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Complex colour denomination in French and Occitan¹

Xavier Bach, Anetta Kopecka & Benjamin Fagard

Abstract

In this paper, we investigate colour naming in French and Occitan. While the use of primary terms is common in these languages, both have secondary colour terms derived by way of suffixation, such as, for instance, the suffixes *-astre* in Occitan and *-âtre* in French, which carry an approximative meaning comparable to *-ish* in *greenish*. However, it is well-known that French, compared to other Romance languages, has a tendency to be very analytic. This raises the following question: do speakers of French and other Romance languages (here, Occitan) differ in morphological strategies used to express meaning in the semantic domain of colour? To answer it, we compare the colour descriptions provided by speakers of French ($N = 20$) and speakers of Occitan ($N = 20$). The results show some striking differences between the two languages in morphosyntactic strategies used to name colours. Speakers of Occitan employ secondary colour terms using a variety of derivational suffixes, which are absent from the French data, despite their existence in the language.

Keywords: colour naming, Romance, French, Occitan, experimental studies, morphological complexity

1. Introduction

The conceptual domain of colour and colour naming has been widely studied across languages, within disciplines as diverse as anthropology, linguistics, psycholinguistics and cognitive science. Driven by a very influential study conducted by Berlin and Kay (1969) on *basic colour terms* (i.e. non-derived morphologically, not restricted to a particular class of objects, cognitively salient, and present in each speaker's idiolect), many researchers have sought to examine universal dimensions of colour naming and to investigate cognitive invariants in colour categorization (e.g. Heider & Olivier, 1972; Kay, Berlin & Merrifield, 1991). Others, on the contrary, sought to assess the impact of inter-linguistic differences observed in the repertoire of colour terms on visual perception (Roberson, Davies & Davidoff, 2000; Roberson, Davidoff, Davis & Shapiro, 2005). This debate is by no means new, as can be seen by the following comment opening Ott's (1899) book on colours in Old French: "But is language a faithful mirror, do the terms it uses give back in minute detail what the organs of sight have perceived? These questions have raised a debate which has gone on for a number of years, and is not yet over." (Ott 1899: ix).²

In Romance languages, as in many other Indo-European languages, research on colour terms is abundant. Researchers have examined various aspects of the colour lexicon such as, for example, the semantics of colour terms (see e.g. Grossmann 1988 for Catalan, Castilian, Italian, Romanian, and Latin); their lexical properties and the constructions in which they occur (e.g. Molinier 2001, 2006 for French); their derivational morphology (see e.g. Mora & Lécivain 2004 for a comparative study of French and Spanish, and Molinier 2005 for French); the use of colour terms and syntactically complex

¹ The study we report in this paper was conducted within the framework of the crosslinguistic project *Evolution of Semantic Systems*, carried out at the Max Planck Institute for Psycholinguistics, the Netherlands (PI: Asifa Majid, Fiona Jordan & Michael Dunn).

² Our translation; original version: "Mais la langue est-elle un miroir fidèle, les désignations qu'elle emploie rendent-elles, avec une minutieuse exactitude, ce que les organes de la vue ont perçu ? Ces questions ont donné lieu à une controverse qui dure depuis nombre d'années et n'est point encore terminée."

constructions (Dubois & Grinevald 1999, 2003 for French); the diachrony of colour terms (e.g. Ott 1899, Dworkin 2016) or, from a more philological perspective, their use in earlier stages of the language in prose or poetry (see e.g. Doebler 2010 for Occitan and Italian), to quote just a few studies. We did not find studies dedicated to the colour vocabulary in Occitan, though.

In this paper, we address the use of simple vs complex terms for colour naming in two Gallo-Romance languages, French and Occitan. While the use of primary (non-derived) terms is common in these languages, both have secondary colour terms derived from primary terms by way of suffixation, such as, for instance, the suffixes *-astre* in Occitan (*verdaastre* ‘greenish’) and *-âtre* in French (*verdâtre* ‘greenish’), which carry an approximative meaning comparable to *-ish* in *greenish*. Finally, both languages admit adjective-adjective (or noun-noun) compounds ((*le*) *bleu vert* ‘(the) green blue’)³, as well as prepositional compounds ((*un*) *vert d’eau* ‘(lit.) (a) green of water’). Thus one might expect to find some similarities between these two languages in the use of linguistic means to name colours.

However, it is well-known that French, compared to other Romance languages, has a tendency to be very analytic, a trait that has led some authors to classify it as “more grammaticalized” on the whole than other Romance languages (cf. Lamiroy 2011, De Mulder & Lamiroy 2012). Yet, as has been noted in previous research, grammaticalization does not affect homogeneously all linguistic categories within a given language (Hopper & Traugott 2003, Marchello-Nizia 2006), and this is also true for languages within families, e.g. German / Dutch / English (König & Gast 2007), where some languages seem to be more affected by processes of grammaticalization than others, and thereby form a cross-linguistic grammaticalization cline. This is the case of the Romance family too, French standing out among Romance languages for a series of morpho-syntactic features (Lamiroy 1999, 2001, 2011, Carlier 2007, De Mulder & Lamiroy 2012, Fagard 2010, 2011, Fagard & Mardale 2012). More specifically, there seems to be a cline that goes from less grammaticalized languages, such as Portuguese or Romanian, to more grammaticalized languages such as French, with in-between cases represented by Spanish on the less grammaticalized side, and Italian, Catalan and Occitan on the more grammaticalized end of the continuum, as shown in Figure 1.

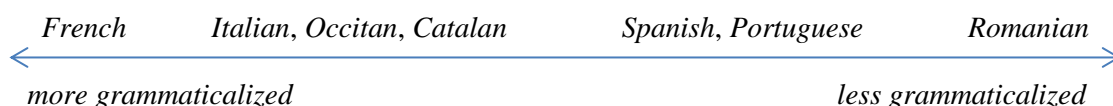


Figure 1. (Hypothetical) grammaticalization cline of the Romance languages.

Thus, when comparing French with other Romance languages, we notice that French has developed a number of analytic constructions that are absent from other Romance languages and that show a higher degree of grammaticalization. This is for example the case for the expression of the near future shown in (1): while Italian uses a synthetic form *verrò* ‘I will come’, French typically uses an analytic construction *je vais venir* to convey the same meaning. Though a synthetic form also exists (1c), it tends to become less frequent in French (e.g. going down from 5 occurrences per million in the 18th c. to 3 in the 20th and 21st c., in the Frantext database).

- (1) a. IT *verrò domani*
 ‘I’ll come tomorrow’

³ Depending on the context, French and Occitan colour terms can be realized either as adjectives (*bleu* ‘blue’, *vert* ‘green’, *bleu vert* ‘green blue’) or as nouns (*le bleu* ‘the blue’, *le vert* ‘the green’, *le bleu vert* ‘the green blue’). In this study, the speakers of French did not use the article (neither definitive *le* nor the indefinite *un*) in response to the question ‘What colour is it?’, hence we consider them as adjectives. In contrast, speakers of Occitan sometimes used determiners, which shows that they were using colour nouns at least part of the time. We coded as colour nouns only occurrences in which the colour term is preceded by a determiner.

- b. FR *je vais venir demain*
 ‘I’ll come tomorrow (lit. I go.PRS.1SG come.INF tomorrow)’
- c. FR *je viendrai demain*
 ‘I’ll come tomorrow’

Similarly, for the expression of the recent past, Portuguese makes use of a synthetic form, such as *fiz* ‘I have done’ in (2a), while French typically uses an analytic construction formed of the present tense of auxiliary *avoir* ‘have’ together with the past participle of the lexical verb, such as *j’ai fait* in (2b). As in the case of the simple future, a synthetic form also exists (2c), though it is seldom used in Colloquial French, and also tends to disappear from Standard French (for *je fis*, down from a relative frequency of 92 occurrences per million in the 18th c. to 32 in the 21st c., in the Frantext database).

- (2) a. PT *sempre fiz isto*
 b. FR *j’ai toujours fait cela*
 ‘I always did that (lit. I have always done that)’
 c. FR *je fis cela*
 ‘I did that’

For indefinites and partitives, the French constructions involve the presence of a special determiner, the grammaticalized form of the preposition *de* ‘of’ as in (3b and 4b), while Spanish uses bare indefinites (3a) and Romanian uses bare partitives (4a). The determiner can be omitted only in specific constructions, as in (3c) or (4c).

- (3) a. SP *tengo amigos en Lisboa*
 b. FR *j’ai des amis à Lisbonne*
 ‘I have friends in Lisbon’
 c. FR *j’ai amis et famille à Lisbonne*
 ‘I have friends and family in Lisbon’
- (4) a. RM *mie îmi place să fac pâine*
 b. FR *j’aime faire du pain*
 ‘I like to make bread’
 c. FR *j’aime faire peur aux gens*
 ‘I like scaring (lit. to make fear) people’

French also shows less derivation than other Romance languages. This is particularly noticeable for evaluative morphology, which is not productive anymore in French. For instance, while Portuguese and Italian use affixation for diminutives and augmentatives as shown in Examples (5a) and (6a), French tends to use adjectival modification in the same contexts, as shown in Examples (5b) and (6b); derivation seems often impossible (in the case of *café*), lexicalized (as in *fouet* ‘whip’, for which the non-suffixed equivalent is not available in Modern French, or *tablette* ‘shelf, pad, tablet PC’, for which the link with *table* ‘table’ might not be self-explanatory) or marginal (as in 5c)⁴.

- (5) a. PT *um cafezinho*
 b. FR *un petit café*
 ‘(lit.) a small coffee’

⁴ For instance, *filmounet* and *filmouille* scored respectively 1,140 and 144 hits on a simple Google search.

- (6) a. IT *un filmaccio*
 b. FR *un film pourri*
 ‘a bad movie’
 c. FR *?un filmounet, un filmouille*
 ‘a small/bad movie’

The Romance grammaticalization cline might have implications for colour naming. Derivational suffixes are present in both French (8) and Occitan (7), and in both languages, the suffixes (*-astre* in Occitan and *-âtre* in French) convey an approximative meaning, similar to the English suffix *-ish*.

- (7) FR *verdastre*
 ‘greenish’
 (8) FR *verdâtre*
 ‘greenish’

The question that arises then is whether speakers of French and Occitan differ in linguistic strategies used to express meaning in the semantic domain of colour. The hypothesis in line with the theory of the Romance grammaticalization cline is that French should be less derivational than other languages of the family. It is thus expected that speakers of French will use some derivation (colour terms bearing derivational affixes), but that Occitan speakers will use it more frequently. Conversely, it is to be expected that Occitan will show some constructional hedging, but that more of it will occur in French (Examples 9 to 12). Finally, one expects the difference between the two languages to be most obvious when participants are naming colours which are further from focal colours and thus at the borderline between two categories, since focal colours seem to be more stable across languages and speakers alike (see e.g. Berlin & Kay 1969, Kay & McDaniel 1978).

- (9) OC *jaune verd-enc*
 yellow green-ish
 ‘a greenish yellow’
 (10) OC *blau verd, blau-astre*
 blue green blue-ish
 ‘a blue green, bluish’
 (11) FR *bleu assez pâle*
 blue quite light
 ‘a rather light blue’
 (12) FR *bleu très très pâle*
 blue very very pale
 ‘a very very pale blue’

2. Methodology

The methodology used for collecting the data in French and Occitan is based on the description of colour chips designed for the cross-linguistic project *Evolution of Semantic Systems across Indo-European languages* (EoSS project, Majid et al. 2015). The task consists in naming and describing 84 colour chips displayed on a neuter grey background, in random order, always the same order across participants. In Occitan, there were 20 participants, 10 women and 10 men aged 18 to 82, all native speakers from the Languedoc region (southern France). The wide age range is due to the fact that, due to the socio-linguistic situation of Occitan, it is rather difficult to find native speakers of the language. In French,

there were also 20 participants, 15 women and 5 men, aged 18 to 26, all living in Lyon (south-eastern France). For a total of 84 colour chips, the task thus yielded 1680 descriptions in each language.⁵

Each of the descriptions was annotated at three different levels. The first level is concerned with semantics, for which we distinguish primary colour terms such as *gris* ‘grey’, and analogical colour terms such as *marron* ‘chestnut, brown’. The second level of annotation is concerned with the morphology of the colour terms, distinguishing primary terms which are synchronically simple and underived, such as French *blanc* ‘white’, and secondary terms which bear one or more affixes, such as in Occitan *marron-às* ‘brown-ish’. At the level of morphosyntax, we distinguish compounding, for example French *vert bleu* ‘blue green’ (Noailly 2005), from adverbial modification such as French *bleu clair* ‘light blue’ (Kleiber 2007), and from verbal constructions as in French *blanc tirant sur le gris clair* ‘white verging on light grey’.

3. Colour naming strategies in French and Occitan

Let us first examine what kinds of linguistic strategies French and Occitan speakers tend to select for naming colours, and to what extent they are similar or different in their reliance on different constructions. As Table 1 shows, in the EoSS corpus, French and Occitan display diverging strategies for the naming of colour chips. In particular, when naming colours, French speakers have a stronger preference for using simple colour terms than Occitan speakers: 70.1% of the descriptions involve a simple term in French, while only 44.3% do so in Occitan. Interestingly, both languages make comparable use of compounding and modifying expressions: in both French and Occitan, the use of compounds accounts for 7.9% of colour descriptions; as for modifying expressions, they account for 19.8% in French and 21% in Occitan.

NAMING STRATEGIES	FRENCH (N = 1680)	OCCITAN (N = 1680)
Simple terms	70.1% (1178)	44.3% (744)
Compounds	7.9% (133)	7.9% (132)
Modifying expressions	19.8% (333)	21.0% (353)
<i>of which derived terms</i>	–	1.0% (17)
Complex descriptions	2.1% (36)	26.8% (451)

Table 1. *Types of colour naming strategies in French and Occitan EoSS data.*

The difference in the importance of *simple* descriptions is statistically significant ($\chi^2 = 229.0$, $p < .01$), as it is for that of *complex* descriptions ($\chi^2 = 413.6$, $p < .01$). On the other hand, there is (obviously) no significant difference in the importance of *compounds* ($\chi^2 = 0.0$, $p > .05$) or *modifying expressions* ($\chi^2 = 0.7$, $p > .05$). For derivation, the number of occurrences seems too limited for statistical purposes, but there is a clear qualitative difference.

Thus, the main difference between French and Occitan concerns the use of secondary colour terms (i.e. those which show derivational affixes), and even more noticeably the use of complex descriptions for naming colours. As regards derived terms, although the numbers in Table 1 are very low, such terms are relatively common in the Occitan data: the use of such terms alone accounts for 1% only (Table 1), but, as we will see later, they are also used in other, more complex, constructions such as compounds,

⁵ Data on Occitan were gathered by Xavier Bach, transcribed and annotated by Xavier Bach and Benjamin Fagard. Data on French were gathered by Camille Frouin (PhD student, DDL, University of Lyon), and annotated by Camille Frouin and Anetta Kopecka.

modifying expressions, and complex descriptions, with a total of 76 occurrences (4.5% of all descriptions). Besides, the derivational suffixes used to form these terms are varied: ten different suffixes were identified in the data. Conversely, as we will see below, such derived terms are nearly absent from the French data (2 occurrences or 0.1% of all descriptions).

3.1 Simple terms: primary terms and analogy

As we have shown in Table 1 above, among different strategies used in colour naming, the use of simple terms is the most pervasive in the French and Occitan EoSS data. Such simple terms are of three types: (a) primary colour terms, (b) conventionalized terms formed by analogy, and (c) non-conventionalized terms used by analogy.⁶ Examples below show the inventory of such terms in the EoSS data.

a. primary colour terms

- (13) FR *beige* ‘beige’ (2), *blanc* ‘white’ (23), *bleu* ‘blue’ (194), *gris* ‘grey’ (40), *jaune* ‘yellow’ (45), *noir* ‘black’ (28), *rouge* ‘red’ (35), *vert* ‘green’ (282), *violet* ‘purple’ (155)
 (14) OC *verd* ‘green’ (149), *blau* ‘blue’ (102), *negre* ‘black’ (41), *jaune* ‘yellow’ (40), *gris* ‘grey’ (31), *roge* ‘red’ (27), *blanc* ‘white’ (24), *brun* ‘brown’ (1)

b. conventionalized terms formed by analogy

- (15) FR *bordeaux* ‘bordeaux’ (6), *caca d’oie* ‘poo-of-goose’ (3)⁷, *indigo* ‘indigo’ (1), *kaki* ‘kaki’ (14), *marron* ‘brown, (lit.) chestnut’ (88), *mauve* ‘mauve’ (13), *orange* ‘orange’ (66), *parme* ‘parma’ (3), *pourpre* ‘purple, crimson’ (4), *rose* ‘rose’ (138), *turquoise* ‘turquoise’ (9), *violine* ‘violine’ (1)
 (16) OC *violet* ‘purple’ (106), *ròse* ‘pink’ (91), *irange* ‘orange’ (41), *marron* ‘brown’ (38), *malva* ‘mauve’ (10), *fuchsia* ‘fuchsia’ (4), *turqués* ‘turquoise blue’ (4), *caquí* ‘khaki’ (3), *salmon* ‘salmon pink’ (3), *cacà d’auca* ‘greenish yellow (lit. poo-of-goose)’ (2), *lillà* ‘lilac’ (2), *òcre* ‘ochre’ (1), *crèma* ‘cream’ (1), *caramèl* ‘caramel’ (1)

c. non-conventionalized terms used by analogy

- (17) FR *anis* ‘anise’ (1), *aubergine* ‘aubergine’ (1), *fuchsia* ‘fuchsia’ (10) *magenta* ‘magenta’ (1), *paprika* ‘paprika’ (2), *prune* ‘plum’ (2), *saumon* ‘salmon’ (11)
 (18) OC *aubergina* ‘eggplant’ (4), *grenat* ‘pomegranate’ (4), *beige* ‘beige’ (3), *framboèsa* ‘raspberry’ (2), *parme* ‘Parma violet’ (2), *brica* ‘brick red’ (1), *citron* ‘lemon yellow’ (1), *kiwi* ‘kiwi green’ (1), *prune* ‘plum purple’ (1), *tèrra* ‘earth’ (1)

Table 2 below shows the number of types and the proportion of tokens of the simple terms. We may note that French and Occitan show both similarities in terms of general tendencies and differences regarding the diversity and the frequency of use of the three types of simple terms.

SIMPLE TERMS	FRENCH (N = 1178)		OCCITAN (N = 744)	
	TYPE	TOKEN	TYPE	TOKEN
Colour (primary) terms	9 Adj	68.3% (804)	8 Adj/N	55.8% (415)
Conventionalized analogy	11 Adj & 1 N	29.4% (346)	15 Adj/N	41.4% (308)

⁶ In our view, a *conventionalized* colour term is one whose *primary meaning*, as listed by dictionaries, is *not* colour, but for which the dictionary also provides a *colour meaning*, for instance French *marron* ‘(a) horse chestnut; (b) brown’ or Occitan *ròse* ‘(a) rose; (b) pink’.

⁷ Though this item is structurally complex, it has lexicalized and we believe it should be considered a simple color term, on a par with other conventionalized analogies.

Non-conventionalized analogy	7 Adj	2.4% (28)	11 Adj	2.8% (21)
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Table 2. *Primary terms vs analogy in the French and Occitan EoSS data.*

First, among the different types of terms, primary colour terms are the most frequent, with a higher proportion of use in French (68.3%) than in Occitan (55.8%); this constitutes a statistically significant difference ($\chi^2 = 31.9$, $p < 0.01$). Note also that the four most frequent colour terms in Occitan – *verd* ‘green’ (149), *violet* ‘purple’ (106), *blau* ‘blue’ (102) and *ròse* ‘pink’ (91) – account for 60.2% of all simple descriptions; interestingly, the second and fourth most frequent terms, *violet* ‘purple’ and *ròse* ‘pink’, are not primary color terms but conventionalized analogies.

The data displayed in the table reveal a tendency toward the use of conventionalized analogy in Occitan: this strategy is more frequent than in French, both in terms of types and of tokens, since it accounts for 41.4% of all occurrences with a simple term in Occitan, against 29.4% in French – again, a statistically significant difference ($\chi^2 = 29.4$, $p < .01$). For non-conventionalized analogy, there is no marked difference between the two languages in the proportion of use, which is comparable (and not statistically significant, with $\chi^2 = 0.4$). However, there are slightly more terms in Occitan, since Occitan speakers draw on 10 different nouns, while French speakers used 7 different nouns only.

Note also that a further difference between French and Occitan speakers in our data lies in the fact that Occitan speakers more often used colour nouns than French participants, though it remains a marginal phenomenon, with 57 occurrences in total: 5 colour terms, 7 conventionalized analogies.

3.2 Derived terms

The most remarkable difference between the French and Occitan EoSS data lies in the use of morphological (derivational) strategies. Table 3 below shows the proportion of use of the derived terms, including their use alone and in various other constructions found in the data. As we can see, the use of derived terms is almost non-existent in French (two derived terms only were found in complex expressions) contrary to Occitan where 76 derived terms have been found; such morphologically derived terms can be used alone, but are mainly found in compounds, modifying expressions as well as more complex descriptions.

DERIVED TERMS	FRENCH ($N = 2$)	OCCITAN ($N = 76$)
In modifying expressions	–	32.3% (17)
In complex descriptions	100% (2)	23.1% (59)

Table 3. *Derived terms in the French and Occitan EoSS data*

The difference between the two languages regarding the use of derived terms is particularly noticeable at the type level. In French, we found only one derivational morpheme carrying an attenuative meaning: *-é* in *jaune orangé* ‘oranged yellow’ and *vert bleuté* ‘blued green’. In contrast, in Occitan, we found a rather complex derivational paradigm, for both primary and secondary colour terms: they display a series of suffixes, as shown in Table 4 below. Besides, these suffixes are not specific to one colour term: although some, such as *-et* (diminutive suffix) and *-às* (evaluative suffix), are more productive in terms of combinability with primary and secondary colour terms, others can be used with more than one term. And while some may be primarily associated with some colours in our data, for instance *-enc*, in *rosenc* ‘pinkish’, they can be associated with other colours, as shown by dictionaries and corpora, for instance *rossenc* ‘reddish’, *verdenc* ‘greenish’, etc. We may also note that these suffixes are not limited to colour

terms, but also have diminutive uses (-*et*), approximative uses (-*às*) as well as other uses (for instance *tolosenc* ‘from Toulouse’) (*Dictionari General de la Lengua Occitana*).

TERMS	ROOT	- <i>et</i>	- <i>às</i>	- <i>èl</i>	- <i>enc</i>	- <i>ós</i>	- <i>it/-at</i>	- <i>astre</i>	- <i>ada</i>	- <i>òt</i>
PRIMARY TERMS	jaune ‘yellow’	<i>jaunet</i>	<i>jaunàs</i>	<i>jaulinèl</i>	<i>jaunenc</i>					
	blanc ‘white’	<i>blanquet</i>	<i>blancàs</i>	<i>blanquinèl</i>						
	verd ‘green’		<i>verdàs</i>		<i>verdenc</i>	<i>verdós</i>		<i>marronastre</i>		
	roge ‘red’					<i>rojós</i>				
	blau ‘blue’	<i>blauset</i>						<i>blauastre</i>		
	gris ‘grey’		<i>gridàs</i>							
ANALOGICAL COLOUR TERMS	irange ‘orange’						<i>iranjat</i>			
	malva ‘mauve’	<i>malvet</i>								
	marron ‘(horse chestnut) brown’	<i>marronet</i>	<i>marronàs</i>							
	ròse ‘pink’	<i>roset</i>	<i>rosàs</i>		<i>rosenc</i>		<i>rosit</i>			
	ros ‘red (of hair or fur)’	<i>rosset</i>		<i>rossèl</i>						
	vin ‘wine’		<i>vinassa</i>						<i>vinada</i>	
OTHER	clar ‘clear, light’	<i>claret</i>								<i>claròt</i>
	mocin ‘a bit’			<i>mocinèl</i>						

Table 4. *The diversity and use of derivational suffixes in the EoSS Occitan data*

3.3 Compounds

Both French and Occitan speakers make use of compounds to name colours and, as we have seen earlier (cf. Table 1), the proportion of compound terms used shows no significant difference: it makes up 7.9% of all the linguistic strategies found in French and Occitan.

Table 5 lists the types of compounds found in the French and Occitan EoSS data and indicates their proportion. Three main types of compounds were identified, in which a colour adjective is combined with another colour adjective ([ADJc ADJc]), or with a noun, with or without a preposition ([ADJc (Prep) N]). Together, these three subtypes make up the vast majority of all compounds found in our data, except for further modified compounds, which are quite frequent in the Occitan data and were coded as ‘complex’ descriptions (see below). The [ADJc N] construction alone accounts for the majority of compounds in French (51.9%, against 32.6% in Occitan), while the [ADJc ADJc] construction is only slightly less frequent (43.8% in French and 30.3% in Occitan). As for the [ADJc Prep N] construction, its use is more frequent in Occitan (22.7%) than in French (4.4%). The data, especially in Occitan, also contain a few other subtypes, for instance the [Nc Prep N] construction, in which the first term is a colour noun. However, these other subtypes display very low frequencies.

COMPOUND TYPES	EXAMPLE	FRENCH (N=133)	OCCITAN (N= 132)
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[ADJc N]	fr. <i>vert pomme</i> ‘apple green’ oc. <i>roge brica</i> ‘brick red’	51.9% (70)	32.6% (43)
[ADJc ADJc]	fr. <i>rose orange</i> ‘orange pink’ oc. <i>verd blau</i> ‘green blue’	43.8% (57)	30.3% (40)
[ADJc Prep N]	fr. <i>jaune d’or</i> ‘yellow-of-gold’ oc. <i>verd d’aiga</i> ‘green-of-water’	4.4% (6)	22.7% (30)
[Nc Prep N]	oc. <i>un verd d’aiga</i> ‘a water green (lit. a green of water)’	–	6.8% (9)
[Nc ADJc]	oc. <i>es un blanc ròse</i> ‘(it) is a pink white’	–	3.0% (4)
[Nc N]	oc. <i>lo blau rei</i> ‘the king blue’	–	4.5% (6)

Table 5. Types of compounds found in French and Occitan EoSS data.

In the most frequent pattern, [ADJc N], four colour terms in French and six in Occitan are combined with a series of nouns, generally specific to a given colour, such as *sky* for blue, *water* for green, etc. In this compound type (as in others), *blue* and *green* are the most common and diversified in terms of associations with different types of nouns, in both languages, as shown in (19) and (20).

(19) [ADJc N] compounds in French

- a. *bleu* ‘blue’: *bleu ciel* ‘sky blue’ (15), *bleu marine* ‘marine blue’ (6), *bleu nuit* ‘night blue’ (4), *bleu cyan* ‘cyan blue’ (2) *bleu eau* ‘water blue’ (1);
- b. *vert* ‘green’: *vert pomme* ‘apple green’ (13), *vert anis* ‘anise green’ (3), *vert bouteille* ‘bottle green’ (3), *vert caca d’oie* ‘goose-poo green’ (1), *vert eau* ‘water green’ (3), *vert émeraude* ‘emerald green’ (1), *vert prairie* ‘meadow green’ (1), *vert sapin* ‘fir tree green’ (1);
- c. *rose* ‘pink’: *rose saumon* ‘salmon pink’ (7), *rose fuschia* (5), *rose barbie* ‘Barbie doll pink’ (2), *rose bonbon* ‘candy pink’ (1);
- d. *jaune* ‘yellow’: *jaune moutarde* ‘mustard yellow’ (1)

(20) [ADJc N] compounds in Occitan

- a. *blau* ‘blue’: *blau cèl* ‘sky blue’ (10), *blau petròle* ‘petroleum blue’ (5), *blau marina* ‘marine blue’ (4), *blau pastèl* ‘pastel blue’ (2), *blau gendarmariá* ‘police blue’ (1), *blau sala de bains* ‘bathroom blue’ (1), *blau carreta* ‘car blue’ (1)
- b. *verd* ‘green’: *verd sapin* ‘fir tree green’ (3), *verd pastèl* ‘pastel green’ (2), *verd anís* ‘anise green’ (1), *verd oliva* ‘olive green’ (1), *verd pistache* ‘pistachio green’ (1), *verd tilhul* ‘lime tree green’ (1), *verd veronesa* ‘Veronese green’ (1)⁸
- c. *roge* ‘red’: *roge sang* ‘blood red’ (3), *roge brica* ‘brick red’ (1)
- d. *ròse* ‘pink’: *ròse pastèl* ‘pastel pink’ (2)
- e. *jaune* ‘yellow’: *jaune palha* ‘straw yellow’ (1), *jaune solelh* ‘sun yellow’ (1)
- f. *irange* ‘orange’: *irange saumon* ‘salmon orange’ (1)

The [ADJc ADJc] pattern comprises a greater diversity of terms, as shown by Tables 6 and 7 below. Both slots display a high degree of variability, with a large paradigm of possibilities in both languages

⁸ In this case, *verd veronesa*, the nature of the second term is unclear. We coded it as a noun, considering that it stands for the painter Veronese, but it could be an adjective. The case of *basc* ‘basque’ in *verd basc*, *roge basc* is slightly different, and we coded it as a modifying adjective.

– from 8 to 15 different terms. The first slot is slightly less subject to variability, with 10 terms in French and 8 in Occitan, while we found, in the second slot, 15 terms in French and 14 in Occitan. In both languages, the most frequent colours terms used in compounds are *green*, *blue* and *khaki*; *green* and *blue* can occur in both the first and second slot of the compound, while *khaki* typically occurs in the second slot. While the number of occurrences is similar in terms of *types*, it differs in terms of *tokens*, since – unlike Occitan – the French data display several cases of seemingly well-established compounds, for instance *vert kaki* ‘khaki green’ (12 occ.), *bleu vert* ‘green blue’ (7 occ.) and *bleu turquoise* ‘turquoise blue’ (5 occ.). In total, in the French data, more than ten compounds appear at least twice. In Occitan, on the other hand, only three constructions are found four times: *verd blau* ‘blue green’, *verd jaune* ‘yellow green’ and *blau turqués* ‘turquoise blue’, while *ròse violet* ‘purple pink’ (3 occ.) and *blau verd* ‘green blue’ (2 occ.) are the only remaining compounds which appear more than once in our dataset.

TERM2 \ TERM1	kaki	vert	bleu	orange	turquoise	rouge	violet	beige	blanc	marron	rose	gris	jaune
vert	12		4							1			1
bleu		7			5				1				
rose				3		2	2	2					
jaune		3		1									
rouge				2						1			
marron		1				1	1						
gris			2										
violet									1		1		
blanc												1	
orange											1		

Table 6. *Types and tokens of [Adjc Adjc] compounds in the French EoSS data.*

TERM2 \ TERM1	verd	blau	caquí	violet	jaune	turqués	ròse	fuchsia	azur	burèl	irange	malva	marron	roge	vermilhon
verd		4	4		4					1					
blau	2	1				4			1						
ròse				4				2						1	
jaune	1		1				1				1		1		
violet				1								1			
brun	1														
gris	1														
roge							1								
irange															1
kiwi	1														

Table 7. *Types and tokens of [Adjc Adjc] compounds in the Occitan EoSS data.*

In Occitan, there is a number of marginal cases in which the second term of the compound is either suffixed or further modified. We did not count these occurrences as legitimate compounds, considering, on account of the modification, that they were closer to a syntactic strategy. This includes descriptions which are relatively simple and straightforward, as in (21a), as well as more complex descriptions, as in (22). Though such descriptions are not altogether from the French data, as shown by (21b), they are quite rare.

- (21) a. OC *blanc rosenc* ‘pinkish white’, *verd jaunenc* ‘yellowish green’,
 b. FR *jaune orangé* ‘orangish (lit. *oranged*) yellow’, *vert bleuté* ‘bluish (lit. *blued*) green’
- (22) OC *aquò es un verd marronàs es un marron verdàs tanben que tira a cacà d’auca*
 ‘this is a brownish green (it) is a greenish brown too which seems like (lit. pulls to)
 goose poo’

3.4 Modifying expressions

Another type of construction which is quite frequent in our data, both in French and Occitan, is what we call *modifying expressions*, in which a colour adjective or a colour noun is modified generally by another adjective, an adverb, a suffix or a combination thereof.

Table 8 presents the types of modifying strategies found in the French and Occitan data together with the frequencies. The most common modifying expression used by the speakers in both languages consists of a colour adjective and a modifying adjective ([ADJc + ADJ]), which typically specifies the intensity of a given colour, either light or dark. In French, this construction type accounts for 89.5% of all the modifying expressions and in Occitan for 66.6%. Such modifying expressions can be further reinforced by the intensifying adverb *très* ‘very’ (sometimes reduplicated) as in the construction [ADJc (+ADV) + ADV + ADJ] which corresponds to 9.9% in French and 8.2% in Occitan.

Other types of modification, found only in Occitan, include (a) colour nouns which can be modified by an adjective reinforced by one or two intensifying adverbs, (b) colour adjectives or nouns combined with a modifying suffix, and (c) a noun combined with a modifying suffix. Although these modifying expressions are not very frequent in the EoSS data, they set Occitan clearly apart from French.

	EXAMPLE	FRENCH (N=333)	OCCITAN (N=336)
ADJc+ADJ	fr. <i>bleu clair</i> ‘light blue’ oc. <i>blau clar</i> ‘light blue’	89.5% (298)	66.6% (235)
Nc+ADJ	oc. <i>un gris clar</i> ‘a light grey’	–	13.3% (47)
ADJc+ADV(+ADV)+ADJ	fr. <i>vert très foncé</i> ‘very dark green’, <i>bleu très, très clair</i> ‘very very light blue’ oc. <i>verd pro fonçat</i> ‘very dark green’	9.9% (33)	8.2% (29)
Nc+ADV(+ADV)+ADJ	oc. <i>un blau pro clar</i> ‘a very light blue’, <i>un ròse plan plan clar</i> ‘a very very light pink’	–	7.1% (25)
ADJc-suff	oc. <i>verdàs</i> ‘greenish’	–	4.0% (14)
Nc-suff	oc. <i>un jaunàs</i> ‘a dirty yellow (lit. a yellowish)’, <i>blancàs</i> ‘withish’	–	0.6% (2)
N-suff	oc. <i>vinada</i> ‘wine-coloured (lit. wine-ade)’	–	0.3% (1)

Table 8. *Types of modifying expressions in French and Occitan EoSS data.*

3.5 Complex descriptions

There are clear differences between the two datasets, mainly the importance of simple descriptions in French, and that of derived terms in Occitan. However, the most remarkable difference lies elsewhere, namely in the frequency of use of complex descriptions in the Occitan data.

In the French data, complex descriptions are very rare: we found 36 occurrences of complex constructions, representing only 2.1% of the data. These include mainly verbal forms such as *tirant sur* ‘drawing on’ as in (23), and cases in which participants rephrase their initial description, with or without negation, as in (24) and (25).

- (23) FR *blanc tirant sur le gris clair*
 ‘white drawing on light grey’
- (24) FR *noir ? Non c’est plus marron*
 ‘black? No, that’s rather brown’
- (25) FR *rouge, bordeaux*
 ‘red, bordeaux’

In Occitan, we found 441 complex descriptions, which account for 26.3% of all descriptions, and include a variety of strategies. The main feature of complex descriptions, as in (26), is that they very often involve some kind of reformulation (325 occurrences, or 73.7% of complex descriptions), frequently with various hedging strategies, as in (27) and (28): hedging appears in 212 occurrences, almost half (48.1%) of complex descriptions. Another feature is that complex descriptions often include the strategies we described in the previous sections, as well as others, including verbal modification (29) and (30).

- (26) OC *blanc blauset, o gris blauset, oè, blanc blauset*
 ‘bluish white, or bluish grey, yeah, bluish white’
- (27) OC *un verd me sembla*
 ‘a green, seems to me’
- (28) OC *ròse puslèu un ròse*
 ‘pink rather a pink’
- (29) OC *un jaune que peta*
 ‘flashy yellow (lit. a yellow that explodes)’
- (30) OC *blancàs aquò mas tira sul ròse un mocin*
 ‘whitish this but draws on (the) pink a bit’

An interesting subtype of reformulation is that in which the participant reformulates without changing colour name, as in (31). But the most remarkable feature of these complex constructions in Occitan is perhaps the fact that they generally combine strategies: they often display a combination of strategies, for instance compounding and modification (32), or compounding and derivation (33). We even found highly complex descriptions which seem to offer a *pot-pourri* of such strategies, as in (34). The importance of such combinations is illustrated in Table 9, which shows clearly that – except for modification – the combination of strategies is the most common scenario.

- (31) OC *negre, pas negre negre, gaireben negre*
 ‘black, not black black, almost black’
- (32) OC *blau verd fonçat*
 ‘dark green blue’
- (33) OC *jaune verdenc*

‘greenish yellow’

(34) OC

blanc amb un pauc de quicòm d’una altra colour, que tira sul violet un pauc

‘white with a bit of something of another colour, which draws on (the) violet a bit’

Strategy		Occurrences
Modification	(alone or with hedging and/or reformulation)	27.9% (126)
Compounding		15.1% (68)
Verbal constructs		12.0% (54)
Derivation		1.8% (8)
Combinations of the above strategies		23.3% (105)
Hedging and/or reformulation only		20.0% (90)
Total		451

Table 9. Main strategies in complex colour descriptions in Occitan.

3. Naming strategies and variation among participants

One should note that there is a wide variation across speakers, in both datasets. In French, 7 participants almost exclusively use simple descriptions, while the thirteen others can be placed along a continuum from 20% to 80% of simple descriptions; these participants use a mean of roughly 10% of compounds and 40% of modifications.

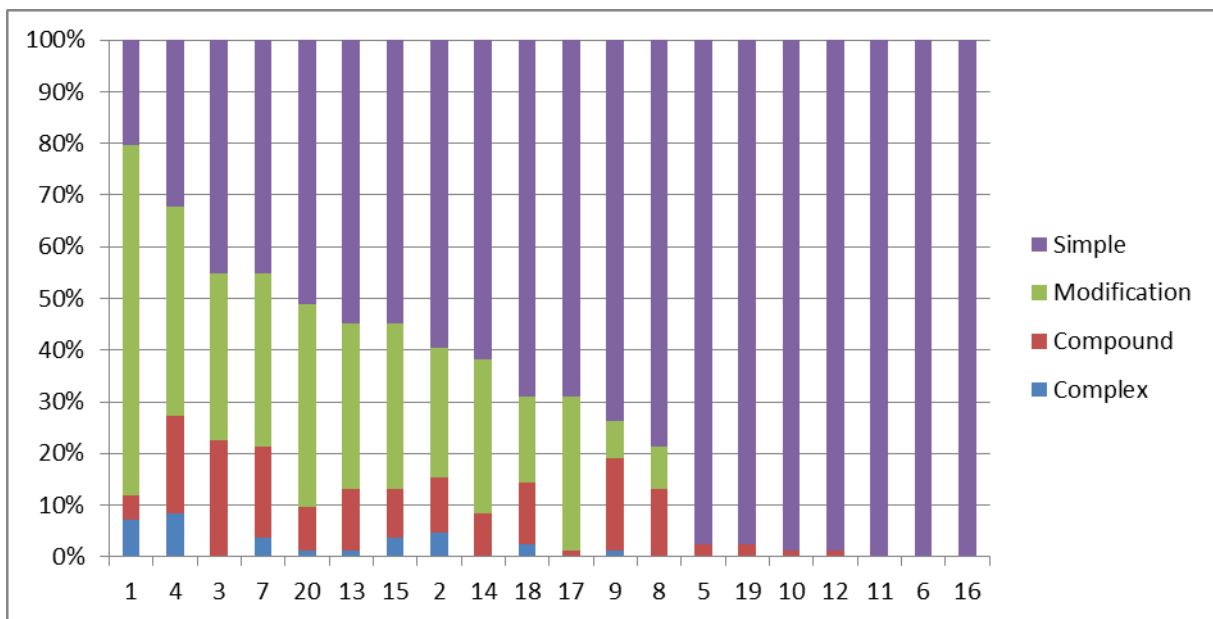


Figure 2. Variation in the use of naming strategies across participants, in French.

The variation across speakers seems much more important for the Occitan dataset. There are two possible motivations accounting for this variation. The first one is that the sociological span is much wider for Occitan participants than for French participants: while French participants were all students at the same faculty, Occitan participants offer a wide spectrum of age, activity and schooling. The second one is that Occitan is not standardized, and is a minority language: thus, participants (a) could not refer to a common, standard language system and (b) were probably influenced to different degrees by French. This is obvious in some descriptions, in which there is clearly some code-shifting, as in (30) and (36). Though there are very few cases of this kind, they are a good indication of the existing asymmetry between French and Occitan.

- (35) *ròse, mas fuchsia, sai pas se se dis en occitan, donc ròse, ròse viu, ròse viu*
 ‘pink, but [switches to French] fuchsia, [switches back to Occitan], I don’t know whether one can say this in Occitan, so pink, flashy pink, flashy pink’
- (36) *caca d’oie, pas kaki, caca d’oie... d’auca*
 ‘[French] greenish-yellow (lit. poo-of-geese), [Occitan or French] not khaki, [French] greenish-yellow... [Occitan] of goose’

Figure 3 below illustrates the impact of this divergence on participants’ responses: while some participants display patterns which are quite akin to what we found in French – namely participants 16, 9, 19, 18 and 12 –, others stray from this pattern to various degrees. Some participants provided complex colour descriptions more than half the time.

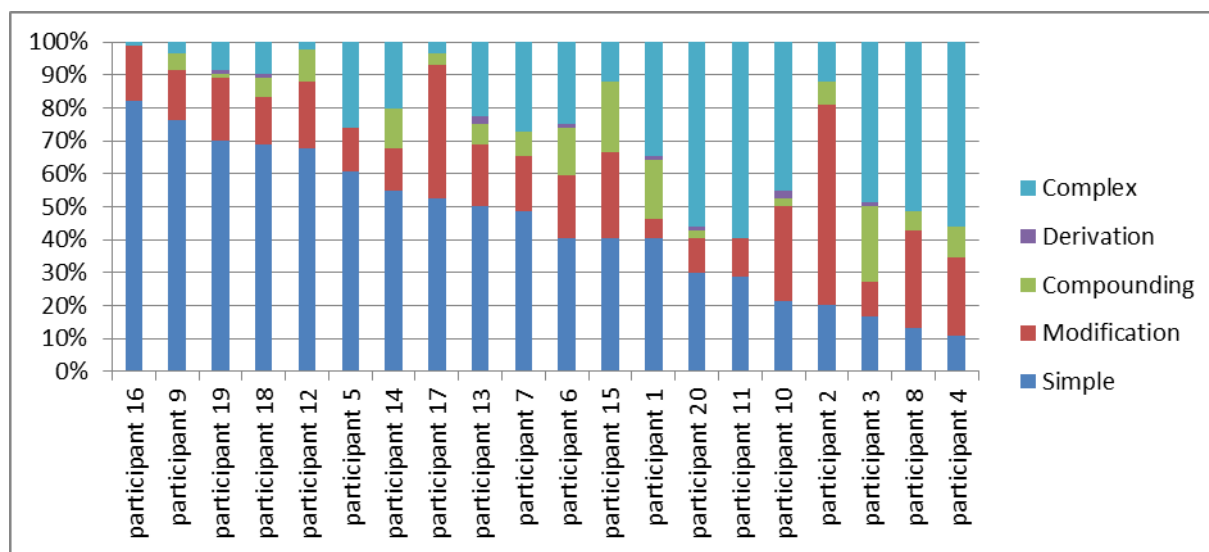


Figure 3. Variation in the use of naming strategies across participants, in Occitan.

For instance, concerning the main structural difference between French and Occitan, namely the use of derivation, there is a wide divergence among Occitan participants, with 8 participants who never used suffixes, 9 participants who used suffixes from 1 to 5 times, and 3 participants who used them more than 10 times.

The three participants with the highest frequency of simple constructions considered French as their first language. Besides, the true outlier, participant 16, is much younger than all other participants, and one of the least fluent in Occitan, having French as first language and speaking Spanish at home. Conversely, the three participants with the lowest frequency of simple constructions mentioned Occitan as their first language; this is also true of the three participants (not the same) with the highest frequency of suffixation (though one of the participants actually gave French *and* Occitan as first languages).

Number of participants	Number of suffixed words
1	18
1	15
1	11
1	5
2	4
1	3
3	2

2	1
8	0
Total	68

Table 10. *Number of suffixed words per participant, in the Occitan data.*

4. Discussion and concluding remarks

We expected our results to illustrate the structural similarity between French and Occitan, as well as differences, with a preference for analytical constructions in French and for synthetic constructions in Occitan. In other words, we predicted that participants speaking French would tend to favour analytical (multi-word) descriptions for naming colours, and participants speaking Occitan would favour synthetic descriptions with colour term and derivational suffix.

Concerning the use of various colour-naming strategies, there is indeed a large overlap between the two languages, at least as far as we can tell on the basis of the EoSS data investigated in this study. Both groups of participants made use of simple colour naming, compounding, modification, derivation and more complex strategies; yet, there is a difference between the two languages in the frequency of each strategy.

However, as far as the importance of analytical constructions is concerned, our data did not quite yield the results we expected – i.e. a clear contrast between ‘Analytical French’ and ‘Synthetic Occitan’. As we have shown in Sections 2 and 3, the contrast is actually much more complex. The strategies used by participants in both languages are mostly similar, but structurally complex strategies seem to be more frequent in Occitan, not French. Besides, derivation, which is a synthetic strategy, is found almost only in Occitan: even though we expected to find *some* derivation in French and much more in Occitan, what we found was rather *some* derivation in Occitan, and *none* in French.

There is a stark contrast between the prolific descriptions in the Occitan dataset, with participants combining various strategies and describing colours with a mean of 3.13 words, and the very straightforward descriptions in French, with a mean of 1.36 words. However, this contrast might not be linked to differences in language structure, but to the fact that, for French, participants were students used to experimental set-ups, thus prone to provide simple, straightforward answers. Conversely, for Occitan, participants were not used to such experimental protocols, and also possibly delighted to have an opportunity to use a language which they all considered as beautiful, giving it a mean of 4.9 out of 5, while French score a measly 4.2.

Further research shall systematically compare the EoSS data with corpus-based data to investigate the actual language use and the evolution of the different strategies used by participants of the two languages. Our first attempts in this direction seem to show that there is indeed a clear evolution, with a much higher frequency of suffixation in older stages of the language, at least for French.

Abbreviations

FR: French
 INF: infinitive
 IT: Italian
 OC: Occitan
 PRS: present

PT: Portuguese
 RM: Romanian
 SG: singular
 SP: Spanish

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