Part I

Language and Cultural Productions
Semantic Categorization and Cognition

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1 Introduction

One crucial way in which individuals learn about the cultural practices of the community in which they grow up is through language. By gaining an understanding of the language spoken by such a community, social scientists consequently may also arrive at a better comprehension of the cultures they are interested in, as argued by one of the pioneers of linguistic anthropology, Frans Boas (1858–1942). His primary experience as an anthropologist was with the Kwakiutl and other First Nations groups in Canada. Boas saw lexical categories in languages as experience-derived classifications, as one way in which human beings can deal with the complexity of their environment. Such categories tend to be organized into semantic fields, the latter representing collections of words together covering a complete conceptual field. These words may represent concepts, they may name or refer to objects, and they may also categorize the latter.

One way of learning the semantic systems used by a specific speech community is through “folk taxonomy”, defined by Mathiot (1962: 343) as “the grouping of entities according to the category labels given to them by the culture”. This principle was practised first by Boas and others with respect to kinship terminology in the nineteenth century, and extended into various other lexical domains such as colour terminology or bionomenclature in the twentieth century, in particular in a branch of linguistic anthropology that has come to be known as cognitive anthropology. Section 2 below summarizes some of the results of this research tradition, whereas section 3 discusses critical issues emerging from this field of research, including the question to what extent such classifications affect cognition, more specifically “habitual thought”. More recently, this kind of research has become the domain of cognitive linguists, as shown in section 4. Section 5 provides some recommendations for practice, in particular the use of multi-media for the documentation of these domains, whereas section 6 provides some future directions for research.

2 Historical Perspectives

The Cross-Cultural Survey, a project organized by the Institute of Human Relations at Yale University and aiming at a catalogue of “any known” aspect of a society’s culture, in the 1930s
initiated a research tradition that also had its impact on linguistic anthropology. Its originator, George P. Murdock, for example, arrived at a classificatory system for family structures through a comparison of kinship terminologies in a wide range of languages. This inductive research method in the social sciences inspired one of the most influential linguists and anthropologists of the twentieth century, Joseph H. Greenberg (1915–2001), to extend this broad comparative approach to include language (Newman 1991, in an interview with Joseph H. Greenberg), in order to reveal universal principles of human language. It was the same inductive approach used in language typology studies which inspired Berlin and Kay (1969) to investigate universals of colour terminology. Actual interest in colour was much older (as shown already in the scholarly work of Geiger or Virchow in the nineteenth century). But Berlin and Kay used the so-called Munsell colour chart to test how speakers of different languages across the world divide the colour spectrum; in addition, they consulted dictionaries and other sources on as many languages as possible (all in all around one hundred different languages). By focusing on so-called “basic colour terms”, i.e. terms not derived from some other lexeme (such as ‘orange’ in English), or part of another colour (such as ‘navy blue’, which is a kind of ‘blue’), and known and used by a wide variety of speakers, Berlin and Kay arrived at a list of maximally 11 basic terms. Moreover, they concluded that some of these terms are more basic than others, i.e. that there are implicational universals between them reflected in seven stages. At Stage I, only two terms are found (whose best representatives are to be found in what would be called ‘white’ and ‘black’ respectively in English). At Stage II, ‘red’ is added, and at Stage III either ‘green’ or ‘yellow’ will be encoded, while at Stage IV, whichever of these categories was not encoded at Stage III will receive its own term. At Stage V, six term languages are found, also encoding ‘blue’. Stage VI languages have a separate term for ‘brown’, whereas at Stage VII, with eight terms, ‘purple’, ‘pink’, ‘orange’ or ‘grey’ are lexicalized as basic colour terms.

Berlin and Kay (1969) concluded that the division of the colour spectrum is not arbitrary, but rather governed by cognitive constraints. Moreover, the implicational relations holding between the different terms imply, for example, that if a language has a basic term for ‘brown’ (in a corresponding English translation), it also has a basic term for ‘blue’, but not vice versa. Kay and McDaniel (1978) presented a slightly revised encoding sequence (Figure 2.1), with ‘grue’ capturing ‘green plus blue’ and with ‘grey’ operating as a “wild card”, potentially popping up at any stage.

The same research tradition that led some scholars to the conviction that there are clearcut cognitive constraints on the way semantic fields such as the colour domain are organized in

![Figure 2.1 Colour-encoding sequence of Kay and McDaniel (1978)](image-url)
human language led others to the conclusion that there are serious conceptual problems with this approach. As already pointed out by Berlin and Kay (1969), we find an “overdifferen-
tiation” in languages like Russian, where there are two terms for ‘blue’ (goluboj and sinij), or “underdifferen-
tiation” in Cantonese, which does not have a term for ‘brown’, although it does have terms for ‘pink’ and ‘grey’. Such cases have since been replicated by different authors with examples from various other languages.

But the actual conceptual problems are more fundamental in nature. Much of the criticism was already formulated at an early point in Tornay (1978), and is still valid today. One of these concerns the question of what “basic” means, namely “basic to whom?” Pastoral communities in Eastern Africa usually have a rich vocabulary with numerous terms describing colour patterns in cattle. With respect to the Dinka in South Sudan (who speak a Nilotic language), Lienhardt (1961: 13) observes that their “very perception of colour, light, and shade in the world around them is . . . inextricably connected with their recognition of colour configurations in their cattle. If their cattle-colour vocabulary were taken away, they would have scarcely any way of describing visual experience in terms of colour, light and darkness.”

Hanunoo (a Malayo-Polynesian language spoken in the Philippines) is characterized as a Stage III language by Berlin and Kay (1969: 64), in that it has basic colours with foci in ‘white’, ‘black’, ‘red’, and ‘green’. The term (m)arara ‘red’ also covers shades such as ‘maroon’, ‘orange’ and ‘yellow’, whereas (m)alatuy ‘green’ also covers ‘mixtures of green, yellow and light brown’, according to Berlin and Kay (1969: 64). In a classic contribution on colour terminology in Hanunoo, however, Conklin (1964) points out that “what appears to be color ‘confusion’ at first may result from an inadequate knowledge of the internal structure of a color (sic) system and from a failure to distinguish sharply between sensory reception on the one hand and perceptual categorization on the other”. In actual fact, the lexical roots raraq (tauq) and latuy reflect an opposition between dryness or desiccation and wetness or freshness (succulence) in visible components of the natural environment respectively. Hence, it should not come as a surprise – since these are not colour terms – that both terms may cover shades of ‘yellow’ in the metalanguage, English. This leads us to a fundamental problem in the investigation of semantic categorizations in a cross-linguistic perspective, something that Quine (1960) referred to as the problem of the “radical translator”. Translation is an interpretive task, whereby one tries to present the categories of one conceptual system in terms of another, functioning as the metalanguage, in order to make shared understand-
ings possible. Glosses are necessary, but they should be considered neither as definitions nor as exact equivalents, as pointed out by Lounsbury (1956: 163), a view also expressed by Boas, who argued against translating the Kwakiutl principle of kin groups into any English word, for example. Instead of trying to fit the Kwakiutl system into some larger model, he tried to understand their beliefs and practices in their own terms. For example, whereas he had earlier translated the Kwakiutl word numaym as ‘clan’, he later on argued that the word is best understood as referring to a bundle of privileges, for which there is no English word. Principles underlying the semantic analysis of lexical fields should primarily be those of the speakers and not those of the investigator, an approach propagated by Hymes (1962) in his seminal contribution on “the ethnography of speaking” which has come to be characterized as “emic”.

Kay, Berlin and Merrifield (1991) take recourse to so-called “fundamental neural response” categories in order to back up the biological basis of their model. These categories are derived from neurophysiological research with primates by De Valois and Jacobs (1968), showing that there are six types of colour-sensitive cells, four of which are responsible for hue (focal primary colours blue, yellow, red, and green), and two for brightness (‘black’ and ‘white’). These are arranged in pairs (blue-yellow cells, red-green cells, and light-darkness cells). Focal non-primary colours like ‘pink’, for example, result from “fuzzy union” of ‘red’ and ‘white’.
But these “biological facts” cannot account for the fact that languages may use one and the same term to describe a domain in the colour spectrum covered by three terms in English: ‘green’, ‘blue’ and ‘yellow’. Foley (1997: 156) points out that such systems are attested in Asia, Australia and Oceania, North America and South America. But similar systems are common in Africa, in particular in languages in the Sahel region and neighbouring areas. For example, Tima (a Niger–Congo language spoken in the Nuba Mountains in Sudan) has the following system: 2

<table>
<thead>
<tr>
<th>Term</th>
<th>Colour</th>
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<tbody>
<tr>
<td>-tún</td>
<td>black</td>
</tr>
<tr>
<td>-tɨ́k</td>
<td>white</td>
</tr>
<tr>
<td>-rdí</td>
<td>red</td>
</tr>
<tr>
<td>-hɛ́h</td>
<td>green</td>
</tr>
<tr>
<td>-kùlùmó</td>
<td>brown</td>
</tr>
<tr>
<td></td>
<td>blue</td>
</tr>
<tr>
<td></td>
<td>yellow</td>
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</table>

Tima also “underdifferentiates” in that it has a separate lexeme for ‘brown’, whereas ‘green/blue/yellow’ persists as “undissolved”. McLaury (1992) suggests a pivotal role for the brightness dimension (rather than hue) in order to explain such systems. But as pointed out by Foley (1997: 156), “[t]his grouping of YELLOW/GRUE poses formidable problems for Kay and McDaniel’s grounding of generalities of basic color terms in innate perceptual properties of the human color vision system, specifically, the subsystems based on opposing colours. Yellow and blue (member of the composite GRUE) are opposing poles of the same subsystem and, if these subsystems based on oppositions are the universal grounding for human color categorizations, it is hard to see how yellow and blue could be conflated in a single named category.”

Visual physiology no doubt plays a role, setting constraints on the cultural construction of colour categories tendencies. However, our current understanding of the human cognitive system cannot help us in any way in explaining the tremendous variation between languages, also in terms of the semantic domain covered by such terms, for example, when applied to different materials such as fruits or vegetables, or the skin colour of human beings and animals. For speakers of American English, Barack Obama is their first ‘black’ president; the skin colour of people with a darker complexion may be referred as axdar ‘green’ by speakers of Sudanese Arabic, to mention but a few examples. Colour terms in a speech community thus do not necessarily mean Munsell colour chips. Still, Berlin and Kay and their adherents have focused entirely on the foci and ignored the range, as Wierzbicka (2005) points out. The question of “how cognition constrains culture in producing science”, as Atran (1998: 547) phrased it, will thus remain unanswered until further progress has been made in the field of neurophysiology.

The inductive methods initiated for cross-linguistic research on colour terminologies inspired cognitive anthropologists to extend the lexical domain to folk biology in the 1980s and 90s. Folk biology contrasts with the theoretical programme of biology as initiated by Renaissance herbalists. The basis for subsequent systematics in biology was laid by Post-Renaissance scientists (Atran 1998: 564), who further points out:

During the initial stages of Europe’s global commercial expansion, the number of species increased by an order of magnitude. Foreign species were habitually joined to the most similar European species, that is, to the generic type in a “natural system.” Enlightenment naturalists, like Jungius and Linnaeus, further separated natural history from its cognitive moorings in human ecology, banning from botany intuitively “natural” but scientifically “lubricious” life forms, such as tree and grass . . . ” During the latter part of the 18th century and the beginning of the 19th century, methods for organizing plants and animals into families and orders were developed (e.g. by Lamarck), thereby laying the basis for systematics in biology and Darwin’s evolutionary concepts of phyla and “the tree of life.”
The global expansion also brought knowledge about alternative ways in which people classify nature, as shown in a pioneering study by Harshberger (1896), who introduced the concept of “ethnobotany” for the study of “the use of plants by aboriginal peoples”. Following the inductive methods introduced to the field by Berlin and Kay (1969) for colour, Brown (1984) also arrived at implicational relations between “discontinuities” encoded by languages with respect to bionomenclature. According to his survey, systems are organized into taxonomic structures with no more than six mutually exclusive ranks expressing growth stages. With respect to botany, one may come across languages without a separate word for ‘tree’ (as a life-form taxon); Southern Paiute is claimed to be one such language (Brown 1984: 133–134). At “stage 2”, life-form terms like ‘tree’ occur, whereas at “stage 3” we find terms for ‘tree’ and ‘grerb (i.e. grass plus herb)’. “Stage 4” languages distinguish between ‘tree’, ‘grerb’ and ‘vine’, according to this typology, and “stage 5” languages have lexemes for ‘tree’, ‘grerb’, ‘grass’ and ‘vine’, as in Daga (a Trans-New Guinea language of Papua New Guinea):

(2)  

<table>
<thead>
<tr>
<th>oma</th>
<th>‘tree, wood’</th>
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<tbody>
<tr>
<td>rærema</td>
<td>‘grerb (herb)’</td>
</tr>
<tr>
<td>ut</td>
<td>‘grass (grass + weed)’</td>
</tr>
<tr>
<td>damik</td>
<td>‘vine’</td>
</tr>
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</table>

The polysemous nature of the word translated as ‘tree’ in Daga, where it could also mean ‘wood’, is common cross-linguistically, as suggested by the examples in Brown (1984). In many African languages, the word for ‘tree’ may also be translated as ‘medicine’, as with yaàt in the Nilotic language Acholi (spoken in Uganda).

Similar “growth stages” are argued for in Brown (1984) with respect to zoological terms, ranging from a life-form taxon like ‘fish’ (“stage 1”), ‘bird + snake’ (“stage 2”), ‘bird + fish + snake’ (“stage 3”), ‘bird + fish + snake + wug (worm + bug)’ (“stage 4”), ‘bird + fish + snake + wug + mammal’.

The amount of data amassed by Brown (1984) is impressive, but the method used has its empirical problems in terms of observational and descriptive adequacy, and because all languages are forced into a specific template (as with colour terminology), as illustrated next for three languages that are exemplary for many languages in the database. In Ando (a Kwa language spoken in the Ivory Coast) the word owa, translated as ‘grass’, is also supposed to denote ‘savannah’ and ‘dryness’ (p. 182); though not impossible, this presumed polysemy is rather unlikely. For quite a few languages in the database, the word for ‘tree’ may also refer to ‘wood’. But how do we know that the primary meaning is ‘tree’, rather than ‘wood’, in a language? In the Uto-Aztecan language Shoshoni, for example, the primary meaning is ‘wood’ (p. 146). Nevertheless, ‘wood’ does not appear in the list with “growth stages”. Brown (1984: 183) lists Carapana (a Tucanoan language spoken in Colombia) as a “stage 5” language with words for ‘tree’, ‘grerb’, ‘grass’ and ‘vine’. At closer inspection, the three terms in this language translated as ‘grerb (grass + herb)’, have a “literal meaning”: moitū ‘useless stuff’, capumirīfē ‘hurtful stuff’, and coronje ‘bad stuff’ (Brown 1984: 183). These three terms thus stand in meaningful paradigmatic contrast to each other. Any cross-linguistic typology of semantic categorizations in the lexicon, as represented through folk taxonomies, should take the actual meanings and semantic oppositions in languages as a basis, rather than bracketing these out.

Perceptual categories of Western researchers may systematically cause a Westerner to misperceive, or fail to perceive entirely, a meaningful element in another culture, as research in linguistic anthropology over the past century has shown. Henrich, Heine and Norenzayan (2010) introduce the concept of WEIRD people, i.e. those from Western, Educated, Industrialized,
Rich and Democratic societies, and point out (p. 1) that they are “among the least representative populations one could find among humans”. In spite of this, speakers from such societies have played a key role in many psychological tests on cognitive salience. The validity of several of these tests hence may be questioned (as the authors do). The authors also provide a natural explanation of why folk genera or generic species (‘starling’ and ‘crow’, or ‘oak’ and ‘beech’) are at the basic level and the first learned by children in non-industrialized small-scale societies, whereas for children of (what the authors call) WEIRD parents, life-form taxa like ‘bird’ or ‘tree’ are more salient. Deficient input probably underpins the fact that children living “... in a culturally and experientially impoverished environment, by contrast to those of small-scale societies (and of our evolutionary past) tend to answer questions like “what’s that?” by “that’s a tree”, rather than being more specific and more informative by answering “that’s a maple”, for example.

The standard terminology for folk biological ranking goes back to Berlin (1992), who refers to English concepts such as ‘plant’ or ‘animal’ as folk kingdom ranks. These can be divided into “life-form” ranks such as ‘tree’ and ‘grass’, or ‘fish’, ‘bird’. Each of these contains generic ranks such as ‘oak’ and ‘clover’ or ‘dog’ and ‘shark’. According to Berlin, these form the core of ethnobiological classifications. These generic species contain “folk-specific” ranks like ‘white oak’ or ‘poodle’, which in turn may be subdivided into “folk varietal” ranks (like ‘toy poodle’ or ‘swamp white oak’). Taxonomies like these are hence based on relationships of contrasts and inclusion (“kind of” relations). Specific terms like ‘oak’ contrast with ‘birch’, for example, but are included within higher-level terms like ‘tree’ as the next hierarchical level in languages like English, where the latter term contrasts with terms like ‘herb’ or ‘grass’.

As with Berlin and Kay’s colour paradigm, models such as those defended in Brown (1984) or Berlin (1992) triggered a debate about the nature of folk taxonomies and the question of to what extent they are again culturally mediated. Hunn (1985: 123) points out that there are two competing models of folk biological classification: The Taxonomic Hierarchy Model (parallel to a Linnaean taxonomy of plants, with a set of taxa specifiable by relations of affinity and contrast (defended in particular by Berlin), and the Natural Core Model (with protagonists like Hunn). With the latter conceptualization of folk biological taxonomies, one allows for gradable membership or categorial contiguity, and thereby for transitions; moreover, this model accounts for the fact that phenomena in the natural environment are not necessarily categorized (or lexicalized) and may be left unclassified instead. These two points are illustrated next.

Rather than having mutually exclusive taxa that jointly exhaust the domain, the Natural Core Model assumes that members are assigned a place in the category according to their degree of membership or to the features they share with the most typical or central members, rather than through discreteness. When looking at the category of ‘birds’ in English, for example, its members (e.g. ‘ostrich’, ‘penguin’, ‘starling’ or ‘blackbird’) are somewhat heterogeneous, i.e. they do not fulfil all the features on a checklist, like being able to fly. Apparently, some features are less salient than others. Moreover, the same model allows for the allocation of intermediate taxa (‘bats’ also fly, but do not lay eggs, for example). Folk taxonomies show that life-form taxa may be biologically highly diverse, covering a wide range of generic taxa, as in Karam, a Trans-New Guinea language without a word corresponding to English ‘animal’ (as a unique beginner), where the term as refers to ‘frog, small marsupial, rodent’ (Bulmer and Tyler 1968).

Atran et al. (2004) point out that for the Itza Maya villagers, typicality is based not on similarity but on knowledge of cultural ideals. Hence, the wild turkey is a typical bird because of its rich cultural significance, even though it is in no way most similar to other birds.

This again raises the question of to what extent classifications are essence based and reflect utilitarian factors (edible versus inedible, or poisonous versus non-poisonous). For speakers of
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the Central Khoisan language Khwe, the python is not a snake because it is eaten by humans, whereas (other) snakes are not (Matthias Brenzinger, personal communication). For speakers of the Mayan language Tzeltal in Mexico, adult Lepidoptera (butterflies and moths) are of little interest. Their larvae, on the other hand, are carefully sorted into 16 terminal folk taxa, as some are edible, others attack crops, and still others acquire painful defensive ornamentation (Hunn 1985). Such examples support the conclusion that typicality is not based on similarity, but rather reflects the salience of or human interest in a species in a specific community. The Natural Core Model thus clearly provides a better account of folk taxonomies.

3 Critical Issues and Topics

Over the years, the “Berlin-and-Kay paradigm” on universals of colour has become a model for the nature–nurture debate in linguistic anthropology. “Universalists” hold that there are innate constraints, “relativists” hold that nature (or our cognitive system) may set its constraints but that nurture is far more important when it comes to explaining differences between languages and thereby between cultures. This also applies to the categorization of lexical domains such as bionomenclature, as we saw above. But there is another controversial issue, going back to the early days of linguistic anthropology, which has come to be known as “linguistic relativism” or the “Sapir–Whorf hypothesis”, after two of its most influential protagonists, Edward Sapir (a student of Franz Boas) and his student Benjamin Whorf. Werner (1994: 3658) gives the following summary of this hypothesis:

The categorial system of every language, including lower level grammatical and all lexical categories, points its speakers toward somewhat different evaluations of externally similar observations. Hence speakers of different languages have somewhat different views of the world, somewhat different habitual thought, and consequently their language and cultural knowledge are in a somewhat different relationship to each other. They don’t live in the same world with different labels attached but in somewhat different worlds. The more dissimilar two languages are in their lexicon – that is, in conceptual and grammatical categories – the greater their tendency to embody different world views.

Whorf (1956), who was familiar with Einstein’s relativity theory, referred to this phenomenon through the metaphor of “linguistic relativity”. Deutscher (2010) gives a detailed historical account of this hypothesis.

It is important to keep in mind that specific concepts may exist in speech communities without a corresponding term in their language. D’Andrade (1995: 93–94) observes “that in a number of cultures there is no rank zero term for the plant domain. For example, there is no single term for “plant” in Tzeltal or Aguaruna. This does not necessarily mean that there is no concept for “plant”. The evidence that such a concept can exist without a term is quite strong for both the Tzeltal and Aguaruna. First, in the systems investigated to date which lack a zero-level term for “plant” there are numerous terms for parts of plants and stages of plant growth that are applied only to plants. . . . In collecting more than 20,000 specimens, informants . . . never selected organisms other than plants . . . ; mushrooms and other fungi were not considered to fall within the domain . . . .”

And there are parallels from investigations on colours. Heider (1972) reports that Dani speakers she interviewed used the two terms whose focal meaning is ‘black’ and ‘white’ respectively, for 80 percent of the chips, with the remaining 20 percent given “non-basic” term names. These two global visual descriptors corresponding to ‘white’ and warmer colours like ‘red’ or
'yellow' on the one side, and 'black' or cooler colours like ‘green’ and ‘blue’ in English on the other, are:

(3)  
mili ‘light/warm’
mola ‘dark/cool’

In testing Dani speakers on their memory for colour, Heider (1972) found that they remembered best the colour chips that corresponded to the foci of the basic colour terms, in spite of having two basic colour terms in the sense of Berlin and Kay (1969).6

Nevertheless, there is also solid empirical evidence that we tend to take recourse to our primary language when it comes to assessing cognitive experiences. One piece of evidence comes from the so-called ‘name strategy’ of Kay and Kempton (1984). The authors asked speakers of Tarahumara, a Uto-Aztecan language spoken in Mexico, and speakers of American English to compare triads of colour chips and to come up with similarity judgements. Whereas English makes a lexical distinction between ‘green’ und ‘blue’, Tarahumara refers to these with one lexeme, *siyóname* ‘grue’. The presence of the blue-green lexical category boundary caused speakers of English participating in the experiment to exaggerate the subjective distances of colours close to this boundary, whereas speakers of Tarahumara (as a language without a blue–green contrast) did not show this distorting effect.

Interestingly, such relationships between labelled categories and cognition extend beyond the lexical domain, as shown by Lucy (1992a, 1992b), who investigated the effects of grammatical distinctions on habitual thinking by conducting cognitive tests with speakers of English and the Mayan language Yucatec. English makes a clearcut distinction between countable and non-countable nouns; the former alternate between singular and plural, for example, whereas the latter do not. A language with numeral classifiers like Yucatec marks plurals only for nouns referring to animate entities. When enumerating nouns in this latter language, these require numeral classifiers (providing information about the shape and other perceptual qualities of the entity referred to), as in the following examples:

(4)  
‘un-c’íit há’as ‘one banana fruit’
‘un-wáal há’as ‘one banana leaf’
‘un-kúul há’as ‘one banana tree’

Nouns in Yucatec primarily denote substance (e.g. “banana-like” substance) rather than some object, as in the corresponding English translation (‘banana leaf/fruit/tree’). Lucy’s cognitive assessment tasks involved visual stimuli, whereby speakers were asked to describe what they saw in specific pictures and what they recalled after having viewed certain pictures; the same English and Yucatec speakers were also asked to judge which of several alternate versions of each picture was most similar to its original. Interestingly, English speakers attended relatively more to the shape of objects, in keeping with their ontological commitment to the primacy of “bodies”, and Yucatec speakers relatively more to the material composition or substance of objects, again in accordance with the grammatical structure of this language.7

4 Current Contributions and Research

Whereas the investigation of language domains discussed above was part of the tool kit of cognitive anthropologists and anthropological linguists in the twentieth century, more recently cognitive linguists have started to play a key role.8 This may be illustrated with a discussion of
a further cognitive domain, that of spatial orientation and its linguistic reflexes. Traditionally, the conceptualization of space was thought to be a cognitive domain where little variation is found cross-linguistically. However, research on a range of languages and cultures across the world by a team of anthropologists, linguists and psychologists from the Max Planck Institute for Psycholinguistics (Nijmegen, the Netherlands) resulted in a different perspective. As shown by Levinson (2003), in his synopsis of the most important results of research initiated in the 1990s, languages use different frames of reference and non-linguistic cognition mirrors the systems available in the local language.

Speech communities may use a relative (viewer-centred) frame of reference or perspective to represent the location of objects. Hence the volume in which the present contribution is published may be found to the left or right, or in front or at the back of, the reader; alternatively, the volume may be up or down, for example on a shelf. This “egocentric” perspective contrasts with a so-called “allocentric” perspective, grouping together intrinsic and absolute frames of reference. We may, for example, project dimensions like front or back onto objects, which then receive an intrinsic front or back etc. Whereas speakers of English would refer to the side of an envelope on which the name of the addressee or receiver is written as the front, speakers of many African languages would rather call this the back, since the front is where the mouth or opening of the envelope is found. For speakers of the Dravidian language Tamil in India, turning left at the traffic lights would mean turning right for speakers of English, as for Tamil speakers traffic lights are seen as having a front (where the lights are) and consequently a left and a right.

The second type of allocentric orientation involves environment-centred perspectives, as shown in Levinson (2003). Such systems have been reported for Australian languages like Guugu Yimithirr, whose speakers prefer absolute frames of reference, i.e. roots describing spational direction, each covering quadrats of a hypothetical horizontal plane, as shown by Haviland (1998).

(5) gungga- ‘northern edge’
    naga-   ‘eastern edge’
    jiba-   ‘southern edge’
    guwra- ‘western edge’

Interesting from a typological perspective is the complete absence of relative terms and the very restricted use of intrinsic expressions like ‘left’ and ‘right’ in this language. The geocentric terms are used, not only in route directions but also to describe positions. In a standardized stimulus book shown to speakers, Guugu Yimithirr may describe a specific girl as ‘crying nose to (i.e. facing) south’, whereas speakers of English might describe her as ‘crying while standing behind (or next to) a tree or standing next to or to the left of a tree’.

Levinson (2003: 115–146) also shows how language may influence the way people think, memorize or reason about direction and spatial relations; see Foley (1997: 215–229) for a detailed discussion, also in relation to language acquisition.

Interestingly, human beings like to use these object-centred concepts (left/right, up/down, front/back) to designate cardinal directions, as shown by Brown (1983) for a variety of languages across the world. Examples include: in the Iroquoian language Mohawk ‘east/down’ and ‘west/up’, the Oceanic language Fijian ‘east/upwards, ‘west/down, below’, or the Celtic language Cornish ‘north/left’, ‘south/right’. The rationale behind this widespread tendency is the common (and presumably archaic) strategy in different speech communities to project oneself in a landscape and to conventionalize this projection, also in order to explain road maps, as the following example may help to show.
The Tima (whose language was discussed above with respect to colour terminology) live at the western edges of the Nuba Mountains, in Sudan. When facing east, speakers see the higher elevations of these mountains, where the sun rises, or ‘where the mouth is’, as Tima speakers would say. Consequently, the root for ‘left’ is used to designate ‘north’, whereas the root for ‘right’ (also meaning ‘correct in a moral sense’) also means ‘south’:

(6) 
\[ \begin{align*}
&dòkwààlì́ & & ‘north, left’ \\
&dòkòmá̄l & & ‘south, right’ \\
&lìŋɛ̀ɛ̀ & & ‘east, up (lit. at the mouth)’ \\
&lì́fi & & ‘west, down’ (lit. on the ground)
\end{align*} \]

More recently, members of the Max Planck Institute for Psycholinguistics developed cognitive task methods (by way of stimuli kits) within the research programme “Categories across language and cognition”, in order to investigate additional domains where interesting cross-linguistic differences are expected, e.g. for the perception of smell, taste, texture or geometric shape; see Senft (2012) for a discussion, also of the ecological validity (i.e. the limits) of such empirical methods. Smells have become the subject of taboo in westernized cultures, and consequently languages spoken by these communities tend to be poor in this respect, contrary to languages in, for example, the Philippines. With respect to taste, it has been claimed that we distinguish between five basic tastes: ‘sweet’, ‘sour’, ‘bitter’, ‘salty’, and ‘umami’ (a savoury taste). The first four of these are also distinguished in a language like Tima. This language does not have a lexeme describing ‘umami’, but it does have four additional terms describing other sensations (Dimmendaal 2015: 138–139):

(7) 
\[ \begin{align*}
&kààkààk & & ‘bitter-sweet’ (e.g. tea with little sugar) \\
&hòlùhòlùm & & ‘sweet’ (e.g. of sugar cane) \\
&hùlùhùlùm & & ‘sweet-salty’ (e.g. of sour dough), ‘sweet-sour’ (e.g. of a mango) \\
&dèsdèsèkòk & & ‘sourish’
\end{align*} \]

What these and other examples from different lexical domains should make clear is that languages do not vary without constraint, but our current knowledge of the human cognitive system does not allow us to make interesting predictions on these variant categorizations (or the way we humans manipulate the meaning of words). Like with colour terminology or other lexical semantic fields, members of different speech communities may infuse specific distinctions with meaning and employ these in the course of “embodied practices”, because they are relevant in their cultures.

5 Recommendations for Practice

Anthropology and linguistics as academic disciplines have inspired each other for more than a century now, also resulting in interesting “crossbreeding”, as the seminal work of Boas, Greenberg, Lounsbury and other scientists discussed above and elsewhere in the present volume should have made clear. But protagonists of these disciplines, in their “promiscuous” scientific lifestyle, have also been looking for other “affines”, to use a term from research on kinship systems, seeking comfort in disciplines such as statistics or formal logic, to mention but a few. Nevertheless, the close bond and interaction between the two disciplines remains. Visual anthropologists have used film in order to document cultural behaviour. More recently, linguists have initiated the use of new media in particular, in order to document languages that are in danger of becoming extinct in the near future.10 Such multi-media documentation also provides
new opportunities for the recording of lexical material related to semantic fields discussed in the present chapter, in combination with a visual representation by way of pictures. Transcribed and annotated video recordings provide an additional way of documenting folk biological reasoning and other relevant domains for different speech communities across the world.

6 Future Directions

Most speech communities (today as in the past) do not live “in vitro”, and instead interact with speakers of other languages. Such multilingual situations usually result in the transfer or replication of linguistic features, including lexical categorizations. Hayward (1991) gives over forty examples from Ethiopia, illustrating metaphorical extensions shared between Cushitic, Omotic and Semitic languages, such as ‘draw water’, which also means ‘copy, imitate’. But this convergence also involves categorization of nature, e.g. the division between ‘small birds’ and ‘large birds’, or the description of skin colours, with separate terms for ‘black, very dark’, ‘dark brown’, and ‘light brown’. These concepts are shared by these languages, although the actual terms used in these languages are not necessarily cognate; compare the words for ‘small bird’ in the Semitic language Amharic, ṭəfə, with the corresponding word in the Cushitic language Oromo, ṣimbira, or the Omotic language Gamo, kapó.

State-building and the increasing role of national or official languages as well as lingua francas will probably result in a further reduction of linguistic diversity or obsolescence of languages in many parts of the world. One concomitant result of this globalization process will probably be a reduction in variation, also with regard to lexical categorizations; see Evans (2010) for a recent account. Such conceptual modifications can be observed with respect to various semantic fields in the lexicon of languages, for example with numeral systems, a domain not discussed above, again for reasons of space. Greenberg (1974) lists over fifty widespread features of numeral systems in languages, for example that there are four numbers that figure as fundamental bases in the numeral systems of the world (in order of frequency): 10, 20, 4 and 12. Kutsch Lojenga (1994) describes such a base-four system still known by older people speaking Ngiti, a Nilo-Saharan language spoken in Congo, where younger people have switched to a base-ten system. The base-four system was probably more widespread in the Central African region, as we find traces in many languages; compare, for example, the word for ‘eight’ in the Bantu language Swahili, na-ne from na-ne, ‘and-four’.

Similar globalization effects may be observed with respect to colour, e.g. when languages borrow terms like ‘blue’ from influential lingua francas like English. Senft (2012) reports such a case from the Trobriands. As shown by Mietzner (2012), the crucial role of English in the educational system of countries like Kenya also affected the conceptualization of space, as in the Nilotic language Marakwet.

One important challenge facing the community of interested linguists and anthropologists will be the documentation, preferably by using new media, of cross-linguistic variation still observable in a quickly globalizing world.

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Notes

1 Colours vary along three dimensions: hue (or “colouredness”) involving chromatic colours (like ‘red’ or ‘yellow’) and achromatic colours (those without hue, ‘black’ and ‘white’), saturation (i.e. strength of
hue within a colour; pastel colours, for example, are desaturated) and brightness. The Munsell set of colour chips contains 320 colour chips of forty equally spaced hues and eight degrees of brightness, at maximum saturation, and nine chips of neutral hue (white, black and greys) (i.e. strength of hue within a colour; pastel colours, for example, are desaturated) and brightness.

2 Research for the documentation of the endangered language Tima was made possible through two grants from the Volkswagen Foundation (Germany) between 2006 and 2012, whose support is gratefully acknowledged.

3 Similar relativist responses have been formulated to so-called universals of kinship terminology, marking social rather than merely biological categories, and hence subject to cultural mediation, thereby supplementing biologically defined dimensions. See Chapter 5 of the present volume.

4 The notion “degree of membership” derives from fuzzy set theory in logic, whereas the concept of “most typical members” derives from prototype theory, as propagated in particular by Rosch (e.g. 1978). For a detailed discussion of these two theories (including some differences between the two), the interested reader is referred to López Rúa (2003: 60–136).

5 Matthias Brenzinger (pers. comm.) relates a further interesting experience while investigating bionomenclature in Khwe. When asking for the name of specific types of plants (as generic taxa), language helpers pointed out that they did not know, and that instead the owner of these plants should be asked.

6 The name Dani in fact refers to a cluster of languages spoken in Eastern Papua, Indonesia.

7 This makes the more general question of to what extent classifiers in languages (related to gender, or numeral, verbal, locative and deictic classifiers) reflect social order or part of a grammatical system dividing referents into grammatical classes (expressing linguistic gender), an issue that cannot be further explored here for reasons of space. The interested reader is referred to Foley (1997: 230–245) and Aikhenvald (2012) for a discussion of these issues.

8 The research of cognitive anthropologists moved in another direction by focusing on notions of frames (representing stereotypical situations) or scripts (i.e. processing structures that help the inference of what will come next in a sequence of actions) in various cultures. See also Chapters 5 and 7 in the present volume.

9 Danzinger (2010) has argued for a fourth type of frame of reference (next to the absolutive, or numeral, verbal, locative and deictic classifiers) reflecting social order or part of a grammatical system dividing referents into grammatical classes (expressing linguistic gender), an issue which cannot be further explored here for reasons of space. The interested reader is referred to Foley (1997: 230–245) and Aikhenvald (2012) for a discussion of these issues.

10 See the documented material on various endangered languages across the world archived at the Max Plank Institute for Psycholinguistics: http://dobes.mpi.nl/archive_info/.

11 Intrafield metaphorical and metonymic extensions, i.e. extensions within the same semantic field (for example from ‘eye’ to ‘face’), are common cross-linguistically. But so-called interfield extensions (i.e. between semantic fields, as with ‘draw water’ and ‘copy, imitate’ are usually culture specific; see Dimmendaal 2011: 115–122, 182–199) for a discussion.

References


Semantic Categorization and Cognition


Wierzbicka, Anne. 2005. There are no “color universals” but there are universals of visual semantics. *Anthropological Linguistics* **47**: 217–244.

**Further Reading**

The intellectual and historical background to cognitive anthropology, whose adherents made important contributions to the topics discussed in the present chapter, is described in D’Andrade (1995) and Kronenfeld (1996). Conklin (1980) is a useful bibliography of references on topics such as kinship, bionomenclature, orientation, colour and sensual stimuli up to 1971. A more recent survey of these topics is found in López Rúa (2003). Readers may also want to consult Chapters 5–8 and 10–12 in Foley (1997).