Key Properties with Natural and Constructed Languages in English

Ruhee Bano

Research Scholar

Sri Venkateshwara University

U.P., India

Dr. Sanjana Kumari

Assistant Professor

Sri Venkateshwara University

U.P., India

Abstract

All languages are systematic. They are governed by a set of interrelated systems that include phonology, graphics (usually), morphology, syntax, lexicon, and semantics. All natural languages are conventional and arbitrary. They obey rules, such as assigning a particular word to a particular thing or concept. But there is no reason that this particular word was originally assigned to this particular thing or concept. All natural languages are redundant, meaning that the information in a sentence is signaled in more than one way. All natural languages change. There are various ways a language can change and various reasons for this change.

Keywords: English Language, Formal Language, Natural Language

"The apparent fact that the number of utterances in a natural language is unbounded is one of its more widely remarked upon properties and a core tenet of modern linguistic theory. The classic argument for creativity uses the idea that one can continually add further adjuncts to sentences to establish that there can be no longest sentence and therefore no finite number of sentences (see Chomsky, 1957). . . .

"This conventional argument for the creativity of natural language is overly strained: who has actually heard a 500-word sentence? In contrast, anyone who studies [natural language] generation has available a far more reasonable and commonsense account of creativity, namely that one continually uses new utterances because one is continually faced with new situations... The counterbalance to creativity is the 'efficiency' of language (Barwise & Perry, 1983): the fact that many utterances do reoccur countless times (e.g., 'Where did you go for dinner last night?')." (David D. McDonald, et al., "Factors Contributing to Efficiency in Natural Language Generation." Natural Language Generation, ed. by Gerard Kempen. Kluwer, 1987)

"Natural language is the embodiment of human cognition and human intelligence. It is very evident that natural language includes an abundance of vague and indefinite phrases and statements that correspond to imprecision in the underlying cognitive concepts. Terms such as 'tall,' 'short,' 'hot,' and 'well' are extremely difficult to translate into knowledge representation, as required for the reasoning systems under discussion. Without such precision, symbolic manipulation within the computer is bleak, to say the least. However, without the richness of meaning inherent in such phrases, human communication would be severely limited, and it is therefore incumbent on us (to attempt) to include such facility within reasoning systems..." (Jay Friedenberg and Gordon Silverman, Cognitive Science: An Introduction to the Study of Mind. SAGE, 2006)

A single language can function as both an object language and a metalanguage at the same time. This is the case when English speakers examine English. "English speakers, of course, do not study only foreign languages; they also study their own language. When they do, the object language and the metalanguage are one and the same. In practice, this works quite well. Given some grasp of basic English, one can understand a grammar text written in English," (Simpson 2008).

There are times when speakers will begin a conversation in one language only to realize that another language would be much more appropriate. Often, when individuals realize that a language switch is necessary mid-conversation for the sake of collective understanding, they use metalanguage to orchestrate it. Elizabeth Traugott goes into this further using literature as a frame of reference.

"When languages other than English are represented mainly in English [in fiction], with sporadic shifts to the real language, little metalanguage is usually involved (one of the problems with Hemingway's use of Spanish is his overuse of metalanguage, particularly translation). However, when situations arise within the action of the story that involve language-switch, metalanguage is typical. It is obviously necessary when both languages are being represented in English. Page cites a particularly clever use of metalanguage totally incorporated in the conversation:

The following excerpt, from Patrick Hartwell's essay "Grammar, Grammars, and the Teaching of Grammar," details the ability to dissect the processes and features of language objectively and from many perspectives known as metalinguistic awareness. "The notion of metalinguistic awareness seems crucial. The sentence below, created by Douglas R. Hofstadter ('Metamagical Themes,' Scientific American, 235, No. 1 [1981], 22-32), is offered to clarify that notion; you are invited to examine it for a moment or two before continuing.

Three errors announce themselves plainly enough, the misspellings of there and sentence and the use of is instead of are. (And, just to illustrate the perils of hyperliteracy, let it be noted that, through three years of drafts, I referred to the choice of is and are as a matter of 'subject-verb agreement.')

The fourth error resists detection until one assesses the truth value of the sentence itself—the fourth error is that there are not four errors, only three. Such a sentence (Hofstadter calls it a 'self-referencing sentence') asks you to look at it in two ways, simultaneously as statement and as linguistic artifact—in other words, to exercise metalinguistic awareness," (Patrick Hartwell, "Grammar, Grammars, and the Teaching of Grammar." College English, Feb. 1985).

Metalinguistic awareness is an acquired skill. Michel Paradis argues that this skill is related to foreign language learning. "The fact that metalinguistic knowledge never becomes implicit linguistic competence does not mean that it is useless for the acquisition of a second/foreign language. Metalinguistic awareness obviously helps one learn a language; in fact, it is a prerequisite. But it may also help one acquire it, albeit only indirectly," (Paradis 2004).

Metalanguage closely resembles a literary device that references one object in the abstract by equating it to another: the metaphor. Both these and metalanguage function in the abstract as tools for comparison. "We are so immersed in our own metalanguage," says Roger Lass, "that we may not notice (a) that it is much more metaphorical than we think, and (b) how important ... metaphors are as devices for framing our thinking," (Historical Linguistics and Language Change, 1997).

The conduit metaphor is a class of metaphors used to talk about communication, much in the same way that metalanguage is a class of language used to talk about language.

"In his groundbreaking study ["The Conduit Metaphor," 1979] [Michael J.] Reddy examines the ways in which English speakers communicate about language, and identifies the conduit metaphor as central. In fact, he argues, using the conduit metaphor actually influences our thinking about communication. We can hardly avoid using these metaphors in talking about our communication with others; for example, I think I'm getting your point. I can't grasp what you're saying. Our metaphors indicate that we reify ideas and that these ideas move between people, sometimes getting twisted out of recognition, or taken out of context," (Fiksdal 2008).

In linguistic, a natural language is any language that has developed organically and has not been artificially constructed. John Lyons explains why these languages contain their own metalanguages. "[I]t is a commonplace of philosophical semantics that natural languages (in contrast with many non-natural, or artificial, languages) contain their own metalanguage: they may be used to describe, not only other languages (and language in general), but also themselves. The property by virtue of which a language may be used to refer to itself (in whole or in part) I will call reflexivity. ...

[I]f we are aiming for precision and clarity, English, like other natural languages, cannot be used for metalinguistic purposes without modification. As far as the metalinguistic vocabulary of natural languages is concerned, there are two kinds of modification open to us: regimentation and extension. We can take existing everyday words, such as 'language,' 'sentence,' 'word,' 'meaning,' or 'sense,' and subject them to strict control (i.e., regiment their use), defining them or re-defining them for our own purposes (just as physicists re-define 'force' or 'energy' for their

specialized purposes). Alternatively, we can extend the everyday vocabulary by introducing into it technical terms which are not normally used in everyday conversations," (Lyons 1995).

Productivity is a general term in linguistics referring to the limitless ability to use language—any natural language—to say new things. It is also known as open-endedness or creativity.

The term productivity is also applied in a narrower sense to particular forms or constructions (such as affixes) that can be used to produce new instances of the same type. In this sense, productivity is most commonly discussed in connection with word-formation.

"Humans are continually creating new expressions and novel utterances by manipulating their linguistic resources to describe new objects and situations. This property is described as productivity (or 'creativity' or 'open-endedness') and it is linked to the fact that the potential number of utterances in any human language is infinite.

"The communication systems of other creatures do not appear to have this type of flexibility. Cicadas have four signals to choose from and vervet monkeys have 36 vocal calls. Nor does it seem possible for creatures to produce new signals to communicate novel experiences or events....

"This limiting factor of animal communication is described in terms of fixed reference. Each signal in the system is fixed as relating to a particular object or occasion. Among the vervet monkey's repertoire, there is one danger signal CHUTTER, which is used when a snake is around, and another RRAUP, used when an eagle is spotted nearby. These signals are fixed in terms of their reference and cannot be manipulated."

– George Yule, The Study of Language, 3rd ed. Cambridge University Press, 2006

"[M]ost of the utterances you produce and hear every day have very likely never before been produced by anybody. Consider a few examples: A large tear rolled down the little pink dragon's nose; Peanut butter is a poor substitute for putty; Luxembourg has declared war on New Zealand; Shakespeare wrote his plays in Swahili, and they were translated into English by his African bodyguards. You have no difficulty in understanding these—even if you don't believe all of them....

"This limitless ability to produce and understand totally new utterances is called open-endedness, and it should be perfectly clear to you that, without it, our languages and indeed our lives would be unrecognizably different from what they are. Perhaps no other feature of language so dramatically illustrates the vast, unbridgeable gulf separating human language from the signaling systems of all other creatures.

"The importance of open-endedness has been realized by linguists for decades; the term was coined by the American linguist Charles Hockett in 1960, though others have sometimes preferred the labels productivity or creativity."

– R.L. Trask, Language, and Linguistics: The Key Concepts, 2nd ed., edited by Peter Stockwell. Routledge, 2007

"[I]n human language the meaningful messages (both sentences and words) are infinite in variety by virtue of the fact that words are produced from a system of combining a finite set of meaningless units. Linguists since Hockett in the 1960s have described this hallmark property of language as duality of patterning."

– Dani Byrd and Toben H. Mintz, Discovering Speech, Words, and Mind. Wiley-Blackwell, 2010

"The ability to respond freely is another key aspect of creativity: no human is obliged to make a fixed response to any situation. People can say whatever they want, or even stay silent...Having a limitless range of possible responses is known (technically) as 'freedom from stimulus control.' "

– Jean Aitchison, The Word Weavers: Newshounds and Wordsmiths. Cambridge University Press, 2007

Productive, Nonproductive, and Semiproductive Forms and Patterns

"A pattern is productive if it is repeatedly used in language to produce further instances of the same type (e.g. the past-tense affix -ed in English is productive, in that any new verb will be automatically assigned this past-tense form). Non-productive (or unproductive) patterns lack any such potential; e.g. the change from mouse to mice is not a productive plural formation—new nouns would not adopt it, but would use instead the productive -s-ending pattern. Semi-productive forms are those where there is a limited or occasional creativity, as when a prefix such as un- is sometimes, but not universally, applied to words to form their opposites, e.g. happy → unhappy, but not sad → *unsad."

– David Crystal, Dictionary of Linguistics and Phonetics, 6th ed. Blackwell, 2008)

"[T]he plural affix 's' which is added onto the base form of nouns is productive because any new noun which is adopted into English will employ it, whereas the change from foot to feet is unproductive because it represents a fossilised plural form limited to a small set of nouns."

– Geoffrey Finch, Linguistic Terms, and Concepts. Palgrave Macmillan, 2000

"The productivity of a pattern can change. Until recently, the adverb-forming suffix -wise was unproductive and confined to a handful of cases such as likewise, clockwise, lengthwise and otherwise. But today it has become highly productive, and we frequently coin new words like healthwise, moneywise, clothes wise and romancewise (as in How are you getting on romancewise?)."

– R.L. Trask, Dictionary of English Grammar. Penguin, 2000

The Lighter Side of Productivity

"Now, our language, Tiger, our language. Hundreds of thousands of available words, trillions of legitimate new ideas. Hm? So that I can say the following sentence and be utterly sure that nobody has ever said it before in the history of human communication: 'Hold the newsreader's nose squarely, waiter or friendly milk will countermand my trousers.'"

– Stephen Fry, A Bit of Fry and Laurie, 1989

In linguistics, a corpus is a collection of linguistic data (usually contained in a computer database) used for research, scholarship, and teaching. "The 'authentic materials' movement in language teaching that emerged in the 1980s [advocated] a greater use of real-world or 'authentic'

materials--materials not specially designed for classroom use--since it was argued that such material would expose learners to examples of natural language use taken from real-world contexts. More recently the emergence of corpus linguistics and the establishment of large-scale databases or corpora of different genres of authentic language have offered a further approach to providing learners with teaching materials that reflect authentic language use."

"Corpora may encode language produced in any mode--for example, there are corpora of spoken language and there are corpora of written language. In addition, some video corpora record paralinguistic features such as gesture ..., and corpora of sign language have been constructed . "Corpora representing the written form of a language usually present the smallest technical challenge to construct. . . . Unicode allows computers to reliably store, exchange and display textual material in nearly all of the writing systems of the world, both current and extinct. . . .

"Material for a spoken corpus, however, is time-consuming to gather and transcribe. Some material may be gathered from sources like the World Wide Web . . .. However, transcripts such as these have not been designed as reliable materials for linguistic exploration of spoken language. . . . [S]poken corpus data is more often produced by recording interactions and then transcribing them. Orthographic and/or phonemic transcriptions of spoken materials can be compiled into a corpus of speech which is searchable by computer."

"Concordancing is a core tool in corpus linguistics and it simply means using corpus software to find every occurrence of a particular word or phrase. . . . With a computer, we can now search millions of words in seconds. The search word or phrase is often referred to as the 'node' and concordance lines are usually presented with the node word/phrase in the centre of the line with seven or eight words presented at either side. These are known as Key-Word-in-Context displays (or KWIC concordances)."

(Anne O'Keeffe, Michael McCarthy, and Ronald Carter, "Introduction." From Corpus to Classroom: Language Use and Language Teaching. Cambridge University Press, 2007)

"In 1992 [Jan Svartvik] presented the advantages of corpus linguistics in a preface to an influential collection of papers. His arguments are given here in abbreviated form:

- Corpus data are more objective than data based on introspection.

- Corpus data can easily be verified by other researchers and researchers can share the same data instead of always compiling their own.

- Corpus data are needed for studies of variation between dialects, registers and styles.

- Corpus data provide the frequency of occurrence of linguistic items.

- Corpus data do not only provide illustrative examples, but are a theoretical resource.

- Corpus data give essential information for a number of applied areas, like language teaching and language technology (machine translation, speech synthesis etc.).

- Corpora provide the possibility of total accountability of linguistic features--the analyst should account for everything in the data, not just selected features.

- Computerised corpora give researchers all over the world access to the data.

- Corpus data are ideal for non-native speakers of the language.

(Svarvik 1992:8-10) However, Svartvik also points out that it is crucial that the corpus linguist engages in careful manual analysis as well: mere figures are rarely enough. He stresses too that the quality of the corpus is important."

(Hans Lindquist, Corpus Linguistics and the Description of English. Edinburgh University Press, 2009)

Additional Applications of Corpus-Based Research

"Apart from the applications in linguistic research per se, the following practical applications may be mentioned.

Corpus-derived frequency lists and, more especially, concordances are establishing themselves as basic tools for the lexicographer. . . .

. . . The use of concordances as language-learning tools is currently a major interest in computer-assisted language learning (CALL; see Johns 1986). . . .

Speech Processing

Machine translation is one example of the application of corpora for what computer scientists call natural language processing. In addition to machine translation, a major research goal for NLP is speech processing, that is, the development of computer systems capable of outputting automatically produced speech from written input (speech synthesis), or converting speech input

into written form (speech recognition)." (Geoffrey N. Leech, "Corpora." The Linguistics Encyclopedia, ed. by Kirsten Malmkjaer. Routledge, 1995)

The field of linguistics is concerned with the study of meaning in language. Linguistic semantics has been defined as the study of how languages organize and express meanings. The term semantics (from the Greek word for sign) was coined by French linguist Michel Bréal (1832-1915), who is commonly regarded as a founder of modern semantics.

"Oddly," says R.L. Trask in Key Concepts in Language and Linguistics, "some of the most important work in semantics was being done from the late 19th century onwards by philosophers [rather than by linguists]." Over the past 50 years, however, "approaches to semantics have proliferated, and the subject is now one of the liveliest areas in linguistics," (Trask 1999).

English is a West Germanic language first spoken in early medieval England which eventually became the leading language of international discourse in today's world. It is named after the Angles, one of the ancient Germanic peoples that migrated to the area of Great Britain that later took their name, England. Both names derive from Anglia, a peninsula on the Baltic Sea. English is most closely related to Frisian and Low Saxon, while its vocabulary has been significantly influenced by other Germanic languages, particularly Old Norse (a North Germanic language), as well as Latin and French.

English has developed over the course of more than 1,400 years. The earliest forms of English, a group of West Germanic (Ingvaeonic) dialects brought to Great Britain by Anglo-Saxon settlers in the 5th century, are collectively called Old English. Middle English began in the late 11th century with the Norman conquest of England; this was a period in which English was influenced by Old French, in particular through its Old Norman dialect. Early Modern

English began in the late 15th century with the introduction of the printing press to London, the printing of the King James Bible and the start of the Great Vowel Shift.

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