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*Serakioti Dimitra***AN EXPERIMENTAL APPROACH TO  
THE BASIC COLOUR TERMS I  
IN MODERN GREEK: THE CASE OF  
*bl̥, ɣalɔzjo, ɣalany***

**Serakioti Dimitra**, *University of Athens, Department of Philology*  
*PhD Candidate*

*BA, Master of Philosophy in Linguistics*  
National and Kapodistrian University of Athens,  
Panepistimioupoli, Ilisia, 15784, Greece  
*E-mail: dimser21@hotmail.com*

**ABSTRACT**

According to Berlin & Kay's [5] theory, it is possible for a language to include more than 11 basic colour terms. It is remarkable that in certain languages more than one term denote «blue». Russian is a good example of a language having two basic terms for blue – *sinij* (dark blue) and *goluboj* (light blue). Similar examples of languages with two basic colour terms for blue are Turkish, Arabian, Italian and Chinese. In addition, Androulaki et al. [2] claim that Modern Greek has 12 basic colour terms, supporting that *ɣalɔzjo* (light blue) should be included in these terms. The question arising is whether the term *ɣalɔzjo* in Modern Greek could be considered as a basic colour term. This is the main issue in the present experimental research. For conducting the experiment the Munsell colour system was used. The results of the empirical research show that the term *ɣalany* is a lighter hue of *bl̥* (blue) in relation to *ɣalɔzjo*. Moreover, these terms cannot be considered as basic, since, on the one hand, they are included in a basic colour category (*bl̥*), and, on the other hand, they occur only in particular collocations, violating the corresponding Berlin & Kay's (5, P. 6) criteria.

**Key words:** Berlin & Kay's experiment; basic colour terms; Modern Greek; *bl̥*, *ɣalɔzjo*, *ɣalany*.

## 1. Introduction

During the last decades, of particular interest is the theory of Berlin & Kay [5], related to colour categorization. According to this theory, a language can have from 2 to 11 basic colour terms. These eleven basic categories are *white*, *black*, *red*, *green*, *yellow*, *blue*, *brown*, *purple*, *pink*, *orange* and *grey*. In addition, the authors [5, P. 2-3] argue that there are strict restrictions on basic colour categories in languages that include fewer than 11 basic colour categories: all languages have terms for *white* and *black*; if a language has a third term, then it contains a term for *red*; if it has four terms, then these are *green* or *yellow*; if it has five terms, these are both *green* and *yellow*; if a language has a sixth term, it is *blue*; if it has a seventh, then it is *brown*; if it has eight terms, then it is *purple*, *pink*, *orange*, *grey*, or a combination of these.

Besides, Berlin & Kay [5, P. 35-36] mention the possibility a language to have more than eleven basic colour terms. A typical example is Russian, which contains 12 basic colour categories, because of the distinction observed between “*sinij*” and “*goluboj*”, e.g. between the dark *blue* and light *blue*, concerning lightness. [6; 13; 11; 8; 15; 16; 18]. Similar results regarding distinctions of blue appear also in languages related to Russian, such as Ukrainian and Belarusian. According to Safuanova & Korzh [18, c. 78], “*sinij*” is used in lexical collocations with words such as “*sky*”, “*snow*”, and also in others with a negative connotation (“*heavy clouds*”, “*haze*”, “*harsh*”), while “*goluboj*” is used with words that have a positive connotation (“*affectionate*”, “*soft*”, “*tranquil*”, “*serene*”). In a similar way, Turkish has twelve basic colour terms, including “*lacrivert*” (dark *blue*) and

“*mavi*” (light *blue*) [14]. It is noteworthy that in Nepali the term “*Akashi*” is used to indicate the sky light *blue* [8]. Moreover, in Arabic the following terms are used for denoting *blue*: “*azrock*” (*blue*), “*samawee*” (light *blue*) and “*khuhlie*” (dark *blue*) [1]. As far as Greek is concerned, the research of Androulaki et al. [2] is the only one supporting that it has 12 basic colour terms, including *yalǒzjo* (light *blue*). Nevertheless, except *blü* (“*blue*”) and *yalǒzjo* (light *blue*), they recognize the presence of *yalany*, which they consider as identical with *yalǒzjo*, without discerning any difference between these two terms [2, P. 6, 10]. Research about the basic colour terms in Modern Greek has been also carried out by Serakioti & Markopoulos [19] and Serakioti [20].

The aim of the present research is the experimental examination of the following issues: a) if in Modern Greek there is any difference between the terms *blü*, *yalǒzjo*, *yalany*, b) if the above colour terms can be characterised as basic, fulfilling Berlin & Kay’s criteria [5, P. 6-7].

## 2. Methodology

In this study, the Munsell colour array, used also by Berlin & Kay [5], was given (Figure 1) to the subjects of the research, who were asked to find the typical version of *blü*, *yalǒzjo* and *yalany*. More particularly, the second stage of data collection of Berlin & Kay’s experiment was followed [5, P. 5]. The Munsell colour array contains a set of 330 colour chips, of which 320 represent 40 different hues, each divided into 8 different lightness levels (Munsell value). The purpose of this experiment is to check whether there is deviation in the perception of the three colour terms *blue*, *yalǒzjo*, *yalany*, taking into account that Androulaki et al. [2, P. 6, 10] consider *yalǒzjo* as identical to *yalany*.

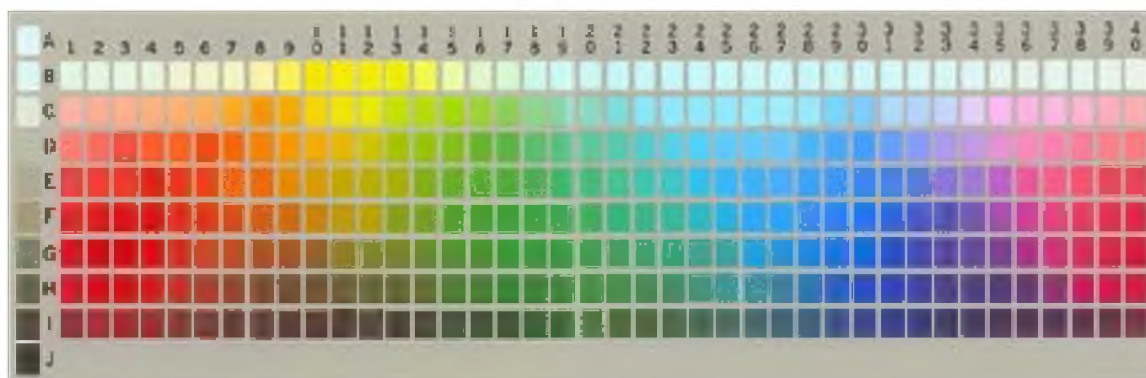


Figure 1. The Munsell colour array

It is worth noting that the survey participants were asked to mention their age and gender, and these data were later processed. To avoiding the effect of the order in which colours were presented, a different order of colours for each participant was followed.

For registering, grouping and statistically processing data, tables were created, which include the serial number of the speaker, the gender, the colour and the corresponding values for its placement on the vertical and the horizontal axis of the colour spectrum (see Appendix). To facilitate data processing and numerical calculations, for the vertical placement in the colour spectrum numbers were used instead of letters (A = 0, B = 1, C = 2, D = 3, E = 4, F = 5, G = 6, H = 7, I = 8). Furthermore, on each axis the average and the standard deviation were calculated for denoting the median of each colour, in order to investigate whether all values are focused on a particular point or there is great dispersion around a central value. In addition, the confidence interval was calculated on the vertical and horizontal placement to indicate the maximum error probability (0.05). The outliers were removed, e.g. values exceeding  $x' + 2 \times s$ , and the average and standard deviation were recalculated.

The survey involved a total of 60 Greek native speakers, 30 males and 30 females, aged 20-50 years, who had no achromatopsia or dyschromatopsia problems (see 10; 7, 21; 17].

### 3. Findings and Discussion

The results of the present research indicate that the terms *yalözjo* and *yalany* do not correspond to identical values in the spectrum, while there is significant deviation between them and *blü*. More particularly, *yalözjo* appears to be a darker hue of *blü* in relation to *yalany*, with average (26.7, 3.2), while *yalany* appears

as a lighter hue of blue in relation to *yalözjo*, with average (26.82, 2.79), as it can be seen in Figure 2. Thus, in the horizontal axis there is no difference between the two colour terms, contrary to the vertical axis. It seems that this difference regarding the colour lightness is not accidental, since the average of each point is outside the confidence interval of the other.

Moreover, it should be also mentioned that between these two adjectives (*yalözjos*-*yalanys*) there are differences regarding the collocations and each of them refers to a particular class of objects. For example, *yalözjos* is mainly used in collocations with words such as *öblasa* (sea), *lmni* (lake), *akti* (shore), while *yalanys* with words such as *uranys* (sky) and also *simüa* (flag), indicating the blue and white colour of the Greek flag. Thus, it is expected for one to say e.g. *yalözja öblasa/ lmnii/ akti*, instead of *yalan öblasa/ lmnii/ akti* or phrases, such as “*to yalözjo tis öblasas/ tu uranö*” (the blue of the sea/ sky) instead of “*to yalany tis öblasas/ tu uranö*”. From the SEK (Corpus of Greek Texts) (Goutsos 2013) this difference is confirmed, since the term *yalözjos* is used in plenty of collocations, much more than *yalanys*. These are some examples: “*to yalözjo tu pelögus*” (the blue of the sea), “*to aperado yalözjo tou Egüu*” (the endless blue of the Aegean Sea), “*to yalözjo tis öblasas ke tu uranö*” (the blue of the sea and the sky), “*yalözjo akrojöli*” (blue shore), “*yalözja lmnii*” (blue lake), and also metonymically “*to nish pu zy nne yalözjo*” (the island in which I live is blue), instead of “*to nish pu zy üxi yalözja öblasa*” (the island in which I live has blue sea). The term *yalanys* appears, mainly, in literacy in collocations such as “*yalanys uranys*” (blue sky), “*yalanö nerö*” (blue water), “*yalanö mötza*” (blue eyes) and also metonymically, e.g. “*to yalany tis vlüma*” (her blue look).

		<i>Blü</i>	<i>yalözjo</i>	<i>yalany</i>
<b>average</b>	x	30,49	26,7	26,82
	y	5,87	3,2	2,79
<b>confidence</b>	x	0,19	0,53	0,57
	y	0,22	0,26	0,26
<b>Standard deviation</b>	x	0,72	2,03	2,21
	y	0,82	0,98	1
<b>Number of subjects</b>		55	56	57

Figure 2. Average of *blü*, *yalözjo*, *yalany* in Modern Greek

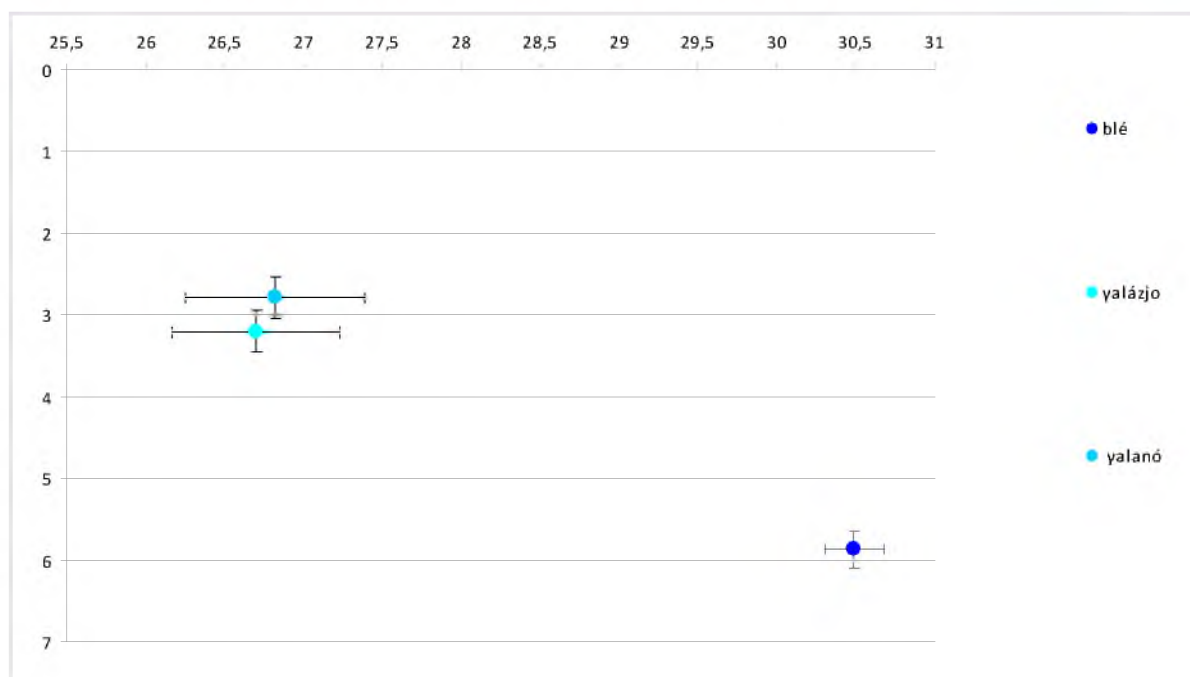


Figure 3. Graphic depiction of the value of *blü*, *yalózjo*, *yalany* in Modern Greek

Moreover, there is a difference between *yalózjos* and *yalanys* regarding their compounds and derivatives. Thus, in compounding with the prefix *kata-* the term *katayólanos* (very blue) is used instead of *\*katayólazos*. According to SEK, the derived word *katayólanos* appears in collocations such as “*katayólanos uranys*”, “*katayólani thólasa*”, “*katayólana mótza*”, excluding the use of *\*katayólazos* (“*\*katayólazos uranys*”, “*\*katayólazi thólasa*”, “*\*katayólaza mótza*”). Regarding the derivation of these colour terms with the suffix *-opys* (-ish), *yalazopys* is used instead of *\*yalanopys*.

Furthermore, in compounding the terms *yalazoprósino* (blue-green) (*yalózjo* + *prósino*) and *prasinoyólazo* (*prósino* + *yalózjo*) are preferred and not *\*yalanoprósino* (*yalany* + *prósino*) and *\*prasinoyólano* (*prósino* + *yalany*). Also, the term *yalanylefkos* (blue and white) (*yalany* + *lefký*) is used, but not the term *\*yalazoleukos* (*yalózjo* + *lefký*).

In the research of Androulaki et al. [2] *yalózjo* is presented as “lighter blue” and considered as a basic colour term of Greek, on the basis of the frequency of its appearance, while it is also claimed that the term *yalózjos* is identical with the term *yalanys* [2 P. 6, 10-11]. Thus, the term *yalózjos* and *yalanys* are both considered as light

blue, without any differentiation between them. Moreover, it is argued that there is no difference regarding the collocations of the two terms, since they are both used to denote the colour of the sea, sky and the greek flag, and also the blue colour of the eyes [2, P. 6].

Regarding the methodology of their research, there is considerable inconsistency in the used sample, since the number of the subjects varies in each stage of the experiment (In different stages of the research the subjects were 8 bilingual speakers of Greek and English (6 females and 2 males), 6 Greek speakers from Crete (3 males and 3 females) speaking a particular Greek dialect of Crete, 18 Greek native speakers (10 males and 8 females) and 12 Greek native speakers (7 females and 5 males)), as well as the ratio of the representatives of the two genders (male – female), while only a limited range of ages is covered (19 to 31 years old). Additionally, the selection of the subjects from Crete, who speak a particular dialect of Greek, is rather debatable (as Androulaki et al. [2, c. 18] mention, the six subjects of the research were born and lived in an isolated village of Crete with about 150 inhabitants).

Concerning the presented experiment, we notice a difference between *yalózjo* and *yalany*

regarding the hue. Thus, we can consider the two terms as a variation of *blū*, given the fact that *yalany* corresponds to a lighter hue of *blū*

in relation to *yalōzjo*, and *yalōzjo* to a darker hue of *blū* in relation to *yalany* (Figure 4).



Figure 4. Semantic relationships of Greek *ble*, *yalōzjo*, *yalany*  
(the scheme is identical with that of Berlin & Kay [5, c. 36] for the Russian *sinii* and *goluboy*)

For the question if *yalōzjo* and *yalany* are basic colour terms, it would be useful to examine Berlin & Kay's [5, P. 6-7] criteria for the characterisation of a colour term as basic. A colour term is considered as basic when: a) its meaning does not derive from the meaning of its parts (e.g. “blue” and not “bluish”, “olive green”), b) it is not included in another colour category (e.g. “scarlet” is included in “red” and is a kind of it), c) it is not limited to a category of objects (e.g. “blond” is mainly used with “hair”, “complexion” and “furniture”), and d) it is widely known and accepted by all the speakers (e.g. “yellow” instead of “saffron”).

Based on the above criteria, the terms *yalōzjo* and *yalany* cannot be considered as basic colour terms in Modern Greek, since they violate the criteria (b) and (c). On the one hand they violate the criterion (b), since they are included in the basic colour category of *blū* and

are a subcategory of it, and on the other hand they violate the criterion (c), since each of them appears only in particular collocations.

#### 4. Conclusion

According to the present experimental research, the term *yalōzjo* is a darker hue of *blū* in relation to *yalany*, while *yalany* is a lighter *blū* than *yalōzjo*, since there is a deviation of values regarding their lightness on the vertical axis. Moreover, these terms cannot be considered as basic colour terms, since, on the one hand, they are included in a basic colour category being a subcategory of it and, on the other hand, they occur only in particular collocations, violating the corresponding Berlin & Kay's [5] criteria. Nevertheless, this issue needs further investigation and interdisciplinary approach.

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APPENDIX. The data for *blü*, *yalózjo*, *yalany* in Modern Greek

Serial Number of Speaker	Gender	Colour	Vertical axis	Horizontal axis
1f	female	yalózjo	6	26
2f	female	yalózjo	3	27
3f	female	yalózjo	3	27
4f	female	yalózjo	4	24
5f	female	yalózjo	3	25
6f	female	yalózjo	5	29
7f	female	yalózjo	3	26
8f	female	yalózjo	2	30
9f	female	yalózjo	3	27
10f	female	yalózjo	3	27
11f	female	yalózjo	3	26
12f	female	yalózjo	3	28
13f	female	yalózjo	2	27
14f	female	yalózjo	6	27
15f	female	yalózjo	2	29
16f	female	yalózjo	3	25
17f	female	yalózjo	2	22
18f	female	yalózjo	2	25
19f	female	yalózjo	2	27
20f	female	yalózjo	3	27
21f	female	yalózjo	5	28
22f	female	yalózjo	4	27
23f	female	yalózjo	3	22
24f	female	yalózjo	2	21
25f	female	yalózjo	2	30
26f	female	yalózjo	3	28
27f	female	yalózjo	2	29
28f	female	yalózjo	5	27
29f	female	yalózjo	4	28
30f	female	yalózjo	3	27
1m	male	yalózjo	3	25
2m	male	yalózjo	2	29
3m	male	yalózjo	2	25
4m	male	yalózjo	5	29
5m	male	yalózjo	2	23
6m	male	yalózjo	4	28
7m	male	yalózjo	2	23
8m	male	yalózjo	3	27
9m	male	yalózjo	4	25
10m	male	yalózjo	4	27
11m	male	yalózjo	5	24
12m	male	yalózjo	4	24
13m	male	yalózjo	2	29
14m	male	yalózjo	3	30
15m	male	yalózjo	4	27
16m	male	yalózjo	3	29
17m	male	yalózjo	3	28
18m	male	yalózjo	5	27
19m	male	yalózjo	3	28
20m	male	yalózjo	2	24
21m	male	yalózjo	4	27
22m	male	yalózjo	4	24
23m	male	yalózjo	3	25
24m	male	yalózjo	2	29
25m	male	yalózjo	4	36
26m	male	yalózjo	5	27
27m	male	yalózjo	3	29
28m	male	yalózjo	4	27
29m	male	yalózjo	3	25
30m	male	yalózjo	4	27

Serial Number of Speaker	Gender	Colour	Vertical axis	Horizontal axis
1f	female	yalany	2	26
2f	female	yalany	2	28
3f	female	yalany	2	24
4f	female	yalany	2	23
5f	female	yalany	3	24
6f	female	yalany	4	25
7f	female	yalany	2	31
8f	female	yalany	2	24
9f	female	yalany	3	27
10f	female	yalany	2	30
11f	female	yalany	3	28
12f	female	yalany	2	28
13f	female	yalany	2	30
14f	female	yalany	3	27
15f	female	yalany	3	28
16f	female	yalany	3	25
17f	female	yalany	1	26
18f	female	yalany	2	28
19f	female	yalany	1	28
20f	female	yalany	3	27
21f	female	yalany	5	26
22f	female	yalany	3	27
23f	female	yalany	4	32
24f	female	yalany	2	23
25f	female	yalany	2	21
26f	female	yalany	2	29
27f	female	yalany	3	27
28f	female	yalany	3	28
29f	female	yalany	2	30
30f	female	yalany	2	23
1m	male	yalany	2	27
2m	male	yalany	2	28
3m	male	yalany	2	29
4m	male	yalany	3	29
5m	male	yalany	2	23
6m	male	yalany	4	25
7m	male	yalany	7	31
8m	male	yalany	2	27
9m	male	yalany	4	25
10m	male	yalany	2	27
11m	male	yalany	5	23
12m	male	yalany	4	30
13m	male	yalany	3	26
14m	male	yalany	5	26
15m	male	yalany	2	27
16m	male	yalany	3	29
17m	male	yalany	2	29
18m	male	yalany	5	27
19m	male	yalany	4	29
20m	male	Galany	4	24
21m	male	yalany	3	23
22m	male	yalany	4	30
23m	male	yalany	3	25
24m	male	yalany	2	29
25m	male	yalany	4	30
26m	male	yalany	4	25
27m	male	yalany	3	26
28m	male	yalany	2	25
29m	male	yalany	3	29
30m	male	yalany	2	27



Serial Number of Speaker	Gender	Colour	Vertical axis	Horizontal axis
1f	female	blü	6	31
2f	female	blü	6	31
3f	female	blü	6	31
4f	female	blü	6	30
5f	female	blü	5	30
6f	female	blü	7	31
7f	female	blü	6	31
8f	female	blü	7	31
9f	female	blü	6	30
10f	female	blü	7	31
11f	female	blü	6	31
12f	female	blü	6	31
13f	female	blü	7	31
14f	female	blü	7	31
15f	female	blü	7	30
16f	female	blü	4	31
17f	female	blü	6	30
18f	female	blü	3	30
19f	female	blü	8	27
20f	female	blü	4	29
21f	female	blü	7	31
22f	female	blü	4	30
23f	female	blü	6	31
24f	female	blü	6	30
25f	female	blü	5	30
26f	female	blü	6	31
27f	female	blü	6	28
28f	female	blü	5	31
29f	female	blü	6	31
30f	female	blü	6	30
1m	male	blü	5	29
2m	male	blü	4	28
3m	male	blü	8	30
4m	male	blü	4	29
5m	male	blü	7	31
6m	male	blü	6	31
7m	male	blü	6	31
8m	male	blü	5	31
9m	male	blü	6	30
10m	male	blü	6	31
11m	male	blü	6	31
12m	male	blü	6	31
13m	male	blü	7	29
14m	male	blü	6	30
15m	male	blü	6	31
16m	male	blü	6	30
17m	male	blü	6	31
18m	male	blü	6	30
19m	male	blü	5	32
20m	male	blü	6	30
21m	male	blü	5	30
22m	male	blü	5	30
23m	male	blü	6	30
24m	male	blü	7	29
25m	male	blü	6	31
26m	male	blü	6	30
27m	male	blü	5	32
28m	male	blü	5	30
29m	male	blü	7	31
30m	male	blü	6	30