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# Color and other constructions. Writings for Jodi L. Sandford

Edited by  
Marco Bagli



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“As a cognitive linguist, I am preoccupied with the relationship between language, culture, and cognition, and with the balance between general human cognitive constraints and culture-specific cognitive patterns.”

Eve Sweetser



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# Color entrenchment in Middle-School learners of English as a Second Language: Cognitive Saliency Index applied to a bilingual setting

Marco Bagli

## 1. Introduction

The notion of saliency is central to understanding linguistic and cognitive processes, as it captures the prominence (or ‘attention-grabbing’ quality) of linguistic items, concepts, and objects in our surroundings. Saliency may be conceptualized along two complementary dimensions: cognitive saliency, referring to temporary mental activation; and ontological saliency, referring to perceptual distinctiveness. Cognitive saliency refers to the temporary activation of mental concepts, influenced by context, attention, and relevance. Ontological saliency, on the other hand, relates to the inherent or ‘objective’ properties of items – such as distinctiveness, vividness, or frequency – that make them noticeable in perception and communication. Both dimensions interact dynamically in shaping how language is processed, recalled, and used (Schmid, 2020).

Closely tied to saliency is the concept of entrenchment, which Schmid defines as the degree to which linguistic patterns or concepts become routinized and automated in cognition through repeated exposure (Schmid 2007, p. 118). Langacker (2008, p. 21) clarifies that entrenchment occurs at the individual level, while at the community level it aligns with conventionalization, which represents the stabilization of linguistic forms through shared usage in a speech community.

Although intuitive, saliency requires operationalization for empirical measurement. One widely adopted approach is through free-list tasks, which elicit lists of items within a specific domain from participants. A range of saliency indices has been developed to process the data from free-listing tasks (Romney & D’Andrade, 1964; Weller & Romney, 1988; Borgatti, 1990; Smith et al., 1995), but each of these versions presented some shortcomings (see Bagli, 2021, pp. 42–46 for a review). Finally, Sutrop (2001) proposed the Cognitive Saliency Index (CSI), which resolved previous issues by refining the algorithm to include the

different dimensions that concur to the creation of salience, i.e., overall frequency, size of the sample, and mean position in the lists. Thus, the CSI is calculated as

$$\text{CSI} = F / (N \times \text{MP})$$

where *F* represents the frequency of an item across all lists, *N* is the total number of participants, and *MP* is the mean position of the item in the lists where it appears. The normalization of the index ensures that CSI scores range between 0 and 1, with higher scores indicating greater salience. By incorporating both frequency and mean position, this algorithm yields a nuanced measure of salience. The dimension of frequency is related to entrenchment, as it captures how widely a term is shared across a linguistic community. Mean position instead reflects ontological salience, as it indicates the immediacy with which terms are recalled. This dual consideration makes the CSI a robust and comprehensive measure of salience, and it has been applied by scholars to unravel the structure of semantic domains (see, for instance Sutrop & Uusküla, 2007; Sandford 2012, 2016; Uusküla & Bimler, 2016; Bagli, 2021 for taste terms; Sotgiu, 2024 for happiness terms).

Sandford (2016) investigated the entrenchment of color terms among middle-school students in North America who use English as the primary language of instruction. In the Appendix of her paper, Sandford presents earlier data collected from adult English speakers and young-adult Italian speakers. The present study aims at replicating Sandford's study (2016). It does so by measuring the Cognitive Salience Index (CSI) of English and Italian color terms in a group of 10-year-old students learning English as a second language within the Italian school system. In Sandford (2016), the most salient items aligned with the eleven Basic Color Terms (hence, BCTs), consistent with prior research on the topic (Berlin & Kay, 1969/1991; Kay, 2015). A key finding was the contrast between BCTs – scoring high on the CSI due to their frequency and prototypicality – and more specific or context-dependent terms, which showed lower salience. Sandford's work also demonstrated that, while frequency may reflect a term's degree of entrenchment, the inclusion of mean position in the algorithm provides insight into the immediacy and prominence of that term in participants' mental lexicons.

Building on Sandford's foundation, the present study calculates the CSI for both English and Italian color terms, enabling a threefold comparison. First, the English free-listing results reveal differences in the salience and entrenchment of color terms between English speakers and bilingual learners, shedding light on lexical development in second-language acquisition. Second, calculating the salience of Italian color terms provides empirical data for cross-linguistic comparisons of entrenchment, illustrating how cultural and social contexts shape

lexical salience across languages and educational systems. Third, the CSI of Italian color terms from this study can be directly compared to the Italian results reported in Sandford's (2016) appendix, allowing for a diachronic analysis of how lexical salience has evolved over the past decade.

Finally, the results in this chapter were computed using automated methods in R, with the code made freely available online. This approach streamlines future replications by enabling automatic CSI calculation from free-listing data. It also supports the development of more innovative and informative visual representations of the results. These visualizations reflect the multidimensional nature of the CSI and, most importantly, stem from discussions that Jodi and I had during my PhD, when she wished for a more effective and intuitive representation of the CSI results.

## 2. Methods

### 2.1 Procedure

Following Sandford's (2016) procedure, I shortly briefed the students about the topic of the task, so that they received instructions on what to do. Instructions for the English task were provided in both English and Italian. For the Italian task, instructions were given exclusively in Italian, they were shorter, and contained an explicit reference to the previous free-listing task. The informants were provided with a piece of white paper that I had been handing out. I explained that they had three minutes total. Participants were repeatedly reassured that there were no right or wrong answers.

### 2.2 Operationalization of results and CSI

The lists obtained were later digitized in an Excel spreadsheet reporting the following columns: Participant, Rank, Item. This organization of the data is functional in the automatization of the calculation of the Cognitive Salience Index, which was carried out through the coding software R<sup>1</sup>. The implementation of a code to compute the CSI guarantees replicability and offers the opportunity to

<sup>1</sup> For the sake of replicability, it is vital that input files respect these column headings for this specific code to work.

other researchers to use this tool. The automated procedure guides the researcher through the different stages of the CSI.

The code first generates general information about the input file, i.e., number of participants, number of distinct items produced, and the mean of items produced by each participant. The code proceeds to identify the Frequency and the Mean Position (mP) of each item, eliminating items that are mentioned by less than 3 informants, in keeping with the indications provided by Sutrop (2001). The CSI score is then computed and arranged in a descending order. The code provides the results both in the R coding environment, and as a .csv file that is automatically saved in the folder specified in the computer used to carry out the task. The code then proceeds to offer three different visualization tools to display and discuss the CSI: a standard table, a bar plot, and a bubble chart. This last visualization represents an innovative method to represent graphically the CSI, which considers the three elements of the index, i.e., Frequency, Mean Position, and the size of the CSI. However, the code is structured to consider only a customarily selected amount of items, to enhance readability and to eliminate redundant items. The code is freely available for download here: <https://github.com/marbagli/csi.git>. The code is fully annotated for easiness of reference. The present paper reports an elaboration of the Tables and the Bubble graphs produced (i.e., it does not report the bar plots produced by the code).

### 2.3 Informants

Nineteen students (7 females) participated in the English task, and eighteen students (7 females) in the Italian task. All participants were 10-year-old students from the *Istituto Comprensivo Augusto Ciuffelli* in Massa Martana, Italy. The listing tasks were carried out in two separate meetings. The English task was administered on October 11, 2024, while the Italian task took place on November 26, 2024. To assess linguistic background, students were asked whether they spoke other languages at home, including regional varieties of Italian. A total of 16 students reported having a diversified linguistic repertoire, which included Polish, Greek, Moroccan Arabic, Turkish, Romanian, Albanian, Portuguese, and regional varieties of Italian, such as Sicilian and Central Italian dialects. This multilingual background is a critical factor to consider, as it may influence lexical access and salience patterns discussed in the study. Students in the two classes had been studying English for the past five years, with 11 of them reporting exposure to English in kindergarten, amounting to eight years of English instruction in total. Although exact cumulative exposure cannot be calculated,

their teachers provided details on the current and past curriculum. Over the past three years, students received three hours of English instruction per week. Prior to this, they had two hours per week in second grade and one hour per week in first grade. This gradual increase in exposure highlights a structured progression in their English language education, which likely impacts their proficiency and linguistic salience in English color terms.

### 3. Results

#### 3.1 Cognitive Salience Index of Italian color terms

The total number of distinct items produced in this task by students is 51. The average length of lists is 17 items. Table 1 illustrates the results of the CSI.

Rank	Item <sup>2</sup>	F	MP	CSI
1	<i>rosso</i> 'red'	17	4	0.279
2	<i>verde</i> 'green'	15	5	0.184
3	<i>arancione</i> 'orange'	16	6	0.157
4	<i>blu</i> 'blue'	16	7	0.138
5	<i>viola</i> 'purple'	16	7	0.129
6	<i>giallo</i> 'yellow'	14	7	0.127
7	<i>rosa</i> 'pink'	13	7	0.109
8	<i>nero</i> 'black'	15	8	0.104
9	<i>bianco</i> 'white'	14	9	0.092
10	<i>azzurro</i> 'medium blue'	9	7	0.078
11	<i>marrone</i> 'brown'	13	10	0.076
12	<i>grigio</i> 'grey'	13	14	0.056
13	<i>verde chiaro</i> 'light green'	7	9	0.046
14	<i>celeste</i> 'light blue'	7	10	0.042
15	<i>fucsia</i> 'fuchsia'	8	12	0.040
16	<i>lilla</i> 'lavender'	7	13	0.033
17	<i>verde acqua</i> 'aqua'	5	9	0.032

<sup>2</sup> The English translations for the color terms are mainly from Sandford (2016). The translation of the term *azzurro* is from Del Viva et al. (2022). The terms *turchese* and *rosa carne* were translated by the author.

18	<i>verde scuro</i> ‘dark green’	6	12	0.030
19	<i>marrone chiaro</i> ‘light brown’	7	14	0.029
20	<i>blu scuro</i> ‘dark blue’	4	10	0.023
21	<i>magenta</i> ‘magenta’	4	11	0.022
22	<i>turchese</i> ‘turquoise’	4	11	0.022
23	<i>marrone scuro</i> ‘dark brown’	4	12	0.019
24	<i>rosa carne</i> ‘flesh pink’	4	13	0.019
25	<i>oro</i> ‘gold’	5	18	0.017
26	<i>giallo scuro</i> ‘dark yellow’	5	18	0.016
27	<i>giallo oca</i> ‘mustard’	3	12	0.015
28	<i>rosa chiaro</i> ‘light pink’	3	15	0.012
29	<i>viola chiaro</i> ‘light purple’	3	16	0.011
30	<i>giallo chiaro</i> ‘light yellow’	3	17	0.010

Table 1. Cognitive Salience Index of Italian Color Terms

Table 1 reports the Cognitive Salience Index of Italian Color Terms. The first column lists a ranking of the items based on their CSI: the higher the score, the more salient the lexical item. The second column illustrates the color name, the third the overall Frequency, the fourth the mean position, and the last one the value of the CSI.

The eleven BCTs illustrated in the Berlin and Kay (1969) color model occupy the top ranks: *rosso*, *verde*, *arancione*, *blu*, *viola*, *giallo*, *rosa*, *nero*, *bianco*, *marrone*, and *grigio*. The terms *azzurro* and *celeste* are two terms in the BLUE area of color space, and both may be considered BCTs (Bimler & Uusküla, 2014; Sandford, 2015; Del Viva et al., 2022, Del Viva, Castellotti & Pamei, 2023). Multiple BCTs in the BLUE area of color are found also in other languages, such as some Slavic languages (Russian, Polish, and Ukrainian), several circum-Mediterranean languages (Greek, Maltese, and Turkish), some Spanish dialects in Latin America (Lillo et al., 2018), and two Far East languages (Japanese and Thai, Panitanang & Phuangsuwan, 2022). The topic of the basicness of the different Italian terms in the blue area has ignited an extensive debate (see section 5).

The other lexical items that emerge may be distinguished in two main groups. The terms *verde chiaro*, *verde acqua*, *verde scuro*, *marrone chiaro*, *blu scuro*, *marrone scuro*, *rosa carne*, *giallo scuro*, *giallo oca*, *rosa chiaro*, *viola chiaro*, and *giallo chiaro* refer to more specific hues. These terms are formed by adding lexical specifiers to BCTs. The most common specifiers are adjectives

denoting luminance perception: *chiaro* (light) or *scuro* (dark). Other specifiers instead encode a source: for instance, *rosa carne* (flesh pink) and *verde acqua* (aqua) use the prototypical source of the sensation (*carne*, i.e., flesh and *acqua*, i.e., water) to refer to the whole name, and are thus metonymically motivated (Bagli, 2023; Winter, 2019; Plümacher, 2007; Wyler, 2007). The other group of non-BCT color names are: *fucsia*, *lilla*, *magenta*, *turchese*, and *oro*.

### 3.2 A comparison with Sandford's (2016) CSI of Italian color terms

Sandford (2016) also provides the results of the CSI in a population of Italian adult speakers (mean age 22 years). The most salient item in both lists is *rosso*, followed by *giallo*, *verde*, *blu*, *nero*, *bianco*, *arancione*, *viola*, *azzurro*, *rosa*, *marrone*, and *grigio*. The first twelve terms are stable across tests, but they show differences in salience. The term *rosso* is the most salient in both groups. One of the most striking differences is the ranking between *giallo* and *arancione*: while in Sandford's list *giallo* ranks second and *arancione* seventh, in the present list *arancione* ranks third and *giallo* ranks sixth. The term *verde* ranks comparably high among lists, while *blu* is stable at rank 4. The couple *nero* and *bianco* maintain their relative salience (*black* more salient than *white*), but overall, they are more salient among adults: their rank is 5 and 6 for adults, but they rank 8th and 9th in the population of students. The item *viola* ranks 5th among students and 8th among adults. This may be possibly tied to the presence of a young student whose name is *Viola*: her name may have contributed to making this color particularly salient among the group of students. The terms *rosa* and *azzurro* are more salient than *marrone* and *grigio* in both lists, but with different CSI results: Sandford reports *azzurro* as slightly more salient than *rosa* among adults, whereas the rank is inverted among students.

Some of the remaining items are shared between the two lists. These are *celeste*, *fucsia*, and *oro*. The color name *lilla* is present in both lists, but it has undergone a shift in stress: Sandford reports it as *lillà* /li'li:a/, while in the present dataset it appears as *lilla* /'li:l:a/. The name of this specific color hue is an example of source-based language, as it derives from the name of various species of plants in the genus *Syringa*, whose flowers have this distinct color. Other items instead are not shared by the two lists. The items that appear only in Sandford (2016) are *indaco*, *beige*, *porpora*, *rosso bordeaux*, *argento*, and *cremisi*. The items that instead only appear in the present list are the BCTs with a luminance specification, plus *magenta*, *turchese*, and *rosa carne*.

### 3.3 Cognitive salience Index of English color terms

The total number of distinct items produced in this task is 25. The average list length is 11 items. Table 2 reports the results of the CSI.

Rank	Item	F	MP	CSI
1	red	18	2	0.465
2	blue	18	4	0.251
3	yellow	16	4	0.243
4	green	18	5	0.201
5	pink	15	5	0.163
6	black	17	6	0.162
7	purple	16	6	0.155
8	orange	15	6	0.154
9	white	15	7	0.120
10	brown	11	8	0.084
11	grey	11	9	0.074
12	dark green	4	13	0.018
13	light purple	3	10	0.017

Table 2. CSI of English color terms

The first column in Table 2 illustrates the ranking of the items, the second column reports the item. Their frequency is listed in the third column, followed by their Mean Position, and lastly their CSI. The list of items that emerge from the CSI of English color terms in the Italian school is considerably shorter than their North American counterpart. Nonetheless, it contains the eleven English BCTs, followed by two other color names which display a syntactic modification of two BCTs. A notable gap emerges between the highly frequent BCTs and the few less frequent modified terms. BCTs have a Frequency which ranges from 18 to 11 (the informants were 18). After the last color term *grey*, the Frequency drops dramatically to 4 in the case of *dark green* and 3 for *light purple*.

The most salient item in the list is *red*. The term *blue* appears as the second most salient English term in the Italian setting, followed by *yellow*, *green*, *pink*, *black*, *purple*, *orange*, *white*, *brown*, and *grey*. The salience rankings in English do not mirror those in Italian, thus excluding phenomena of interference from Italian to English on the salience of the items, which instead may be observed at the syntactic level, especially in reference to the specification of color names

through the adjectives *light* and *dark* (Uusküla & Bimler, 2020). The item *blue* appears more salient in English than it is in Italian. The same applies to *yellow*, whose rank is 3 in English, but 6 in Italian. The color term *green* ranks 4 in English, but it was second in Italian. The term *pink* is more salient than *black*, which in turn is more salient than *white*. The same progression of salience is found in Italian: *rosa*, *nero*, and *bianco*. The terms *purple* and *orange* are less salient in English than they are in Italian, and while English displays similar CSI values, they are more distant in Italian. The terms *brown* and *grey* are the least salient color terms in both lists, and their relative position is maintained in both lists: both *brown* and *marrone* are slightly more salient than *grey* and *grigio*.

### 3.4 A comparison with Sandford's (2016) CSI of English color terms

In Sandford's (2016) study, *red* also emerges as the most salient item, followed by *orange*, *yellow*, *blue*, *green*, *purple*, *magenta*, *black*, *pink*, *white*, *brown*, and *grey*. In both lists, the most salient item is *red*, while the least salient items are *brown* and *grey*. The term *orange* is considerably more salient in Sandford's list (rank 2), while the terms *yellow* and *blue* display similar ranking. The term *purple* is more salient in Sandford, while the terms *black*, *pink* and *white* show similar ranking but slightly different order: *black* is more salient than *pink* in Sandford's list, and both are more salient than *white*. Although North American participants produced a longer and more diverse list, the congruence of the BCTs in both lists highlights the entrenched nature of color terms and concepts in the experience and lexicon of students.

## 4. Bubble graphs

Using the R programming software to compile the code facilitates the automation of the procedure while also opening opportunities to explore new visualization methods. The CSI incorporates two main measures: the Mean Position and the Frequency of the item. The library *ggplot2* in R (Wickham, 2016) allows for the creation of a bubble graph that aligns the two dimensions of Frequency and Mean Position on the x and y axis, respectively, while also integrating the CSI magnitude as the size of the dots corresponding to the items. Figure (1) illustrates the CSI of Italian color terms. To keep the graph readable, I limited the visualization to the first twelve items in the list, which correspond to the BCTs plus *azzurro*. The numerical details of the index are reported in Table (1) above.

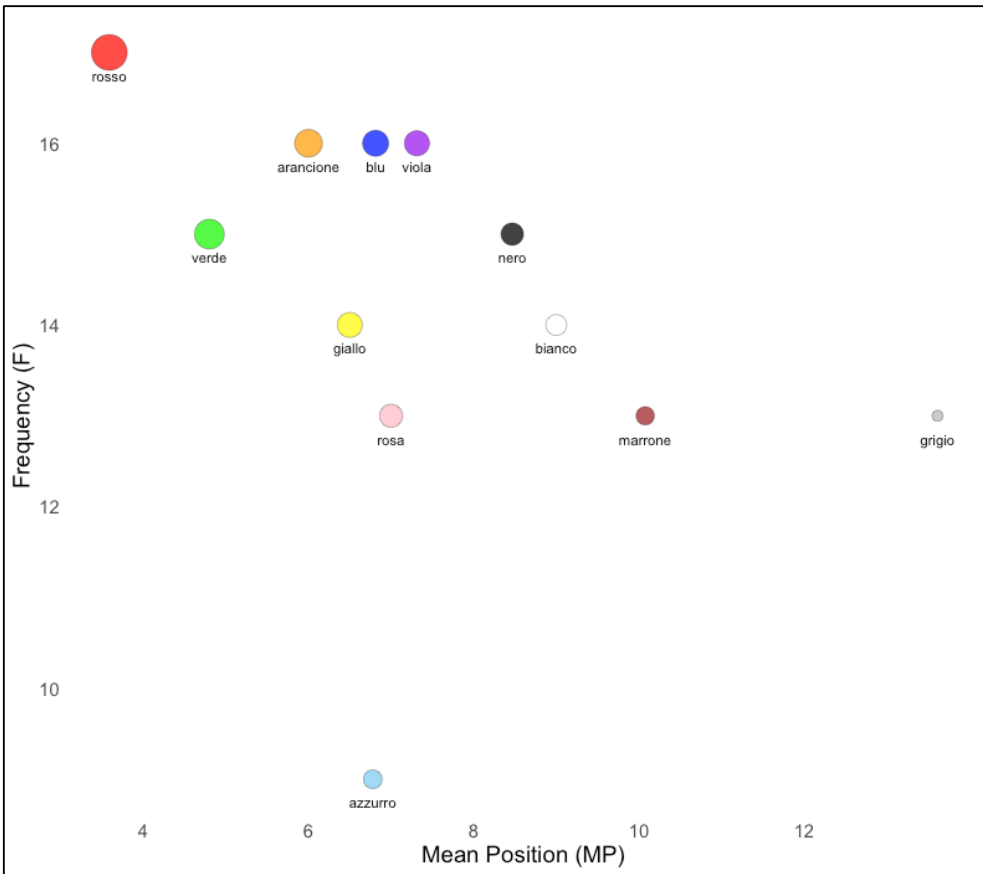


Figure 1 Bubble graph of salient color terms in Italian

Figure (1) combines the Frequency of mention of each item on the y axis with the Mean Position of the item on the x axis, thus allowing for a more intuitive exploration of the interaction between these two measures in the calculation of the CSI. Information about the magnitude of the salience of each item may be inferred by the size of the individual dots that populate the figure. The item *rosso* displays both a high Frequency and low Mean Position, meaning that it was one of the first color names that came to mind for a large number of people, thus resulting in high salience. Although informants mentioned *verde* less frequently than *arancione*, *blu*, and *viola*, they tended to mention it earlier in the list: this corresponds to a higher CSI, as suggested by the size of the corresponding dots. The interplay between the two measures is particularly evident in the case of the other terms: despite *giallo* and *rosa* display a lower frequency than *nero*, they

both emerge as more salient due to their considerably lower Mean Position. However, as the graph in Figure (1) shows clearly, the difference in salience between these terms is marginal, and it is not as evident as the difference between other terms. The item *azzurro* shows a particularly low Frequency, which however is compensated by a high Mean Position: although this term was not mentioned by many informants, it was typically mentioned soon after *blu*, thus suggesting an automatic activation of the concept in informants who have acquired and regularly use the corresponding lexical item.

Similarly, Figure (2) illustrates the salience of color terms in English in the same group of informants.

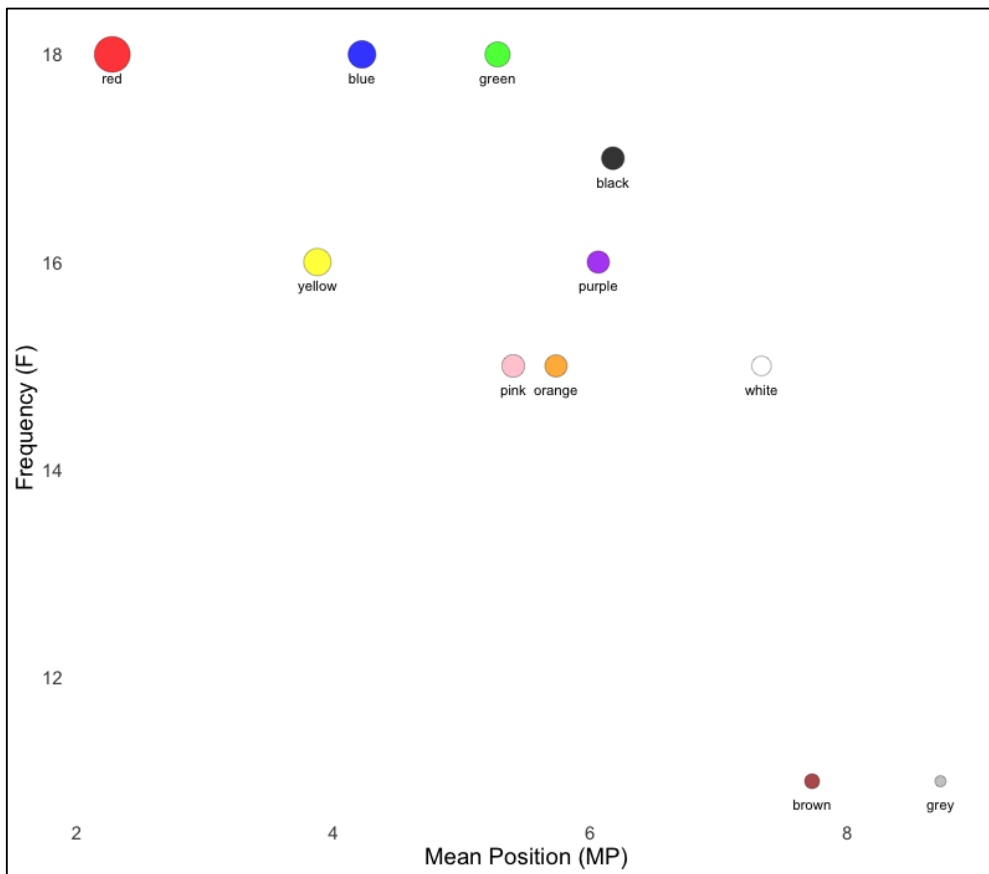


Figure 2. Bubble graph of salient color terms in English

Figure (2) shows the salience of English color terms across the informants in the Italian school. The two figures present the same dimensions along the same axes<sup>3</sup>. The term *red* is the most salient, and it has the highest Frequency and lowest Mean Position. The item *blue* has the same Frequency as *red*, but double Mean Position. The color name *yellow* is the third most salient, and although it is less frequent than *red*, *blue*, *green* and *black*, it was on average mentioned earlier than *blue*. The same applies to *pink* and *orange*, which were mentioned by fewer informants than *black* or *purple*, but those who mentioned them did so earlier on in the list. Nonetheless, the difference in the magnitude of the CSI of these items (including *white*, mentioned later in the lists) is negligible, as evidenced by the almost identical size of the dots in the graph. The two items that show a considerable smaller CSI are *brown* and *grey*, which appear in the bottom right corner of the graph, corresponding to a high Mean Position and low Frequency.

## 5. Discussion

The two lists elicited from Italian students learning English as a second language differ in the order of salience of specific items. However, some generalities may be drawn. The most salient item in the two lists is *red*, while the least salient items are *brown* and *grey*, respectively. The most salient colors after *red* are *yellow*, *green*, and *blue* in both lists, albeit in different orders. After this first batch, the list reports *pink*, *black*, and *white*, in different orders. The greatest shifts between lists are those of *arancione/ orange* and *viola/ purple*, which are much more salient in the Italian list than they are in English. Although I cannot give any definitive explanation for this shift, this may be related to the presence of a student named *Viola*. The color *arancione/ orange* instead emerged as very salient also in the group of North American middle-schoolers, thus suggesting a strong ontological salience among young speakers.

The same considerations emerge from a comparison between the lists discussed in Sandford (2016) and those discussed in this chapter: the most salient item is *red* across all four lists, while the least salient items are *brown* and *grey*. The top items in the list are *yellow*, *blue* and *green*, followed by *black*, *white*,

<sup>3</sup> It is important to notice however that the scales differ. I chose to adjust the graphs to better accommodate the differing sizes, prioritizing visual clarity and overall aesthetics. Therefore, while Figure (2) and (3) are informative on their own, comparisons should be made carefully.

*purple*, and *pink*. The item *orange* is more salient in the list of English terms, while less so in the list of Italian terms. Overall, the most salient items across the four lists are the eleven BCTs, in keeping with previous literature on the topic (Berlin & Kay, 1969; Kay, 2015; Sandford, 2012, 2016, to name a few), thus confirming that these items are the most entrenched in both languages. Notably, students in the Italian setting had already developed the BCTs in English, thus suggesting the color vocabulary – or at least the BCTs – is entrenched and salient since the early stages of language acquisition. As Sandford remarks, the onset of reliable color term establishment occurs around 3 years of age for the first focal colors, with brown and grey following 6–9 months later, around 4 years old (Sandford, 2016, p. 99; Pitchford & Mullen, 2002). This seems to be applicable also in the case of multilingual students.

The salience of the color name *azzurro* is stable across time, as the rank reported in Table 1 is similar to that reported in Sandford (2016). Furthermore, it may be considered a BCT together with *celeste* and *blu* (Bimler & Uüskula, 2014). This finding aligns the color vocabulary of Italian middle-schoolers in Central Italy with the areas in which the tripartite structure of the blue color space is present. This point is particularly relevant to the discussion prompted by recent findings by Paramei et al. (2018), which suggest traces of diatopic variation in the use of these terms in Italian. While a detailed examination of their status lies beyond the scope of this paper, the presence of both *azzurro* and *celeste* in the lists produced by young Italian speakers testifies to the entrenchment of the partition of the BLUE area of color space. Furthermore, it lends further support to the claims of basicness of these terms advanced by scholars such as Del Viva et al. (2022), and Del Viva, Castellotti and Paramei (2023).

The term *magenta* instead is present in the Italian list of terms with a low ranking, and it seems more salient in the list of English terms in Sandford (2016). Sandford explains that the salience of this color name may be motivated by the use of computers and the differences between the RGB (red, green, blue) autoluminant system, contrasted to the CYM (cyan, yellow, magenta) system (p. 97). Notably, the term *magenta* is present only in the lists produced by young adults in English and Italian, and it is not present in the lists produced by Italian adults. This suggests that this term may be more salient for young students, as a result of exposure to the names reported on drawing and painting tools, such as pens and paint tubes.

The lists produced by Italian students reported in this paper are less varied than their North American counterparts, both in Italian and in English. The average list length reported by Sandford is 25 colors per informant, while in the present research the lists of Italian terms contain 17 items on average. This may

reflect the size of the population of informants (29 in Sandford, 17 in this research), the different age of the two groups (12–11 years old in Sandford, 10 in this chapter), or even the different organization of the two schools (Sandford's informants belonged to a school of highly gifted or 'honor' students).

Some of the Italian terms reported by Sandford (2016) also appear in the present lists, thus confirming the stability of these terms in the vocabulary of different populations over time. These are: *celeste*, *lilla*, *fucsia*, *oro*. Other terms that appear in Sandford's list do not emerge in the present list. These are: *indaco* 'indigo', *beige* 'beige', *porpora* 'Tyrian purple', *rosso bordeaux* 'burgundy', *argento* 'silver', and *cremisi* 'carmine'. When considering the full list of items produced by Italian young adults without the filter for a frequency higher than three, the items *argento* and *bordò* appear, together with *blu oltremare* 'ultramarine', *senape* 'mustard', *verde smeraldo* 'emerald', *verde menta* 'mint green', *verde salvia* 'sage green', and *violetto* 'violet'. It is interesting to notice the shift in spelling from *bordeaux* to *bordò* that has happened in the last ten years, even if in this regard the difference in age and level of education between the two Italian groups may play a difference. Sandford's group of Italian informants was on average 22 years old and were university students. Presumably, they must have acquired the most common form of the specific red hue through schooling. Perhaps even more interestingly, in the list presented here the color name has dropped the reference to its closest BCT, thus it is no longer *rosso bordeaux*, but just *bordò*. These considerations largely confirm the claims advanced by Desgrippes, according to whom the cognitive representation of color is dynamic, it changes over time in line with diachronic language variation (Desgrippes, 2016).

Finally, the informants in the present study expanded their color vocabulary through syntactic modification of the BCTs through BCTs through the adjectives *light* and *dark*. Although this syntactic strategy is productive in English, it seems to be circumscribed to specific hues (Sandford has only *light blue* and *dark blue* in her list). The young informants in the Italian setting instead adopted this strategy by default, and produced color names that seem quite odd and contradictory, such as *light black* (F=2), *light purple* (F=2), and *light red* (F=1). I interpret the extensive use of this pattern as revealing of the automatized usage of *chiaro* and *scuro* to expand color vocabulary in Italian, learned by students at school and transferred to the English color system (for a detailed discussion, see Uusküla & Bimler, 2020). Overall, the list of English terms produced by informants in the Italian setting shows that BCTs are part of their vocabulary, but that more specific color names in English have not been fully acquired yet.

The frequent use of simple syntactic patterns to modify the BCTs suggests

that this system of vocabulary expansion is prominent among young students and represents a strategy to overcome dearth of specific names especially in the foreign language. Although color vocabulary is one of the first set of lexical items taught in foreign language classes, typically the hues mentioned are the BCTs. Furthermore, the teachers of these students confirmed that a common strategy that they teach to expand the color vocabulary is the use of the adjectives *chiaro* and *scuro*. Yet, the congruence between the two lists produced by Italian students shows the development of BCTs and their entrenchment in a population of young speakers, thus offering an insight on the dynamics of conventionalization and salience discussed by Schmid (2020).

## 6. Conclusion

The research presented in this chapter replicated Sandford's (2016) research on the entrenchment of color categories applying the Cognitive Salience Index to Italian 10-year-old students learning English as a second language. Despite cultural and linguistic differences, the emergence of the eleven Basic Color Terms in both Italian and English supports their robust, embodied salience across languages. The consistent salience of red as the most prominent color – and brown and grey as the least – underscores cross-linguistic regularities rooted in perceptual experience.

At the same time, the observed differences, such as the shifting salience of orange and purple, and the productive use of *chiaro* and *scuro* in vocabulary expansion, highlight how cultural practices, instructional approaches, and individual contexts shape lexical development in bilingual settings. These findings not only contribute to research on entrenchment and salience but also offer valuable insights for language acquisition and bilingual education.

As Sandford's work consistently emphasizes, the real insight often lies not in the differences but in the remarkable similarities that surface across languages and cultures – similarities that reveal the shared perceptual and cognitive foundations of human experience. This perspective has guided much of her work and has deeply influenced my own approach to research and academia.

Finally, the development of bubble graphs as a complementary visualization tool addresses longstanding questions on the visualization of CSI results that I shared with Jodi Sandford during our collaborative work on salience. I hope this method helps future researchers capture the nuanced interplay of frequency and usage, offering a richer window into our cognitive systems, and into the ways language reflects both our shared humanity and our diverse experiences.

## References

- Bagli, M. (2021). *Tastes We Live By: The Linguistic Conceptualisation of Taste in English*. De Gruyter.
- Bagli, M. (2023). How to Point with Language: English Source-Based Language to Describe Taste Qualities. *Lublin Studies in Modern Languages and Literature*, 42(2), 31–46. <https://doi.org/10.17951/lsmll.2023.47.2.31-46>
- Berlin, B., & Kay, P. (1969/1991). *Basic color terms: Their universality and evolution*. University of California Press.
- Bimler, D., & Uusküla, M. (2014). “Clothed in triple blues”: Sorting out the Italian blues. *Journal of the Optical Society of America A*, 31(4), A332. <https://doi.org/10.1364/JOSAA.31.00A332>
- Borgatti, S. (1990). Using ANTHROPAC To Investigate a Cultural Domain. *CAM Newsletter*, 2(1), 8–8. <https://doi.org/10.1177/1525822X9000200106>
- Desgrippes, Magalie (2016). Is there an age factor in Color Categorization? In G. Paulsen, M. Uusküla, & J. Brindle, (Eds.), *Color Language and Color Categorization*. Cambridge Scholars Publishing.
- Del Viva, M. M., Castellotti, S., & Paramei, G. V. (2023). The Italian colour lexicon in Tuscany: Elicited lists, cognitive salience, and semantic maps of colour terms. *Humanities and Social Sciences Communications*, 10(1), 900. <https://doi.org/10.1057/s41599-023-02393-4>
- Del Viva, M. M., Mariani, I., Caro, C. D., & Paramei, G. V. (2022). Florence “blues” are clothed in triple basic terms. *I-Perception*, 13(5), 20416695221124964. <https://doi.org/10.1177/20416695221124964>
- Kay, P. (2015). Universality of color categorization. In A. J. Elliot, M. D. Fairchild, & A. Franklin (Eds.), *Handbook of Color Psychology* (pp. 245–258). Cambridge University Press. <https://doi.org/10.1017/CBO9781107337930.012>
- Langacker, R. (2008). *Cognitive Grammar: A Basic Introduction*. Oxford University Press New York. <https://doi.org/10.1093/acprof:oso/9780195331967.001.0001>
- Lillo, J., González-Perilli, F., Prado-León, L., Melnikova, A., Álvaro, L., Collado, José A., & Moreira, H. (2018). Basic Color Terms (BCTs) and Categories (BCCs) in Three Dialects of the Spanish Language: Interaction Between Cultural and Universal Factors. *Frontiers in Psychology*, 9. <https://doi.org/10.3389/fpsyg.2018.00761>
- Panitanang, N., Phuangsuwan, C., & Ikeda, M. (2022). Basic Color Terms in Thai.

*Color Research and Application*, 47(6), 1402–1425. <https://doi.org/10.1002/col.22800>

- Paramei, G., D’Orsi, M., & Menegaz, G. (2018). Diatopic variation in the referential meaning of the “Italian blues”, in L. W. MacDonald, C. P. Biggam and G. Paramei (Eds.), *Progress in Color Studies. Cognition, language and beyond* (pp. 83–106). John Benjamins.
- Pitchford, N. J., & Mullen, K. T. (2002). Is the Acquisition of Basic-Colour Terms in Young Children Constrained? *Perception*, 31(11), 1349–1370. <https://doi.org/10.1068/p3405>
- Plümacher, M. (2007). Speaking of colors and odors, In Plümacher, M., & Holz, P. (Eds.), *Speaking of colors and odors*, pp. 61–84. John Benjamins Pub.
- Romney, A. K., & D’Andrade, R. G. (1964). Cognitive Aspects of English Kin Terms. *American Anthropologist*, 66(3), 146–170. <https://doi.org/10.1525/aa.1964.66.3.02a00870>
- Sandford, J. (2012). *Red clover: Linguaggio e percezione dei colori : uno studio cognitivo applicato all’inglese*. Aracne.
- Sandford J. L. (2015). A cognitive linguistic usage perspective: What is Italian blu, azzurro, celeste? Do English speakers agree on BLUE semantics? *Cultura e Scienza del Colore - Color Culture and Science*, 4, 22–30. <https://jcolore.gruppodelcolore.it/ojs/index.php/CCSJ/article/view/15.04.04>
- Sandford, J. L. (2016). Color Entrenchment in Middle-School English Speakers: Cognitive Salience Index Applied to Color Listing. *Folklore: Electronic Journal of Folklore*, 64, 91–108. <https://doi.org/10.7592/FEJF2016.64.sandford>
- Schmid, H.-J. (2007). *Entrenchment, Salience, and Basic Levels*. Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780199738632.013.0005>
- Schmid, H.-J. (2020). *The dynamics of the linguistic system: Usage, conventionalization, and entrenchment*. Oxford University Press.
- Smith, J. J., Furbee, L., Maynard, K., Quick, S., & Ross, L. (1995). Salience Counts: A Domain Analysis of English Color Terms. *Journal of Linguistic Anthropology*, 5(2), 203–216. <https://doi.org/10.1525/jlin.1995.5.2.203>
- Sotgiu, I. (2024). The Semantics of Happiness and Joy in the Italian Language. *Cognitive Semantics*, 10(2), 220–252. <https://doi.org/10.1163/23526416-bja10066>
- Sutrop, U. (2001). List Task and a Cognitive Salience Index. *Field Methods*, 13(3), 263–276. <https://doi.org/10.1177/1525822X0101300303>

- Sutrop, U., & Uusküla, M. (2007). Preliminary Study of Basic Colour Terms in Modern Hungarian. *Linguistica Uralica*, 43(2), 102–123. <https://doi.org/10.3176/lu.2007.2.04>
- Uusküla, M., & Bimler, D. (2016). From Listing Data to Semantic Maps: Cross-Linguistic Commonalities in Cognitive Representation of Colour. *Folklore: Electronic Journal of Folklore*, 64, 57–90. <https://doi.org/10.7592/FEJF2016.64.colour>
- Uusküla, M., & Bimler, D. L. (2020). When does “bright” mean “prototypical”? Color-term modifiers in eight European languages, examined with color-survey data. *Journal of the Optical Society of America A*, 37(5), A305. <https://doi.org/10.1364/JOSAA.382399>
- Weller, S. C., & Romney, A. (1988). *Systematic data collection*. Sage.
- Wickham, H. (2016). *ggplot2: Elegant Graphics for Data Analysis* (2nd ed. 2016). Springer International Publishing: Imprint: Springer. <https://doi.org/10.1007/978-3-319-24277-4>
- Winter, B. (2019). *Sensory Linguistics: Language, perception, and metaphor*. John Benjamins. <https://doi.org/10.1075/celcr.20>
- Wylter, S. (2007). Color terms between elegance and beauty. The verbalization of color with textiles and cosmetics. In M. Plümacher & P. Holz (Eds.), *Speaking of Colors and Odors. Converging Evidence in Language and Communication Research* (113–128). John Benjamins Publishing Company. <https://doi.org/10.1075/celcr.8.06wyl>