

**Please cite as:**

Majid, A., & Levinson, S. C. (2007). The language of vision I: colour. In A. Majid (Ed.), *Field Manual Volume 10* (pp. 22-25). Nijmegen: Max Planck Institute for Psycholinguistics. doi:[10.17617/2.492901](https://doi.org/10.17617/2.492901).

---

**REGULATIONS ON USE**

**Stephen C. Levinson and Asifa Majid**

This website and the materials herewith supplied have been developed by members of the Language and Cognition Department of the Max Planck Institute for Psycholinguistics (formerly the Cognitive Anthropology Research Group). In a number of cases materials were designed in collaboration with staff from other MPI departments.

**Proper citation and attribution**

Any use of the materials should be acknowledged in publications, presentations and other public materials. Entries have been developed by different individuals. Please cite authors as indicated on the webpage and front page of the pdf entry. Use of associated stimuli should also be cited by acknowledging the field manual entry. Intellectual property rights are hereby asserted.

**Creative Commons license**

This material is provided under a Creative Commons Attribution-NonCommercial-ShareAlike license (CC BY-NC-SA 4.0). This means you are free to share (copy, redistribute) the material in any medium or format, and you are free to adapt (remix, transform, build upon) the material, under the following terms: you must give appropriate credit in the form of a citation to the original material; you may not use the material for commercial purposes; and if you adapt the material, you must distribute your contribution under the same license as the original.

**Background**

The field manuals were originally intended as working documents for internal use only. They were supplemented by verbal instructions and additional guidelines in many cases. If you have questions about using the materials, or comments on the viability in various field situations, feel free to get in touch with the authors.

**Contact**

Email us via [library@mpi.nl](mailto:library@mpi.nl)

Max Planck Institute for Psycholinguistics

P.O. Box 310, 6500 AH, Nijmegen, The Netherlands

# THE LANGUAGE OF VISION I: COLOUR<sup>1</sup>

Asifa Majid & Stephen C. Levinson

<b>Project</b>	Categories and concepts across language and cognition
<b>Task</b>	Linguistic elicitation for colour vocabulary using “colour booklet”
<b>Goal of task</b>	To investigate how languages encode colour – specifically (1) whether there is dedicated vocabulary for encoding colour and (2) how much consistency there is within a community for describing colour.
<b>Prerequisite</b>	You must have consulted “Language of perception” (pp. 10-21). To conduct this task you need – (i) colour booklet, (ii) colour-blindness plates

## Background

Colour is a domain thought to be universally lexicalised. Berlin and Kay (1969) suggested that all languages draw from a limited set of basic colour categories. Furthermore, they proposed that as colour vocabulary increases in a language there is a fixed progression of what terms appear when. The World Colour Survey has given weight to these claims in recent years. Based on colour naming data from 110 unwritten languages, Kay and Regier (2003) have shown that colour terms from different languages cluster together in colour space more than one would expect by chance and that the best examples of colour terms in these different languages cluster near focal colours (Regier, Kay & Cook, 2005). This is not to deny that there are differences in colour vocabulary (e.g. in the number of basic terms – Berlin & Kay 1969) but the overall story for colour naming has been largely one of universalism (see Kay & Regier 2006, 2007).

However, the story is not quite so simple. Some languages appear to lack colour terms completely or partially (Yélf Dnye, Levinson 2000; Pirahã, Everett 2005). Languages differ in whether colour is encoded as an abstracted property – something independent of the object supporting it. Hanunóo colour terms also encode dryness/desiccation and wetness/freshness (Conklin 1955). Zuni has two lexemes for referring to “yellow” – one refers to an intrinsic property (e.g. yellow shirt, yellow paint), while the other refers to something that has become yellow as the result of aging or ripening (e.g. yellow skin, yellow leaves) (Newman 1954, Hickerson 1975).

This suggests, in some languages, colour is not treated as an abstract, objective property “out there” in the world. But rather is more closely tied to the object or source – as odour properties are for English speakers (Dubois 1997). Why this difference? According to Allen (1879) colour terms appear when the attribute of colour helps to distinguish amongst objects that are otherwise similar. The availability of dyes and pigments makes abstract colour terms felicitous to talk about a feature irrespective of the object it is found on. So in communities where objects appear in their natural colour there may be no communicative need to develop an abstracted colour vocabulary. (To test this hypothesis would require an ethnography of our fieldsites as indicated in the section “Language of perception” ).

Here we are focussing on the codability of colour terms. Despite the cases noted above, colour is likely to be more codable across languages than some of the other domains under

---

<sup>1</sup> Thanks to Debi Roberson for advice on the selection of stimuli used in this study.

consideration, such as smell. There are, of course, differences in how codable specific colours are even within a single language (Brown & Lenneberg 1954) with focal colours being more codable than non-focal colours. Nevertheless, this domain provides a good baseline for comparison when establishing possible “ineffables”.

We also leave aside the Whorfian question of whether colour naming affects colour cognition which has been the subject of much recent work (e.g. Davidoff, Davies & Roberson 1999, Drivonikou, Kay, Regier, et al. 2007, Gilbert, Regier, Kay et al. 2006, Roberson, Davies & Davidoff 2000, Winawer, Witthoft, Frank et al. 2007). We are solely concerned with the linguistic coding of colour in this study.

### **Research questions**

What terms are there for abstracted colour (as opposed to colour plus material, colour plus texture etc.)? What form class are colour distinctions made in? In your language, how nameable are colours? How much consistency is there within the speech community for describing colour? Are focal colours more codable than non-focal colours?

### **Task**

The task is designed to elicit vocabulary for colour using a subset of the Munsell chips from the World Colour Survey. The primary goal is to establish how people talk about colour and what resources the language provides for doing so.

### ***Consultants***

Aim to test 12 participants. Keep a note of participant's age (approximate age is fine), gender, and full linguistic background.

### ***Stimuli***

The colour kit is a single booklet with 80 pages, each page containing a single colour chip. The stimuli are standardised Munsell colours which are also used in the World Colour Survey. However, this is a reduced version. The full kit has 330 colour chips – 320 chips sampled with 40 equally spaced hues, 8 degrees of brightness, all maximum saturation, plus 10 achromatic chips. This version sampled 20 equally spaced hues at 4 degrees of brightness all at maximum saturation. The chips are organised in a fixed random order.

There are also 2 stand alone laminated cards. These colour plates test for colour-blindness and are used for screening before conducting the naming task.

### ***Procedure***

Remember to video~audio-tape your session.

First, test your consultant for colour-blindness. This is a very simple task. You have 2 colour plates, made up of colour patches of different colours. Place the colour plates around 75 cm away the consultant. Ask the consultant to trace (with their index finger) the winding lines between the two x's. The tracing should be completed within 10 seconds.

Plate 1 (No. 21) – normally sighted trace the orange line but the majority of colour-blind are unable to follow this line. They may follow a different line.

Plate 2 (No. 18) – normally sighted trace the purple and red lines. In protanopia and strong protanomalopia only the purple line is traced. In deuteranopia and strong deuteranomalopia only the red line is traced.

If your consultant is unable to trace the indicated line, or takes an inordinate amount of time to do so, this may be evidence of colour-blindness. Do not pursue the naming task with them.<sup>2</sup>

For the naming task, present the consultant with the first page of the colour booklet and ask the consultant in their native language *What colour is this?* As noted in the section on “Language of Perception” many languages do not have a word for colour. In such cases alternative formulations such as *How has it been dyed? How does it strike the eye? What is its appearance with respect to red, blue, etc.?* have been suggested by the World Colour Term Survey: Instructions to field workers (Berlin, Kay & Merrifield 1976).

**NOTE:** Try to focus your consultant to produce one-word descriptions where possible. We are interested in the most concise codification of colour names where they exist in a speech community, rather than elaborate ad-hoc circumlocutions.

Present the colours to your consultant in a fixed order as in the booklet. Present page 1 and ask for a description of the colour and then proceed to page 2, and so on till all the colour chips have been named.

### **Analysis**

Each consultant’s response will be coded for word/phrase/construction used to describe colour. This will then be analysed for (1) consistency across consultants and (2) category of response, i.e., are responses (a) evaluative, (b) descriptive, or (c) source-oriented.

### **Outcome**

Data will contribute to a description of the “grammar of perception” in the field language, intended for a collected volume. The pooled cross-linguistic data will also contribute to an overview publication on the encoding of the senses across languages.

### **Optional post-task elicitation**

Note that a complete analysis of a colour system in a language would need to take into consideration the use of the terms elicited beyond the Munsell colour chips (see Lucy 1997 and Wierzbicka 1996 for a critique of the use of this approach). A wider referential range can be tested while in the field to establish whether colour is an abstracted property. Furthermore, distributional facts need to be taken into consideration. Note the form class that colour terms come from. In English, Dyirbal and Japanese colour terms appear as adjectives, but in Chinook they are particles and in Samoan and Bemba verbs (Dixon, 1982). Even within a single language colour terms can be coded in different word classes. In the Zuni system colour is encoded in verbs as well as nouns and particles (Hickerson 1975). Use the procedures outlined in “Language of Perception” entry to investigate colour more thoroughly.

---

<sup>2</sup> Note, there is a fascinating issue about how colour-blind, and more generally, completely blind individuals learn the colour terms of their language. In a study of individuals with different types of blindness, Shepard & Cooper (1992) showed intriguing evidence of what information about colours can be obtained from language alone – and also what cannot!

## References

- Allen G. (1879) *The Colour Sense: Its Origin and Development*. London: Trubner & Co.
- Berlin, B. & Kay, P. (1969). *Basic Color Terms: Their Universality and Evolution*. Berkeley: University of California Press.
- Brown, R. W. & Lenneberg, E. H. (1954). A study in language and cognition. *Journal of Abnormal and Social Psychology*, 49, 454-462.
- Conklin, H. C. (1955). Hanunóo color categories. *Southwestern Journal of Anthropology*, 11, 339-344.
- Davidoff, J., Davies, I. & Roberson, D. (1999). Colour categories of a stone-age tribe. *Nature*, 398, 203-204.
- Drivonikou, G. V., Kay, P., Regier, T., Ivry, R. B., Gilbert, A. L., Franklin, A. & Davies, I. R. L. (2007). Further evidence that Whorfian effects are stronger in the right visual field than the left. *PNAS*, 104, 1097-1102.
- Dubois, D. (1997). Cultural beliefs as nontrivial constraints on categorization: Evidence from colors and odors. *Behavioral and Brain Sciences*, 20, 188.
- Everett, D. (2005). Cultural constraints on grammar and cognition in Pirahã: Another look at the design features of human language. *Current Anthropology*, 46, 621-46.
- Gilbert, A., Regier, T., Kay, P. & Ivry, R. (2006). Whorf hypothesis is supported in the right visual field but not the left. *PNAS*, 103, 489-494.
- Hickerson, N. P. (1975) Two studies of color: Implications for cross-cultural comparability of semantic categories. In M. D. Kinkade, K. L. Hale & O. Werner (Eds.), *Linguistics and Anthropology: In Honor of C.F. Voegelin* (pp. 317-330). Lisse: The Peter de Ridder Press.
- Kay, P. & Regier, T. (2003). Resolving the question of color naming universals. *PNAS*, 100, 9085-9089.
- Kay, P. & Regier, T. (2006). Language, thought, and color: Recent developments. *Trends in Cognitive Sciences*, 10, 51-54.
- Kay, P. & Regier, T. (2007). Color naming universals: The case of Berinmo. *Cognition*, 102, 289-298.
- Levinson, S. C. (2000). Yéli Dnye and the theory of color terms. *Journal of Linguistic Anthropology*, 10, 1-53.
- Lucy, J. A. (1997). The linguistics of "color". In C. L. Hardin & L. Maffi (Eds.), *Color Categories in Thought and Language* (pp. 320-346). Cambridge: Cambridge University Press.
- Newman, S. (1954). Semantic problems in grammatical systems and lexemes: A search for method. In H. Hoijer (Ed.), *Language in Culture* (pp. 82-91). Chicago: University of Chicago Press.
- Regier, T., Kay, P. & Cook, R. S. (2005). Focal colors are universal after all. *PNAS*, 102, 8386-8391.
- Roberson, D., Davies I. & Davidoff, J. (2000) Colour categories are not universal: Replications and new evidence from a Stone-age culture. *Journal of Experimental Psychology: General*, 129, 369-398.
- Shepard, R. N. & Cooper, L. A. (1992). Representation of colors. *Psychological Science*, 3, 97-104.
- Wierzbicka, A. (1996). *Semantics: Primes and Universals*. Oxford: Oxford University Press.
- Winawer, J., Witthoft, N., Frank, M., Wu, L., Wade, A., & Boroditsky, L. (2007). Russian blues reveal effects of language on color discrimination. *PNAS*, 104, 7780-7785.