

The indispensability of olive green (λαδί) in Greek colour lexicon

Dimitris Mylonas¹, Andrew Stockman², Alexandros Koliouisis¹, Jonathan Stutters³, Rhea Eskew⁴,

¹New College of the Humanities, Northeastern University, ²Inst. Ophthalmology, University College London, ³Inst. Neurology, University College London, ⁴College of Science, Northeastern University

Colour vision influences the selection and evaluation of food. For example, greenish shades of olive oil are often associated with stronger and yellowish with lighter flavours. We focus on the status of the colour term *ladi/λαδί* (olive green) in Greek colour lexicon that has received comparatively less attention despite its importance in Mediterranean diet.

An ongoing colour naming experiment was designed to collect unconstrained names for presented colour samples over the Internet (<https://colournaming.org>). Participation was voluntary and anonymous. Uniform colour stimuli of ~2 degrees of visual diameter were presented against a neutral grey background. In response to each stimulus, subjects typed any colour descriptor of any number of words in a set of languages. Each subject named 20 stimuli randomly from 600 Munsell colour samples in total. Here, we considered 10,000 raw responses from 500 Greek speakers. We excluded disruptive responses, responses from subjects with possible colour deficiencies and idiosyncratic responses from single observers. This filtering resulted in a dataset for 427 respondents. Their mean age was 32 years (SD=10).

We found 355 distinct Greek colour names and quantified their basicness using an information theoretic measure, called dispensability, that combines their frequency and consensus among subjects to identify which colour names cannot be replaced with any other name (Mylonas et al., 2018). Dispensability produced a graded scale of basicness where all 11 Basic Colour Terms (BCTs; *mov*-purple, *roz*-pink, *portokali*-orange, *kitrino*-yellow, *kafe*-brown, *mavro*-black, *ble*-blue, *prasino*-green, *kokkino*-red, *lefko*-white, *gri*-grey) have lower scores (1.2-1.61) than non-BCTs (1.61-4.3). We found no evidence for the priority of primary over secondary basics. Yet, we identified the largest gap in dispensability score (0.3) between the first 13, including *ladi* and *galazio* (sky blue) and the rest 342 colour names. *Ladi* plays a crucial role in the diet and culture of Greeks but the indispensability of the corresponding category is also evident in British (20th) and in American (17th) English (Mylonas et al., 2020).

Our findings support the extension of the Greek inventory from the 11 BCTs to 13 by the addition of *ladi* and *galazio* (Androulaki et al., 2006). We conclude that communication efficiency for object colours provides a better framework to understand the augmentation of colour lexicons than opponent colour theory.