The Linguistics of Color Terms

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Abstract

The study of the linguistics of color terms has mostly been concerned with isolating the 'basic' color terms of a language: the smallest set of linguistically simplex expressions of the language with which a speaker can name any color

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The words that different languages use to name colors have furnished a prime focus for research on the doctrine of *linguistic relativity*. This doctrine holds that (1) different languages categorize the world very differently and (2) the non-linguistic thought and behavior of different peoples are deeply influenced by these differences in linguistic categorization. Words for colors have been considered an ideal area of lexicon for testing this doctrine because there exist scientific color order systems, which provide a precise metalanguage for describing color sensations independent of the words of any natural language. Such a metalanguage furnishes the means to characterize precisely the sameness or difference in meaning of color words in different languages.

1. Restricting the Domain

It is clear, however, that every language has immense – probably infinite – resources for denoting color sensations. First, every language so far studied can productively create complex expressions which describe the color of an object by indicating similarity to another kind of object which is known to saliently display the color. An example from English is 'like the color of a male mallard duck's neck feathers'. (Although most languages don't have a word that straightforwardly translates the English word 'color', the speaker of such a language who wishes to characterize, say, a kind of fish as mallard green can usually say that, for example, the fish 'looks like' the neck feathers of a male mallard, relying on context and background knowledge to provide the interpreter with color as the relevant dimension of visual similarity. Although relativist critiques of color naming research have maintained that absence of a word meaning 'color' in a language indicates that its speakers see and/or conceive of colors very differently from, say, speakers of European languages, the experiences of workers who have actually studied color vocabularies in the field do not provide significant support for this claim. See, e.g., Conklin 1955: 340f, Turton 1980: 322.) Secondly, many languages have words like 'blond' or 'bay', which denote a color only as restricted to a class of objects (hair and horses, repectively). Thirdly, many languages have morphological and syntactic process which create complex color terms out of simple color terms. English examples include 'blue-green', 'yellowish', 'pale reddish purple', and so on. Finally, some languages, English included, have many linguistically simple terms which denote subtypes or 'shades' of colors denoted by other simple terms. For example, 'scarlet', 'crimson', 'vermillion', 'puce', 'magenta', 'burgundy', and 'maroon' are among the more commonly named shades of 'red'. The linguistics of color terms has become a focus of research and a source of controversy in part because of the practical need to arrive at a manageable set of 'color terms' in each language to enable comparative study.

2. Color Terms and Linguistic Relativity

Before taking up in greater detail the ways researchers have attempted to delimit the linguistic domain of color, it is useful to consider briefly the role color naming has played in the long-running debate over linguistic relativity versus semantic universals (q.v.). In the second half of the nineteenth century it had become common knowledge among scholars that the major color words of different languages were not always perfectly translatable into one another. To some, this represented *prima facie* evidence of biologically based, perceptual differences among different groups of human beings, in fact the last traces of Darwinian evolution observeable among humans. For example, William Gladstone, Homeric scholar and Prime Minister of Britain, observing differences between the color words of classical Greek and the modern European languages, wrote, "...the organ of color and its impressions were but partially developed among the Greeks of the heroic age"(1858 III 457-499).

Although this view was widespread in the late nineteenth century, it was not unanimous. For example, in order to study the discrimination and naming of colors independently, the German opthalmologist Hugo Magnus circulated a questionnaire to missionaries and traders with ten standardized color samples and instructions for using them in the 1870s. These instructions contained an explicit warning that failure of a language to distinguish lexically between two colors did not necessarily imply that speakers of that language did not distinguish the two colors perceptually. Magnus received completed questionnaires on twenty-five African, fifteen Asian, three Australian and two European languages. He concluded in part, "As regards the range of the color sense of the primitive peoples tested with our questionnaire, it appears in general to remain within the same bounds as the color sense of the civilized nations. At least, we could not establish a complete lack of the perception of the so-called main colors as a special racial characteristic of any one of the tribes investigated for us. We consider red, yellow, green, and blue as the main representatives of the colors of long and short wavelength; among the tribes we tested not a one lacks the knowledge of any of these four colors (Magnus 1880:6, as translated in Berlin and Kay 1969: 141). Magnus did find widespread *lexical* neutralization of green and blue, that is, a single word covering both these colors, as have all subsequent comparative studies of color lexicons.

While nineteenth century and early twentieth century researchers saw differences among vocabularies in an evolutionary perspective (biological and/or cultural), in the second quarter of the twentieth century the tide began to turn against evolutionary explanations of human variation and toward cultural and linguistic relativity. This was expecially true in America, in the tradition of the anthroplogists and linguists F. Boas, E. Sapir and B.L. Whorf, although there were precursers in the views of the German romantics, who had tended to associate the *geist* of a people strongly with its language. According to Whorf, 'The categories and types that we isolate from the world of phenomena we do not find there because they stare every observer in the face. On the contrary the world is presented in a kaleidoscopic flux of impressions which have to be organized in our minds. This means, largely, by the linguistic system in our minds' (1956 [1940]: 212f). Throughout the 1930s and '40s this view gained increasing prominence and in the 1950s and '60s achieved virtual hegemony in American anthropology and linguistics, with considerable influence in Britian and elsewhere outside of the U.S.

(Chomskian universalism and nativism was to become influential only at the end of this period.)

The parade example chosen by the mid-century American relativists to make the twin points of semantic arbitrariness and linguistic determinism was the lexicon of color. The most influential introductory linguistics textbook of the period, for example, stated: 'There is a continuous gradation of color from one end of the spectrum to the other. Yet an American describing it will list the hues as red, orange, yellow, green, blue, purple, or something of the kind. There is nothing inherent either in the spectrum or the human perception of it which would compel its division in this way' (Gleason 1961: 4). This sweeping conclusion appears to have been based on two small-scale empirical studies of color terminology, whose results have subsequently been interpreted differently, one on the Hanunóo language (Philippines)(Conklin 1995) and the other a comparison of the color terminologies of 10 languages (Ray 1953). Despite the paucity of evidence, the idea that different languages divide up the perceptual color space in mutually incomparable ways was widespread at the time, doubtless because it fit so well with the prevailing doctrine of radical cultural and linguistic relativity.

3. Color Terms as Linguistic Objects

Against this background a study appeared in 1969 which reached exactly contrary conclusions. After examining the color term systems of ninety-eight languages, Berlin and Kay (1969) [B&K] proposed that (1) the differences in color lexicons of the languages of the world could be explained as different combinations of a few landmark colors (which were probably human perceptual universals) and (2) the differences in color lexicons of the world's languages could be arranged in an evolutionary progression. In order to carry out this study, B&K found it necessary to limit the domain of inquiry to the 'basic color terms' of the languages being compared. (They examined twenty languages experimentally, using standard color stimuli, and interpreted another seventy-eight reports of color teminologies from the literature based on their formulation of the results of these twenty.) As a preliminary to this research. Berlin and Kay offered what they called a definition of 'basic color term' and much of the subsequent research on the linguistics of color terms has had to do with attacking, defending, revising and evaluating this definition.

The B&K study was not without direct precursers. Lenneberg and Roberts (1956) [L&R] compared the color terms of Zuni monolinguals with those of Zuni-English bilinguals and English monolinguals. After isolating the words whose denotation was to be studied, L&R had each informant indicate on a representative array of 230 color samples the denotation of each color word as well as the color sample which best exemplified the reference of that word. B&K used essentially the same method and the same stimulus array as L&R (except for adding black white and shades of gray) with the exception that the color words whose denotation was to be studied were selected differently by L&R and by B&K. L&R proceeded by getting speakers to list as many color words as they could think of without color stimuli present, which produced a list of fifty-two terms. They also elicited lists of color words by asking for names for twenty-four selected color stimuli, producing a list of 105 terms. The color terms for which L&R show mappings are those most frequently elicited by the second method. L&R show mappings for seven color terms for Zuni monolinguals, corresponding closely to English pink, red, brown yellow-orange, green, blue and purple. (Recall they had no white, black or gray stimuli.) They show mappings for eight color terms for Zuni bilinguals, adding a term for orange, 'ʔolechinanne' ('orange.like' < Eng. 'orange' + 'anne' 'like') and retracting the area of yellow accordingly. They show ten mappings for English color terms (pink, red, orange, brown, yellow, green, light green, blue, light blue, purple). No terms like greenish, blue-green, or crimson were mapped, but light green and light blue were apparently ruled in by naming frequency considerations. (L&R's text is not explicit on this point.) Clearly in L&R, as in Conklin's, Ray's and other early investigations of color word systems some tacit, if hazy, notion of major color term or principal color term is at work. It was this tacit notion that B&K tried to operationalize in their 'definition' of basic color term.

4. B&K's Definition of Basic Color Term

B&K offered what they unfortunately called a definition of basic color term [bct]. Their intent was not to postulate and define a new theoretical entity but to operationalize, insofar as possible, a tacit concept that was already in general use. The guiding intuition of the B&K 'definition' of basic color term was that each language has a small set of simplex lexemes (or word *senses*, as in the case of English 'green [color]' and 'orange [color]') of pure color meaning (i.e., unlike words such as 'blond'), which collectively name all the color sensations. The bcts are the members of that set. However, B&K stated the definition in terms of eight criteria, four primary and four subsidiary, the latter to be used in cases where application of the former is not sufficient to decide the bcts of a language. The four primary criteria for a bct were that it (i) be monolexemic (its meaning not predictable from the meanings of its parts, eliminating 'greenish', etc.), (ii) not be a hyponym (eliminating, e.g., 'crimson'), (iii) be predicable of any kind of object (eliminating, e.g.,' blond') and (iv) be 'psychologically salient' (eliminating e.g., 'puce' and 'like the neck feathers of a male mallard duck'). Two telling criticisms that have been leveled against the fourth criterion are (1) that it is not a linguistic criterion, while the other three are and (2) that 'psychological salience' is neither a conceptually limpid nor a readily measurable notion. The four subsidiary criteria, designed for use in *ceteris paribus* situations, were that a questionable term (v) have a morphological distribution similar to that of the established bcts, (vi) not be the name of a kind of object (which would eliminate English 'orange' if subsidiary criteria were allowed to override primary criteria), (vii) not be a recent borrowing from another language, and (viii) not be morphologically complex. The B&K definition of bct has led both to practical problems in determining the bcts of a language and to conceptual and theoretical problems regarding the semantics of color in natural languges.

5. Practical Problems with the B&K Definition of Bct

The main practical problem in applying the B&K criteria to particular languages is that since language change is always gradual there are many transitional cases. For example, there are many languages with bcts for black, white, red, yellow and 'grue', i.e., a single word covering green and blue. There are also many languages with bcts for black, white, red, yellow, green and blue. When a language changes from the first type to the second type, it is not the case that everyone goes to bed Sunday night speaking the 'grue' language and gets up Monday morning speaking the 'green' versus 'blue' language. Many kinds of in-between situations arise which make it difficult to say which words of the language naming part or all of the green/blue region of color space are bcts. Moreover, there is virtually always widespread inter-speaker variation in such cases, complicating further the task of deciding the bcts of 'the language' (See Linguistic variation, register and style, Sociolinguistics). Secondly, the four primary criteria of B&K do not always correlate and the definition gives no clue as to how the different criteria should be weighted in such cases. Also, as mentioned, cultural salience is not a straightforwardly observeable characteristic. Workers who have taken the B&K 'definition' as a recipe rather than a heuristic have complained of problems in application in particular cases. Usually, however, these problem cases have involved a single term or a single area of the color space, indicating that the area is one undergoing change.

A third practical issue has arisen in connection with the first B&K criterion of non-predictability of meaning of a bct from the meaning of its parts. It has been noted that in several Oceanic and Australian languages many of the presumably basic color terms are in fact reduplicated forms of roots that denote objects notoriously exhibiting the corresponding color. For example, in Yélîdnye (Rossel Island, Melanesia [Non-Austronesian]), the word for white 'kpaapîkpaapî' represents reduplication of the nominal root 'kpaapî' denoting a pure white cockatoo species. A similar situation holds for the black and red words, the only other plausible candidates for bcts in this language (Levinson in press). The question arises whether Yélîdnye, and similar languages, can be said to have any bcts at all. The answer is yes. The criterion of non-predictability of meaning requires not only that from knowing the rest of the Yélîdnye language – including the word 'kpaapî' and the pattern of reduplication which yields a salient attribute of the denotatum of a noun from reduplication of the noun stem – one could as a *listener* guess the meaning of 'kpaapîkpaapî', but also that as a *speaker* one would know in advance that 'kpaapîkpaapî' was the way to express the idea of white. The latter of course would not be possible without memorizing this particular fact, because not all attributive words are formed by reduplication and even if they were the meaning 'white' might be based on some other object or substance.

6. Theoretical Issues Concerning the B&K Definition of Bct

It has been argued, principally by John Lucy (e.g., Lucy 1997), that a set of bcts isolated by B&K or associated researchers doesn't correspond to any linguistically legitimate system because there is no insistence in the B&K tradition of research that the set of bcts for a given language be definable by strictly formal, distributional criteria. This critique of the bct concept and practice is based on the questionable assumption that all morpho-syntactic categories correspond to semantic categories and *vice versa* (See Kay in press). Moreover, careful empirical studies have shown that application either of the explicit B&K criteria or of the underlying intuition of a small set of linguistically simplex lexemes jointly exhaustive of the color domain can isolate sets of basic color terms which obviously form a coherent semantic system and whose members belong to several different form classes (See, for example, Maffi 1990 on Somali). It has also frequently been found that morphological category, including native versus borrowed origin, can correlate with the evolutionary sequence posited by B&K ({black, white}> {red} > {yellow, green} > {blue} > {other}. The Somali case is again illustrative: the words for black, white and red are intransitive verbs, the words for yellow and green are denominal adjectives and the word for blue (*buluug*), also a basic color term, is a noun. To say that something is blue, one has to say that it 'has' blue (Maffi 1990). Such neat correlations between morphology and evolutionary status are, however, sporadic.

Recently, the question has arisen whether all languages do in fact have a small set of lexemes whose denotations are restricted to color sensations and which jointly name all the color sensations. That is, does every lanaguage have a full set of basic color terms? This idea has been dubbed the Emergence Hypothesis (EH). (The question was first raised in unpublished work by Luisa Maffi. See also Lyons 1995, Lyons in press, Kay in press, Levinson in press, Kay and Maffi in press.) Research on this hypothesis has just begun but it appears that a small fraction of the world's languages may lack complete lexical partitions of the color domain (Levinson in press, Kay and Maffi in press). Preceeding, and in some cases overlapping temporally, with the evolution *of* basic color term systems there may exist an evolution *toward* basic color term systems.

7. Non-Basic Color Terms and Non-Color Meanings of Color Terms

The vast majority of studies of color terms, especially in the last thirty years, have restricted themselves to the basic or major color terms, considering non-major terms only with a view to excluding them from further consideration. The L&R study described above typifies this practice. There have, however, been studies covering all the lexicalized color expressions of a language, a classic example being André's (1949) study of Latin color terms and a more recent example being Bricker's (in press) study of productive and semi-productive morphological process in the formation of secondary color words in two Mayan languages. Bricker also provides a thorough analysis of the non-color aspects of meaning of Mayan non-basic color terms, often involving texture and other aspects of surface appearance. Color words frequently also display metaphorical associations to moral, emotional, supernatural and other kinds of non-physical entities and beliefs. Such associations have been widely reported in the ethnographic literature.

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