or verb:

$R^{like} \{squirrel\ in\ a\ tree, squirrel\ watching, cat\ near\ birds, two\ stags\ one\ hind, duck\ with\ ducklings, wolf\ with\ cubs, \dots\}$

To express respectively *rush around*, *alert*, *stalk*, *strife*, *protective*, *aggressive*,... or verb + noun:

$R^{like} \{go\ elephant, go\ cockerel, go\ worm, go\ bird, go\ fish, go\ spider, go\ wolf, go\ antelope, go\ ibex, go\ mole, \dots\}$

To express respectively *lumber, strut, slither, fly, swim, scurry, lope, leap, clamber, burrow...* So, there would be sentences such as: *He (like) squirrel in a tree* (“rushes around”), *They (like) two dogs one bone* (“are in dispute/strife”), *She (like) go antelope* (“leaps”), ...where the relation (*like*) need not be expressed or may have a morphological formant such as an affix.

In such a language, reality would be constructed in images rather than directly through the arbitrary combination of a form with a referent. We could expect the role of proverbs and allusions in such a language to be far greater than now. Thus, there would be far more expressions of the type – *snake in the grass, garden of Eden*, and so on, for example, *Nixon on Watergate* (“mendacious”, “evasive”), *moon in autumn* (“radiant”, “beautiful”), *pilgrims at the Tabard* (“chance meeting”), *for them-Darwin on the Beagle* (“they made discoveries”), *for him – Napoleon at Moscow* (“he suffered a terrible disaster”), and so forth. Imagistic communication would imply knowledge of a world of texts and history for points of comparison and reflection, and hence a rich reality of connections and imagination for insight—one would see reality as if through the experience of Darwin or Napoleon. The limitation might be a lack of factual directness.

### Further possibilities

On the other hand, of course, one could imagine a language in which there were no metaphors at all, where the sense of reality would be devoid of impressionistic connections and images, and hence severely factual and a more direct representation of fact (a sort of ideal of logical atomism, perhaps). In such a language, all naming would involve the unmotivated connection of form and referent as well as relations expressing objective relations of causation, correlation, successivity, simultaneity, certainty, probability, desirability, and so on, with ordered variables. Such a language could be expected to lack some politeness strategies and features of interpersonal discourse. One might have sentences such as CAUSE <Fred, disease, death>, DESIRABLE <we, leave> and not, for example, *Fred passed away after an illness or It's time we said our goodbyes*, and so forth. One way of testing such a model language would be to convert texts or discourse with metaphors into non-metaphorical language and to assess the effects of register and social/emotional response. This would give some measure of the difference in one's sense of reality by changing parameters.

An even more extreme case, possibly similar to that of ant communication is a society in which individuals are programmed to act in the interests of the collective and to act cooperatively. In such a community, any communicative interaction would be a direction to act, but there would also have to be a means of identifying those inside the collective as opposed to those outside the community. The individual would cooperate with any member of the in-group and attack any outsider, or work with others to repair damage or remove obstacles. We could imagine a set of signals for changes in the environment—*threat, food, damage*,— and directions—*left, right, back, front, homewards*— and the rule that any (unordered) combination of signs, one from the first set and one from the second, is possible. Thus, we would have such signs as *threat left, food back, homewards damage*, and so forth. On receipt of a signal the individual would then proceed in the relevant direction and act in the interests of the collective cooperatively with others— whatever action that might be. Part of cooperation would be to transmit the same message to other insiders. The reality here would be a purely material sociality in constant interaction, and acting by means of communication as a single organism.<sup>15</sup> Presumably, there would be very limited awareness of reality beyond those interactions or of the nature of that

<sup>15</sup> Research on ants at the University of Wurzburg suggests that ant communication has such features, or similar ones (see e.g. Franck *et al*, 2017).

reality; there would be no specification of the circumstances or rationalisation of them— just an active response. One would expect no self-awareness or sense of individuality.<sup>16</sup>

A perhaps more controversial case might be one in which the “principle of cooperation” in language behaviour (Grice, 1975) either did not exist or was reduced, that is, where the social parameters of communication were changed). Thus, there might be no effort to tell the truth or expectation of truth in the utterances of others. It is difficult to see how there could be any sociality in such a case or how any form of social exchange involving trust (such as payment for goods) could work. Every assertion would require personal verification and there could be no trust in others or requirement to be trustworthy. A more restricted case would be that in which all statements from one’s in-group would be accepted as true, but all statements from any out-group would automatically be viewed as false. One can see that this form of prejudice is operative in varying degrees on the basis of ethnicity, ideology, or belief system all over the world. The nature of reality for Professor Richard Dawkins and a creationist are differently constructed and matters of mutual disbelief. Supporters and opponents of President Trump are so divided that they automatically reject and disbelieve each other’s pronouncements. These are “dialogues des sourds” which point to different senses of reality on the part of opposing groups and the difficulties of imagining reality from different points of view.

\*\*\*\*

The above imaginings involve communicationally created realities which are “less than” what can be achieved in real natural languages – they show us what we *can* do with language as well as how our sense of reality might be limited without the known functions of languages. We have also seen that natural languages include some of the possibilities such as the use of juxtapositional reasoning and metaphor as a form of naming. They highlight aspects of actual languages and their features. We can also *try* to imagine communicationally created realities which go beyond the capacities of natural languages, or the variation in perspectives due to varying verbal conventions. As these constructed possibilities involve possibilities beyond human capacities, they imply differences in semeiosis in the means of transmission as well as in systems of communication and social relations.

To do that, we have to identify the current limitations of languages. For example, the feature of temporal or spatial linearity in speaking and writing respectively, or the difficulty of processing and responding to more than a couple of verbal inputs simultaneously are current limitations. Linearity seems to be imposed by the sound medium (or its visual representation) –that is, the axis of time. That may also account for the importance of juxtaposition of signs, and the difficulty of processing simultaneous verbal inputs. One result is that any complex construction of reality involves *consecutive* components, which must be stored in short-term memory for processing and connecting into a whole. Thus, in a logical argument such as *All linguists are inquisitive; some Peruvians are linguists; therefore some Peruvians are inquisitive*, the component propositions are presented consecutively, and this little bit of verbally constructed reality involves bringing together and intuitively associating the juxtaposed component propositions<sup>17</sup>. The consecutive presentation of reality is necessary even where the reality in question is a simultaneous, non-analytical whole, as in Martinet’s stock example of *I have a headache* (e.g. 1989, p. 18), where my current experience of a headache is analysed verbally and presented linearly (as opposed to an inarticulate cry of pain).

---

<sup>16</sup> Was this the sociality of early humans in the social brain hypothesis (Dunbar, 1998) and before the exponential development of language functions?

<sup>17</sup> For the role of intuition in reasoning, see Ewing (1951, pp. 48 ff).



An article, poem, or political speech obviously involves far more consecutively presented components. What is presented, of course, depends on the components brought together by the speaker or writer, which the receiver may, equally of course, add to. To compare and contrast the texts of different speakers or writers involves a further process of consecutive presentation, comparison, and analysis, all of which also depend on the selections of the person doing the comparison. No doubt, that accounts for the length of articles, theses, and books. There is a certain randomness in all of that. While the energy input to verbal activity maintains linguistic organisation and low entropy, the exponentially many potential associations of any set of utterances mean that *discourse* becomes more entropic, and our constructed reality less organised and controllable, at least without substantial additional energy input to maintain an overall picture. The proliferation of responses on social media or in news media, and responses to responses, or the enormous number of scientific papers on similar topics can serve as examples of how discourse can split up in multiple directions with less overall organisation—and ultimate dissipation of the initial topic when new topics arise.

Suppose, however, that we could have a medium in which there could be a *simultaneity* of information components, and that we could process different inputs simultaneously— we would also need significant changes to our cognitive processes, which would have to work much faster on immediate connections. Our constructed reality could look very different. For example, we might have packets of information, each containing a simultaneous cluster of components linked by bonds (rather like chemical bonds in molecules). There could be different types of simultaneity. In one type, we might have a bond of constituency and structural organisation: for example,

$\langle \text{plant } R^c \{ \text{root, stem, leaf, flower, petal, stamen, anther: } R^s \} \rangle$ , where  $R^c$  = the bond of constituency and  $R^s$  is the bond of ordered structure for the members of the set. This would be a simultaneous cluster:

$$\langle \text{Plant} \text{----} \quad R^c \text{----} \quad \begin{array}{c} \{ \text{root} \\ | \\ \text{stem} \\ | \\ \text{leaf} \\ | \\ \text{flower} \\ | \\ \text{petal} \\ | \\ \text{stamen} \\ | \dots \end{array} \quad R^s \quad \rangle$$

This kind of simultaneity would provide a reality in which the composition and structure of a plant would be communicated as a whole without consecutive connections, and we would not

“see” plants as vague impressionistic wholes. Effectively, meaning would be an organised cluster of information on real-world relations well beyond conventional semantic features of the sort *cow*: “*adult, female, bovine*” describing verbal conventions, but where it seems unlikely that any speaker actually thinks (consciously) in terms of semantic features. One thinks of the mooing creature. A simultaneous cluster would create a reality that would be immediately multi-dimensional and highly “textured”; we would be aware of all the semantic components. Such a possibility is rather rare and weakly represented in natural languages. The nearest possibility is the case of “amalgams” (as Martinet, 1989:101ff calls them), for example, *went* (*go + past*), *cattle* (*cow + plural*), *first* (*one + ordinal*), in which we cannot formally identify the components, and the two component meanings are simultaneous. A more extensive use of amalgams would demand significant memorisation without the aid of formal connections. Languages with formally analytic parts have advantages in regularity and learnability, although amalgamation is found in languages like Russian and Latin in case, number, gender complexes (in Russ. *žena* – “wife”- *-a* simultaneously conveys “nominative, singular, feminine”) with advantages for juxtapositional connections.

However, there can be many conceivable forms of simultaneity. For example, we could have a simultaneous relation of mutual exclusion ( $R^{a/b}$ )– again perhaps morphologically expressed. This could be used in our earlier example as *rain R<sup>a/b</sup>play outside*. As another example, the “bonds” could be ones of explanation ( $R^e$ ), combination ( $R^{co}$ ) and cause ( $R^{ca}$ ). So we could have a cluster such as:

<*plant*

$R^e$

/

[*water*

$R^{co}$      ---      $R^{ca}$      ---     *growth*>

*sunlight*]

(= *water and sunlight make a plant grow*)

**or**

<*came*

$R^e$

[*Fred*

$R^{co}$      ---      $R^{ca}$      ---     *money*>

*Mary*]

(= *Fred and Mary came about the money*)

In this case, there would be an immediate explanatory reality. Similarly, one could imagine all of the ideas of a poem, relevant parts of a text (such as a play), or a rational argument presented simultaneously as a cluster in the same sort of way that the “message” of a painting is a simultaneous, multidimensional, visual whole. Thus, the link between, say, Anna Karenina and her suicide in Tolstoy’s novel could be expressed as a set of simultaneous components

connected by  $R^e$ ,  $\langle \text{Anna's suicide: } \{\text{loveless marriage, gender inequality, love affair, ostracism, isolation, dependency on Vronsky, separation from her child, morphine addiction, despair}\}; R^e \rangle$ . Reality here would be a simultaneous burst of components and relations. The relations in question would be immediately intuited rather than expressed as part of a consecutive development. Time would be contracted to a point and there could be a massive increase in information per unit of time giving an immediacy of understanding. (Tolstoy's novels would seem somewhat shorter.) Our awareness would be hugely expanded. Each unit of time would potentially bring more simultaneous multi-dimensional packages of information. Thus, the simultaneous explanation of plant growth could be combined with simultaneous clusters of information on the components *water* and *sunlight*, as well a further clusters of causative or disposing factors such as heat or environmental conditions— such as *heat, soil*, and so on. We would live in a virtual 3d world of information. The possibility of consecutive connected simultaneities would give more rapid reasoning or insight. For example, in the syllogism above, we might have the simultaneity *all linguists + some Peruvians* followed by the simultaneity *are inquisitive + are linguists* with the direct links *some Peruvians + are inquisitive* and the vacuous *all linguists are linguists*. This would change the grammatical parameters by removing the constraints that one subject is associated with one predicate in any given structure and that structures are consecutive.

$$\begin{array}{r}
 \text{All linguists} \quad \backslash \quad \text{-----} \quad / \quad \text{are inquisitive} \\
 + \quad \quad \quad / \quad \backslash \quad \quad + \\
 \text{Some Peruvians} \quad / \quad \text{-----} \quad \backslash \quad \text{are linguists}
 \end{array}$$

If one could process multiple clusters simultaneously, they could be compared and contrasted in real time. Thus, multiple speakers could communicate on the same topic simultaneously, and one could assess their positions in a multi-layered picture instantaneously, as if many voices in a network could be heard and compared at once. Parliamentary debates would have simultaneous speakers with immediate comparisons in real time – a merciful reduction in length and rendering obvious any “dialogue des sourds”. But we would also have a simultaneous world of contrasting perspectives and issues. One would see a question “in the round”.

$$\begin{array}{r}
 \text{Speaker}^1 - \quad \text{communication cluster}^a \\
 | \\
 \text{Speaker}^2 - \quad \text{communication cluster}^b \\
 | \quad \quad \quad \rightarrow \quad \text{multi-dimensional comparison} \\
 \text{Speaker}^3 - \quad \text{communication cluster}^c \\
 | \\
 | \\
 \text{Speaker}^n - \quad \text{communication cluster}^n
 \end{array}$$

Finally, the ability to produce and process multiple simultaneous complexes could create a kind of 3-dimensional reality in which we could verbally construct a picture of synchronous but different events or states. For example, in *War and Peace* Tolstoy's account of the battle of



also be used in interpersonal relations; that is, our social communication could be more precisely calibrated to emotional and attitudinal states.

Insofar as we can draw any conclusions from this exploration, we can say that it is possible to change the parameters of communication through thought experiments and small model languages concerned with systems, and that different experiences of reality are conceivable as a result. In some ways, we might imagine a form of communication which is closer to what we know of physical reality and processes, and in others we arrive at something which is more imaginative using metaphors. The physical means of communication would have to be different for simultaneous information to be transmitted and received. In other cases considered above, social relations and the context of communication are affected by changing parameters as when Gricean conditions are contravened. In all cases, we see some of the limitations of natural languages and ways in which we are potentially misled by verbally constructed reality. The above ideas are exploratory and are concerned with only a few possible ways of changing the parameters of communication, and so invite further exploratory thinking.

## References

- Antal, L. (1976). Psychologismus und Objektivismus in der Sprachwissenschaft. In S. Moli, M. Jayazeri, E. Palome, & W. Winter (Eds.), *Linguistic and literary studies in honor of A. A. Hill* (Vol. 1). (51–62). Lisse: de Ridder.
- Berkeley, G. (1910). *The principles of human knowledge* (Ed. and intro. T. J. McCormack). Chicago: Open Court. (Originally published in 1710).
- Bradley, F. H. (1897). *Appearance and reality*. London: Swan Sonnenschein.
- Bühler, K. (1934). *Sprachtheorie*. Jena: Fischer. (Trans. as *Theory of Language* by David Goodwin, 1990, Amsterdam: Benjamins).
- Carr, D. (2017). *The Paradox of subjectivity*. Oxford: Oxford UP.
- Carroll, J. B. (1973). Introduction. In B. L. Whorf, *Language, thought, and reality* (10<sup>th</sup> ed.). (pp.1–33). Cambridge, MA: MIT Press.
- Davidson, D. (2005). Radical interpretation. In M. Richards (Ed.), *Meaning* (220–233). Oxford: Blackwell.
- Dalai Lama. (1999). *Essential teachings*. London: Souvenir Press.
- Dunbar, R. (1998). The Social brain hypothesis. *Evolutionary Anthropology*, 6. 178–90. [https://doi.org/10.1002/\(SICI\)1520-6505\(1998\)6:5<178::AID-EVAN5>3.0.CO;2-8](https://doi.org/10.1002/(SICI)1520-6505(1998)6:5<178::AID-EVAN5>3.0.CO;2-8)
- Ewing, A. C. (1951). *The fundamental questions of philosophy*. London: Routledge and Kegan Paul.
- Foley, W. A. (1997). *Anthropological linguistics: An introduction*. Oxford: Blackwell.
- Franck, E. T., et al. (2017). Saving the Injured: rescue behaviour in the termite-hunting ant, *megaponera analis*. *Science Advances* 3(4), pp. 1–9. <https://doi.org/10.1126/sciadv.1602187>
- Grice, H. P. (1975). Logic and conversation. In *Syntax and semantics* 3, (pp. 41–58). New York and London: Academic Press.
- Harris, Z. S. (1951). *Structural linguistics*. Chicago: Chicago UP.
- Hawking, S. & Mlodinow, L. (2010). *The grand design*. London: Bantam.
- Hume, D. (1968). *A Treatise of human nature, vol. 1*. London: Dent. (Original work published in 1748).
- Johnson-Laird, P. (1983). *Mental models*. Cambridge: Cambridge UP.
- Johnson-Laird, P. (2006). *How we reason*. Oxford: Oxford UP.
- Kintsch, W. & Van Dijk, T.A. (1983). *Strategies of discourse comprehension*. New York: Academic Press.
- Lakoff, G., and Johnson, M. (2003). *Metaphors we live by*. Chicago: University of Chicago Press. (Original work published in 1980).
- Lyons, J. (1977). *Semantics 1*. Cambridge: Cambridge UP.
- Martinet, A. (1962). *A Functional view of language*. Oxford: Oxford UP.
- Martinet, A. (1989). *Éléments de linguistique générale*. Paris: Colin.
- Maslin, M. (2017). *The Cradle of humanity*. Oxford: Oxford UP.

- Mulder, J. W. F. (1993). How real are linguistic entities? *La Linguistique*, 29(2), 141–168.
- Popper, K. R. (1972). *Objective knowledge*. Oxford: Oxford UP.
- Rastall, P. (2006). *The Power of speech*. Munich: Lincom.
- Rastall, P. (2011). In what sense can statements about language be true? *Organon F* 18(1), 14–25.
- Rastall, P. (2015). Small model languages as tools for reflection. *Language Under Discussion* 1(1). Accessed at <http://www.ludjournal.org>
- Rastall, P. (2017). Representation and argument: Is communication the central purpose of language? *La Linguistique* 53(1), 69–86. <https://doi.org/10.3917/ling.531.0069>
- Rovelli, C. (2015). *Seven brief lessons on physics* (Trans. S. Carnell and E. Segre). London: Allen Lane/ Random House.
- Rovelli, C. (2016). *Reality is not what it seems* (Trans. S. Carnell and E. Segre). London: Penguin.
- Russell, B. (1912). *The problems of philosophy*. London: Home University Library.
- Russell B. (1940). *An inquiry into meaning and truth*. London: Allen and Unwin.
- Saussure, F. de. (1972). *Cours de linguistique générale* (Ed. T. de Mauro). Paris: Payot. (Original published in 1916).
- Shannon, C. & Weaver, W. (1949). *The mathematical theory of communication*. Urbana: University of Illinois.
- Strawson, P. F. (1971). *Logico-linguistic papers*. London: Methuen.
- Ullmann, S. (1972). *Semantics* (10th ed.). Oxford: Oxford UP.
- van Orman Quine, W. (1960). *Word and object*. Cambridge, MA: MIT Press.
- Wang, K. (2008). *The spirit of Chinese poetics*. Beijing: Foreign Language Press.
- Whitehead, A. N. & Russell, B. (1910). *Principia mathematica*. Cambridge: Cambridge UP.
- Wittgenstein, L. (1922). *Tractatus Logico-Philosophicus*. London: Routledge and Kegan Paul.

Corresponding author: Paul Rastall  
Contact email: [paul.rastall@gmail.com](mailto:paul.rastall@gmail.com)

