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Vantage Theory of Color

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Synonyms

VT and color

Definition

Vantage Theory (henceforth VT) is a cognition-based model of color categorization proposed by a one-time student of Brent Berlin and Paul Kay, Robert E. MacLaury [1–6]. The model's major tenet is that humans construct color categories as one, two, or occasionally three vantages (i.e., points of view), a category being an assembly of its vantages.

Overview

Vantage Theory was proposed after MacLaury and his coworkers had conducted interviews with about 900 speakers of 116 Mesoamerican languages (Mesoamerican Color Survey, part of World Color Survey), later enriched with data from a wide spectrum of world languages. The interviews consisted of three procedures – *naming*, *focus selection,* and *mapping* – and were performed with the use of the Munsell set of color chips, 320 chromatic and 10 achromatic (Fig. 1).

First, in the procedure of naming, the informant was shown the chips one by one in random order and asked to name each. The naming ranges of each color term were then marked on the derandomized array. Next, the informant was asked to choose the focus (best example) of each color term used. Finally, he/she was shown the arranged set without the naming ranges and asked to indicate all chips he/she would refer to with a given term. This process of mapping proceeded in incremental steps, until the informant refused to continue. Thus, the naming range, the focus/foci, and the mapping range of each term were elicited.

Parallelisms between the categorizing behavior of informants and spatiotemporal orientation were observed, the analogy being drawn in an instinctive and neurally expedited manner. While constructing a color category, a person anchors their cognition in a given dimension of color (hue, brightness, or saturation) and relates color stimuli to that fixed coordinate through similarity or its lack. The fixed coordinate is a categorical equivalence of spatial landmarks, whereas attention to similarity or difference arises by analogy to experiencing relative motion. Constructing a color category is here illustrated with a hypothetical example in Fig. 2.

On level 1, the category is endowed with the blue focus, the starting point for category construction, and a range of color stimuli similar (*S*) to the category focus. When the categorizer starts emphasizing difference (*D*) more than similarity, the category is curtailed at a margin. Through an analogy to motion, VT defines color similarity and difference as reciprocal and gradable, with the

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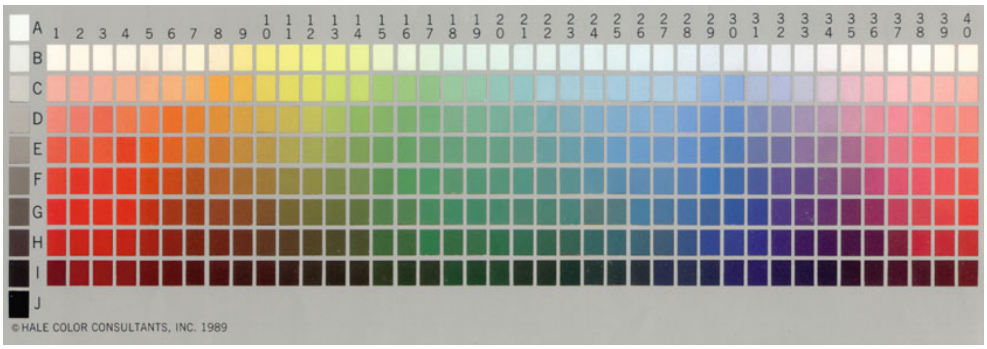

Fig. 1 The Munsell color array. The horizontal axis hue, from *red* to *purple*, severed in the middle of *red* at column 40. The vertical axis is for brightness. All chips at maximum saturation. On the *left*: ten achromatic colors, from *white* to *black* (© Hale Color Consultants, Inc. Reproduced with permission)

Levels	Fixed Coordinates		Mobile Coordinates	Entailments
1	Bu		S	focus, range
		⇗		
2	S		D	breadth, margin

Fig. 2 Modeling of the blue category in VT. *Bu* blue focus, *S* attention to similarity, *D* attention to difference

endpoints of the cline being total identity and complete disparity. Speakers can shift their attention by moving between the two extremes. Hue (most commonly), brightness (less so), or saturation (rarely) can function as *inherently fixed coordinates*, whereas *S* and *D* are *inherently mobile*: each type can become the other for immediate purposes of constructing a figure-ground arrangement of coordinates (where the fixed coordinate is the ground or "given" and the mobile coordinate is the figure or "new"). This, however, does not deprive either type of its fixed or mobile status, respectively. S and D are indispensible, whereas the inherently fixed coordinates depend on the domain of categorization. VT emphasizes hue, brightness, and saturation as important color dimensions based on the implied salience of these perceptual features that is typically found in perceptual experience. If the salience of these dimensions were nonuniform, or if other dimensions took precedent over hue, brightness, and saturation experience, then VT analyses could still be applied to these alternative constructs in a similar fashion.

The ground-to-figure arrangement, in which a mobile coordinate is fixated to serve as ground for the introduction of a new value, is called a *vantage*. Crucially for the categorizing process, there may be two or sometimes three vantages (points of view) on a category, the category being the sum or assembly of the vantages that compose it. In space-time, the same event involving motion is perceived differently depending on one's location (e.g., on a train vs. while standing by the track). As an example of point of view in color, consider the hypothetical cool category in Fig. 3, named with two terms, *x* and *y*. The two points of view are the blue-focused similarity-based *dominant* vantage and the green-focused difference-based *recessive* vantage. They are characterized by a reversal of coordinates that swaps an emphasis on similarity to the focus with an emphasis on difference from the focus.

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	DOMINANT VANTAGE *x*			RECESSIVE VANTAGE *y*		
Entailments	Fixed Coordinates	Mobile Coordinates		Fixed Coordinates	Mobile Coordinates	Entailments
focus, range	Bu	S	1	Gn	D	focus, margin
	⇗			⇗		
breadth	S	Gn	2	D	Bu	curtailment
	⇗			⇗		
margin	Gn	D	3	Bu	S	range

Fig. 3 Modeling of the cool category in VT

Table 1 Characteristics of the dominant and recessive vantages. Elemental colors are "the purest, most intense perceptions" of red, yellow, green, blue, white, and black [1, p. 467], although black and white are traditionally not treated as colors. Elemental colors have their specific locations in the Munsell array, cf. Fig. 4

Dominant vantage	Recessive vantage
Greater number of chips covered	Smaller number of chips covered
Range more concentrated – over a more compact area	Range more dispersed – over a larger area
Focus more centralized relative to elemental colors	Focus less centralized relative to elemental colors

In the blue-focused dominant vantage, the emphasis on *S* is juxtaposed with *Gn* (green), the second focus of the category, which is then juxtaposed with *D*. The recessive vantage starts with the *Gn* focus. However, here the categorizer first establishes the boundary of the vantage by concentrating on difference vis-à-vis a blue category focus, *Bu*, which is introduced as a mobile coordinate on level 2 but returns to its inherently fixed capacity on level 3. There, it is treated as (weakly) similar to *Gn*, the process defining the range of the vantage.

Together, two vantages as points of view are the way VT models the complexity of categories that is seen in the empirical data. According to VT analyses, in such data one can explain the existence of cool or warm categories as the cognitive trading-off of emphases of similarity and difference.

The most important differences between the two vantage types are listed in Table 1.

Figure 4 illustrates these differences with the cool category in Zulu.

The dominant *hlaza* names 62 chips, as opposed 56 for the recessive *kosazana*, but it only spans 20 columns vs. 25 that *kosazana* does. *Hlaza* is focused in G28, which is very near elemental blue in F29, whereas *kosazana*'s first focus (the second focus being disregarded for the present purposes) falls on C17, as many as three rows above elemental green in F17 (interestingly, elemental green in F17 is named with the blue-focus *kosazana*). These visible effects (entailments) of the two points of view on the category are like a person's spatiotemporal location being determined through reference to stationary and moving objects.

Semantic Relations Between Vantages

In addition to modeling color dimension relations as just described, there are also three major types of semantic relations between the dominant and recessive vantages (*near synonymy*, *coextension,* and *inclusion*) that influence the ways color is ultimately categorized. These are "segments of a continuum, not discrete kinds of relation" [1, p. 112].

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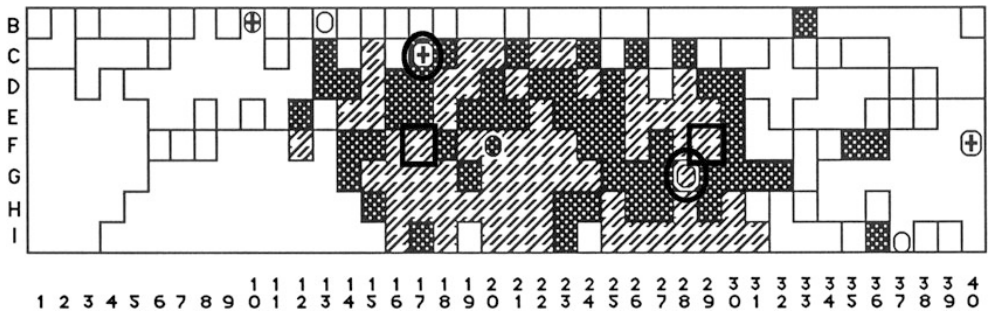

Fig. 4 Naming and focusing of the cool category in Zulu (Bantu group, Niger-Congo family). *Lighter hatching* blue-focused dominant *hlaza*, *darker pattern* green-focused recessive *kosazana. Dark squares* elemental blue (F29) and elemental green (F17). *Dark ovals* foci for *hlaza* (G28) and *kosazana* (C17) (Figure received by the author from Robert E. MacLaury)

In near synonymy, the vantages are very much alike in terms of focus selection and range, and the differences are minimized. An example is the warm category, termed *he* and *lu*, constructed by a speaker of Jicaque (or Tol), an isolate spoken in Honduras [1, p. 123].

Coextension is a unique kind of relation and requires more attention. The fullest account can be found in [1]; see also [2–4]. Coextension was first observed in the warm category of Uspantec (Uspanteco), a Mayan language of Guatemala, and later in many interviews in Mesoamerica and elsewhere. The first four characteristics below are more common than the remaining ones, though all are subject to some degree of variation:

1. One category is named with two different root terms.
2. Each of the two terms is focused in reference to a different elemental hue.
3. The mapping of each term encompasses the focus of the other.
4. There is substantial overlap of the mapping of the two terms.

The more variable features are:

1. Mappings of the two ranges progress in opposite directions.
2. Naming ranges are intermixed, so that chips named with one term may be surrounded by those named with the other.
3. Foci of one or sometimes both terms are polarized, moderately when a term is focused between the category margin and the relevant elemental hue, in extreme cases when the focus falls outside the naming range of the term.

Figure 5 shows coextension in an early phase (closer to near synonymy than to inclusion).

Another example is the Zulu cool category in Fig. 4.

Coextension cannot be explained solely in terms of perceptual dimensions; instead, it is the observer who "assumes opposite slants on the same sensations and names them differently from each angle" [1, p. 113]. Coextension can thus be thought of a variable semantic bias or strategy. This provides a strong argument in favor of subjectivity and speaker agency in categorization and meaning construction.

In inclusion, the naming and/or mapping ranges of the subordinate (recessive) term fall inside that of the superordinate (dominant) term. This happens when, as a result of strong attention to *D*, one of

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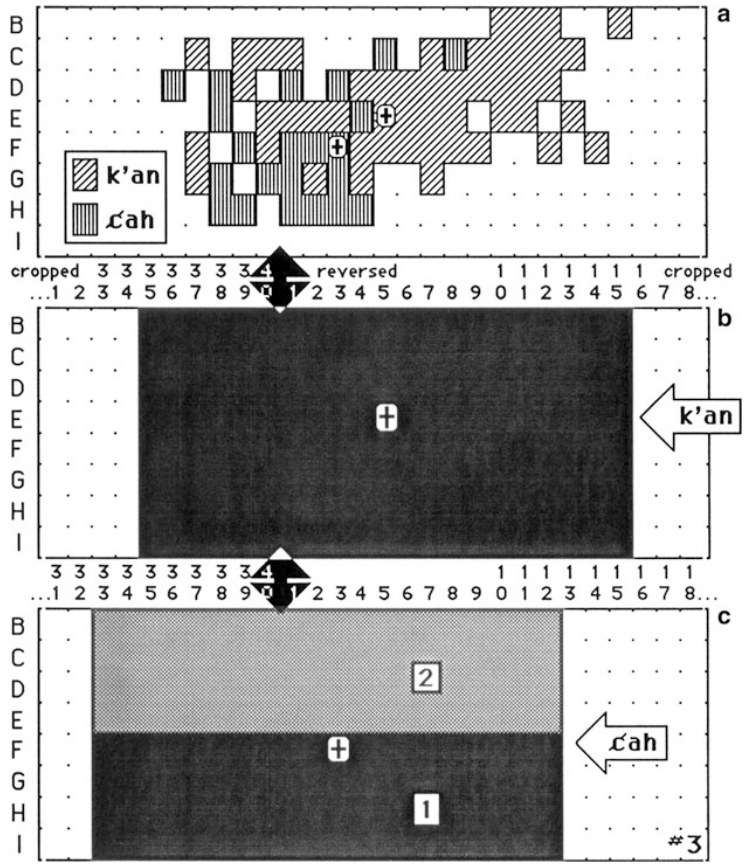

Fig. 5 Coextension in an early phase. Warm in Tzeltal (Mayan, Tzeltalan), Paraje Nabil, Tenejapa, Chiapas, Mexico, male 65, 1980, **a** naming and foci, **b**–**c** mappings (Figure received from Robert E. MacLaury)

the ranges tends to "drift away" but both still share fixed cognitive coordinates. An example is the warm category in a speaker of Aguacatec (Awakateco), a Mayan language of Guatemala [1, pp. 195–196, e.g., 4].

When the strength of *D* rises even more, the cognitive link between the vantages is broken and the two ranges separate: inclusion becomes *complementation*, a relation between the dominant vantages of distinct categories. Extreme value of *D* causes category split.

Finer Distinctions

VT models finer aspects of color categorization as *frames*, *stress*, and *viewpoints*.

A frame is a closed system of interdependent parameters, such as emphases on *S* vs. *D*. Occasionally, three vantages on a category are constructed, e.g., in the warm category in Aguacatec [1, pp. 115–116]. In a non-framed analysis, the three vantages are called *dominant*, *recessive,* and *ultra-recessive*, but a framed analysis links the dominant and the recessive terms (the red-focused $k^y aq$ and the yellow-focused *q'an*) into frame I, while the recessive and the ultra-recessive terms (*q'an* and the brown-focused $sq'inko^?x$) constitute frame II. In frame II, the relationship between the recessive and the ultra-recessive term is analogous to that between the dominant and the recessive

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term in frame I. Thus, the terms *dominant*, *recessive*, and *ultra-recessive* are relative rather than absolute.

Stress is mental proximity to either the fixed or the mobile coordinates in a vantage. In the color domain, stress may be put on hues or on relations between them. In the former case, one of the hues may "draw" the category to itself – this is called *skewing* [7]. The category may thus divide, as happened in the Mayan language of Kekchí (Guatemala, Belize and El Salvador) [5, p. 57]. In the latter case, focus placement may be random, foci may substitute for each other, and mismatches may be observed between naming ranges, foci and mappings both for a single speaker and between informants. Informants may maintain the dominant-recessive pattern without preference for which hue is dominant or recessive: the pattern itself seems to be more important than the hues on which it is based. Stress on mobile coordinates has been noted in Mazatec (or Huautla, Oto-Manguean, Mexico) [1, pp. 312–315, 5, pp. 58–59] or Mam (Mayan, Guatemala) [1, pp. 294–306]. The behavior is consistent and appears chaotic only for speakers used to stressing fixed coordinates, as those of English.

Viewpoints are gradable degrees of subjectivity/objectivity with which a person constructs a category or conceptualizes an object or scene [1, pp. 280–283, 4, pp. 528–529, 5, pp. 44–49, 54]. The notion has been found useful in modeling several Mesoamerican languages (Nahuatl, Cakchiquel, Northern Tepehuán, Quiché, Chinantec, or Lacandón). It is a good example of how VT can be extended beyond color: the conception has been applied in several accounts of linguistic behavior [1, p. 284, 8, 9].

Other Notions

Although originating in the color domain, VT is claimed to have universal application and pertain to categorization at large. Aspects of VT not discussed here include, among others, brightness-based categories; full vs. partial inversion of coordinates; submerged vs. reflective vantages; the role of *S* and *D* in categorical evolution; the flip-flop, or oscillation, of color term meanings; dual and triple foci; non-discriminatory vs. analytic vs. synthetic thinking; the spotlight effect; and more [1, 2, 4]. On a more general level, VT relates to the question of linguistic relativity, representing a non-Whorfian stance but one which endorses variety in linguistic behavior. The variety, however, occurs within a cognitively universal but plastic mechanism of categorization [3].

Vantage Theory's Unique Contributions

With VT, MacLaury has contributed to research on color categorization in three major ways. First, he has redefined the notion of a category, traditionally identified with a color term. In VT a term names a vantage on a category, and there may be one, two, or occasionally three such vantages. Second, the scholar has identified, defined, and modeled coextension, a relation between vantages that at face value appears chaotic or indicative of errors in data elicitation. Third, VT stresses individual variation and personal preference in color categorization. It is an attempt to model the variation and reconcile it with both the classical perceptual constructs of hue, brightness, and saturation and cognitive emphases on similarity and difference. Vantages on categories help to systematically explain how the same stimuli may be differently interpreted by different individuals but also how the same individual might interpret the same stimuli as different on different occasions.

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Future Directions

So far, with few exceptions, VT has remained largely dormant though full of potential. In order to utilize this potential, it is proposed that the theory should be made more accessible to the color research community by producing textbook-type publications (a noteworthy precedent is Sect."9.3" of [10], though it remains isolated and rather limited in scope). Also, because of its author's premature passing, VT is still open to extension and elaboration.

Cross-References

► Berlin and Kay Theory
► World Color Survey

References

1. MacLaury, R.E.: Color and Cognition in Mesoamerica: Constructing Categories as Vantages, 1st edn. University of Texas Press, Austin (1997/2011)
2. MacLaury, R.E.: Vantage theory. In: Taylor, J.R., MacLaury, R.E. (eds.) Language and the Cognitive Construal of the World, pp. 231–276. Mouton de Gruyter, Berlin (1995)
3. MacLaury, R.E.: Linguistic relativity and the plasticity of categorization. In: Pütz, M., Verspoor, M. (eds.) Explorations in Linguistic Relativity, pp. 251–293. John Benjamins, Amsterdam (2000)
4. MacLaury, R.E.: Introducing vantage theory. Lang. Sci. **24**(5–6), 493–536 (2002)
5. MacLaury, R.E.: Vantage theory in outline. http://serwisy.umcs.lublin.pl/adam.glaz/vt/VT-Outline.pdf (1999). Accessed 7 Dec 2011
6. Allan, K.: Categorizing percepts: vantage theory. In: Brown, K. (ed.) Encyclopedia of Language and Linguistics, 2nd edn, pp. 252–253. Elsevier, Oxford (2005)
7. MacLaury, R.E.: Skewing and darkening: dynamics of the cool category. In: Clyde, L.H., Maffi, L. (eds.) Color Categories in Thought and Language, pp. 261–282. Cambridge University Press, New York (1997)
8. Głaz, A.: Let me hear you talk and I'll tell you where you are. Naukovi zapysky Nizhynskogo Derzhavnogo Universytetu imeni Mykoly Gogola. Filologichni nauky (Research Papers of Nizhyn University. Philology), pp. 90–97 (2007a)
9. Głaz, A.: Vantage theory: a newcomer to the cognitivist scene? In: Fabiszak, M. (ed.) Language and Meaning, pp. 91–112. Peter Lang, Frankfurt am Main (2007)
10. Allan, K.: Natural Language Semantics. Blackwell, Oxford (2001)