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Can common sense knowledge be common? On Thomas Reid's self-evident truths from the perspective of anthropological linguistics

ABSTRACT: The aim of the paper is to consider from the perspective of contemporary anthropological linguistics the plausibility of universal, self-evident truths based on innate principles of cognition as they were propounded by Thomas Reid in his philosophy of common sense. The key problem is whether it is possible to trace any innate principles that would underlie common sense, practical knowledge and comprise truths which are self-evident, clear and directly accessible to all members of *homo sapiens*. Reid's assumptions are considered in the light of contemporary research on the conceptualization of colour, basic emotions, ethnobotany and spatial cognition.
KEYWORDS: common sense • Reid • innate principles • self-evident truths • basic colour terms • ethnobotany • basic emotions • spatial cognition

Introduction

Is there a body of knowledge of which we might say that it constitutes a universal, directly accessible, pre-scientific and culture-neutral set of core beliefs shared by all humans, allowing us to understand rightly what appears to us in everyday perceptual experience? Do humans perceive the world of their everyday, natural experience in basically the same way? If so, what could be the foundation of that knowledge? Is it possible that a considerable part of what was for long regarded as exclusively socially transmitted, i.e. acquired through learning, belongs to our innate endowment? These are the problems that will be discussed in the present paper.

We shall start with the definition and main assumptions of 'common sense knowledge', as well as consider the implications of the notion of 'common'. It is Thomas Reid's thinking on the subject that will mainly concern us in the first section; in his philosophy the concept of universally-shared 'common sense' became most prominent and was believed to be a reliable and indisputable foundation of any knowledge. Next, we shall outline briefly

the issue of how the rationalist postulate of the mind's endowment with some innate principles reemerged in linguistic and anthropological studies. In section three, which is the key part of the present paper, we shall examine whether Reid's rationalist assumptions concerning common sense are possible to uphold in the light of contemporary anthropolinguistic research. In that part, we shall focus on the conceptualization of colour and emotions, ethnobotany (folk-biology) and spatial cognition. Why have we chosen those four domains? This is for two reasons. First, how we conceptualize colours, emotions, the external biological world and space is of essential importance for establishing what might constitute that set of core, self-evident truths or principles underlying universal common sense knowledge. The second reason is practical; those conceptual/ semantic domains have been relatively well-studied in various indigenous cultures and languages; in fact, the bulk of anthropolinguistic research has been concentrated on those domains (plus kinship terminology), so only here can we draw conclusions with some degree of plausibility. Having examined how the anthropolinguistic research bears on Reid's idea of innate principles organizing our common sense knowledge, we shall turn to the problem of how semantic representations are related to conceptual ones and whether any conceptual universals are tenable. Here, in the final part we will consider Levinson's conception of dual-level mental processing and its saliency to the issue of innate principles of common sense.

As the basis for our considerations we shall adopt Reid's *Inquiry into the Human Mind on the Principles of Common Sense* (1764) and his *Essays on the Intellectual Powers of Man* (1785). Our anthropolinguistic considerations shall be based mainly on Berlin and Kay's seminal *Basic Color Terms* (1969) as well as the abundant critique that followed, Berlin's (1992) and Atran's (1998) works on ethnobotany, Wierzbicka's (1992, 1999) studies on incommensurable semantic domains and Levinson's (2003) research on spatial cognition. Our aim in what follows is not giving a thorough and complete account of the vast research related to those four domains – that would exceed the scope of any single paper – but presenting the results of recent research relevant to the question posed in the title.

1. Common sense defined

'Common sense' is a concept whose long history goes back to the ancient Greek philosophy; in Aristotle's psychology we find *koine aesthesis* (in Latin *sensus communis*), which denoted a higher order perceptual faculty controlling and processing data coming from the five senses. In Aristotle, the

concept involved a conviction that the knowledge coming from our senses is reliable as all humans have similarly operating sensory capacities – with the exception of those suffering from hallucinations and other infirmities. Thus, common sense might be defined as judgment, the cognitive faculty or ability to recognize truths that are self-evident.

Another understanding of the concept refers to common sense as the body of knowledge constituted by such truths. In that interpretation, the term 'common sense' is interchangeable with 'common knowledge', or, 'common sense knowledge' – the practical, everyday knowledge – what the Greeks dubbed with the term *doxa*. Significantly, to many ancient philosophers, Plato included (Cf. *The Republic*, book V, 476-78), *doxa* was a kind of inferior knowledge, the ordinary person's vulgar opinion founded on sensory experience or popular beliefs, hence not very reliable, by contrast to *episteme* – a type of knowledge which is certain and universal, able to distinguish the eternal ideas from everyday objects and phenomena that merely reflect them. Even though common sense was a concept frequently referred to by scholastic philosophers, and also later by Descartes, Spinoza and others, that disparaging attitude to *doxa*, the commonsensical, practical and natural attitude to the world, prevailed for long in the history of Western thinking (Cf. Łukasiewicz, Pouivet 2009; see also Smith 1995).

It was only in the 18th century that the concept gained importance and became most prominent in the Scottish philosophy of common sense, which was to prove quite influential in the next century in England, America, and France. The basic assumption of Thomas Reid's common sense philosophy is that there are truths which do not require to be proved; nevertheless, they are infallible, which assumption goes back to Aristotle's understanding of common sense[1]. The human mind has a special capacity of grasping what is true, and common sense knowledge consists of those truths that we cannot help but believe, simply because our mind is constructed the way it is constructed.

[1] By contrast to many philosophers, who regarded 'sense' as the power by which we receive certain ideas without including any kind of judgment, Reid stressed that "In common language 'sense' always implies judgment. A man of sense is a man of judgment. […] Common sense is the degree of judgment that is common to men with whom we can converse and transact business. Philosophers call seeing and hearing 'senses' because we have ideas by them; the vulgar call them 'senses' because we judge by them. We judge colours by the eye, sounds by the ear, beauty and ugliness by taste, right and wrong conduct by our moral sense or conscience. […] 'sense' in its most common and therefore its most proper meaning, signifies *judgment* (though philosophers often use it with a different meaning). This makes it natural to think that 'common sense' should mean *common judgment*; and so it does" (1785, *Essays on the Intellectual Powers of Man*, Essay VI, ch.2).

> The evidence of the senses, the evidence of memory, and the evidence of the necessary relations of things are all distinct and original kinds of evidence, equally grounded in our constitution; none of them depends on, or can be resolved into any other. To reason against any of them is absurd; indeed, to reason for them is absurd! They are basic principles, and thus fall within the province not of reason but of common sense. […] I think that the constitution of our nature leads us to believe certain principles that we are compelled to take for granted in the common concerns of life, without being able to give reason for them. If I am right about this, then those are what we call 'the principles of common sense', and we dismiss as obviously absurd anything that obviously conflicts with them. (Reid 1764, *An Inquiry into the Human Mind*, II, 5–6)

Reid's common sense philosophy was a reaction to Locke's empiricism and Hume's skepticism, which undermined the possibility of our knowledge of complex and general ideas (Locke assumed that we can know for sure simple sensations only, the so called primary qualities), as well as negated the possibility of knowing things in the world external to the mind, and even the existence of that external world (Berkeley)[2]. Reid considered that stance to be absurd, therefore, he negated the assumption of empiricism, namely that the human mind is *tabula rasa* and knowledge is gained solely through experience, without any innate principles. According to Reid, the mind grasps some truths, as if by its very nature, before it is instructed about them by experience. Furthermore, some basic, self-evident and natural truths/ principles are simply found in the content of the mind although they cannot be supported by any experience; for example, the truth that there are things that exist in the external world even though there is no infallible argumentation to prove that (in fact, for Reid, there is no need to prove that – the burden of proof is on those who deny commonsensical beliefs), or that there are some causal relations between external things, or that by attentive reflection we gain knowledge of the operation of our mind that is as certain and clear as the knowledge of external objects set before our eyes[3]. Those basic and self-evident truths are dictated by common sense and are never in conflict with one another; since they arise from our common human nature, they cannot be contradictory.

Why should we believe that there are such truths/principles in our mind? First, these direct and infallible truths are indispensable premises of

[2] Cf. Reid's Introduction to *An Inquiry into the Human Mind* (1764); see also his (1785) *Essays on the Intellectual Powers of Man*, I, 2; II, 9–12.

[3] Cf. Reid 1785, *Essays on the Intellectual Powers of Man*, Essay I, ch.2, "Principles that I take for granted".

any thinking about the world, without them our thinking about external reality would be impossible – but we do observe such activity in humans. Second, argues Reid, all of us have a kind of internal and irresistible conviction that certain propositions are simply true. That constitutes 'common sense', common to all human beings, and that common sense should be relied on whenever we formulate propositions referring to objects, states of affairs or events in the external world. In his *Essay on Common Sense* (1785, VI, 2), Reid explains that "all knowledge and all science must be built on principles that are self-evident; and every man who has common sense is a competent judge of such principles when he conceives them clearly". He describes those principles as having "the light of truth in itself […] when they are used in matters of science, [they] have commonly been called 'axioms'; and in all sorts of contexts of their use they are called first principles, principles of common sense, common notions, self-evident truths" (Reid, 1785, VI, 4).

For Reid, as well as for the present paper, very important is the assumption that there are close ties between principles of common sense and the structure of ordinary language. Particularly important are those features that are to be found in the structure of 'all languages':

> The structure and grammar of all actual languages are based on certain common opinions of mankind. For as long as these opinions are common to all men, there will be a great similarity in all languages on our planet. And there *is* such similarity; for we find in all languages the same parts of speech, the distinction between adjectives and nouns, the distinction between both of those and verbs, the distinction between active and passive verbs, the uses of verbs with different tenses, moods, persons and numbers. And there are general rules of grammar, the same in all languages. This similarity of structure in all languages shows that people all hold the opinions on which the structure of language is based. (*Essays*…, 1785, I, ch.1)

> Men's language expresses their thoughts and the various operations of their minds. The various operations of the understanding, will, and passions, which are common to mankind, have in all languages corresponding forms of speech, which are the signs of them and by which they are expressed. By paying due attention to these signs we may in many cases get considerable light on the things signified by them. All languages have modes of speech by which men say what they think, give their testimony, accept or refuse, ask for information or advice, command, threaten or implore, give their word in promises and contracts. If such operations were not common to all mankind we wouldn't find in all languages forms of speech by which they are expressed. (*Essays*…, 1785, I, ch.5)

Thus, according to Reid, the structures of everyday language reflect, as if in a mirror, the content of common sense and they are, next to introspection, a reliable source of knowledge about the operations of the mind – though, naturally, it does not follow that every utterance in ordinary language is a dictate or reflection of common sense. From the perspective of contemporary comparative linguistics, we may reject some of Reid's examples of universals, but the very idea of the existence of universals, the search for common structures underlying utterances in any natural language, as well as the assumption of a close correspondence obtaining between semantic and conceptual representations in the mind are commonplace in today's cognitive sciences. To those problems we shall return in the sections to follow.

Let us consider now in more detail Reid's views on what constitutes the mental and the relation of the mental with the external world. The states of the mind comprise three acts: sensations, conceptions and perceptions. Sensations are the immediate feelings resulting from the influence of external objects on us exerted through senses, e.g. vision or touch – sensations are always connected with one of the senses. To have a conception of an object, in turn, means to be aware of the object as possessing a given property; to conceive of something is to be in this or that particular way aware of that thing. We may conceive of a table as being brown and hard, for example. To perceive an object means to have a conception of it (to be aware of it as the bearer of particular properties) plus, simultaneously, to have a strong and immediate conviction that the object exists. Thus, according to Reid, external objects exert direct influence on our senses, which leads to immediate mental consequences – sensations, which, as a result, 'suggest', as Reid put it, the appropriate conceptions, and, subsequently, result in perceptions of those objects. In Reid's theory of cognition, we are aware of external objects directly, and, as a rule, grasp them as they really are.

Let us concentrate for a while on the moment between having a sensation and a following conception. According to Reid, conceptions are not directly derived from sensations, we are aware of a particular property of an object (we conceive of it), for example that a table is white, not because our sensation resembles the quality of whiteness (it does not, qualities exist in the external world only, in objects), but because our sensation (visual in this case) 'suggests' that particular quality. For Reid, that 'suggestion' consists in activating a particular sign. Those signs activated by sensations are a kind of internal natural language, which in its structure resembles the ordinary language we speak (Cf. the chapter on 'Natural language' in *Inquiry*…, 1764, IV, 2).

Generally, the signs of language are of two types: artificial or natural. Artificial signs are arbitrary and acquired, such as names denoting particular

objects – equally well those names might denote other objects, or particular types of human behaviour customarily signifying some mental states, wishes, etc. – again that they signify such states is an arbitrary custom. Much more interesting in Reid's conception are some (not many!) natural, or primary, signs which unavoidably cause us to think of what they signify although we have never before had any conception of the qualities signified. We become aware of that particular quality as if automatically, we are not able to understand why we conceive of an object as the bearer of that particular quality, we simply conceive it in that way. Those *a priori* signs make us think of what they signify because our physical and mental construction is such that we naturally, non-optionally and unavoidably have such conceptions when those signs are activated. In other words, in the case of natural signs, we are aware of an object in a particular way, as the bearer of a particular quality because it is our nature to be aware of that object in that way[4]. Naturally, it is utterly impossible for us to conceive of that object in any different way or to reject that conception. To use a contemporary metaphor, natural signs constitute the hardware of the mind, whereas the acquired signs are its software. For Reid, the fact that we have such primary natural signs is a guarantee that our sensations and conceptions reliably and adequately inform us about external objects.

We shall not go further into the details of Reid's epistemology, particularly into his distinction between primary and secondary qualities[5], but we would like to go on to the question whether such tenets – natural, self-evident, universal and innate truths – as postulated by Reid, are possible to uphold in the light of the available knowledge about human cognition of certain qualities and states of affairs. Slightly at odds with Reid's own desiderata that common sense principles do not require validation, we shall consider whether empirical data from anthropolinguistic research might support Reid's idea of universal common sense.

[4] To quote Reid's example of the quality of hardness: 'Hardness in bodies is something that we conceive as distinctly, and believe as firmly, as anything in nature. Our only route to this conception and belief is through a certain sensation of touch, and there is a problem about how that relates to hardness. The sensation hasn't the faintest similarity to hardness, nor can we by any rules of reasoning infer the quality from the sensation. The question is: How do we come by this conception and belief? [Here Reid explains that it cannot be acquired by tradition, upbringing, nor experience, E.Ł.] What shall we say of this conception and this belief which are so hard to explain and hard to do anything with? The only way out I can see is to conclude that some basic force [= principle; Reid uses the terms 'force' and 'principle' interchangeably, E.Ł.] or source of energy in our make-up brings it about that a certain sensation of touch both suggests to the mind the conception of hardness and creates the belief in it; or, in other words, to conclude that this sensation is a natural sign of hardness.' (*Inquiry…*, 1764, V, 2)

[5] Cf. McKitrick 2002, Borge 2007.

2. More on 'commonness'

The postulate of our endowment with natural, universal and innate *a priori* truths about the external world situates Reid not so far from the rationalist strand in Western thought, even though he devoted much of his writing to the critique of Descartes[6]. Let us remember that one of the essential tenets of rationalism is the conviction that we gain knowledge by reasoning, without recourse to experience, and that our faculty of reason is endowed with innate and universal principles and concepts by means of which we grasp and sort out the sensory data from the external world. In his well known fragment of *Meditation on First Philosophy* Descartes writes:

> I cannot doubt that there is in me a certain passive faculty of perceiving, that is, of receiving and recognizing the ideas of sensible objects; but it would be valueless to me and I could in no way use it if there were not also in me or in something else, another active faculty capable of forming and producing these ideas. (Descartes 1951 [1641]: 75)

Innate and universal mental concepts *a priori* reappeared most conspicuously in, contemporary to Reid, Immanuel Kant's grand synthesis of empiricism and rationalism. However, in spite of strong rationalist commitments in both, Kant's theory of knowledge is greatly different from Reid's philosophy of common sense, the most important of many differences lying perhaps in the ultimate object of cognition. Kant rejected the possibility of our knowledge of the external world, of things in themselves – all that we know are mental phenomena, or appearances of things. Those phenomena are built of a chaotic flux of impressions coming from our sense organs, embedded then in the *a priori* forms of space and time and subsequently formatted and organised by the innate categories of the mind (such as unity, totality, causality, etc.). Reid, by contrast, insisted that what our minds perceive are not ideas, or phenomena, but the external world as it is, or "things in themselves" to use the Kantian phrase. However, in both so markedly different theories, the doctrine of mind's endowment with universal and common to all humans formative concepts is essential; we might say that what Reid understood as common sense knowledge, in Kant's approach is no longer commonsensical, nor is it true knowledge, but it is certainly common. Later, that psychic unity of humans was to become an axiomatic assumption

[6] See the Introduction to *Inquiry…*, 1764, I; in particular, Reid was radically against Descartes's method of overcoming skepticism; also, he maintained that our senses are truthful and the immediate objects of perception are not ideas (images of external objects) but objects themselves.

guiding research in many newly developed academic disciplines, from developmental psychology, evolutionary biology, to anthropology, to linguistics and cognitive studies.

Let us concentrate now on the very notion of 'common'. Being a mental concept, principle or idea common to, or shared by all humans need not indicate being innate. In Plato's conception of *anamnesis* the eternal soul remembered eternal ideas, and hence could know the truth, whereas Descartes's innate ideas were in fact God-given in their origin. Common and universal concepts might also develop as somehow logically necessary *a priori* or be acquired through experience thanks to our common learning apparatus and common physical make up, as well as exposure to a basically similar environment in which we have to breathe, experience gravity, warmth, cold, etc. However, in rationalist-oriented approaches, common and universal mental concepts/ principles denoted being innate and given before any experience – *a priori*. So it was in the case of Kant's categories of the mind and Reid's natural, primary principles – they were innate as well, although the problem of innateness itself, how those innate principles of the mind got there, was of secondary importance; Reid makes occasional references to God as the designer of common sense. In modern thinking on human psychology, cognition, social behaviour, as well as language, in the strands dominated by rationalist assumptions, common and universal ideas/ principles stand for ideas/ principles that are innate; which, in terms of contemporary science, means that they are genetically encoded.

Such rationalist and nativist commitments characterized, for example, the European structuralist anthropology of Lévi-Strauss. Unquestionable differences that we observe in various cultures of the world are merely surface manifestations of the same underlying organizational structure; thought processes are everywhere the same since they are a product of the generic, innately endowed human mind. The content of that mind may be different and culture-dependent, that is the input the mind thinks with is different, but thought processes, the lines along which we grasp and classify the external are the same. In Lévi-Strauss's theory, those universal thought processes are based on a limited set of distinctive features forming semantic oppositions (Lévi-Strauss's structuralism was heavily influenced by linguistic structuralism of the Prague School), which, in turn, form different cultural categories. Thus generated cultural categories are not unlimited in number; again and again the same organization of ideas, the same structures reappear in seemingly different cultures – a result of the same, innate endowment of the human mind.

Strong rationalist and nativist assumptions have been particularly conspicuous in Chomsky's theory of Universal Grammar, especially interesting

here is its recent development, the Principles and Parameters (PP) approach. In this approach, the language faculty got a thoroughly biological interpretation; it is a biological organ – a data processing system – internalized in the brain, whose design should be treated analogically to the design of other body organs, e.g. the heart or the liver, as far as the research method is concerned (Cf. Chomsky 2002, 2006). According to PP, language, or, to be more precise, our genetically encoded language faculty (*I*-language), comprises a computational system consisting of some universal principles and a finite set of options (parameters). Hence, the structures we actually use when speaking a natural language are a result of the interplay of a number of selected parameters. There are certain invariant parameters, for instance, that pronouns are not locally co-indexed, and there are certain optional parameters, for example, that in some grammars direct objects may stand before and in some others after the verb. The latter are parameters of variation and the child sets them in the process of first language acquisition one way or another according to the incoming linguistic data. Thus, in PP approach, the incoming linguistic data trigger particular values for the innately endowed parameters and thus enable the acquisition of any of the thousands of languages spoken in the world. As proponents of the PP approach hold, language acquisition is thus in its important aspect of grammar formation a selective process, analogically to the way the term 'selective' is used in the current theories of immunology or vision, where an organism experiences the surrounding environment and 'selects' relevant stimuli according to criteria that are already present internally. In other words, an outside signal influences a brain-internalized system that is already highly structured by identifying and amplifying some of its already available, *a priori* components. (By contrast, earlier acquisition theories were 'instructive' in the sense that they held that a stimulus imposes its character or features on the essentially plastic and modifiable mental system.) Language learning is therefore a kind of selective or discriminating process in which, as Lightfoot put it:

> […] parameters are provided by the genetic equipment, and the relevant experience fixes those parameters. A certain mature structure emerges at the expense of other possible structures, which are lost irretrievably as the inactive synapses degenerate. To sum up, there is a narrowing down of possible connections from an overabundance of initially possible ones. (Lightfoot 1999: 67)

As it is quite possible that there is such an innate, genetically encoded biological organ in the brain – the language faculty – enabling us to learn any language, as well as comprising in its early potential possible structures of any natural language, so, according to many, it may well be that other parts

of our socially acquired knowledge are as much biologically determined and, in fact, genetically transmitted as language is (that is not to undermine the indispensability of social transmission of that knowledge – even though it has biological basis, that knowledge is, just like language, acquired only if one is a member of a particular social group). This view will be considered in detail in the next section in reference to research on human cognition and conceptualization of colours, emotions, biological organisms and space. If corroborated by evidence, the existence of universal principles of human cognition (at least in those conceptual domains) would indeed significantly support Reid's postulates. Common sense could indeed be common if based on innate (genetically encoded) principles of cognition.

3. Innate principles from the perspective of modern cognitive anthropology

Rationalist and innatist assumptions emerged quite expectedly in American cognitive anthropology (starting from 1960s on). On the one hand, it was still under the influence of Boasian heritage (hence, of post-Kantian philosophy), and, on the other, it grew under the dominating influence of Chomsky's generative grammar. This school of anthropology understood culture as a mental phenomenon; as Goodenough (1964 [1957]: 36) in his well known definition put it, "a society's culture consists of whatever one has to know or believe to operate in a manner acceptable to its members". Like Chomsky's grammar is a system that generates all and only the grammatical sentences, so culture is a system that generates all and only acceptable cultural behaviour. Let us also quote Tyler's definition of culture:

> A culture consists of a set of logical principles which order relevant material phenomena. To the cognitive anthropologist these logical principles rather than the material phenomena are the object of investigation. (Tyler 1969: 14)

Those logical principles governing the observable cultural phenomena are not incongruent with Reid's principles of common sense. However, Tyler's approach, by contrast to Lévi-Strauss's, did not assume that those underlying principles must be the same in all cultures, nor that they organized material phenomena in the same way. The true turning point in American cognitive anthropology, reinforced by the impact of Chomsky's generative grammar and Fodor's computational theory of the mind, was the publication of Berlin and Kay's *Basic Color Terms* (1969). It made strong, rationalist, anti-relativistic claims, supported by empirical research, that universal and

innate principles in the human mind underlie and determine the logical organization of at least some semantic domains.

As in Reid's philosophy, we observe in cognitive anthropology the principal role of language since language categories have been assumed to reflect the conceptual categories present in the mind and imposed on the sensory perception of the environment. Therefore, terminologies of particular semantic domains of different natural languages may reveal universal principles and constraints of mind processing. That was the guiding idea of Berlin and Kay's work on colour terms (1969), as well as many subsequent works on folk-biology, basic emotions and spatial cognition, whose results we shall discuss in the sections to follow.

3.1 Innate principles in systems of colour terms

The physiology of vision, which is generally the same in all humans, makes the domain of colour terminology particularly suitable for making claims of universal nature. Our eyes have the same anatomical structure and all of us, with the exception of people with vision deficiencies, see colours as a result of the same physiological processes. The variegated colours we can see are all combinations of a few basic colours: red, green, yellow and blue, plus black and white, distinguished by various hues, saturation and brightness. On the other hand, markedly different systems of colour terminologies found in natural languages of the world had traditionally provided support to Whorfian relativistic thinking. The goal of Berlin and Kay's study (1969) was to show that the physiology of human vision underlying the perception of colour may strongly constrain the different systems of colour terminologies found in natural languages. In effect, we may observe certain universal rules in the order in which colour terms may emerge in a language, as well as rules concerning those terms' focal meaning.

Berlin and Kay concentrated on investigating the so called 'basic' colour terms, that is colour-naming terms that are monolexemic (words composed of more than one morpheme, e.g. *yellowish*, did not qualify), widely and frequently used, not restricted in their application (as *blond* is) and not subordinate to another colour term (in the way *lime* is subordinate to *green*). To ensure control over the stimulus and objective evaluation of responses, they used Munsell colour chips, a set of 320 coloured chips representing forty different hues of various brightness and saturation. The subjects' task was to name those coloured chips and to choose the best example of a given basic colour.

Having investigated about 100 languages across the world, their findings were the following. In spite of the fact that natural languages differ

significantly in the number of basic colour terms in their resources, from two in Dani (New Guinea) to eleven in English, there are some regularities, or patterns, in their occurrence. If a language has two basic colour terms, these cover light/warm and dark/cool colours respectively, like in Dani *mili* (light/warm) and *mola* (dark/cool). Three-term systems distinguish three basic colours: light (covering white to light grey), warm (red, light brown, orange, yellow) and dark/cool (black, dark brown, blue, green). It is interesting that in such systems it is warm (red, orange) that is always separate from light (white), and not dark from cool; in a three-term system dark and cool colours are always in one category. In a system with four basic colour terms, we usually have either light/white, dark/cool, plus red and yellow as two distinct categories, or: light/white, warm (red with yellow in one category), plus dark/black and green/blue (grue). Five-term systems resemble those four-term ones but add one more distinct colour: either the dark/cool category splits into two: dark/black and green/blue, or, in the second case, the warm category splits into distinct red and yellow. If there are more than five basic colour terms in a system, it is usually that green/blue splits into two distinct terms to give the sixth term, the next term added is brown, followed then by purple, grey, pink and orange – these four in random order. (Later research introduced some amendments into Berlin and Kay's original theses, thus it was attested that green and blue may already be distinct terms in a five-term system, but also may remain in one green/blue category in a system with distinct grey, brown and purple.)

The second of Berlin and Kay's important findings involved the foci of particular colour terms. Irrespective of how many basic colour terms a language has, e.g. what range of hues a given term covers in a language, the focal hues tend to remain the same; so, for example, in a language with very few basic colour terms, in which there is one term for what is red, but also light brown and orange, when asked to choose the best example of that colour, the speakers will point to the same hue of red that is focal redness for speakers of English and other languages. So the boundaries of what may be classified as *red* differ a lot, but the prototypical hue of red – what counts as the best example of redness – is cross-linguistically constant. All those regularities and constraints observed in the emergence and foci of basic color terminologies of various languages were ascribed to the effect of innate physiological factors involved in the process of seeing.

Landmarking as it undoubtedly was, *Basic Color Terms* did not remain unchallenged and was soon followed by numerous counterarguments (as well as further supporting studies, on still more languages, which corroborated Berlin and Kay's original findings). As the existence, or nonexistence, of

universals in human conceptualization of colours (not to be confused with human *seeing*) seems to be essential for the problem we are considering in this paper – the question of commonness of common sense knowledge – let us summarize the major points of critique.

First, Berlin and Kay limited their investigations to the colour terms which were 'basic', i.e. that fulfilled their four requirements for being 'basic', and thus they excluded a vast amount of data, creating a situation in which one 'discovers' only what one put in. As Wierzbicka (1999: 405) noticed, a universal feature of human colour perception is the ability to compare visual impressions – to mentally use the notion of 'to be like something else'. Thus lexemes denoting blood, fire, sky, plants, soil provide in many languages frequently used colour terms. That universal aspect of colour terminology was completely skipped in Berlin and Kay's (1969) because they concentrated on 'basic' colour terms.

Many critics pointed out that Berlin and Kay's discovery of universals in colour terms may be a result of their methods and procedures. Using standardized colour charts, such as Munsell chips, was aimed to ensure comparability and objectivity of results, but it involved the risk of circularity. The interviewees were presented with materials that already included the distinctions that were supposed to be investigated and in which the researchers were interested; what is more, the materials presented the interviewees with only some distinctions while rejecting others. Hence, no wonder, these distinctions were revealed in the outcome. As Lucy (1996) put it, Berlin and Kay's findings had been virtually assured by their methodology.

Another argument against Berlin and Kay's procedures was that their study was focused primarily on hues (as Munsell chips are), and that was found unjustified in general since in many languages the basis of differentiation is not connected with hues but with brightness, or luminosity, or the degree of saturation. Human vision is tuned to distinguish between things that look 'light' and 'shiny' and those 'dark'. That is related to the distinction between the day and night, the time when humans can see and when they cannot. So focusing on hues at the expense of brightness and saturation was a source of possible errors.

What is more, the objection was raised that in certain cases the informants may have been responding in terms whose main connotations were not colours at all (Wierzbicka 1990, 1999, Lucy 1996). To explain the point, let us refer to the Hanunoo basic color terms. In Berlin and Kay's study (1969: 64) that language was classified as a four-term system, its speakers use the words *biru, lagtiq, raraq, latuy*, which might be understood as corresponding roughly to black, white, red and green. However, according to Conklin's

work on Hanunoo colour categories (1964: 191), chromatic variation is not the primary criterion in distinguishing those four terms. The primary distinctions are light vs. dark and wet/fresh vs. dry. For example, the term *latuy* denotes light green, light brown, yellow and green – the most usual colours seen in the jungle – however, the term is connected as much with the colour of plants as with humidity. The contrast between *latuy* 'green' and *raraq* 'red' is to a large extent an opposition of humid vs. dry. Thus, *latuy* describes the colour of a freshly cut, moist bamboo shoots (light brown in colour), whereas dry, yellow bamboo or dried corn (yellow too) are described as *raraq* 'red'. Conklin's description of Hanunoo colour terms shows that using Munsell colour chips to collect information is not the right method to establish the meaning of colour terms, because the meaning of those terms does not involve colour only, but also other qualities, such as being moist, fresh or dry, etc. Berlin and Kay programmatically ignored such connotations of the colour terms, their method assumed that the answers given by their informants were concerned with colour exclusively, but the problem is that sometimes colours were not the primary connotations of the terms used.

That was the major objection raised against universals propounded by Berlin, Kay and their followers – the very notion of 'colour'. As Wierzbicka (1990), Saunders (1992) and Lucy (1996) argued, 'colour' is not a universal, culture-independent notion, nor are 'colour terms' or 'basic colour terms'. In English and in many other languages of the world, 'colour' might indeed be treated as a relatively independent semantic domain. But it is not the case if we take into account all human languages. If we wanted to distinguish the 'semantics of colour' pertaining to all languages, we might easily end up imposing on many languages the perspective of the users of English and a handful of other Western languages. That seems to have happened with 'basic colour terms'– the notion, according to many, heavily influenced by the English language. Let us consider the question of what the basic colour term *blue* means. Obviously, we cannot explain its meaning by translating it into other languages, say Polish or Japanese, because the semantic range of Polish or Japanese 'equivalents' is different; Polish *niebieski* covers less than English *blue*, whereas Japanese *aoi* covers much more. Some would claim that the answer is relatively simple, as the meaning of any colour term in any language can be described by referring to the relevant wave length, or a Munsell coloured chip. That was in fact Berlin and Kay's assumption. A colour term is a label, or a name, given in response to a stimulus, i.e. seeing a particular Munsell chip; and basic colour terms are labels that denote colours only – nothing else, they bear no connotations to the extra-linguistic environment, cultural practices, nor other semantic domains. That stand-

point was the major focus of critique; basic colour terms in a given language and culture do not mean Munsell chips or wave lengths. In fact, scientific knowledge about the physical qualities of colour phenomena is not relevant here because it does not explain the meaning of colour terms, that is what people think when they use a particular colour term.

3.2 On common basic emotions

The rationalist assumptions about universal endowment of the human mind with some innate principles have been particularly conspicuous and appealing within psychology. Its subject matter is human *psyche* – the capacity to think, learn, speak, experience sensations and emotions. It is a universal faculty in *homo sapiens*, and the major aim of psychology is to describe how the central mechanism responsible for those functions works, regardless of the theory of mind we adopt. Those universal capacities of the human mind should, possibly, be accessed in their pure, culture- and language-independent form, and described in the most abstract way, eliminating any distorting influence of culture, environment, as well as the language bias. And here lies the problem. Language is one of the few available windows by means of which we can look into the workings of the mind, and, subsequently, we describe the mind's functioning by means of language – but it is always a particular language, not language in general. If researchers use English words to name, for example, basic facial expressions (recognizing facial expressions is thought to belong to human innate capacities), they impose an English perspective on the subject investigated – as if they implied that all humans speak English.

That deficiency in modern psychological writing is criticized at length by Wierzbicka (1999: 138–62). She does not negate the idea that universal emotions, connected with specific facial expressions, could exist. But emotions have to be separated from *notions* describing emotions, which is hardly ever the case. For example, Ekman (1973: 219–220, after Wierzbicka 1999: 139) writes that there is evidence that there are some universal facial expressions revealed by humans. Irrespective of the language spoken, whether it is a western culture or an eastern one, industrial or indigenous, those facial expressions might be labelled with the same terms denoting some basic emotions: happiness, sadness, anger, fear, disgust and surprise. That much Ekman. Also Johnson-Laird and Oatley (1989: 90) distinguish the so called 'basic emotions' (with English labels): happiness, sadness, anger, fear, disgust, surprise, but they seem to ignore the fact that these are artifacts of the English language and they carry a range of denotations characteristic of

them only – to what extent these words are translatable into other languages is an open issue. Certainly, none of them would find full semantic equivalents in all human languages. We might have problems with finding German and French equivalents of *happiness*: *Freude* (or perhaps *Glück*?), *joie* (or *bonheur*?), even though these cultures and languages are closely related to English. Nor is the meaning of the English word *anger* universal. The Ilongot language has no equivalent to translate *anger*, the closest Ilongot term, *liget*, might be translated as *anger, energy, passion,* and it carries the element of competition which is lacking in the English *anger* (Cf. Wierzbicka 1999: 155). Would we say that *liget* is a universal 'basic emotion'? Rather not. So when we see a number of pictures with faces of different expressions (the materials customarily used by psychologists), we cannot recognize that a face expresses universal and basic *anger*, and not *liget*, for example. Is *anger* more basic than *liget*? For English speakers perhaps yes; *liget* for them could be a complex emotion (anger + energy + passion + competition), but for Ilongot speakers it might be exactly the other way round. Just like the English *anger*, the Ilongot *liget* is a term of unique meaning, enshrined in that particular language, and it does not render any universal and basic concept.

The problem is that there are no universal terms denoting emotions that would be lexicalized in all human languages; terms rendering emotions are not culture-neutral, their meaning depends on a given language and culture. If we use the word *happiness*, we are talking about the range of emotions covered by that particular English word. A natural language constitutes a barrier in the objective research of emotions as it imposes its own semantic structure on the subject matter of research. That is part of the bigger problem of what is the role of language in conceptualization of emotions. This, in turn, bears on the problem of relation between semantic and conceptual representations that we shall discuss in the final section.

3.3 Innate principles in ethnobotany

The idea of universal innate principles in the organization of concepts reemerged in Berlin's theories on ethnobotany (1992). Ethnobotany, or folk biology, is common sense knowledge of animals and plants; as Reid would put it, the opinion of "the vulgar" about the organization of biological world as opposed to scientific knowledge. We must bear in mind that it is folk knowledge, so it does not have to correspond to scientific classifications in biology, and it may happen that it is at odds with them.

Having investigated various folk terminologies related to animals and plants, Berlin advocated the following. First, although in different societies

people classify plants and animals according to different criteria (habitat, manner of movement, edibility, etc.), in all cultures humans organize the biological world in the same highly structured hierarchies; second, those recurrent structures revealed in folk biology across the world belong to our innate endowment. According to Berlin (1992) and many other works on folk biology that followed, e.g. Atran (1998), such folk taxonomic hierarchies have a universal structure; they are built of up to five levels. There are relations of contrast on the same level and inclusion between the different levels; the more general upper level includes the more specific lower level meanings, e.g. animal – domestic animal – cat – Persian cat. That relation of inclusion might be understood as lower level forms "being a kind of" higher level forms.

At the highest level we find the label of the 'folk-kingdom'– plant or animal – it is the 'unique beginner level'. In some languages that level is not labelled at all as there are no general terms corresponding to the English *plant* or *animal*. The next lower level is the 'life-form' rank consisting of about 10–15 taxa. In the English folk taxonomy, we find here such life-forms as *fish*, *bird*, *mammal*, *snake*, *grass*, *bush*, *tree*, *flower*, etc. One level lower we find the 'generic' rank: in English these would be particular types of *birds*: *robins*, *blackbirds*, etc., or *trees*: *oak*, *birch*, etc., or particular kinds of *flowers*: *roses*, *daisies*, etc. This is the essential rank in Berlin's folk classification system; it encompasses the biggest number of terms and is the most relevant as the most frequently used biological terms belong to this level. The generic level terms are the first to come to mind when we see an organism (e.g. we see a *cat*, not a *domestic animal*). Also, terms from this level are among the earliest acquired by children. Thus, the level of genera is the basic rank in any ethnobiological classification. As Berlin put it, generic level terms are

> […] specifiable and partially predictable set of plant and animal taxa that represent the smallest fundamental biological discontinuities easily recognized in any particular habitat […] its members stand out as beacons on the landscape of biological reality, figuratively crying out to be named (1992: 53)

Not all members of a generic rank are equally apparent and conspicuous; some, just like in basic colour terms, are more focal than others. But on the whole, the generic level taxa are apparent to native speakers in an immediate and non-disputable way, with no need for theoretical consideration; they might be understood as cognitive foci during the mind's processing of input data from the natural world. Also, there is a commonsensical assumption that behind each member of a generic rank there stands some hidden

causal nature, or essence, that is responsible for its typical appearance and behaviour, or its identity; and this hidden causal nature preserves the organism's identity through its phases of growth. Thus, to take Atran's example (1998: 548), a *tadpole* and *frog* are classified in folk biology as obviously the same animal in spite of their apparent differences.

Ordinarily, members of a generic taxon like *oak* belong to a relatively homogenous group, which is formed by biological representatives of a rather monotypic kind and they do not include any lower ranks. However, in the case of some generic taxa – those most widespread in a particular culture – we have lower ranks, the so called 'specific' level. For example, in the English folk classification, the specific level for generic *dog* includes *poodle*, *mastiff*, *German shepherd*, etc. Dogs and cats are somewhat peculiar in having many taxa on the specific level, most generic taxa have a few at most or none at all. In exceptional cases, a specific taxon may include a lower rank 'varietal' taxa (*toy poodle*, *short haired tabby*, *spotted white oak*, etc.), if these occur, they are usually compound words.

According to Berlin, this hierarchical way of perceiving and organizing phenomena of biological world is determined by human innate and universal cognitive faculty, which is not culture-dependent. The content of those hierarchies depends on culture and biological environment naturally, but the very method of how humans from any culture organize their biological knowledge is not. The faculty to group plants and animals into five-rank hierarchical organizations based on some natural similarities and contrasts is our innate endowment. Berlin's idea was clearly influenced by Chomsky's early conception of universal constituents of deep syntactic structures underlying the surface structures of all natural languages (Chomsky 1965). Analogically, the human mind is endowed with a cognitive structure that thus emerges in the system of ethnobiological classification; humans are just innately and uniquely attuned to group biological entities they find in their environment into such hierarchical organizations (Berlin 1992: 290). Importantly, as both Berlin (1992) and Atran (1998) stress, such ethnobiological taxonomic systems are not 'special-purpose' classifications, i.e. they are not determined by primarily utilitarian considerations. Folk-biological taxonomies, just like scientific classifications, seem to be 'general purpose' classification systems:

> […] in no society do people exclusively classify plants and animals because they are useful or harmful […] Rather, the special ways people classify organic nature enable them to make reasonable predictions about how biological properties are distributed among these groups,

> regardless of whether or not those properties are noxious or beneficial. (Atran 1998: 549)

It might be interesting to consider the question of whether that cognitive strategy of organizing the natural world into hierarchical taxonomies might also apply to domains other than the biological world, e.g. to the realm of humanly created artifacts. The answer is rather negative; as Wierzbicka pointed out (1992b), in the case of human products the functional aspects have to be taken into consideration and they introduce fuzziness into what should be a neat, innately endowed hierarchy. The function ascribed to an artifact is much less precisely defined than the nature an organism possesses; *knife* is a kind of *cutlery*, but equally well it may be a kind of *weapon*, whereas *kookaburra* indisputably *is* a kind of *bird* and cannot be a kind of *snake, fish* or any other life-form.

Berlin's theory aroused as much interest as critique; it was challenged mainly on empirical grounds. If indeed we are innately endowed to perceive the generic level as the most relevant, then generic level taxa should be the most frequently used in talk, most easily identified and acquired first by children. That was indeed the case in many small rural communities of New Guinea and Mesoamerica, where the bulk of ethnobiological research was carried out. However, there are some problems with the obvious character of the generic taxa among Westerners. As Rosch *et al* (1976) in the work on categorization of living things showed, the basic level categories for American college students were not generic level taxa (*maple*, *trout*, etc.) but life-form level taxa (*tree*, *fish*, etc.). Analogical were the results obtained by Zubin and Köpcke (1986) in research carried out among German students. Probably due to lack of actual experience with generic species, in industrialized societies people no longer recognize generic level taxa.

To that Atran (1998: 559) responds that generic level taxa still form a 'psychologically preferred' rank, because what is crucial is that at this taxonomic level we are able to maximize the strength of any potential inductive inferences about what is common among taxa members; inferences regarding a generic category are much stronger than inferences about a life-form category. Therefore, even though Americans cannot tell the difference between *beeches* and *elms*, they consider that difference to be substantial and expect that biological action in the world is located at the level of the beech and the elm not that of a *tree*.

But still, the truth is that people in industrialized societies perceive life-forms more readily than generic level forms. Atran's later study (Atran *et al* 2004) shows similar results – when asked to identify all known trees,

the respondents, American college students, could name only a few kinds; furthermore, they were unable to identify any plants that were not trees. If we were innately tuned to perceive generic species as the basic level, those college students might be expected to operate mainly on that level and, consequently, to know generic level taxa. It appears that what constitutes the most relevant ethnobiological categories is not determined by innate predispositions and constraints but by the degree of our interest in the natural world. This conclusion does not support the idea of innate principles discussed in this paper, but, oddly enough, seems to be more commonsensical and closer to Reid's way of thinking than Berlin's theories.

Furthermore, if there are some innate structures to group fauna and flora into ranks, it should also be expected, with even more probability, that there will be some innate universal criteria of classification into those ranks, such as the criterion of edibility or domesticability. Such universal criteria of animal and plant classification, however, have not been found; in various folk-biologies animals and plants are grouped according to vastly different criteria: edibility, domesticability, but also habitat (air, water and land animals), movement manner (swimming, crawling, flying), and many others. According to Berlin, we are innately endowed with a kind of formal structure only, devoid of any content.

Berlin's theory was also questioned on methodological grounds. In some cases the questions that the natives were asked presupposed the very categories that were supposed to emerge as a result of investigation – we get out of research what we put in. As Lloyd noticed (2007: 47), in some cases the natives were questioned on how they ranked 'for companionship' animals they had not really known nor encountered before, or, they were instructed to use name cards that were given to them – that immediately raises the problem to what extent different elicitation techniques and information given predetermine the results obtained. Additionally, there is also the problem that information elicited from native informants in highly unnatural and unfamiliar situations of interviews and questionnaires is bound to be distorted and biased (the observer paradox).

Finally, worth mentioning is Lloyd's review of ancient Greek and Chinese biological taxonomies (2007: 53–7); how these ancient cultures understood the relations in the biological world. Actually, in ancient Greek literature, we do not find any comprehensive folk classification of animals before Aristotle's, nor did anyone attempt it after him, and his classification could not really be called a 'folk' taxonomy. What is interesting yet is the fact that the classification of animals he proposed is quite similar to Berlin's (1992) and Atran's (1998) folk taxonomies. However, the complex

taxonomies of animals found in various ancient Chinese texts are markedly different from one another and from Aristotle's. Obviously, we must bear in mind that those Chinese classifications were under the influence of linguistic, symbolic and also ideological factors. But, on the other hand, any folk-biological classification is influenced by such factors. So the Chinese example does not support the view that once humans attempt a conscious reflection and explicit comment on the topic of biological world, they come up with the same organization of ideas dictated by some universal common-sense principles.

But if we refute Berlin's thesis, then the question arises how to account for striking convergences in folk-biological classifications all over the world. The answer here might be quite commonsensical. First, all humans have basically the same cognitive abilities to classify the organisms encountered, there is no need to assume that we vary in a significant way depending on culture in which we happened to be brought up, and animals and plants we rely on for food. We want to grasp the surrounding complex world and for that purpose we create orderly and neat hierarchical classifications, in which we somewhat ignore the complexity of the data. Second, we observe the same external world that renders itself to classification into species, classes, families, etc. Even though biologists may endlessly debate over the criteria of scientific biological classification, to the untrained eye animals and plants, at least a significant number of them, fall within well-ordered, classifiable groups on the basis of morphology, interfertility, ecological range, etc. That people from various cultures tend to group animals and plants into similar hierarchical orders may be grounded not in the innate structures of the human mind but in the nature of the phenomena under investigation. The hierarchies of folk biology are not artifacts of human cognition determined by some innate program, but they reflect some really existing ranks, groupings and distinctions in the natural world.

3.4 Innate principles in the cognition of space

Finally, in our review of anthropolinguistic research regarding possible existence of universal and innate principles organizing common sense knowledge, we would like to consider the problem of spatial cognition. The overwhelming critique of the theories we have discussed so far would suggest that the evidence for innate principles – at least in the conceptualization of colour, emotions and biological world – is rather weak. Were it possible to postulate some innate principles determining our cognition of space? If so, this would be quite important for the relevance of Reid's

theses; our perception of space is of vital importance to how we function in the world and is surely one of the most basic constituents of common sense knowledge.

The faculty to see and locate objects and ourselves in space, i.e. our spatial cognition, consists of many different constituent abilities[7] and a thorough discussion of the concepts of space is beyond the scope of the present section. In what follows, we will concentrate on the notion of frames of reference, which allows us to express the idea that one object is in some specific direction from another[8]. Taking into consideration the lexical resources available in languages, for example in English, we can distinguish three types of frames of reference for locating objects in space: the intrinsic, the relative and the absolute. The following sentences illustrate them respectively:

(1) The garden is in front of the house.

(2) The plant is behind the table.

(3) Our house is north of the village.

In the intrinsic type (1), coordinates are determined by the (usually functional) qualities of the reference object, here 'the front of the house' is most probably the part where the main entrance is located. The relative frame of reference (2) requires an observer situated at a particular viewpoint plus an object and ground distinct from it. When we say that the plant (object) is behind the table (ground), we mean that it is there from a particular viewpoint (ours). The third type, the absolute frame of reference, involves cardinal directions provided by gravity (the vertical plane) or the polar system (the horizontal plane). Particularly interesting for us will be the contrast between (2) and (3).

The difference between absolute and relative frames of reference is quite old in the literature; in *Physics, Book IV* Aristotle wrote that there are six dimensions in space: *above, below, ahead, behind, left and right,* which are in relation to our position. As he referred the directions of 'above' and 'below' also to nature, to celestial spheres and to the centre of the earth respectively, we may say that he operated with two types of frames of reference:

[7] According to Levinson (2003: ch. 7.1), we are endowed with a vast inventory of spatial representations systems responsible for spatial processing, such as propositional representations, geometrical representations, abstract mental models, dead reckoning systems, mental maps, haptic-kinaesthetic representations, visual imagery, visual representations proper, to enumerate only the major ones, which most probably form a multi-layered complex in which there are many further internal layers of processing; those multi-layered systems cooperate and 'translate' their representations into inner languages readable to other systems, without the need for one single, central representation system.

[8] A more detailed treatment of the subject of spatial cognition is provided in Łukasiewicz (2010), see also Levinson (2003) and Hickmann & Robert (Eds.) (2006).

relative and absolute. However, quite early the concept of relative space was assumed to be psychologically primary, and was regarded as the foundation of our commonsensical reasoning about location and movement, as well as of our spatial language. At the same time, relative space became strongly connected with some egocentric features; it acquired coordinate systems originating within the subjective body of ego. Later, even though spatial cognition has been the focus of interest for many sciences: ethology, neurology, psychology, social anthropology, philosophy, linguistics, and there has grown enormous literature on the subject, one thing was taken for granted and hardly ever challenged, namely that space as a system of axes is necessarily referred to the human body and spatial coordinates use the planes through the human body to give us up and down, left and right, and back and front. No one really questioned Aristotle's six principal dimensions in spatial cognition, which are relative to the human observer; human spatial thinking has been considered egocentric, anthropomorphic and relative, not absolute (Cf. Miller & Johnson-Laird, 1976: 380-95). Egocentric spatial vocabulary found in most languages was regarded as evidence in support of our necessarily egocentric and relativistic spatial cognition. Let us quote Lyons in that respect:

> Looked at from one point of view, man is merely a middle-sized physical object. But in man's world – the world as man sees it and describes it in everyday language – he is, in the most literal sense, the measure of all things. Anthropocentrism and anthropomorphism are woven into the very fabric of his language: it reflects his biological make-up, his natural terrestrial habitat, his mode of locomotion, and even the shape and properties of his body. (1977: 690)

Since we live and move on the surface of the earth, normally in the upright position, with the sky above us and the ground beneath, and we experience the effects of the force of gravity, argues Lyons (and that argumentation would surely win Reid's support), this gives us the means of identifying the up-down dimension in a three dimensional space, as well as it gives us a fixed zero-point at the ground level. Next, there are two horizontal dimensions, asymmetrical front-back and symmetrical right-left. In the up-down, front-back, and, to a lesser degree, right-left dimensions we observe not only directionality, but also polarity. Objects located above the ground and in front of us are visible and accessible, those under the ground or behind us are not. Therefore, the notions 'up' and 'front' are positive, whereas 'down' and 'back' are negative. Also, the predominance of right-handedness among humans gives polarity and markedness to the right-left dimension, so that

what is 'right' bears usually decidedly more positive connotations than what is 'left'. Lyons concludes that

> It has been plausibly argued that polarity and markedness in pairs of directional opposites derive, not only in the vocabulary of location and locomotion, but more generally, from the natural properties of the ego-centric perceptual space and the spatial orientation and physical asymmetries of the human body. (1977: 691)

The idea of relative, not absolute, space dominated our reasoning about movement and location of objects, as well as our spatial terminology to the effect that six egocentric directions of up-down, front-back, and right-left, bound up with the human body, came indeed to be regarded as universals of spatial cognition.

In what follows, we will present some anthropological research on spatial terminology, frames of reference and spatial thinking in non-Western cultures which questioned the existence of universal perception of spatial relations. There are languages and cultures where generalizations about the universally egocentric spatial thinking and Aristotle's six directions bound up with the human body are not justified. Not only can we observe a remarkable diversity in how various languages express spatial relations, but differences in spatial language have far-reaching cognitive effects; people speaking a language with a predominant absolute frame of reference will also use that frame of reference in their non-verbal cognition, and consequently, they will see spatial relations in a way markedly different to ours. This rebuts the commonsensical views present in Reid's philosophy, and it also goes somehow counter to the views on spatial cognition predominant throughout more than two thousand years of Western thinking. It appears that the latter were founded on the concepts of commonsensical thinking enshrined in just a handful of Indo-European languages, whereas there are many languages in which it is not possible to say *We have to turn left now* or *My keys are to the right of the vase* – the concepts so obvious to us. Those languages do not have the linguistic resources to express the Aristotelian, relative and egocentric frame of reference, an equivalent of the English *left/ right of*. The consequence of that fact must be either that speakers of those languages think differently about space, or that they think about space in basically the same way as the speakers of English do, but thinking and speaking are markedly dissociated.

Let us turn now to the results of a research project on spatial thinking and frames of reference carried out by Levinson and his colleagues (2003).

The project involved experiments on spatial cognition with subjects from different cultures across the world and examined spatial terminology in more than fifty different languages. Without going into the methodological details of Levinson's experiments, we shall try to sketch briefly the major findings of his research. His argument goes that, first, there are numerous languages that do not use the bodily coordinates to construct a relative frame of reference (those languages lack expressions for Aristotle's six directions in space), and, second, connected with the first, there are aspects of non-linguistic behaviour observed among the users of those languages that are evidence of deep cognitive differences among humans. In one set of experiments, to give an example, the subjects were shown a set of three objects arranged in a row, then the subjects were rotated 180 degrees, and asked to arrange another identical set of objects in the same way. The subjects operating with the absolute frame of reference maintained the north/south cardinal directions of the arrangement. Thus, when they completed the task the objects that had been on their right side in the first arrangement were (due to the 180-degree rotation) on their left in the second arrangement. Those subjects ignored the relative right/ left distinctions and were focused on the cardinal north/ south ones. By contrast, the subjects using the relative frame of reference ignored the cardinal directions and the fact that they were rotated, and arranged the objects in the same relative position to themselves; what had been on their right was placed on their right in the second arrangement, what had been on their left was kept on the left. Such non-verbal tasks revealed – without anything being said – the different conceptual categorization of spatial scenes resulting from differences in the underlying spatial coordinate systems. That was the point of the investigation: to examine, *without* referring to language and spatial terminology, whether speakers of languages with different frames of reference conceptualize space differently, or, in other words, to see whether the differences are indeed in cognition, and not just in language (Cf. Levinson 2003: 155-67).

What is more, it is not possible for human spatial cognition to translate a representation in a relative frame of reference into a representation in an absolute frame of reference, and the other way round – these two are incommensurable. Once our language has imposed on our spatial thinking one of those frames of reference, our memory and reasoning are 'tuned' into using that frame: if we normally see the location of objects in a relative reference frame, so that 'the cup is to the right of the computer', we will not be able to switch into the absolute frame of reference and see that cup as located, say, 'to the south of the computer'. The predominant frame of reference permeates other, non-linguistic, aspects of spatial cognition from

recognition, constructive recall, logical inference, to gesture, to navigation and others[9].

Summing up, Levinson advocates the thesis that our spatial cognition is heavily influenced by our culture, and in particular by our language. Languages significantly different in that respect mean significantly different conceptualization of space and spatial relations. By this of course he subscribes to the Sapir-Whorf hypothesis of linguistic relativity, in its weaker version at least, which is at variance with Reid's theory of common innate principles reflected in common linguistic structures. That outcome may appear quite unexpected as the domain of spatial cognition was for a long time considered an unlikely place to find support for Whorfian theses. Egocentric spatial thinking seemed to be a good candidate for a cognitive universal, possibly innate and developed early in the mind of human species, but that has not been supported by anthropolinguistic evidence.

4. On the relation of language and thought. Concluding remarks

Because languages have vastly different resources to render colours, emotions, spatial relations, organization of the biological world, as well as many other conceptual domains, and humans differ in their non-verbalized thinking about those domains[10], does that mean that the cognitive unity of mankind and innate *a priori* principles of common sense knowledge are untenable? It might seem so, at least as far as those conceptual domains are concerned, but the ultimate answer depends much on how we see the relation between language and thought, that is the relation between semantic and conceptual representations.

To many cognitive scientists the relation between categories of language and categories of thought is very close indeed; thus, via a natural language, like English, we gain an insight into the workings of the mind. There are no semantic representations that would be different from conceptual representations, although, significantly, the latter, concepts, are much more numerous than semantic representations and they are primary. Thus, when children learn their first language, they just map words of that language on pre-existing concepts. To illustrate the point, let us quote Pinker:

[9] For examples illustrating the point see Levinson (2003: 4-5, 112-145, 216-277).

[10] See also Lucy (1992) on the non-linguistic consequences of the presence or absence of obligatory number markers in nouns.

> People do not think in English or Chinese or Apache: they think in a language of thought. This language of thought probably looks a bit like all these languages; presumably it has symbols for concepts, and arrangements of symbols that correspond to who did what to whom […] Knowing a language then is knowing how to translate mentalese into strings of words and vice versa. (1994: 81–2)

Within that approach Reid's universal and innate common sense principles might be plausible as projections of the mentalese, the universal language of thought. The problem is that this kind of simple nativism apparently ignores the scope of linguistic diversity and the existence in natural languages of quite incommensurable semantic categories.

According to Levinson (2003: 292–96), semantic representations are not to be understood as equivalent to conceptual representations in which we think – there is no one-to-one mapping, we do not think in the same kind of categories in which we speak. Whatever we say/hear and whatever the length and precision of the utterance, we always mean/understand far more than is actually said, thus semantic representations are more like a subset of conceptual representations. However, these two are decidedly similar and related. The efficiency with which language is encoded and decoded and its general learnability point to a significant degree of isomorphism and closeness between semantic and conceptual representations. What is more, language is an output system that has to meet the local semantic requirements. If there are serious constraints on the linguistic output, the input to language production must code the right distinctions; so the events, things, states of affairs, properties at the moment of our experiencing them must be coded in memory in terms appropriate for later expression in a particular language (Cf. Slobin's 'thinking for speaking' 1996). For example, if in a given language one has to code spatial relations using the absolute reference frame, the rest of the cognitive system has to support such an output and work effectively to that particular goal, in this case the mental compass has to incessantly compute directions. Taking all this into consideration, it is reasonable to assume that conceptual representations are closely related to semantic ones.

If that correspondence is a fact and natural languages differ remarkably in their semantic representations rendering spatial relations, as well as colour, emotions, biological categories, etc., to mention only some would-be semantic universals, does that mean that conceptual representations in the minds of their speakers are different as well?

Sapir, Whorf and other adherents of linguistic relativity principle would answer that, indeed, semantic representations are different and, con-

sequently, conceptual representations are different as well. We think differently depending on the language we speak; let us quote Whorf on that issue:

> […] the background linguistic system (in other words, the grammar) of each language is not merely a reproducing instrument for voicing ideas but rather is itself the shaper of ideas, the program and guide for the individual's mental activity, for his analysis of impressions, for his synthesis of his mental stock in trade. Formulation of ideas is not an independent process, strictly rational in the old sense, but is part of a particular grammar, and differs, from slightly to greatly, between different grammars. We dissect nature along lines laid down by our native languages. The categories and types that we isolate from the world of phenomena we do not find there because they stare every observer in the face; on the contrary, the world is presented in a kaleidoscopic flux of impressions which has to be organized by our minds – and this means largely by the linguistic systems in our minds. (1956: 212–13)

Within that approach there is no room for common sense universals nor innate principles that would organize our perception of reality and judgments.

But we do not have to fall into strong Whorfianism if we assume a close correspondence between semantic and conceptual representations and, at the same time, admit that semantic categories observed in natural languages are indeed vastly different. We may stay within the nativist approach, where two solutions are available.

According to the first, natural languages differ as they make use of only some part of the vast resources of innate conceptual/ semantic representations present already in the mind (those representations are triggered in language acquisition), but the basic mental unity of humankind is not thus repudiated, we are endowed with the same (enormous) set of conceptual/ semantic representations (Cf. Fodor 1975). A major weakness of that approach is that one has to assume that any lexicalised concept ever expressed in any natural language is part of universal human mental endowment, and, importantly, the concept is 'ready-made' there, as if waiting to be activated, it is not constructed under the influence of some external experience. Thus, we are innately equipped with the conceptual representation of the Ilongot *liget*, as well as the English *anger*, with the *mili*/*mola* distinction, as well as conceptual representations of the English eleven basic colour terms, etc. That does not seem to be the way we learn new words and concepts, nor does it look plausible in general. Moreover, it does not support Reid's conception of innate common sense principles, which were to be obviously and naturally accessible to any human.

The second solution depends on the idea of decomposition; languages may differ in their surface semantic structure, but the underlying set of semantic (and conceptual) representations can be the same[11]. We are innately equipped with a set of semantic primitives, or primes, by means of which we build more complex semantic concepts in our languages; therefore, word meanings may be conceived as decomposable into features (by contrast to the previous holistic approach, where semantic concepts are non-decomposable). Those semantic primitives correspond to the primitives of conceptual structure, and thus we may uphold that humans think in basically the same way. Semantic diversity across languages, the fact that languages have expressions with incompatible semantic contents, is a matter of a different composition of those universal lower-level semantic primes. By contrast to the previous approach, the decomposition theory has the big advantage of being able to account for the process of learning new concepts and new words.

However, as Levinson pointed out (2003: 298), a serious counterargument to any theory based on the decomposition principle is the fact that the capacity of our working (short-term) memory is strictly limited; our computational memory can operate on only up to seven chunks of information at a time, if not less[12]. Those chunks may have inner complexity, but they are processed as unitary wholes by our working memory. That is the reason why we are able to remember long numbers when they are divided into a few chunks, but we do not remember them in an undivided sequence. It would be a task far exceeding the working capacity of our short-term memory to process at a time tens of semantic primes constituting a single utterance, it is more plausible that we do not decompose words, but operate on them as ready-made compounds.

If we uphold the view that working memory (and short-term memory) does play a role in the processing and comprehension of language[13], then the

[11] For various applications of the idea see Schank (1972), Jackendoff (1983, 1992), Wierzbicka (1992a).

[12] Since G. Miller's influential article (1956) the limit on short-term memory was thought to be seven chunks of information, plus or minus two. N. Cowan (2001) claims that the real limit of our short-term memory is much lower; a mean memory capacity in adults is three to five chunks at one time.

[13] At this point it has to be mentioned that Levinson's argument against lexical decomposition theory, the argument, let us remember, based on the limited capacity of working (short-term) memory, would not go unquestioned. The problem of the role of working memory (and short-term memory) in the processing and comprehension of language is very much open to debate, some researchers claiming that although working memory does play a more direct role in supporting language learning, particularly in younger children (Cf. Gathercole 2007: 761–66), its role in processing sentences for meaning is insignificant because language processing operates on-line without recourse to what is

mental storage capacity is a problem in an otherwise attractive theory. The solution Levinson suggests is a dual-level mental processing (2003: 298–301). There is a lower level where decomposition into semantic primes can take place when we, for example, learn new words, and a higher level at which we normally operate, where we process whole chunks of information without decomposing them. Thus lexemes correspond to unitary concepts at the higher level, the level at which we observe semantic and, hence, conceptual diversity across languages, whereas universals are to be found at the lower level where the high-level unitary concepts are decomposed into atomic primes. We normally think in high-level chunks: complex concepts packaged into single words, and thus our normal thinking reveals quite strong Whorfian effects, it is different depending on the semantic structure of a particular language. Hence, our spatial cognition is different and depends on the frames of reference our language uses, our conceptualizations of human emotions differ as well, etc. However, if needed, those unitary concepts can be broken into the lower-level semantic primes, where we are no longer the prisoners of our language.

Could this theory of double-level mental processing, based on the idea of decomposition, give support to Reid's postulates of universal common sense? Rather not. Reid's common sense principles are to be self-evident, accessible to anyone in a direct and clear way; common sense in Reid's understanding of the concept is inescapable. Therefore, it cannot depend on decomposition into lower-level semantic primes. If we normally think in high-level chunks, our language strongly determines what we think and what we express in it. In the usual, rapid process of language production and comprehension we do not decompose those holistic high-level semantic representations into constituent features, hence our concepts are not universal and common sense cannot be universal either.

Even though the literature on conceptual and linguistic universals is remarkably rich, there are hardly any of which we might say that they have been tested and confirmed in at least ten percent of seven thousand-odd languages currently spoken in the world. The only true universals (those which

stored in verbal short-term memory or working memory (Cf. Gathercole 2007: 758–60, for an opposite view, i.e. that language comprehension must involve a short-term or working memory system, see Waters and Caplan 2005). However, even if working memory is not substantially involved in language processing (which is a debatable view) and Levinson's argument against decomposition theory is not relevant, it does not invalidate his conception of dual-level mental processing. This solution has the advantage of accounting for both the phenomenon of semantic and cognitive diversity across languages on the one hand, and on the other, it does allow of some fundamental universals of human cognition.

do not have implicational and probabilistic form: if a language has feature *x*, it will most probably have feature *y*) that could be claimed today are either very general statements (for example that 'all languages have vowels and consonants' or 'all languages use at least one of the three frames of reference') or hypotheses on highly abstract levels (see above) that are impossible to be tested empirically, given what we know today about human cognitive system. Languages vary in form and in what can be said in them. The picture that emerges is rather that of vast variability of semantic categories, and, hence, probably concepts – not that of unity. Common sense thinking must meet the requirements of the local semantics, the semantics of the language in which common sense propositions are expressed. Therefore, it is doubtful that the mental unity of humans based on Reid's innate and universal principles of common sense is a tenable idea. ~

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