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ON THE EVOLUTIONARY HISTORY OF 'YES' AND 'NO'

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Abstract. Small words like 'yes' and 'no' play an important part in our daily communication, but do we clearly know where they come from? Their origin is rather mysterious. We do not know if we need these words at all, since some languages manage without them. For instance, speakers of Celtic languages answer affirmatively and negatively by repeating verbs. However, functional motivations to have 'yes' and 'no' are obvious, since they are economical, and even those languages without obvious 'yes' and 'no' terms tend to form some sort of informational verbal signs corresponding to them. Our hypothesis is that in an initial stage 'no' is derived from a negation marker, and then becomes an independent word. Since the negative answer can be given with 'no', its affirmative counterpart is required. A number of features in linguistic structures are organized in binary pairs, and this is one such case. By revealing the history of 'yes' and 'no', one can detect one aspect of cognitive evolution in human communication, in a sense that the ever-growing demands for effective communication forced speakers to invent a new tactic based on a binary opposition to allow smoother communication.

Introduction

In life, small things may really matter and make our lives much easier. Today mobile phones play an important part in our daily lives by helping us to organise it. About ten years ago, this sort of life was possibly conceivable, but not realistic. In our communication, small words often really matter. For instance, the indefinite article *a/an* and the definite article *the* seem essential to English. It may not make much of a difference to non-native speakers, but native speakers would find it very odd to speak English without the articles. This paper analyses two such "small words": 'yes' and 'no'. The affirmative and negative answers are commonly used in our daily life, but little is known about their origin and evolution. The aim of this paper is to shed light on their evolutionary origin and possible

developmental path. We do not focus on a specific language, but consider this topic typologically.

The chapter starts with a synchronic description of 'yes' and 'no' cross-linguistically, including their distribution. Then we consider a specific language family, i.e. Indo-European, to highlight cases without 'yes' and 'no' and discuss their etymologies, followed by a description of diachronic developmental patterns in non-Indo-European languages. After these descriptions, a possible mechanism for historical development is discussed, focusing on binary features in human cognition, involving both evolutionary and synchronic characteristics. This line of argument is then applied to a case of language evolution concerning 'yes' and 'no'.

Languages with and without Y-N words

Can we live without the 'yes' and 'no' words (henceforth Y-N words)? Is it even possible to imagine this? In fact, we may be so familiar with their presence that we may find this hard. It is true that the majority of the world's languages have Y-N words. Table 1 illustrates this with some languages spoken in Europe and Table 2 with a selection of languages in the rest of the world. There are, however, some languages that lack these very useful words, e.g. some Sino-Tibetan languages such as Chinese. One may wonder how this is possible and we will come back to this shortly, but let us for the moment focus on the distribution of such languages. There are some Indo-European languages (henceforth IE languages) that operate like Sino-Tibetan languages, e.g. Celtic languages. Overall, there seem to be some languages, but not many, that lack the Y-N words. What matters here is that we can communicate without these words perfectly well. The distribution is shown in Figure 1. Grey markings indicate regions where there are no Y-N words, but note that the marking is much generalized and some minority languages in these regions may have Y-N words.

Table 1. Y-N words in some languages in Europe

	Yes	No	Yes	No
Lithuanian	<i>Taip</i>	<i>Ne</i>	<i>Jo</i>	<i>Neen; Nee</i>
Serbian	<i>Da</i>	<i>Ne</i>	<i>Ano</i>	<i>Nie</i>
Sorbian	<i>Haj</i>	<i>Ne</i>	<i>Gea</i>	<i>Na</i>
Sardinian	<i>Eja</i>	<i>No</i>	<i>Si, Iè</i>	<i>Non; Imnò</i>
Catalan	<i>Si</i>	<i>No</i>	<i>Tak</i>	<i>Ne, Nie</i>
Greek	<i>Ne</i>	<i>Ochi</i>	<i>Jaa</i>	<i>Ei</i>
Basque	<i>Bai</i>	<i>Ez</i>	<i>Da</i>	<i>Ne</i>

different system. If verbal inflection was relatively simple as in English, it would be understandable if speakers took advantage of its simplicity and repeated verbs. This is the case in Sino-Tibetan languages like Chinese, but Celtic languages still repeat verbs, despite having a complex inflectional system. This poses a serious question, since economy does not seem to be an answer to the diversity concerning the Y-N words.

- (1) Is maith leat an leabhar seo?
COP good with.you the book this
'Do you like this book?'
a. Is maith.
COP good
'Yes.'
b. Ní maith.
COP.NEG good
'No.'

- (2) An chuigh tu go dtí an offig na pósta?
Q go you to the office the post
'Do you go to the post office?/Are you going to the post office?'
a. Cuigh me.
go I
'Yes.'
b. Ní chuigh.
NEG go
'No.'

Apart from the repetition, Celtic languages often use some phrases that function as Y-N words in, say, English or French. Table 3 summarizes these phrases. Some of them have a Celtic origin (e.g. *is ea* in Irish), and others are loan words from English (e.g. *te* or *oes* in Welsh). In addition to these, speakers of these languages often use English *yeah* and *no* in their colloquial speech. Such borrowing can be viewed as an indication of the usefulness of these words (Johanson 2005). A specific phrase in Irish is *ea* 'yes' is originally derived from a part of a cleft construction, 'it is', and *ní* *hea* 'no' is its negative counterpart as demonstrated in (3c) and (3e), respectively. Irish historically used what appears to be a cleft very frequently, to the extent that it was not a marked construction and this is perhaps still the case in the northern dialect spoken in Co. Donegal (cf. Toyota 2004). This development is very late, and it appears that these substitutes were formed about 50 years ago. The English invaded Ireland

Table 2. Y-N words in some languages outside of Europe

	Yes	No	Yes	No
Chichewa (Bantu, Malawi)	<i>Inde</i>	<i>Iyayi;</i> <i>Iyaye</i>	<i>Uwa</i>	<i>Wiya</i>
Hausa (Chadic, West Africa)	<i>Toh; li</i>	<i>Babu;</i> <i>A'a</i>	<i>Ae</i>	<i>Kao,</i> <i>Kare</i>
Arabic	<i>Naam;</i> <i>Naghh</i> <i>am</i>	<i>Lay;</i> <i>Laa;</i> <i>La</i>	<i>Ha</i>	<i>Hiya</i>
Kyrgyz (Turkic, Kirgizstan)	<i>Ova;</i> <i>Ooba;</i> <i>Oshond</i>	<i>Jok</i>	<i>Au</i>	<i>Apia</i>
Japanese	<i>Hai</i>	<i>Iie</i>	<i>Jisa;</i> <i>Jis</i>	<i>Jani;</i> <i>Janixi;</i> <i>Janixay</i>

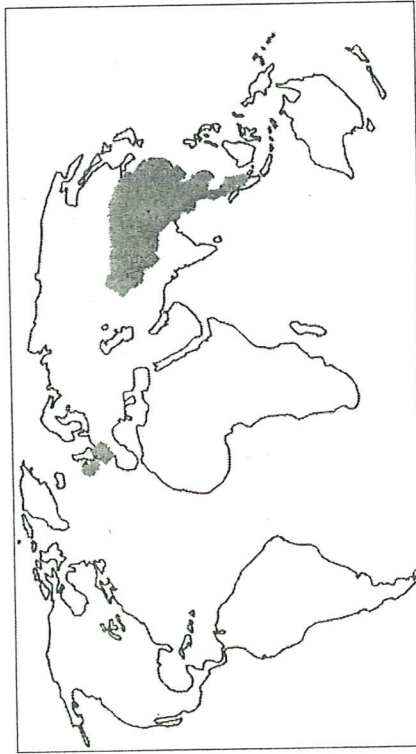


Figure 1. Distribution of languages without 'yes' and 'no'

Life without 'yes' and 'no'

How can people communicate without the Y-N words? In languages without the Y-N words, speakers simply repeat verbs in response. Let us examine a case in IE languages. Consider the examples in (1) and (2) from a Celtic language, Irish. Obviously, it is not a simple repetition of verbs, since verbs tend to alter forms slightly in the negative form. In (2), for instance, the glottal stop /k/ for 'yes' becomes the glottal fricative /h/ for 'no'. Celtic languages have a complex system of phonological changes of initial consonants, but this has not lead Irish speakers to come up with a

as early as 1150 AD, but Irish has not adopted English *yes* and *no* to the same extent as Welsh.

Table 3. Y-N words in Celtic languages

	Yes	No
Goidelic		
Irish	<i>Is ea</i>	<i>Ní hea</i>
Manx	<i>Abbyr éh; Gyn ourys; She dy jarroo; Seadh Gu dearbh; Aidh</i>	N/A
Scottish Gaelic	<i>Ya; Eo</i>	N/A
Brittonic		
Breton	<i>Usi, Ech, Usty, Ya</i>	<i>Nann, Ket</i>
Cornish	<i>Je, Oes</i>	<i>Nag eus; Na; Nag usy</i>
Welsh		<i>Na</i>

- (3) a. Datháíonn tú an pictiúr sin
paint.PRS you the picture that
'You paint that picture.'
b. Is tú an dhathíonn ea
COP you PART paint.PRS it
'It is you that paint it.'
c. Is ea an dhathíonn tu
COP it PART paint.PRS you
'It is it that you paint.'
d. Ní tú an dhathíonn ea
COPNEG you PART paint.PRS it
'It is not you that paint it.'
e. Ní hea an dhathíonn tu
COPNEG it PART paint.PRS you
'It is not it that you paint.'

Historical origins of Y-N words

The Irish *is ea* 'yes' and *ní hea* 'no' illustrates a case of historical development in recent years, but it is very difficult to trace the origin of Y-N words in other Indo-European languages. Some of these languages are convenient for historical analysis due to their rich written records dating back about 1,500 years. Old English, for instance, had a couple of choices for both 'yes' and 'no', as exemplified in Table 4. The affirmative word is derived from West Saxon *ǣasí*, 3rd person singular subjunctive form of *bēon* 'be', used as a reply to a particular class of questions (OED: *yes, adv.* (*n*²)). This is a particular development in English, and this developmental path seems to be comparable to colloquial Irish *is ea* 'yes'. *Yea*, on the other hand, shares the origin with other Germanic languages, i.e. cognate

to Old Frisian *gê, jê*, Old Saxon *jā*, Old High German *ja, jā*, Old Norse *já* and Gothic *ja, jai*: all of them are derived from a primitive Teutonic **ja*, *je*, "which has undergone modification in different directions as the result of sentence stress or emotional emphasis" (OED: *yea, adv.* (*n*)). The internal mechanism of change for *yea* is not as clear as that of *yes*, since what is clear is only its etymology, and not the process of changes it has undergone. As for the negative word, it is derived from Old Saxon *nīa*, *nio*, *neo* 'never', which are cognate with Old Frisian *nā, nō* 'never' or Old High German *nio*, *neo* 'never' (OED: *no adv.*).

Table 4. Y-N words in Old English

Yes	No
<i>ǣse, ȝise, ȝise, yea</i>	<i>nā, nese</i>

Consider again the list of languages in Table 1. Almost all the IE languages except for Greek (*ne* 'yes' and *ochi* 'no') have a similar word for 'no' (i.e. a word starting with the nasal alveolar /n/), while the 'yes' word shows much diversity. The majority of IE languages use palatal or alveolar sounds (e.g. palatal approximant /j/; alveolar plosive /t/ or /d/), but an obvious exception is Czech and Slovak, which has *áno* for 'yes', but *nie* for 'no'. Note also that Czech has another more colloquial term *jo* 'yes', which might have been influenced by German. The different distributional pattern found in Y-N words seems to suggest that the development of the 'no' word could be much earlier than the divergence of the IE languages into the current different branches, while the 'yes' word was formed after the divergence.

Beyond Indo-European

As pointed out, the majority of present day languages have Y-N words, but historically, this may not always have been the case. It has been claimed (Děcsy 1977: 81-82) that in Proto-Uralic (ca. 4,000 BC), there existed *e* 'no', but not 'yes' (cf. Finnish *e-mme* 'we don't'). In modern Uralic languages, the 'yes'-'no' opposition exists. So the presence of 'no' was earlier than 'yes', and this is comparable to the case in Indo-European, where the negative word can be considered to have existed earlier. It is thus again the case that it is much easier to find a linkage between the negative marker and 'no', while the word for 'yes' is often difficult to trace historically. As we have seen earlier, the 'no'-words in the IE languages are more uniform than their 'yes'-counterpart, and the negative marker normally resembles the 'no'-words phonologically, even in Uralic.

It seems therefore highly plausible that at the initial stage in the general development of Y-N words a 'no' word emerged, probably derived from a negation marker, and with time become an independent word. Since the negative answer can be given with 'no', its affirmative counterpart is required. A number of features in linguistic structures are organised in binary pairs, and this seems to be one such case. We need therefore to take a closer look at the internal mechanism of binary features.

Binary opposition in nature, cognition and language

Binary pairs have been given prominence in various disciplines of academic studies. In evolutionary biology, for instance, binary features forming symmetry are crucial factors for success in the animal kingdom. In most animals, ranging from a single cell microbe to higher life forms such as mammals, body structure is normally symmetrical. The human body is a good example. It is difficult to name creatures which have asymmetrical body structure across the entire species (e.g. flatfish). Even some abnormal creatures, including mutants, often show symmetrical abnormality. This indicates that mutation in evolution happened in two places simultaneously. Considering the fact that asymmetrical features are far rarer in creatures, some evolutionary biologists such as Dawkins (1997: 204-235) claim that symmetry can be a great advantage in evolution (in his term, 'evolution of evolutionability') and he calls such symmetric features "kaleidoscopic embryology", since most mutations takes place in embryos.

As for studies concerning human cognition and cultures, Lévi-Strauss (1963, 1965) categorised the world in terms of binary oppositions. Binary opposition also seems to be influential in the development of human civilisation. For example, scholars such as Jablan (1995) or Wynn (2000) claim that even earlier *Homo sapiens*, such as the Cro-Magnons, left various traces of artefacts with binary features forming symmetry, ranging from the famous cave paintings at Lascaux (France) to various weapons, such as axes or spearheads. Among hominids, *Homo sapiens*, both earlier and modern, seems to be the only species that can create such symmetry, although the case of chimpanzees' nest making can be an exception.

Also note that there are other pieces of evidence: human beings differ from other primates with respect to the extent to which they can anticipate other people's reactions or understand others' feelings (see Humphrey 1986, and what he calls *Homo psychologicus*; also Blackmore 1999: 240-241; Tomassello 1999).

These phenomena can be said to fit into an "irrealis dimension" (e.g. something not directly experienceable), which forms a contrast to what speakers can directly experience, i.e. the already existing "realis dimension". In addition, as mentioned by Plotkin (1993), human cognition also involves foresight: for example, by looking at a particular type of flower blooming, one may predict a particular time of the year coming ahead. Similarly, the development of religion, including burial practice (cf. Barrett and Keil 1996; Boyer 2000), is evidence for mental development dealing with "irrealis" concepts. A concept of God and various burial practices for the afterlife indicate awareness of future or hypothetical concepts (Toyota and Grbić 2007).

These special features of *Homo sapiens* are reflected in language too. Typological evidence strongly suggests that the realis-irrealis distinction in the category of mood is a linguistic universal. All languages are equipped with the ability to discuss both events (i.e. actions or states) and things (i.e. objects), which is again a binary pair. Bickerton (1990), among others, argues that this binary distinction was useful for our ancestors, since it allows speakers to perform both reference and assertion in the same statement (Carstairs-McCarthy 1999: 28-30). It is difficult to determine whether an initial stage of grammar was nominal alone (Aitchison 1996) or both nominal and predicative (Hurford 1990, 2003; Heine and Kuteva 2007), but the binary opposition between events and things was needed in order for language to become more complex (cf. Hurford 2007). What can be said is that early grammatical structure cannot have been more than binary. This was a simple, but powerful enough linguistic "invention" in order to dramatically increase the power of communication.

Table 5 shows some instances of binary features from modern languages. However, what is considered binary here cannot avoid a number of "exceptions" once cross-linguistic generalization is made. So in a strict sense, the typological characteristics of modern languages are not likely to be binary. However, looking at each individual language, what is considered binary in Table 5 is often found in many languages. For example, French has a masculine-feminine gender system without neuter, singular-plural number distinction, perfective-imperfective aspectual distinction and realis-irrealis (or indicative-subjunctive) mood distinction, while in Slovenian, only aspect and mood distinctions are purely binary, i.e. there are also neuter gender and dual number.

Table 5. Y-N words in Old English

Categories	Binary features			Exceptions
	Masculine	Feminine		
Gender				Neuter, etc.
Number	Singular	Plural		Dual, paucal, etc.
Aspect	Perfective	Imperfective		Habitual, etc.
Mood	Realis	Irrealis		Evidential, etc.

In sum, symmetry and binary opposition seem to be universal tendencies in nature and cognition, and their function is at least in part to help maintain *stability* in cognitive organization. Modern human languages reflect this, at least to some extent, while ancestral ones did so, presumably, even more.

Linguistic gradience

Looking at much finer elements of grammar, some categories such as adjectives are relatively poorly defined. This is so, since the category adjective emerged later as an intermediate category between noun and verb. Ternary or quaternary features are considered a natural result of historical development, which resulted in possible intermediate categories like adjectives. The complexity of grammar cannot be achieved without them. Such grammatical features have been noticed: Givón (1979: 235) claims that "in each instance, a *crazy* synchronic state of the grammar has arisen via diachronic changes that are highly *natural* and presumably motivated independently by various communicative factors" [emphasis original], or as Harris and Campbell (1995: 261) put it, "[i]t is a commonplace of historical linguistics that changes leave residue." Hopper (1991) also calls such intermediate features "layering". In spite of these scholars, these grammatical features have been rather neglected in linguistic analysis, and have not received their deserved attention.

Some recent works (e.g. Croft 2007; Aarts 1998, 2004, 2007; Toyota 2003), however, particularly focus on this intermediate stage of grammatical structure referring to it as *gradience*. Analysis of gradience focuses on each instance of an intermediate stage, mainly concentrating on syntactic aspects, but semantic and pragmatic aspects are also analyzed. This type of research is not really possible with reconstructed languages, since it is rather difficult to know what exactly the grammatical structure was like and the paucity of data makes such analyses rather speculative. However, as already mentioned, it is highly reasonable to assume that the binary system was initially the base for the grammatical system, from which complex systems emerged. The importance of gradience in linguistic analysis indicates that diachronic changes often break the earlier

binary grammatical oppositions and creates the third or fourth features. For example, the grammatical voice system originally had the active and the middle dichotomy in many languages (cf. Greenberg 1995: 150), and this later turned into the ternary or quaternary system, involving the passive, applicative, etc. So judging from the current state of grammatical constructions in various languages in comparison with their hypothetical ancestral languages, the argument claiming change from binary to ternary/quaternary system seems at least plausible.

As for the grammatical structure of the earliest language that we know of with some evidence, Gamkrelidze and Ivanov (1995) reconstruct Proto-Indo-European (see also Lehmann 1952, 1974, 1993; Szemerényi 1996). According to their account, language bases its structure on the nominal binary nature between active and inactive nouns. "The animate class can be viewed as an active class, i.e. one referring to objects capable of acting (or conceived of as capable of acting), while the inanimate class comprises nouns referring to objects incapable of acting" (ibid.: 238). Exceptions are names of trees, river, fire, etc. which are considered to produce something. This made them active nouns or at least they had the active-inactive distinction. For example, 'water' can be considered as animate **Hap^h* 'water, river, stream (as a moving element)' and inanimate **woi'or^h* 'water (as a non-living element)'. As for the words for 'tree', the residues of such classification can be still found in later Indo-European languages: the names of trees are often active, since they can bear fruits (a sign of productivity), while its fruits are inanimate, e.g. Latin *pirus* 'pear tree'; *mālus* 'apple tree' (animate), while *pirum* 'pear'; *mālum* 'apple' (as a fruit, inanimate) (ibid.: 238-239). The verbal class also has an active-inactive distinction, e.g. **ses-* 'lie, sleep' (active)/**k^hei-* 'lie' (inactive); **es-* 'sit' (active)/**set-* 'sit' (inactive), etc. (ibid.: 255). At the earlier stage, the clause only took the animate subject, acting either on another animate referent or inanimate referent. As language developed, the inanimate subject appeared by the help of a suffix that turned inactive nouns into active ones (ibid.: 261-263).

Such a pattern may appear to be specific for Indo-European languages, but it can also be found in non-Indo-European languages. For example, Ojibwa (Algonquian spoken by about 30,000 people in Minnesota, Wisconsin, North Dakota and Montana) has two genders, animate and inanimate, and most nouns denoting animals, spirits or trees are animate, while others are inanimate (Table 6). There are some exceptions, e.g. *a:sso:kka:n* 'sacred story', *meskomin* 'raspberry', etc. are animate. The anomaly in gender assignment can be explained once the beliefs, attitudes and conduct of the Ojibwa are considered. The world-view of these

speakers is dominated by the concept of power, i.e. all living things have power. It is a key factor to distinguish the gender of objects, and religious objects are considered animate, i.e. powerful. Another Algonquian language, Fox (spoken in eastern Iowa by about 500 people), does not allow a clause without the animate subject. When there is no animate subject, an activating suffix is added to turn the inanimate subject into the animate one. Thus, the active-inactive binary distinction is crucial for this language in forming a fully grammatical clause. See Anderson (1997) for detailed argument and examples.

Table 6. Ojibwa gender system (Corbett 1991: 20-24)

Animate	Inanimate
<i>enini</i> 'man', <i>enim</i> 'dog', <i>menito</i> 'manitou', <i>metikumi:ss</i> 'oak', etc.	<i>essin</i> 'stone', <i>peka:n</i> 'nut', <i>pekkwe:šekan</i> 'bread', <i>wa:wan</i> 'egg', etc.

Binary oppositions and the emergence of Y-N words

The binary opposition between the affirmative and negative answer is so familiar to us that we do not really pay too much attention to it and to the fact that the two form a binary opposition. As suggested so far, binary oppositions constitute a fundamental cognitive tool for us in sorting out all the complex information surrounding us. Therefore, it is natural to assume that binary opposition has played an important role in the development of Y-N words.

The following evolutionary scenario seems likely: a majority of languages started off by expressing negation through a negative particle and repeating the verb, as in Irish. The negative markers then came to be used independently, as a short form of the negated verbs. For positive answers, verb repetition was still used. However, due to the preference for binary opposition (and cognitive stability), the affirmative counterpart was created. A possible chronology also supports this: as we have seen, the majority of the Indo-European languages use more or less the same phonemes for the 'no'-words, but there is much diversity for the 'yes'-words. This would be natural if the 'no'-words emerged before the divergence of this language family into the current state, and the 'yes'-words were created after the divergence. This also suggests that Celtic languages diverged much earlier than other IE languages, preserving archaic forms of language structure – which is consistent with what has been claimed by Lehmann (1999) on the basis of other grammatical evidence.

Conclusion

Small words like 'yes' and 'no' play an important part in our daily communication, although we pay very little attention to them. We have examined a possible evolutionary path for their emergence. The hypothesis proposed is that in an initial stage 'no'-words emerged from a negation marker, and then became independent words. Since the negative answer can be given with 'no', its affirmative counterpart is required in order to fulfill the requirement of binary opposition. A number of features in various human cognitive behaviours, including linguistic structures, are organised in binary pairs, and the development of Y-N words is possibly one such case. In support for this it was pointed out that it is much easier to find a linkage between the negative marker and 'no', and the word for 'yes' is often difficult to trace historically.

If this proposal is correct, then by studying the origins of "small words" like 'yes' and 'no', one could gain a better understanding of a central aspect of cognitive evolution in human communication: as the demands for effective communication grow stronger, speakers were forced to invent new tactics to allow smooth communication flow. First binary opposition, and then gradience, constitute such tactics.

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P U B L I S H I N G

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BRINGING LANGUAGE AND COGNITION BACK TOGETHER AGAIN

JORDAN ZLATEV, MATS ANDRÉN,
MARLENE JOHANSSON FALCK
AND CARITA LUNDMARK

Introduction

For most of the two millennia or so of reflexive thinking in the West, language and cognition – both broadly conceived – have been considered to be intimately related. At the same time, the nature of this relationship has been rife with controversy. Following the tradition of Aristotle, many philosophers, and more recently psychologists and linguists, have privileged cognition, seeking to explain language as being more or less determined by the nature of the human mind. Since the latter can be argued to owe much to the nature of the human body – under both phenomenological and empirical interpretations (cf. Gallagher 2005) – it follows that language should be considerably determined by human corporeal existence. Today, we find this approach to unravelling the language-cognition nexus most clearly represented within the school of Cognitive Linguistics (cf. Geeraerts and Cuyckens 2007a).

However, also more or less from the start, there has been a realization that language itself plays a substantial role in shaping human thinking. Over the past century this realization has become increasingly prominent. To this effect, a number of factors have contributed: the systematic study of radically different languages in linguistics (e.g. Sapir 1956), the “linguistic turn” in philosophy in the mid 20 century (cf. Rorty 1992), and the socio-cultural approach in psychology (e.g. Vygotsky 1978). After a period of disrepute, the work of Whorf (1956) is once again influential, and various interpretations of “the thesis of linguistic relativity” are constantly being debated (cf. Blomberg and Zlatev, this volume). Even more importantly, they are submitted to empirical scrutiny much more thoroughly than before.