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SEMIOTICS OF COLORS: A COMPLICATED TERRITORY

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Abstract: The paper explores the semiotics of colors, focusing on their role as a communicative system and their symbolic meanings. It examines the interface between verbal and visual color languages, cognitive limitations, and methodologies for analyzing color symbolism. While basic color terms (BCTs) like red, blue, and green are studied linguistically, their symbolic meanings (e.g., love, health, anger) are often overlooked. The idea of subconscious knowledge of prototypes and their cultural meanings is proposed.

Keywords: color, sign, culture, nature

1. Introduction

Every morning, when we open our eyes, we begin to see colors. The question is whether visual colors can be equivalent to the natural language communicative sign system. Yes, there are narrow areas like national flags and traffic lights where colors are a sign system. Are there other channels through which to communicate through color, and through which color – visual or verbal? The other important question is: when can we accept colors as a language?

The problem is complicated by the presence of basic color words/terms in natural languages, because it is possible to say, "pass me the blue shirt", and the wife to bring the green, when she is fluent in the same natural language, does not suffer from colorblindness, and is not about to divorce. The different reference factual of basic color terms have within a language (both synchronous and diachronic) and in a comparative perspective were noticed and described by the linguist Chafe (1970).

Through the World Color Survey (WCS), launched in 1970, the linguist Paul Kay examines lexemes that serve exclusively to denote color in natural languages.

The analysis is restricted to the basic color terms (BCT) – for example, red, blue, and green – while excluding lexical items such as sky, grass, blood, milk, flax, cherry, and comparable designations. Kay and his closest associates never use the "language of colors". In contrast, many followers who explored the BCTs in Indo-European languages have titled their articles "color language". Berlin and Kay's tradition claims that Basic Color Categories (foci colors) appear in natural languages as basic color terms. The final goal of WCS is to understand the verbal colors presented by basic color terms. This tradition does not deal with symbolic

(secondary) meanings such as love, hate, anger, health, luck, innocence, and so on.

The most serious critics of the Berlin and Kay (1969) tradition are anthropologists (Saunders 1993; Saunders and van Brakel 1993; 2002) reveal the symbolic (secondary) meanings of visual colors in different cultures and rituals using interviews. Before them, Turner (1966) established the symbolism (secondary meanings) of red, white, and black in Ndembu culture, e.g., white means "making strong or healthy, to be without bad luck or misfortune" (Turner 1966, 58).

Munsell (1905) based his Color Theory on the works of the German scientists von Helmholtz (1821 – 1894) and Hering (1834 – 1918), explaining color perception and sensation via anatomy, optics, and psychology. Both theories of the German scientists are recognized as equally true today. Munsell's color theory is focused on visual colors, but not as a sign system. This theory does not deal with the symbolic (secondary) meanings of visual colors, and is still a basic course for all visual artists.

A set of grammar categories in natural languages, such as parts of speech, time, gender, number, person, infinitive, imperative, qualitative and relative adjectives, etc., are not recognized as communicative categories for colors. Instead, the visual color language contains other categories: moral, ethical, aesthetic, and religious, requiring the context of time and space. The dependence of the meanings of visual color on time, place, and the essence of a given ritual, with its purposes, is confirmed by the analyses of the Romanian and Bulgarian Kalushar flags (Kligman 1988; Almalech 1996) and by many other ethnographic, folklore and anthropological studies.

My goal is to establish to what extent colors can be a language, a communicative system through their secondary meanings. It includes a scientific explanation of the secondary meanings of colors, that is, the revelation of the color sign system. The goal is complex and challenging because it needs data from different sciences.

2. The current situation – problems and solutions

2.1. Linguistic fascination with Basic Color Terms

The fallacy that only the Basic Color Term (BCT) means color has dominated the last 50 years. This is related to the authority of the structural tradition searching for universality in color categorization (Berlin and Kay 1969); (Kay and Maffi 1999). Other words can also designate color. These are the Terms for Prototypes (PT – sky, blood, all plants, etc.), the Rival Terms (RT – linen, cherry, sapphire, ruby, etc.) for prototypes, and the Terms for the Basic Feature of the Prototype (TBFP – clean for White, warm for Red, etc.). For the white, the prototypes are light, snow, and/or milk; the RT is linen; the TBFP is clean. All scholars, to one degree or another, mix the color words with the visual perception and sense of color. I insist that there be a definitive distinction between verbal and visual colors.

2.2. Visual fascination with Munsell's Color Theory

A further misconception is the assumption that the visual parameters of color – hue, saturation, and brightness – can be assimilated to the category of structural semantic features in the sense of Jakobson and Halle (1956), and that these parameters manifest themselves directly in the ideational, interpersonal, and textual functions of discourse (Kress and van Leeuwen 2002: 355; van Leeuwen 2011). From a systemic-functional perspective, this conflation is theoretically untenable, since it disregards the stratified organization of language and semiosis, where experiential, interpersonal, and textual meanings are mediated through culturally sedimented codes rather than raw perceptual data. In addition, gender-based variation in color naming underscores the instability of such a framework, rendering problematic any attempt to posit a coherent and universally applicable 'grammar of color' for society as a whole.

To combine the systematic functional linguistic methodology of Halliday (Halliday & Matthiessen 2004) and the distinctive features borrowed from structural Phonology applied to visual color is not a felicitous choice, because physical properties of colors are artificially brought into the domain of natural language, social and individual cultures, and tastes. Other authors backing this misconception are those associated with the visual arts, architecture, and fashion history in dress and painting. They hope that Munsell's color theory, based on the three visual properties of colors (hue, saturation, brightness) and the models for mixing colors (Red-Green-Blue, Cyan-Magenta-Yellow, Red-Yellow-Blue) could form the basis for color semiotics.

In folklore and religious rituals, we can search for visual language if we decode the logic and philosophy of a ritual. The philosophy of visual color provokes fully defined and motivated sensations and perceptions. Color language is characterized by the multivariate of each color. Polysemy is known from natural languages, where negative, positive, and neutral meanings are borne by the distinct sound substances-signs-words. In the visual language of color, negative, positive, and neutral meanings are represented by the unalterable substance – that of one visual color.

The aggravating factor is that color language operates with far fewer "lexemes" grouped under foci (best examples of green, red, blue, yellow, black, and white following Hering's opponent theory 1964 [1892]), unlike the hundreds of thousands of thousands of lexemes in natural language. The analysis of the color of the wedding veil (Almalech 1996) opens a line of inquiry into the semiotic status of visual color language. Advertising and marketing, as discursive formations, do not in themselves operate within moral, ethical, or religious categories. Such categories are mobilized only in isolated cases where individual advertisements appropriate and exploit tradition, producing content that is semiotically diminished in relation to the original and strategically recontextualized to capture attention (Almalech 2007, 2009, 2011). This process exemplifies the commodification of cultural codes, whereby symbolic resources are detached from their normative frameworks and redeployed within the logic of persuasion.

2.3. Cognitive limitations of color as a sign system

Each person has a biological antenna (acoustic apparatus) for transmitting verbal/audio signals and a biological antenna (auditory perception) for receiving audio signals. As for visual colors, each person has a biological antenna only for receiving visual signs (perceptions and sensations), but not a biological antenna for emitting (color "acoustic" apparatus) visual color signs. The color human's "speaking apparatus" is the technology for coloring objects, but it is not natural, nor biological.

Visual colors are speech, not language. Speech is the material body of the sign system. Language is a sign system in the brain. Humans do not have a biological apparatus to emit colors. For this reason, visual colors are an incomplete sign system.

2.4. Cultural history of colors

The series "The History of a Color" (Série Histoire d'une couleur), published by Seuil, Paris, and Princeton University Press (The History of a Color), contains seven volumes/colors. I agree with Amazon's opinion: "In this richly illustrated book, Michel Pastoureau, a celebrated authority on the history of colors, presents a fascinating visual, social, and cultural history of the color white in European Societies, from Antiquity to today (amazon.com)." The edition is Euro-centric and serves perfectly as a textbook, but there is no attempt to study colors as a sign system. The same refers to the six volumes of Bloomsbury Academics "A Cultural History of Color" (2021) series. "The Routledge Handbook of Philosophy of Colour (2021)" meets the title and transcends European centrism offering deeper content, e.g., the opinions of universalists and relativists on the categorization of color in natural language. These editions are a valuable handbook for students and scholars, but they do nothing regarding the semiotics of verbal and visual color in their complex unity.

3. The interface between verbal and visual color language. Methods in use

We are confronted with a semiotic and cognitive tension: the linearity of verbalized processing versus the simultaneity of visual processing. Any semiotics of color must therefore be grounded not only in cognitive science but also in an account of communicative plenitude that acknowledges the embodied and multimodal nature of meaning. Unlike speech sounds, which are anchored in a biologically evolved articulatory apparatus, human beings possess no equivalent physiological mechanism for the articulation of colors. As a result, visual colors function as a structurally constrained semiotic system, one that is non-isomorphic to linguistic coding. From a phenomenological perspective, this limitation underscores the gap between perceptual immediacy and symbolic mediation: color is lived as embodied sensation yet resists codification into discrete linguistic units. It is precisely this tension that Kress and van Leeuwen overlook in their multimodal framework, as they neither engage with Prototype Theory (Heider 1972; 1973) nor

with experimental methods such as the Word Association Test. The same omission characterizes Pastoureau's (2001) cultural history of color. What emerges, then, is the need for an integrated approach that situates color at the intersection of cognition, perception, and cultural memory, recognizing it as a semiotic resource whose meanings are contingent, negotiated, and historically sedimented.

The interface between verbal and visual color language is the prototype. We have prototypes for white, black, red, green, yellow, and blue, but not for mixed colors (brown, pink, purple, orange, gray). Prototypes are universal and have evolved into cultural units (Eco 1996 [1985]) in all cultures and languages.

The Kent-Rosanoff's Free Word Association Test (1910) is in the toolkit of every psychology/ psychiatry graduate. The test is defined as "the study of ideas". The test works with natural language, i.e., the verbal language of colors. It is used also in consumer research. The test was designed for all European countries, USA, and Australia. A number of comparisons have been made, known as Comparisons among Word Association Responses in English, French, German, and Italian (Rosenzweig 1961). The Bulgarian Norm of Free Word Association with stimulus BCTs (Almalech 2001; Almalech 2011) includes samples of two testings. The method was evaluated using test and repeat data sets from the 1984 Norm (Gerganov 1984) and the 1996 test from (Almalech 2001), following the original (1910) instructions. Data proves that prototypes are the most frequent verbal associations of the BCTs. The Norm shows that there is another main, very frequent association – Terms for Basic Feature of the Prototype (TBFP) besides color: *pure*, *clean* for White, *hot* for Red, *fresh* for Green, *space* for Blue, and Black *makes things invisible*. All responses to stimuli BCT are considered a verbal presentation of color as a cultural unit. The responses explicitly state the secondary meanings of colors.

The Bulgarian Norm of Free Word Associations with stimulus BCTs reveals grammar features of color language. One intriguing aspect of this grammar is its ability to account for oppositions and similarities within and across color categories. Within the same color family, there can be subtle oppositions or contrasts – the phenomenon of "intra-color antonymy." Conversely, colors from different families may share comparable cultural or emotional connotations, an idea referred to as "inter-color synonymy." Such relationships underscore that the "rules" of color usage are not fixed; rather, they are flexible and context-dependent, much like how grammar in natural languages can shift meaning based on phrasing or emphasis. Intra-color antonymy reveals the layered complexity of color as a semiotic resource. It shows that within one apparently unified color, there can exist a spectrum of meanings that conflict or complement each other, all shaped by perceptual variations and contextual influences. This approach not only deepens our understanding of how colors function as a language but also bridges the gap between visual perception and cultural symbolism.

Unlike fixed grammatical rules in some linguistic systems, the grammar of color language is inherently dynamic, adapting to cultural contexts, historical mo-

ments, and individual experiences. In one context, the same hue, modified by different levels of brightness or saturation, might evoke contrasting emotions or symbolize entirely different cultural ideas. This fluidity mirrors the way syntactic structures in language can change meaning based on the surrounding context, thereby challenging scholars to think of color not as a static sign but as a living, evolving mode of communication.

4. Mutual elements of visual and verbal color languages

The color and the other main feature of the prototype are the basis of the cultural unit of color. They motivate the secondary (non-color) meanings of color, such as *love, hate, innocence, sin, righteousness, luck, health, funeral, tears, sadness, elegance, formality*, etc. All of them are Norm word (verbal) associations of the BCTs. These secondary meanings represent the human concepts and feelings that color can signify. Those concepts and feelings are not related to the influence of interior or exterior colors on human psychology. In the depths of the secondary meanings of verbal color lie personal, diverse visual impressions of the prototype. Nonverbal consciousness and the subconscious express both the prototype and the cultural units in verbal associations.

Umberto Eco's (1996 [1985]) term "cultural unit of color" includes both verbal and visual color (Almalech 2017b; 2021). The universal prototype becomes a cultural unit and part of rites of passage such as weddings and funerals. On the territory of Eurasia, the wedding code has remained unchanged for millennia. For a wedding, the traditional code is a red veil, which the Romans called a *flammeum*, red or yellow shoes (sandals), a white shirt, gold, and a green bouquet (Dana 1919). In these cases, we must recognize that there is a visual language of colors. It is most natural that in this language, there is Synchrony and Diachrony. There have been historical changes in the wedding dress. White became the predominant color after the second half of the 19th century. The reason – Queen Victoria and a postcard, on which she is depicted in a white dress, imitating her wedding. To this day, the traditional red, white, green and gold colors are used in rural areas of India, China, Bulgaria, and other countries of the European Union. The love of tradition offers a modern version of the traditional code. Thus, we come to the social aspect of visual colors, their Synchrony and Diachrony.

In 1990, Wierzbicka presented the interface between color prototypes and the B&K tradition. Anthropologists are the fiercest critics of the Berlin & Kay method. Their criticism takes into account various cultural, social, and cognitive differences between peoples and their natural languages. Wierzbicka, as a linguist became popular due to her Theory of semantic primitives.

5. To examine verbal colors *via* visual color

I applied Luscher's Color test (2001) to literary characters in a project at the Institute for Bulgarian language. How can you use a method based on visual color for verbal colors? In the late seventies, my M.A. thesis was dedicated to the work

of the Bulgarian writer Emiliyan Stanev – a writer with a rich palette of words for color. Fifteen years later, after carefully perusing Stanev's books, I compiled direct and indirect color characteristics. The indirect characteristic (interiors and exteriors) is treated as the first choice, and the direct one (description of thought and physics) as the second choice. The results confirm the hypothesis that the verbal color system in the novel repeats the textual information about the characters. This happens through the cognitive interface, which implants in the verbal text the visual prototypes and their secondary meanings. The ability of a writer to generate color characteristics does not determine whether a writer is good. Some authors don't use colors. Other authors are using colors, but the colors change over the years. For example, the early Dostoevsky most often used gray and pink. The late Dostoevsky used a lot of yellow. Solovyov (1979) believes that this is due to the progression of epilepsy and compares Dostoevsky to Van Gogh, when in the artist's later paintings, yellow is abundant.

6. Solutions

The objects of my study encompass two distinct semiotic domains: on the one hand, the biblical text and Bulgarian novels, which articulate the verbal language of colors; and on the other, traditional folk costumes and advertisements, which embody the visual language of colors. Taken together, these corpora allow for an exploration of color as a multimodal semiotic resource, situated at the intersection of linguistic, cultural, and perceptual systems.

An important place in the approach is the adoption of different classes of words that can signify a basic color category. The basic color terms are contextually independent. Prototype terms, Prototype rival terms, and Terms for one Basic Feature of the Prototype are context-dependent, e.g. purity for White, warmth for Red, freshness for Green. Together they form the verbal language of colors, in which I look for symbolic (secondary) meanings, e.g., the meanings of white 'blameless', 'the right way', 'righteous' in the Bible. These meanings have nothing to do with the visual hue, saturation, brightness, but with the Prototype basic feature – pure, clean. My approach requires that color prototypes and Prototype basic feature (e.g. pure, clean) be placed at the heart of color symbolism in a routine, unchanging text such as the Bible.

The next element of my approach is to treat the translation of the sacred text as a scale of evaluation. There are a number of phenomena such as inter-linguistic symmetry, asymmetry and dissymmetry. This means that there are linguistic facts from the Semitic language Hebrew that cannot be translated into an Indo-European language. Von Humboldt's terms *inner form* of the word and the *worldview* (Weltanschauung) (linguistic picture of the world) are useful here. Worldview should be understood as the original Humboldt's terms, but not as the interpretation of the Sapir-Whorf hypothesis, see Underhill 2009. The inner form of the word for separate colors is different for Hebrew *vis-à-vis* the Indo-European languages, therefore the worldview is different. In Hebrew, the root of the Basic Term Red [adòm]

derives the words for the prototype *blood* [dam], for *man* [adàm], and *ground* [adamà], the proper names *Adam*, and *Edom* (Almalech 2018a). This means a hermeneutic aspect of color language, that is, a study achieving a better understanding of the original content of the Bible. Other phenomena are the semiotic osmosis and rhizome (Almalech 2023).

Semiotic osmosis flows between Hebrew words and the corresponding terms in translations. It passes *via* the vehicle of the prototypes, their most typical features, and the process of somaticizing. Most of the English translations of Job 30:28, starting with the King James Version, give *go about in gloom* or *go about mourning* for Hebrew *go about blackened* [kodèr]. For green color, the osmosis is stronger. It flows between Hebrew TBFP and BCT in translations. Hebrew words *fresh* [raanàn] and *fresh* [av] appear in 12 cases as Basic Color Term *green* in many languages. At Genesis 30:37 Hebrew *moist* [lah] is translated often with BCT *green*. Details and many examples see in Almalech 2017a for green and 2018b for black. Semiotic osmosis proceeds not through synesthesia (white-warm, black-cold), but through the cognitive relationships of the Prototype (darkness) with the BCT (black) or the Basic Feature of the Prototype (fresh, moist) with the BCT (green).

Semiotic osmosis is a cognitive phenomenon while isotopy, from a structural semantic view, describes the coherence and homogeneity of texts. Semiotic osmosis allows the realization of symmetry from Hebrew to the Indo-European languages in black color. The predominant symbolic meanings of darkness are constant. They ensure coherence and cohesion concerning the symbolism of black in the text of the Old Testament. The symbolic meanings of darkness permeate translations. It is an isotopy, both textual and cultural.

The Rhizome (in terms of Deleuze, G. and F. Guattari (1980 [2004]) is in the Hebrew text. In Hebrew, the root of the basic term red [adòm] produces the words for the prototype blood [dam], for man [adàm], for the earth [adamà], and the proper names Adam, Edom. They are bound in one logic of the inner form in Hebrew (Almalech 2023). The red Hebrew rhizome is untranslatable. In addition to being an example of inter-linguistic dyssymmetry, this "red" Rhizome makes Lotman's (1994) idea of Text within the Text useful. The "red" rhizome exists alongside hierarchical structures for other colors in the Hebrew Bible. All metatextual links binding the members of the red Hebrew rhizome into a logical chain remain untranslatable. This fact is a hermeneutic problem.

The biblical text, as a verbal language of Colors, offers antonyms for the color red. In Isaiah 1: 18, red is a sign of sin: "Come now, let us reason together, says the Lord. Though your sins are like scarlet, they shall be as white as snow; though they are red [adòm] as crimson, they shall be like wool." 1 Samuel 16:12 describes the beauty of David with the BCT red [adòm] translated as ruddy in English: "[…] He was ruddy, with a fine appearance and handsome features […]." Bulgarian translations accommodate this to *рус* ("blond").

The strong association of the basic color term with the prototype and with the basic feature of the prototype is revealed through the Free Word-Associations Test

in the verbal association norm. The norm reveals language consciousness and subconscious.

In the linguistic subconscious, there is a stable relationship of the prototype with the basic color term, as well as the semanticization of colors with concepts from culture and emotions. The search for meanings of colors in the socio-cultural territory cannot be without the linguistic and cultural subconscious because it is a factor based on prototypes. The prototypes work on the approximation between visual and verbal language, as well as the differences between biblical and other texts. Folklore visual culture, as well as contemporary advertising culture, cannot be a decisive criterion for Hebrew and translated texts.

The method works successfully in the analysis of novels. Direct (thoughts and appearance) and indirect (interiors and exteriors) color characteristics of the characters are produced. The color characteristics in the novels are subjected to the Lüscher color test. The Direct is the second choice, and the indirect is the first choice of Lüscher. The test confirmed the hypothesis that individual writers build rich color characteristics that subconsciously repeat the information and parameters of literary characters. The application of Lüscher's visual test to literary characters (through the two color characteristics corresponding to the first and second choices) is the first time. This was possible with a computerized version of the test.

The method is linguistically-semiotic with the development of all types of words that denote color. The free word-association test is linguistic, but it clarifies the interface between verbal and visual – prototypes and their basic feature (e.g. purity for white), as well as their secondary meanings, e.g., *love, hate, anger* for Red, *freshness, life, tranquility, poison, health* for Green.

Last but not least, the interdisciplinary method successfully works to decipher the manipulative mechanisms of marketing and advertising, see "Rebranding the Marlboro with Colors" (Almalech 2019), for black and white, and in advertising (Almalech 2009).

7. Conclusions

There are cognitive limitations of colors as a sign system. There is no chance for people to communicate with visual colors in the legal sphere, in the court, and in parliament. The visual colors are highly symbolic in religious rituals and in rituals of passage. Verbal color language is hard to explore because different kinds of words can signify color. Both visual and verbal color languages depend on context, situation, and the philosophy of the visual or text conventions narrative. Although very slowly, visual symbols are subject to change on a diachronic plane. The verbal language of colors is fixed in sacred texts such as the Bible. Translations of the Bible reveal inter-linguistic symmetry, asymmetry, and dyssymmetry. The study revealed the link between verbal and visual color symbolism. These are the color and some typical features of prototypes. The knowledge of colors and the basic properties of the prototype are universals, which allow communication at an

unconscious level. It is the color and properties of the prototype that underlie the semantics of colors in cultures.

The semiotic osmosis is an original finding of the process by which signs, meanings, and cultural features "diffuse" across linguistic or semiotic boundaries to achieve functional equivalence.

The grammar of color language has its own set of rules, structures, and potentials for meaning-making. This framework deepens our understanding of visual communication by drawing parallels with traditional language, illustrating how limited basic elements can, through systematic variation and context, produce a rich and complex semiotic system. This approach integrates both the sensory experience and the cultural connotations that emerge as we assign names and associations to these percepts.

My approach to color theory represents a decidedly unique departure from traditional models. Instead of focusing primarily on the physical or perceptual properties of color – as is common in classical models which explore color as a function of light wavelengths or modern optical theories – I situate color within a semiotic framework, emphasizing the structured and culturally loaded nature of color as a communicative system.

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ABBREVIATIONS

Colors

BCT — basic color terms
B&K — Berlin and Kay
PT — prototype terms
RT — rival terms of the prototype
TBFP — terms for the basic features of the prototypes
WCS —World Color Survey

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