

## **Colours on hands: Phonological markedness of sign language color terms**

**Background.** The notion ‘basic color term’ (BCT) was first defined by Berlin & Kay (1969, B&K). Based on a sample of 98 spoken languages, B&K argued that languages show considerable variation in their BCT systems, but that the attested variation is constrained by a hierarchy according to which BCTs appear in a language in a predictable order. B&K identify seven stages of complexity in this hierarchy. E.g., if a language has three BCTs, these will always be ‘black’, ‘white’, and ‘red’, and the language is at stage II; see Figure (1).

To date, only few studies tried to apply the BCT-model to sign languages (SLs). Woodward (1989) investigates 10 SLs and argues that they follow the patterns identified by B&K. Nyst (2007), however, points out important methodological problems. She observes that color signs commonly involve pointing or fingerspelling – aspects that are problematic for B&K’s definition of BCTs.

Given the above methodological problems, we approached SL color terms from a different perspective, the perspective of phonological markedness. Our working hypothesis was that across the different stages in (1), color signs increase in phonological markedness, i.e. there is a reverse correlation between the ‘basicness’ of a color and the markedness of the corresponding sign.

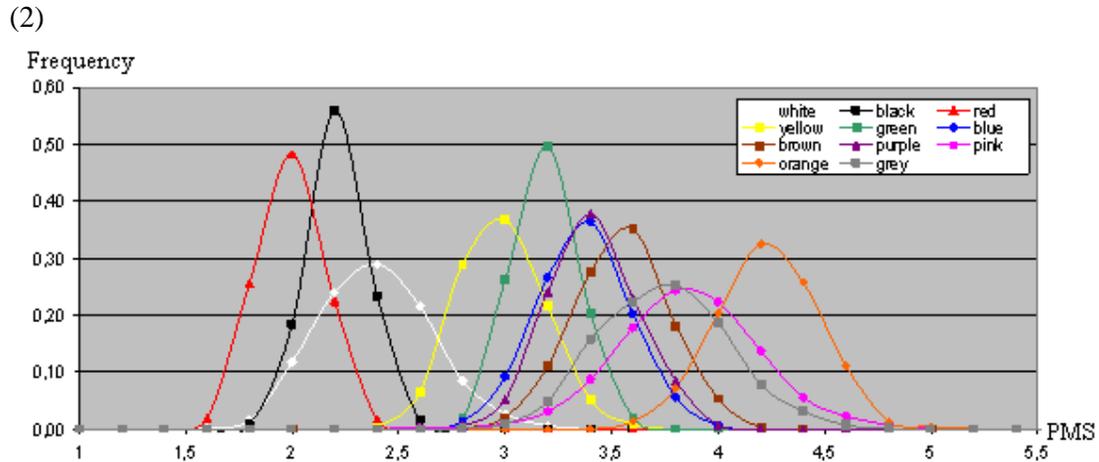
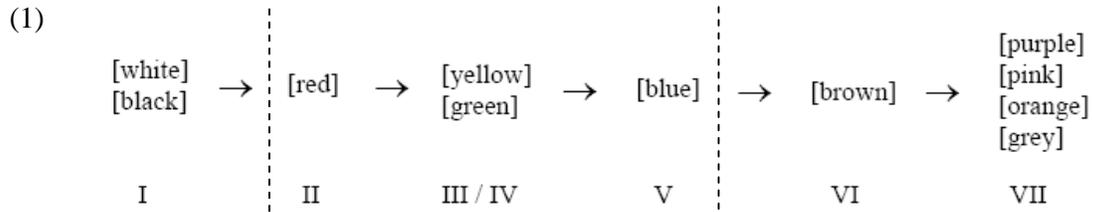
**Methodology.** First, mono-morphemic color terms were collected from online and print dictionaries of 14 SLs. We extracted all color signs that correspond to the BCTs in (1), including synonyms. This procedure yielded a total of 183 color signs. Second, we developed a Phonological Markedness Score (PMS), which, based on Sandler’s feature hierarchy (Sandler & Lillo-Martin 2006), assigns markedness values to the parameters handshape (including two-handedness), movement, and location. Applying insights from acquisition studies, the parameters were not weighted equally; the maximum total score is 10.

All signs were evaluated according to the PMS. Scores ranged between 1.6 and 6. In addition, the data were subjected to a bootstrapping analysis, a re-sampling procedure that can estimate variation resulting from idiosyncrasies of the original sample. For our purpose, we calculated PMS of 1000 random samples of the original sample. Bootstrapping allows for a more precise picture of the distribution of PMS per color.

**Results.** Following suggestions by Kay & McDaniel (1978), stages I-VII were grouped into three subgroups: Subgroup 1 (stage I), subgroup 2 (II-V), and subgroup 3 (VI-VII). Comparing PMS of signs from different subgroups, a clear picture emerges: within SLs as well as across SLs, color signs increase in phonological complexity across stages. Figure (2) presents the pooled results for all SLs from the sample. While there is variation for each color w.r.t. PMS, the peaks of the curves progress towards more marked values across subgroups and, to a lesser extent, across stages. Three color signs from Swedish SL illustrate this pattern (3). A notable exception is ‘red’ which has the lowest average PMS, contrary to prediction.

We will argue that the indexicality and frequency of color signs contribute to this interesting pattern. In our sample, pointing signs are most frequent for ‘red’, and pointing signs are generally unmarked. The difference between subgroups 2 and 3, on the other hand, probably reflects frequency of use.

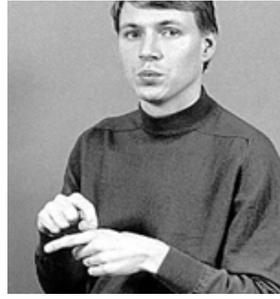
(517 words)



(3) Swedish Sign Language



BLACK (PMS 2.18)



YELLOW (PMS 2.78)



PINK (PMS 4.42)  
(involves handshape change)

**References**

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