Galician Colour Semantics: An Investigation of Basic Colour Terms

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ABSTRACT

This thesis explores the basic colour categories in Galician, a minority language spoken in the northwest of the Iberian Peninsula that has been increasingly impacted by diglossic language contact with Spanish over the last century.

This study collected data from two age groups: the oldest speakers available, who were generally less affected by language contact with Spanish, and young adults, who were bilingual and the first generation schooled in Standard Galician. All participants reported having Galician as their everyday language. Data was collected from 98 participants from 11 collection points across Galicia seeking a balanced sample of the Galician speaking population and their dialects.

Results were extremely heterogeneous across and within age and gender subgroups. Nevertheless, some general trends have been identified. Consensus was much lower among elderly participants. Elderly males showed diverse categorisation patterns which ranged from distributions with fewer and more comprehensive categories (e.g. RED+ORANGE, YELLOW+ORANGE, PINK+ORANGE and even BLUE+PURPLE) to systems with more categories and more restrictive denotations. Elderly females presented similar categorisation patterns but tended to be ahead in the process of developing unitary categories, especially ORANGE. Young males had the highest consensus by generally presenting the classic 11 basic colour categories. Although young females agreed, some were developing new partitions such as LILAC.

The categorisation patterns attested across the age groups generally align with the Universals and Evolution (UE) model's premises of partition and a series of predictable trajectories. The data, however, reveals the existence of extreme variation: members of the same generation can be several evolutionary stages apart and present different partition strategies for the same hue. Moreover, this thesis has uncovered a new possibility for the development of ORANGE. Instead of partitioning unitary ORANGE directly from MACRORED, there may be an intermediary stage PINK+ORANGE.

The labelling strategies for these categories were highly variable, particularly for RED and PURPLE. This variation is not frequently attested in colour semantics and highlights the importance of factors such as a) lack of — or recent — standardisation, b) the impact of language contact and c) the instability of labels when partition is not complete (ORANGE) but also much later after the category is consolidated (PURPLE).

This thesis shows the relevance of sociolinguistics, linguistic background and repertoire when collecting, processing and analysing data. Moreover, a new methodology is proposed to deal with this complex data: a series of increasingly comprehensive levels that allows an operational analysis without reducing the rich phenomena the data reports.

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LIST OF ABBREVIATIONS

AGAL: *Associaçom Galega da Língua*

ALGA: *Atlas Lingüístico da Lingua Galega*

BCC: basic colour category

BCT: basic colour term

BE: best example

BK: Berlin and Kay (1969)

DdD: *Dicionario de Dicionarios da Lingua Galega*

DRAG: *Dicionario da Real Academia Galega*

EF: elderly females

EL: elicited list

EM: elderly males

EP: elderly participants

GMP: Griber, Mylonas and Paramei (2018)

IGE: *Instituto Galego de Estatística*

KBMM: Kay, Berlin, Maffi and Merrifield (1997)

LB: Lindsey and Brown (2009)

MCS: *Mesoamerican Color Survey* (1997)

RAG: *Real Academia Galega*

RDD: Roberson, Davidoff and Davies (2000)

TILG: *Tesouro Informatizado da Lingua Galega*

TN: tile naming

YF: young females

YM: young males

YP: young participants

UB: Uusküla and Bimler (2016)

WCS: *World Color Survey* (2009)

CHAPTER 1. INTRODUCTION

1.1. History and Sociolinguistics

Galician is a 2.4 million speakers romance language from the Northwest of the Iberian Peninsula, and therefore is often labelled as an Ibero Romance, specifically a West Iberian subtype (see Figure 1). It is spoken in the Spanish autonomous community of Galicia and the adjacent areas of Asturias and Castile and León (Eo-Navia area, O Bierzo, As Portelas) together with the Jálima Valley in Extremadura. There are also Galician speakers in migrant communities in other areas of Spain, Latin America, the United States and some European countries such as Switzerland and Germany.

Figure 1 Location of Galicia (image from Google Maps)

Gallaecia was the name the Roman empire gave to a vast area in the Northwest of the Iberian Peninsula when they first arrived in the second century BC. By 19 BC they had conquered most of that territory and annexed it to the Empire. Thus, Latin brought by soldiers and civil workers started superseding the local languages. Those languages were certainly Indo-European and, according to Prósper (2002), they were not Celtic but related to the italic branch, namely Umbrian.

In 409 the Kingdom of Galicia was founded by the Suevi. This was then annexed in 585 to the Visigoth crown ruling all over the peninsula. In the eighth century Galicia became part of the Kingdom of Asturias and León and achieved new brief periods of independence. In the eleventh century Santiago de Compostela was established as the capital of Galicia. The construction of its cathedral around the figure of James the Apostle and the following massive reception pilgrims from all Europe created a prosper economic and cultural environment that made flourish a rich lyric poetry. The Galician-Portuguese lyric, developed since the early thirteenth to mid-fourteenth century, left

nearly 2,000 pieces which were appreciated and even imitated in the Court of Castile (e.g., Cantigas de Santa María).

In the thirteenth century the Kingdom of Galicia became part of the Crown of Castile. However, it was not until the fifteenth century when the Crown and Castile and the Crown of Aragon united their forces in a single kingdom that a centralised power was put in place. The Catholic Kings wanted a unified kingdom with a single language and a single religion. To do so, both Jewish and Muslims were expulsed or forced to convert, and Spanish was declared the common language. To control this territory Galician elites were killed and replaced by governors sent from Castile. Thus, the Galician language stopped being used in prestigious contexts and was actively prosecuted for centuries (Callón 2022). It continued to be the language of the majority of the population but considered a language of peasants. Those centuries of literary silence (sixteenth, seventeenth and eighteenth) are known as Dark Centuries.

In the late nineteenth century, a poetic revival called *Rexurdimento* was followed by the creation of many cultural institutions: *Real Academia Galega* (1906), *Irmandades da Fala* (1916), *Seminario de Estudos Galegos* (1923). All this came together with a progressive national awakening that led to the foundation to the Galician nationalist party (1931).

However, the intellectuals involved in those activities were severely repressed during the Spanish Civil War (1936-39) and the following 40-years-long dictatorship. Consequently, the writers who escaped the killings were exiled in the large Galician emigrant communities in America, namely Buenos Aires, where they kept promoting an extensive cultural activity around the Galician Centres. During the second half of the dictatorship, other than a few exceptions such as the creation of the publishing house *Galaxia* in 1950, censorship allowed little cultural movement in Galician and its use was still physically punished at school.

The Galician language only became co-official along with Spanish in 1981, after the dictatorship was over. To enable this language to be used for education, legal documents or the first Galician TV channel (1985), a Norm for Standard Galician was published by the Real Academia Galega (*Normas ortográficas e morfolóxicas do idioma galego*, NOMIGa 1982) which was refined in 2003. However, as we will see in Section 1.3, this did not happen without controversy (Dayan-Fernandez & O'Rourke 2020).

The normativisation of Galician has been quite effective. Institutions such as the Real Academia Galega (RAG), the Instituto da Lingua Galega (ILG) or the Centro Ramón Piñeiro para a Investigación en Humanidades have worked for decades undertaking different research projects and providing numerous resources such as dictionaries, glossaries, online corpora and data bases. Nevertheless, there is still an ongoing terminological process. Projects such as *Termigal* by the *Centro Ramón Piñeiro para a Investigación en Humanidades* and the online data base *bUSCatermos* by the Universidade de Santiago de Compostela are examples of these collective efforts.

However, the normalisation did not succeed to the same extent. The Parliament of Galicia approved in 1983 a Galician Language Normalization Law (*Lei de Normalización Lingüística*) together with a *Plan Xeral de Normalización* (2004) which has been criticised for being poorly implemented (García Negro 2009).

Although Galician has been co-official for over 40 years, in contexts such as courts, hospitals, press and universities the use of Spanish continues to be dominant. This dynamic of Spanish being used for formal settings and Galician for informal ones is a strong example of diglossia (Fishman 1967).[1] In addition, despite the language being compulsory at school and its knowledge rate being healthy, the number of young speakers continues to drop.

1.2. Vitality of the language. Recent Statistics

According to the last study by the Galician Institute of Statistics (2019) the number of Galician users is declining. In 2018, 30,57% of the Galician population always speak in Galician. This percentage is 0,63 points below the one registered 5 years ago. Surprisingly, the percentage of population who speak more Galician than Spanish increased 1,43 points since 2013 reaching a 21,72%. However, the percentage of those who speak more Spanish than Galician also increased, 22,26% in 2013 and 23,32% in 2018. In addition, 24,40% of the residents in Galicia speak only Spanish, a number that decreased 1.85 points since 2013.

It is certainly challenging to interpret this general data as the variation rate in the last 5 years is relatively small and the tendencies seem to go in opposite directions. The data turns revealing if we look to dimensions of age and location.

In words of the IGE “the use of Galician is unequal depending on the age of the population” (Instituto Galego de Estatística 2019: 4). 48,48% of people above 65 speak only in Galician and another 24,91 use more Galician than Spanish, which means that 73,71% of the elderly people speak only or mostly Galician. In contrast, 44,13% of the children between 5 and 14 years speak only Spanish and another 29,75% speak more Spanish than Galician, so in total 73,88% of Galician children use only or mostly Spanish.

Regarding location, it is also remarkable that the 45,70% of the families that use exclusively Galician live in municipalities with less than 10.000 inhabitants and only the 5,66% of them live in towns above 50.000.

[1] Orginally the term was coined and defined by Ferguson (1959) as a situation in which two (or more) varieties of the same language are used in different kinds of settings (e.g. Classic Arabic (in formal situations) and colloquial Arabic (in everyday situations). However, Fishman (1967) expanded the definition to dialects, registers or different languages having different social functions in a given community.

It is important to bear in mind that the officialization of the language and its presence at school has brought a higher knowledge of the language but not an increase in use among the younger generation.

This linguistic situation is a concern for a wide part of the population. There are important citizen movements with a firm commitment to the defence of the language. Good examples are the organisation *A Mesa pola Normalización Lingüística* which undertakes strong public campaigns of promotion and denounces cases of linguistic discrimination, and citizenship platforms such as *Queremos galego* which mobilised up to 100.000 Galicians in a demonstration rejecting the language education policy announced by the Galician government in 2009.

1.3. Linguistic Delimitation

The relationship between Portuguese and Galician has been of the greatest interest to this very day. Despite some different preferences on each side of the river Miño, there is no doubt that during the Middle Ages this area was a single linguistic community (Freixeiro Mato 1997: 24). The language now known as Galician-Portuguese originated in the Roman province of Gallaecia and was known at the time as *galego* (1997: 21). Even when Portugal became an independent kingdom in 1143, the political division did not break that linguistic unity (1997: 22), as can be seen in an extensive joint cultural production: an exquisite lyric corpus that continued until the fourteenth century.

However, after this golden era this linguistic community diverged along two very different paths. On one side, Portuguese became the official language of a prosperous country and eventually spread through colonised countries in America and Africa. On the other, Galicia stopped having its own king in 1230 when it became part of Castile, thereby losing its own royal court to promote the language (Freixeiro Mato 1997: 23). Thus, Galician became a regional language within a bigger country which, particularly from the fifteenth century and the period of the Catholic Monarchs [1475-1504], actively prosecuted any manifestation of a culture different from Castilian.

Today there are two linguistic poles: Standard Galician and Standard Portuguese. These are connected through a linguistic continuum that is particularly noticeable in the varieties spoken in the north of Portugal, closer to Galician and not well-considered by speakers of the Lisboan norm.

The relation between Galician and Portuguese is still a matter of great debate amongst Galician academics. Nowadays there are two main philological positions. On one hand, there is the autonomism or isolationism norm, represented by the Galician Royal Academy (Real Academia Galega, RAG) and the Galician Language Institute (Instituto da Lingua Galega, ILG). They created Standard Galician in 1982 which has been adopted by the Galician government, universities and main cultural institutions. It understands Galician and Portuguese as independent languages that stemmed from

medieval Galician-Portuguese. In other words, for them modern Galician must be considered an independent language belonging to the group of Ibero-Romance languages having strong ties with Portuguese and its northern dialects. However, it is important to remember the context this language exists in: Galicia is under the rule of Spain and Galician has been excluded from formal and public uses for centuries. Therefore, this philological position necessarily has political and sociolinguistic implications. In words of Duarte Collazo, autonomism "conceives Galician as a regional language and therefore exclusively restrained to the Autonomous Community of Galicia" and therefore it "aims to maintain Galician in a bilingual situation together with Castilian, a bilingualism which leads inexorably to a per se diglossic situation which maintains Galician in a situation of continuous instability impeding the full normalization" (2014: 1). There is a section of those (which would only fit the label isolacionists) who conceive Galician as the historical language of Galicia in its own right and understand that the only way to overcome the current diglossia is political independence from Spain.

On the other hand, stands reintegrationism, defended by a section of the population and institutions such as the Galician Language Association (Associaçom Galega da Língua, AGAL). They conceive Galician as an international language and as part of the Portuguese linguistic diasystem, crossing in this way the borders of the Spanish State and placing itself at the same level as the Portuguese and Brazilian variants (Duarte Collazo 2014: 1). Their sociolinguistic strategy is "to gain autonomy and stability for the Portuguese spoken in Galicia, since it gains protection from the Portuguese language, one of the most spoken languages in the world" (Duarte Collazo 2014: 1). AGAL defends the adoption of the Portuguese orthography in order to join its international cultural market. They believe this would reverse the stifling conditions imposed by Spain and the distressing drop in the numbers of Galician speakers.

The political implications of assuming that Galician and Portuguese are "expressions of the same language" (AGAL, online) are multiple. In fact, the NOMIGa, the first norm of Standard Galician, got little or no inspiration in Portuguese, its closest relative, on the contrary, its orthography has been accused of being subsidiary to Spanish (Valentim Fagim 2009). Perhaps the reason was indeed political, as Standard Galician was created in the context of the tense Spanish Transition, after a dictatorship. Adopting the Portuguese orthography has a symbolic weight (Herrero-Valeiro 2003) and could have been taken as a defiance.

Traditional Galician is the language spoken by the Galician people as opposed to Standard Galician. Traditional Galician is made of different dialects and contains a significant number of Spanish loanwords due to the dominant position of Spanish in Galician society up to the present day. Standard Galician was based on an extensive ethnographical study of Traditional Galician (*Atlas Lingüístico da Lingua Galega* ALGA 1974-1977) but it required creating new lexicon by either restoring Traditional Galician words

which were only alive in certain areas or by creating neologisms. Nevertheless, AGAL has also criticised that most of these neologisms are calques of Spanish rather than harmonising with Portuguese (Valentim Fagim 2009).

Having pointed out the innumerable connections between Galician and Portuguese, I will turn now to their differences and finally address why an independent study of Galician is needed. Despite all their shared characteristics, modern Galician and Portuguese have phonetic, morphological, grammatical and lexical differences. Any person slightly versed in linguistics knows that the definition of a language as opposed to a dialect or variety is a complex topic. Beyond the linguistic differences, criteria such as intercomprehension, perceived similarity, shared history and politics are also crucial. In any case, despite academic discussions and the long-term goals of AGAL, today Galician and Portuguese are in effect independent languages. They are official in their territories in their respective norms, and are taught academically as different disciplines, so that despite their intercomprehension, they are perceived as different languages in both speech communities.

In any case, whether they are considered two varieties of the same language or two separate languages, the lack of study of Galician Colour Semantics needs to be addressed. These languages have not been in extensive contact for more than five centuries, a period that has been crucial in most of their neighbouring languages for the development of their colour vocabularies.[2] Hence, even if Portuguese and Galician originally shared the same colour terms, after this long period of isolation it is likely that they would have developed different colour semantic categories, just as they differ in other aspects of their grammars.

The relationship between Spanish and Galician is of a different nature. There is absolute scientific consensus that Galician and Spanish are different languages. Furthermore, the two languages developed as daughter languages of Latin without even sharing linguistic borders, as another Romance language, Astur-Leonese, was between them.

Thus, the reason to look to Spanish in this study is not phylogenetic but sociolinguistic. Spanish has been present in Galicia for more than five centuries. Although it is thought that most of the population remained monolingual in Galician until the nineteenth century (Freixeiro Mato 1997: 73), the Galicians' contact with Spanish in the last century and a half has increased exponentially.

1.4. Motivation for this generational study and contribution

As we will see in section 2.3.3., so far Galician lacks a structured and consistent documentation of the Galician colour categories. Thus, a core goal of this study is to

[2] For example, the Spanish BCTs for PURPLE (*violeta, morado*) have their first attestations in the fifteenth century, and there are no attestations of the term for ORANGE (*naranja*) until the seventeenth (Dębowiak & Stala 2016).

register as soon as possible the categorisation and labelling by the oldest living speakers. Another key objective is to record this in young adults too and point out any differences.

The aim is to assess how much linguistic change is taking place in two generations. Furthermore, given the increasing language contact, I will seek for any correlation between the colour categorisation patterns and the linguistic profile of the age groups.

The sociolinguistic profile of these two age groups will be described thoroughly in Chapter 3. Fieldwork methodology.

CHAPTER 2. LITERATURE REVIEW

2.1. Evolutionary sequence and the UE model

2.1.1. Berlin and Kay

The publication of *Basic Color Terms* by Brent Berlin and Paul Kay (1969) (hereafter BK) marks a milestone in the study of Colour Semantics. Although there had been some work in this field during the nineteenth and twentieth centuries by authors such as Gladstone, and Brown and Lenneberg, the findings by BK caused an avalanche of responses that boosted the emergence of a separate discipline.

The predominant doctrine in Linguistics at the time, that of absolute linguistic relativity, stated that the categorisation of the hue spectrum by different languages is arbitrary (Krauss 1968; Gleason 1961; Ray 1952). BK did not agree, they felt that colour terms translate too easily from one language to another for such a doctrine to be correct (1969: 2). They challenged the linguistic relativity hypothesis by testing speakers of 20 languages and comparing the results with another 78 languages from literature. The test with native speakers of those 20 languages consisted of an elicited list of colour terms and a mapping of foci of the terms mentioned in the elicited list.

The two major postulates of this work are: 1) there are eleven universal basic colour categories and 2) these categories are encoded in the history of any language in a partially fixed order (1969: 5). That fixed order was explained in a seven-stage evolutionary sequence (Figure 2.1).

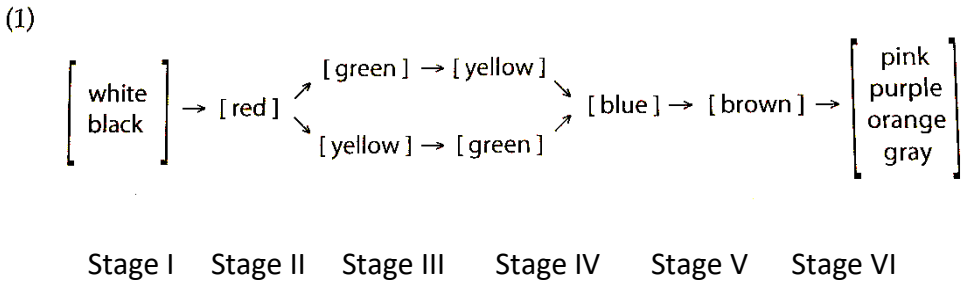

Figure 2.1 Berlin and Kay's evolutionary sequence reproduced from BK (1969: 4)

The evolutionary sequence was described in the following terms. Every language has at least terms for white and black. If it contains three colour terms, the third one is necessarily for red; if it contains four, it has also terms for green or yellow; if five, it has terms for both green and yellow; if six, it also has a term for blue; if seven, a term for brown is added, and if a language has eight or more colour terms, then it contains terms for one or more of purple, pink, orange and grey (1969: 2-3).

Those terms in BK terminology refer to the foci of the categories and not to their boundaries or total area. Thus, 'white' and 'black' refer to the foci 'white' and 'black' and stand for the assumed categories of LIGHT/PALE and DARK; focal red stands for an assumed RED category, and so on. The decision to relegate non-focal category data to a minor role in the hypothesis is justified by BK (1969: 13) who say that whilst the data regarding the category foci was highly reliable, the data about category boundaries was not consistent, even when coming from the same participant. This resulted in category boundary data not forming a central part of the analysis.

Although the Colour Semantics literature tends to describe the evolutionary sequence as addition of terms —as I did two paragraphs above— it is important to rephrase this idea in terms of foci, as those are the concepts BK are working with. Therefore, a more suitable definition would be: every language has basic colour categories (BCCs) with foci in white and black; if it has more BCCs, the third one would be necessarily focused in red; if it has four, the focus of the next BCC will be either green or yellow, etc.

The work of BK was based on the assumption that every language has a set of basic colour terms. In other words, they presumed that every language divides and names the entire visible light spectrum as a set of basic colour categories and terms which progressively sub-divide and thus increase across time. This is known as the Partition Principle.

2.1.1.1. Basicness

Before moving on to further developments it is appropriate to discuss the notion of basicness. This was firstly defined by BK and since then other authors such as Hays et al. (1972) and Bolton (1978) have added more criteria. See Table 2.1 below.

Table 2.1. Basicness criteria by BK (1969) and others

BK	Others, contained in Biggam (2012)
Primary criteria • Monolexemic form (non-predictability) • Non hyponymy • Contextual restriction • Saliency: first positions in elicited lists[3], stability of reference across informants and occasions,	• Durbin (1972): Expression length • Hays et al. (1972): Frequency in texts • Bolton (1978a): Frequency in speech • Hays at al. (1972): Response time • Bolton (1978): Type modification: the colour adjective "it is not purely descriptive, but

[3] However, ELs do not reflect only a hierarchical organisation but also tend to present clusters of semantically related terms. An example would be *green* followed by *olive green*, *emerald, chartreuse*. Troyer et al. (1997) proposed two mechanisms within this phenomenon: *clustering*, exploring the vocabulary of that group and *switching*, moving on to a new semantic cluster.

idiolectal evidence present in all informants Secondary criteria • Derivational morphology aspects (e.g. acceptance of suffixes) • Not be a homonym with an object name • Recent loan words (to be viewed with suspicion) • Morphological complexity (excludes blue-green)	classificatory" (hair and skin are often type modified). • Bolton (1978): domains of expressive culture • Bolton (1978): embedded expressions • Frumkina in Paramei (2005): Cultural-historical significance (to support the difference between Russian *sinij* and *goluboj*)

However, some of these criteria have been proved not to apply to all languages. Moreover, Frumkina (in Paramei 2005) stressed that the cultural-historical significance can be decisive for assigning basic status.

Furthermore, Kerttula (2007) explored the notion of relative basicness and proposed a series of criteria to measure it:

(1) Primacy, refers to how important the colour sense is. She explores this through advanced monolingual dictionaries but since these might reflect "fossilized sense hierarchies" (2007: 152) she suggests using a corpus which might have more updated meanings. This criterion by itself is insufficient and it recognises four levels:

1. colour as the most important meaning, it is a hypernym, not defined by other colours e.g. *red*

2. colour as the most important meaning, it is a hyponym e.g. *violet*

3. colour as a secondary sense, e.g. *rust*

4. colour as the third or more sense e.g. *ginger*

(2) Frequency, refers to the number of occurrences in a text. It takes into consideration only colour senses, but excluding colour in place names, idioms, animal and plant names or metaphors (*black market*) or metonyms (*black music*) (2007: 152).

(3) Application, refers to the number of referents. Frequency and Application are related and cannot be used separately.

(4) Derivational productivity, refers to the number of "derivative types". In English the oldest terms are the ones with more derivatives and are, therefore, more basic. BK and Corbett and Davies (1995), also use derivational productivity as a criterion for basicness. Derivational productivity is connected to how old a term is and to its basicness. It helps confirm basicness but needs to be supplemented by either frequency or application.

These criteria should be translated into values that show the degree of relative basicness. This assignment of values is a similar approach to what I propose to measure complex responses (see Section 5.4.1.).

In her study of the relative basicness of English colour terms and their etymology, Kerttula found confirmation for a universal development of the 11 BCTs in BK. However, even if colour naming is universally regulated, its ordering and development might be altered by cultural intervention e.g. how the Norman Conquest introduced a switch from brightness to hue in English (2007: 157).

Kerttula highlights that "there are indications that over the centuries, when analyzing the color space to name its segments, the emphasis was first on brightness, later on hue. The transfer of emphasis to hue was followed by creation of abundant brightness and saturation qualifiers. This might constitute a third universal phase in the development of color naming" (2007: 157).

Although, the UE model suggests that warm categories are always named earlier, Kerttula notes that in Finnish there is a preference for naming cool colours first, *violetti* and *turkoosi* are older terms than *pinkki* and *lila*. She suggests this might be caused by climate (Kerttula 2007: 160). A similar preference for coolness has also been reported regarding Russian blues by Paramei (2005, 2007).

2.1.2. Following criticisms and modifications to the (later) Universals and Evolution (UE) Model

BK established that if a language has only two basic colour terms, they denote LIGHT/PALE and DARK categories, named by BK for their foci 'white' and 'black', and these categories refer to all the visible colours. Thus, the light term would be applied to "white plus most light hues" and the dark term to "black plus most dark hues" (1969: 17).

Nevertheless, the investigations by Eleanor Rosch[4] in the early nineteen-seventies with the Dani people in West New Guinea challenged these definitions. Although their language was supposedly at Stage 1, she found that their bright and dark categories (*mola* and *mili*) were not distinguished only in terms of brightness but also in hue. Thus, Rosch defined these categories as "light and warm colours" and "dark and cold colours" (1972a: 451). Furthermore, their focal points were not white and black but dark red (or pale pink) and dark greens (or blues) respectively, which are the most distant points in both brightness and hue dimensions (1972a: 460–461).

Rosch's work (Rosch Heider 1972a, b; Rosch Heider & Olivier 1972) led to the first amendment to what was later known as the Universals and Evolution (UE) model. The

[4] This author published her first works as Eleanor Rosch Heider and afterwards as Eleanor Rosch. Thoughout the text I refer to her as Rosch but references reproduce the surname(s) in the original publication.

amendments were made by Berlin and Berlin (1975) and Kay (1975) who reformulated the denotata of 'white' and 'black' in two-term systems as "white and other warm colours" and "black and other cool colours".

These wider concepts that include more than a unitary hue are known as macrocategories or extended categories. A common macrocategory in world languages is GRUE, whose denotata consist of GREEN+BLUE. In 1975, Kay updated the evolutionary sequence implementing macrocategories in capital letters as shown in Figure 2.2.

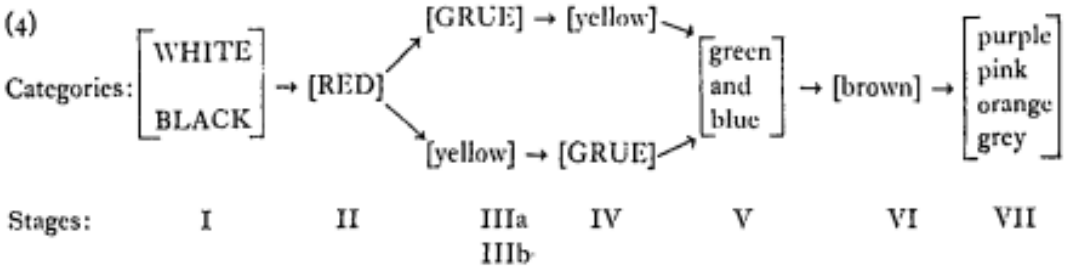

Figure 2.2 Kay's evolutionary sequence (1975: 260)

As Kay and Maffi admitted in the World Colour Survey (2009a: 3) (hereafter WCS), Kay made a "major equivocation". By using the same words, Kay created confusion between extended categories such as WHITE, BLACK and RED and the unitary categories WHITE, BLACK and RED. There is a crucial difference between the denotata of the extended category WHITE in Stage I ("white and all warm colours") and the denotata of WHITE at Stage VII (as shown in Figure 2.2) which exclude all hues. After realising this, Kay and colleagues corrected: "the evolutionary sequence […] appears to be about successive encoding of primary colors, but the evolutionary model as described in the BK text is in fact about the successively refined partitions of the perceptual colour space" (WCS, 2009: 3).

The work by Kay and McDaniel in 1978 corrects this problem by representing the evolutionary seven stages as three types of categories. The first is the phenomenal opponency of the six Hering primaries —BLACK vs WHITE, RED vs GREEN, and YELLOW vs BLUE. The second is "composite categories", defined as terms denoting fuzzy unions of primaries, namely, macrocategories. The third type is "derived categories" defined as fuzzy intersections of primaries e.g. ORANGE, BROWN, PURPLE, PINK and GREY. Nonetheless, GREY is considered a special category, a sort of wild card that can arise at any point between Stages III and VII (Figure 2.3).

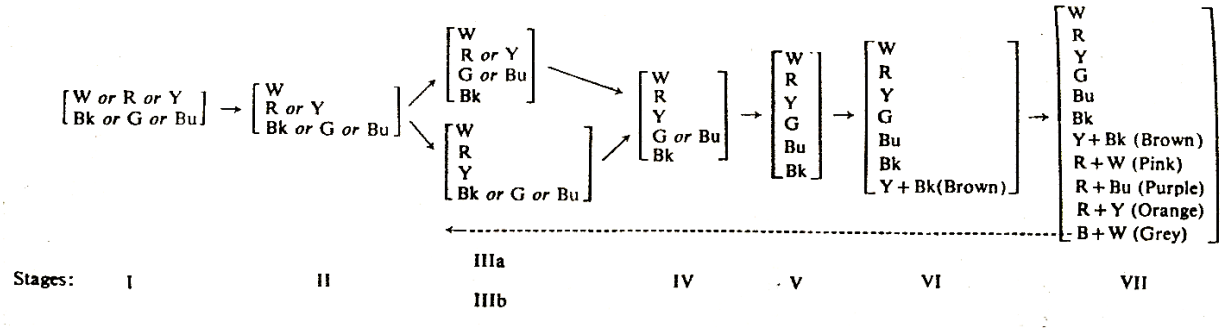

Figure 2.3 Kay and McDaniel's evolutionary sequence (1978: 639)

However, as Kay and Maffi noted in the WCS, Kay and McDaniel were mistaken in accepting the conclusions of De Valois et al.'s (1966) experiment with macaque monkey brains' responses to colour stimuli as proof of the neurophysiological basis of the Hering primaries and the phenomenal opponency of red/green and yellow/blue (WCS, 5). As Biggam notes, the problem consists in assuming there is a direct connection between features of neurophysiology and language (2012: 77).

Furthermore, the work of Malkoc et al. (2002) has disputed the validity of the hypothesis that the binary (or trinary) categories are psychologically processed as pairs (or triplets) of primaries, as they "found no correlation between unique hue judgments for binary terms and the supposedly underlying primaries" (as reported in WCS: 5). In other words, when it comes to categorising a binary term as orange, not every subject recalls red or yellow as the primaries from which it derives.

Kay, Berlin and Merrifield (1991) (hereafter KBM) published the first preliminary analysis of the WCS data. They established that there are only eight attested types of union-based, composite or macrocategories in the extensive WCS corpus. However, although the WCS analysed 110 world languages from 45 language families, it might not be representative of global language diversity (about 5000 languages).

KBM explained why those categories and no others occur through the notion of adjacency in subjective colour space. They illustrated this with the diagram shown in Figure 2.4.

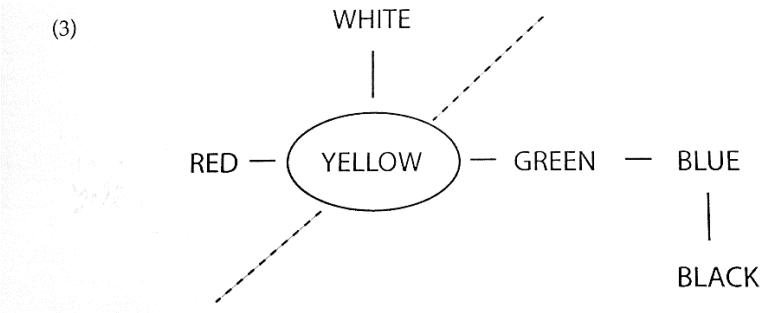

Figure 2.4 Kay, Berlin and Merrifield's explanation of adjacent categories (1991: 15) reproduced from the WCS (2009: 6)

The four hues were organised from left to right depicting their adjacency in terms of the spectral position of their dominant wavelengths (red longest and blue shortest). The special relation of yellow and white is explained "by the fact that the sensation of yellow has an inherent lightness (or brightness) component" (WCS: 6). Although the connection of blue and black is not justified theoretically, it is sustained by the fact that the WCS contains black-or-blue categories but none for black-or-green, black-or-red, or black-or-yellow (WCS: 6). There is also no justification provided for the diagonal line through yellow. Therefore, KBM stated the following rule: a possible composite category is any fuzzy union of a subset of Hering primaries which in the aforesaid diagram "forms an unbroken associational chain not crossing the diagonal line" (KBM: 16).

Although there could be sixty-three logically possible non-null subsets of composite primaries, according to KBM´s findings, these are reduced to only nine, eight of which are attested in the WCS. However, the WCS admits there are *occasional* exceptions such as words meaning "desaturated colour", "pastel" or "indistinct, murky colour" (WCS: 7).

Problems have arisen, however, at several levels of investigation. At the lowest level, some languages have been shown not to conform to the hypothesized hierarchy in one or more respects. Many languages of the Pacific Northwest, such as Shuswap, have a basic colour-term signifying YELLOW+GREEN (MacLaury 1987). Furthermore, Martu Wangka places in yellowish green the focus of a GREEN-WITH-YELLOW or GREEN-WITH-BLUE category and Hanunóo has a similar category (MacLaury 1997: 450).

In addition, McNeill (1972) reported that Ainu, the language of the indigenous people of Japan, has four basic colour-terms, two of which are *hu* 'RED+GREEN' and *siwnin* 'BLUE+YELLOW'. Both cases would contradict BK and KBM.

MacLaury (1987) proposed that, as the evolution of derived categories is less regular among languages than the evolution of composite-to-primary categories, they should be considered independent evolutionary paths, instead of parts of the same sequence.

Kay, Berlin, Maffi and Merrifield (1997) (hereafter KBMM) continued MacLaury's idea of two evolutionary paths —those of composite-to-primary and derived categories— by leaving behind the last two stages of the original sequence and reformulating the typology of basic colour systems as "basic stages". These basic stages represent the consecutive partitions of the two primordial composites W/R/Y and Bk/G/Bu that eventually produce independent terms for the six Hering primaries. Thus, they established five basic stages with two-, three-, four-, five- and six-term systems in which Stages III and IV allow more than one set of terms. KBMM also noted that languages are often positioned between two stages as certain terms or distinctions are being incorporated and they are transitioning to another stage.

The work by Kay and Maffi (1999) represents the first time the UE model addressed the assumption that all languages develop a small set of words that refer to successive partitions of the psychological colour space.

As a consequence, Kay and Maffi reformulated the UE hypothesis in this way:

I) there exists a small set of perceptual landmarks (that we can now identify with the Hering primary colours: black, white, red, yellow, green, blue) which individually or in combination form the basis of the major colour systems of most of the world languages.

II) Languages are frequently observed to gain basic colour terms in a partially fixed order. Languages are infrequently or never observed to lose basic colour terms (1999: 744).

Regarding the last statement, the WCS explains that once a basic category emerges it rarely becomes unnamed, although the specific terms can change over time (2009: 8). However, an alternative to the Partition Principle, known as the Emergence Hypothesis (EH), proposes that not all languages necessarily have a small set of words or word senses to signify the whole spectrum.

As the WCS notes, this new formulation of the UE model is “broader than the narrow claim of BK“(Saunders 1992). The WCS minimises the relevance of EH alleging the low proportion of WCS languages that might be non-partition. They report that there are no Stage I languages in their wide sample of data and very few have been reported in previous studies, so it is unknown whether some current partition languages were once non-partition. Therefore, the WCS concludes that “the apparent paucity of non-partition languages in the ethnographic present may not be representative of human history” (2009: 9).

Thus, the WCS acknowledged all these theoretical refinements through the previous decades and adopted a new UE model of basic colour terms. This a) assumed a slightly modified version of the KBMM model as statistically predominant (partition languages), b) accounted for non-partition (EH) languages and c) derived these results from *independent* observations regarding i) lexical structure and ii) colour appearance (2009: 10) (italics mine).

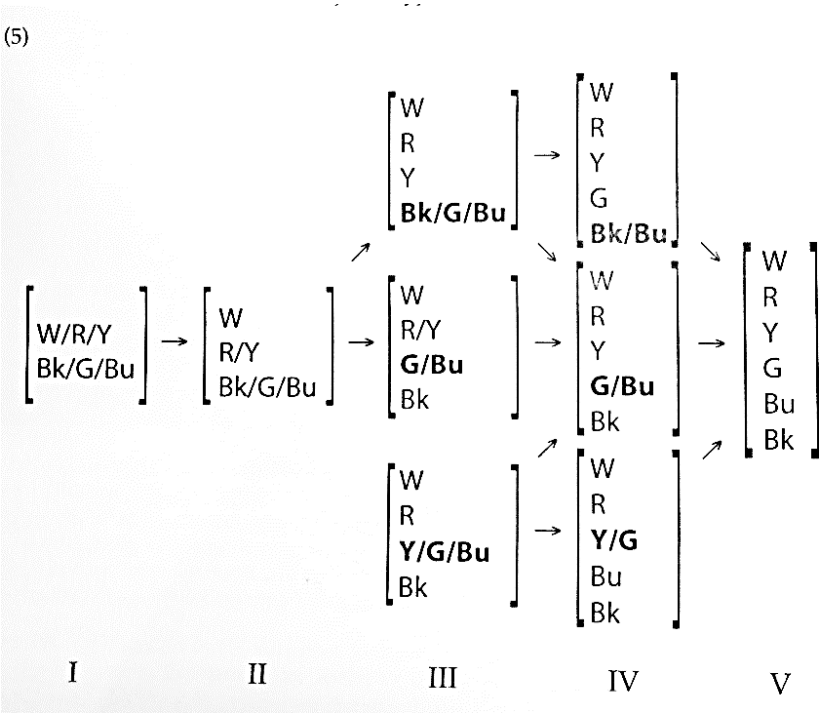

Figure 2.5 Kay, Berlin, Maffi and Merrifield's types and evolutionary stages of BCC systems (1997: 33) reproduced from the WCS (2009: 11)

The WCS used KBMM's eleven system types to classify the 110 languages in their investigation, although it dispensed with two of the Stage III variations as it did not find any example of those in the WCS languages. The progression from a two-term system in Stage I through other stages is explained in terms of "interaction of the Partition Principle with the six Hering primaries" (2009: 10). Thereby, Partition is successively applied at each change point to divide an existing category (Figure 2.5).

2.1.3. The WCS and trajectories

As discussed above, as research in the field was progressing, Kay and colleagues added alternatives to the original BK sequence. Berlin, Kay and Merrifield presented a preliminary analysis of seventy-two WCS languages in the 84th meeting of the American Anthropological Association in 1985. There some new terminology began to be used: Stage I 'white-light' and 'black-dark', and 'warm' and 'cool' from Stages II to V. Also, Stage III was subdivided into three options and Stages IV and VI was split into two options. MacLaury (1987) also documented the existence of a YELLOW+GREEN category amongst the Shuswap people of the north-west USA and suggested PURPLE and BROWN could arise before the partition of COOL (1987: 120, note 5).

Despite all this variation, the big language samples contained not only in the WCS (110 languages) but also in the Mesoamerican Colour Survey (hereafter MCS) (116) showed the prevalence of certain routes of category acquisition. The WCS data suggested a

specific set of five paths or trajectories through which languages were acquiring their BCCs (Kay & Maffi 1999).

One of these paths or trajectories, (A), is particularly common in the WCS corpus featuring in 83% of the total sample. The numbers in Figure 2.6 indicate the number of WCS languages in the different stages of this trajectory whilst the numbers with arrows quantify languages transitioning into the next stage.

Stage I	Stage II	Stage III	Stage IV	Stage V
W/R/Y and Bk/G/Bu	W, R/Y, Bk/G/Bu	W, R/Y, G/Bu, Bk ($III_{G/Bu}$)	W, R, Y, G/Bu, Bk ($IV_{G/Bu}$)	W, R, Y, G, Bu, Bk
→	6	3	41	23
	3 →	4 →	11 →	

Figure 2.6 Kay and Maffi's trajectory A (1999: 750) reproduced from Biggam (2012: 82)

Languages following this trajectory had a Stage I with two categories distinguishing light and dark: MACROWHITE (W/R/Y) and MACROBLACK (Bk/G/Bu). Stage II consists of the separation of white (W) from warm (R/Y) which, along with the cool category (Bk/G/Bu) creates a stage with three categories. At Stage III the cool category MACROBLACK splits into unitary BLACK and composite G/Bu. Stage IV consists of the split of R/Y into independent categories (R and Y), and by Stage V, all six Hering primaries are separate categories (W, R, Y, G, Bu and Bk).

In contrast, the other four alternative trajectories in Figure 2.7 are poorly attested in the WCS corpus.

Trajectory	Stage I	Stage II	Stage III	Stage IV	Stage V
B	I →	II →	$III_{Bk/G/Bu}$ →	$IV_{G/Bu}$ →	V
C	I →	II →	$III_{Bk/G/Bu}$ →	$IV_{Bk/Bu}$ →	V
D	?	?	$III_{Y/G/Bu}$ →	$IV_{G/Bu}$ →	V
E	?	?	$III_{Y/G/Bu}$ →	$IV_{Y/G}$ →	V

Figure 2.7 Alternative trajectories by Kay and Maffi's (1999: 749) reproduced from Biggam (2012: 84)

2.1.4. Motifs

Lindsey and Brown (2009) (henceforth LB) have analysed the WCS database and identified that this big sample of 110 languages generally presented only three to six distinct categorisation patterns or partition structures, which they call motifs.

These motifs align to some extent with some of the stages and trajectories proposed by BK and KM. The four most frequent motifs are: Dark, Gray, Grue and GBP. The Dark motif in LB is presented as corresponding to BK's stage II. The *Gray* motif resembles only KM

IIIa[5]. I find it problematic naming this motif "gray". As their figure 1 K4 shows, besides W, Bk, R and Y, the fifth category is not just grey but includes fully saturated hues such as green, blue and some languages even expand it into purple. Moreover, LB report operating with clusters of labelling rather than looking into the terms themselves. I wonder if this category was glossed as something such as 'ash', 'cloud' etc or rather 'pale', 'cool', 'unripe' etc. Thus, I would ask what the prototype of these categories across the different languages was and whether the BE of this "gray" was a desaturated hue or something else.

The *Grue* motif corresponds to BK stage IV and KM IVb, but a variation of it develops purple without partitioning grue which has no equivalent in BK et al. Finally, the *GBP* motif corresponds with BK stage VI.

LB (2006, 2009) also found that the WCS database contains eight recurrent "statistically significant clusters" or categories: red, green, blue, grue, yellow-or-orange[6], brown, pink and purple. They also added three achromatics —white, grey and black— to the analysis.

Most interestingly, LB accounted for big within-language variation as languages tended to show an average of three of these motifs. Only seven out of 110 presented a single motif.

LB explain that this within-language variation is triggered by individuals' circumstances: "different individuals within a culture may experience different features in the environment to be more or less salient, depending on their needs, habits or roles in society". However, they believe this kind of variation is governed by recurrent forces: "some of these needs and salient features might be universal across environments and cultures" (2009, no page).

LB conclude that the fact that this big sample of unrelated and geographically distant languages being reduced to only six motifs and individual languages showing several of them must be caused by the existence of "some universal neurobiological or cognitive factors" which "constrain the development of individual speaker's color lexicons" (2009, no page). LB propose that the evolution of basic colour terms happens through changes in the prevalence of some of the motifs in the community (2009, no page).

2.2. Different Approaches

2.2.1. Emergence Hypothesis

Some languages spoken by non-industrialised societies have colour terms that, between them, do not cover the entire colour spectrum and do not seem to have emerged from earlier categories. This phenomenon was named by Kay (1999) as the Emergence

[5] LB warn that this comparison is possible if grey is equated to black in KM's Bk/G/B.

[6] Note yellow+orange as a compound category. In the WCS dataset orange is not often glossed separately.

Hypothesis (EH). It is said that these cases are anomalous variations from the norm (so far only 10 languages are supposed not to be Partition languages) and to represent a stage before the development of "true" BCTs. Surviving EH languages tend to be ancient and almost extinct (WCS: 35-41).

The best studied case is the Yéli Dnye language, spoken on Rossel Island, Papua New Guinea, which was analysed in depth by Levinson (2000). Yélî Dnye-speakers do not have a superordinate word for "colour" except for the English borrowing *kala*, which occurs in the speech of younger people in touch with the mainland (2000: 10). It could be argued that Yélî Dnye does have abstract BCTs as speakers use complex expressions, nominal reduplications or descriptive phrases that refer to prototypical objects: e.g. *kpaapîkpaapî* (glossable as 'white', from *kpaapî* white cockatoo) and *yi kuu yââ*, (glossable as 'green', from a term for 'tree fresh leaves') (2000: 8). However, none of these colour terms has subordinate terms or hyponyms (2000: 10).

Levinson found that these colour expressions are in a cline of conventionalisation as the terms for 'white' or 'black' are fully established but there are only sporadic attempts to name 'blue' (2000: 22). This sequence is compatible with the evolutionary model.

However, the Yélî Dnye language challenges the assumption that all languages partition and name exhaustively the whole colour space (2000: 8). As a language in transition between Stages II and III, Yélî Dnye would be expected to have macrocategories. However, its term for 'black' does not include cold colours such as blue or green but is an exclusive term for 'black'. Similarly, although the term for 'red' could have been expected to be a macrocategory including yellow, its red category does not include yellow and has its focus in shades comprising pale orange and crimson. In addition, the best examples of the other colour terms deviated from "universal" foci (2000: 26). Thus, 40% of the colour space remained unnamed by the Yélî Dnye language (2000: 28).

As a conclusion Levinson states that, despite being in transition between Stages II and III, "there are no signs at all of any composite categories" in Yélî Dnye (2000: 40). He also points out that EH may happen in societies where colour is not a significant and/or distinct cognitive domain, or where it lacks an important role in material culture.

LB argue that the EH is not incompatible with the whole BK theory, only with the partition principle. A language can leave some areas unnamed, while the categories still follow the order of appearance predicted by BK (2021: 615). LB highlight the contribution of the EH to providing an explanation for the appearance of these categories which always arise around a prototype in the environment (2021: 614). These categories take the name of their prototype and at first designate only nearby hues before eventually expanding into other colours.

2.2.2. Vantage Theory

Between 1978 and 1981 Robert MacLaury carried out a massive fieldwork study involving 116 languages in Mesoamerica (Mesoamerican Colour Survey, MCS). His conclusion after analysing such a large data sample was that the BK evolutionary sequence was not representative of the chronological change, nor the linguistic and individual variation he had observed (1997: 7). Therefore, he proposed a new conceptual and methodological apparatus: the Vantage Theory (VT).

MacLaury (1997) defines a vantage as "the method by which a person makes sense of some part of his world by picking out specific points of reference and plotting their relation to his own position" and adds that this process "is spatial and temporal in the first order but incidentally visual" (1997: 138–139).

In VT images and perceptual landmarks represent the core of the category (R) and are inherently fixed. In contrast, similarity (S) and difference (D), like slow and fast, are points on a continuum or axis and they are inherently mobile (2002: 495). In other words, a vantage is a particular arrangement of these points of reference or coordinates, creating a personal view of the category, which may differ from somebody else's view of the same category.

Furthermore, VT constituted a great contribution to the study of coextension, which is how terms overlap in their denotata. MacLaury proposes that new colour terms often first appear in a relation of coextension with or inclusion within the domain of another term. When one category shrinks and leaves a region unnamed (becomes recessive), the other expands (becomes dominant) and a new separate basic category can arise (1997: 452–453). MacLaury's study of the location of foci and the notion of centrality and periphery within a category is also valuable.

2.2.3. Saunders and van Brakel

In 1997 Barbara Saunders and Jaap van Brakel published an influential paper which exhaustively deconstructed colour as a neurophysiological entity and questioned many aspects of how colour categorisation was studied at the time.

These authors state that "there is strong evidence that between retina and cortex, processing of wavelength is intricately mixed with luminosity, form, texture, movement response and other environmental change" (1997: 177). This joint processing of multiple visual information supports the idea that colour is not an autonomous neurophysiological pathway.

Furthermore, Saunders and van Brakel argue there is not enough evidence to accept the existence of red/green and blue/yellow opponent psychophysical and/or neuronal channels and therefore there is no biological justification for the Hering unique hues.

These researchers stress that “psychologically there is nothing natural about either the combination or separation of hue, brightness and saturation” (1997: 178) and that standardised systems of colour classification and measurement omit a wide range of visual features of great importance for some non-Western languages, such as duration, size, texture, glossiness, fluctuation, fluorescence, sparkle, glitter, nuance and background colour (1997: 175).

In addition to the neurophysiological dimension, Saunders and van Brakel point out that not every world language shows an interest in colour itself (e.g. Dani, Hanunóo, Kwak'wala) and therefore, colour could not be a “perceptuo-linguistic and behavioural universal” (1997: 167). In this sense, Saunders and van Brakel question the scientific value of works like the BK study in which the assumptions and methods confuse the evolution of mankind with the history of the progressive domination of Western practices (1997: 169). Saunders has stressed that fieldwork should be based on deep knowledge of the culture of the group studied and the usage as data collection stimuli of objects that participants encounter in their daily life and in their environment (1992).

2.2.4. Natural Semantic Metalanguage

The idea that colour is not a universal cognitive domain has been fiercely defended by Anna Wierzbicka since the 1980s. She has pointed out the deep Anglocentrism of the BK assumptions, terminology and conclusions and argued for the adoption of a wider analytic perspective that responds to the characteristics of all languages.

In 2006 Wierzbicka criticised the KBMM definition of a word in the Martu Wangka language of Australia. The word *miji-miji* meaning literally ‘blood-blood’ was defined as “W/R/Y” (a macrocategory including white, red and yellow). Wierzbicka described this as “clearly imposing on this language English conceptual categories” as Martu Wangka has no concept of ‘white’, ‘red’ or ‘yellow’ (2006: 3). Therefore, she argues that to search for human universals in an unbiased way, it is necessary to look for concepts that are lexically recognized in all languages rather than those which are lexicalized in English (2006: 3).

Thus, Wierzbicka and her colleague Cliff Goddard have found that, although many languages have no word for ‘colour’, all languages have a word for ‘seeing’. This is one of a total of 60 universal “semantic primitives” (or “atoms”) which Wierzbicka has identified with which more complex and culture-specific concepts (“semantic molecules”) can be built. This model is called Natural Semantic Metalanguage (NSM).

Studying world languages in terms of visual semantics is crucial as in many of them colour is not separated from other visual properties. As Jones and Meehan noticed (1978) the two terms in the Australian language Burarra (*-gungundja* and *-gungaltja*) are not “light” and “dark” colour terms. On the contrary, *-gungaltja* refers to light, brilliant and white colours and also to highly saturated red together with “brilliance and

animation" whilst "-*gungundja* refers to all other colours, namely dark, dull and black colours" (1978: 27).

Having the Jones and Meehan descriptions in mind and comparing this with other related Australian languages such as Martu Wangka and Kumberlang, Wierzbicka (2006: 15) tries to define the Burarra terms from the native speaker's point of view using universal semantic concepts to form a NSM formula:

X is -*gungaltja* =

a. some things are like this:
b. when people see a place where these things are they can always see these things
c. the sun $_{[M]}$[7] is always like this
d. fire $_{[M]}$ is always like this
e. at some times, blood $_{[M]}$ is like this
f. X is like this

She concludes that -*gungaltja* is not a colour term but a visual descriptor that means "high visibility" comparable to the French expression "couleurs voyantes"; whilst -*gungundja* is the unmarked term that applies to most objects —between 100% and 90% of the Munsell sample in Jones and Meehan's experiment— and refers to the absence of conspicuous visibility (2006: 15–16). Therefore, she proposes the following NSM formula for −*gungundja*:

X is -*gungundja*:

a. some things are like this:
b. when people see a place where these things are they can see these things
c. many other things are not like this
d. X is like these other things

Biggam has pointed out two main problems with the NSM. The first is that its formulas are lengthy, and "it can be impossible for readers to retain in their minds several unfamiliar concepts which are, in addition, expressed in an unfamiliar way" (2012: 95). The second is about the "difficulty of retrieving the correct meaning from explications" themselves without the further discussion offered by Wierzbicka (2012: 95–96). Moreover, Biggam stresses that in contexts such as dictionaries NSM privileges the source language sacrificing comprehension in the target language (2012: 97).

I agree that NSM is a complex tool that carries challenges, but I also believe it is worth exploring its potential particularly when comparing typologically disparate languages. Because it is built on a universal shared basis and a coherent system of adding meaning units, it provides common ground to explore human languages without perpetuating

[7] In the NSM formulas subscript [M] stands for 'semantic molecule', built from universal semantic atoms.

the privileges of certain languages and their cosmovision. Furthermore, deconstructing meaning in this systematic way can have many practical applications such as improving automatic translators and machine learning.

2.2.5. Roberson, Davidoff and Davies

The work of Roberson, Davidoff and Davies (2000) (hereafter RDD) introduced remarkable evidence for linguistic relativity. They challenged the findings of Rosch Heider and Olivier (1972a) with the Dani people of Papua-New Guinea by attempting to replicate their experiments with another Papuan community, the Berinmo.

The works of Rosch were considered strong evidence for universalism. However, as we have seen, she discovered important constraints to this. Part of her work is supposed to demonstrate that focal colours are recognised and memorised more easily than others independently of whether they are lexicalized or not. However, RDD (2000: 370) point out that two separate measures based on multidimensional scaling of the data (Rosch Heider & Olivier 1972) showed incompatible results. The graphical demonstration supported a universal colour categorisation whilst the statistical measure pointed to linguistic labels in different languages influencing perceptual cognitive categories. Rosch Heider and Olivier accepted the results supporting universalism but ignored the evidence of the statistical analysis for linguistic relativity. Thus, RDD replicated these experiments comparing Berinmo and English and obtained a very different outcome. The patterns of naming and memory of Berinmo speakers were remarkably more alike than the Berinmo and English memory patterns (2000: 373).

Rosch Heider (1972a: 19) also reported that Dani informants had a superior recognition memory for learning the foci of English colour terms and there was an advantage in learning them in paired-associate categories. However, these results are dubious due to the extremely poor performance of Dani speakers in these tasks. This was attributed to the Dani lifestyle and to the participants who had “neither need for, practice with, nor any explicit training in the use of the memory control processes” (1972a: 19). However, RDD consider that this is an insufficient explanation as no other measurement was made to compare their colour memory and their skill in memorising any other items for which they would have “readily available labels” (2000: 370). This criticism seems to be fair, and RDD tested this possibility by training Berinmo participants in memory tasks such as paired-associate learning of focal and non-focal colours with words and pictures. The learning of associations of colours with words (in this case, a Berinmo repertoire of kinship terms[8]) had a very low rate of success and no advantage was observed for focal colours (2000, 383). Similarly, although the association of colours with pictures was

[8] When testing the ability to learn new colour categories, the use of a local vocabulary well known by all the participants was thought to be fairer than randomly created words.

learned successfully by most of the Berinmo informants, no evident advantage was shown in learning focal colours better than non-focal ones (2000: 385).

Regarding the superiority of focal colours in short-term memory pointed out by Rosch, RDD also found that Berinmo speakers tended to choose focal colours as a response even when asked for non-focal targets. Therefore, they concluded that this is a response bias probably caused by the enhanced discriminability of these shades in the display (2000: 380). The display used (Munsell) is in fact not evenly spaced in its third dimension (saturation) which is particularly noticeable in focal colours.

The idea of enhanced discriminability was suggested by Lucy and Shweder (1979) who explored this using a new array with reduced and randomised chips. However, Poortinga and Van de Vijver (1997) criticised this procedure saying that to equalise the discriminability of the elements in the array instead of the physical distance between them would be a bias favouring relativity. However, RDD remember that the Munsell colour system was standardised for pairwise similarity of neighbouring samples rather than the similarity of items widely spread across the colour space (2000: 382).

RDD argue that Rosch's better recognition of focal targets simply reflected differences in discriminability and not the inherent universal salience of basic colour categories (2000: 382). RDD directly addressed this issue by reducing and randomising the array and verified that the discriminability advantage of focal colours disappeared (2000: 382).

Beyond dismantling the universalist findings of Rosch, the major contribution of RDD is probably their acknowledgement of a single constraint on colour categorisation to do with the visual system, which is that categories must be contiguous areas of the colour space. There are no examples of categories referring to two areas of the colour space but excluding a part in between them, e.g. a composite category including yellow and blue but excluding green (2000: 395).[9]

Addressing the idea of focality, Rosch (1973) proposed that categories emerge around natural prototypes which are innate and wired in the visual system. However, it seems Berinmo does not form categories around prototypes, as there is little agreement among its speakers about the best examples (RDD, 2000: 373 Figure 2). There is only one category, *mehi*, that has a clear focus, the same as that of *red* in English. However, this term is also the name of a fruit and therefore it can be argued that this category was formed based on experience rather than on an abstract prototype (2000: 395). Lamberts (1998) has argued that categories can emerge without prototypes. RDD argue that the establishing of prototypes through a consensus across the community may constitute a second phase of categorisation that happens only when the categories shrink and their components become more alike (2000: 395). Once the boundaries of the category are

[9] However, note that Ainu has allegedly terms for non-contiguous areas of the colour space (*hu* 'RED+GREEN' and *siwnin* 'BLUE+YELLOW'). Additional evidence of a term that at some point could have denoted non-contiguous hues is that Latin *flavus* 'blonde' and Old High German *blao* 'blue' are cognate.

established, and a central tendency towards the best example is established, speakers tend to identify focal items faster, making similarity judgements faster but judgements of difference more slowly (Bornstein & Monroe 1980; Mervis & Rosch 1975).

In fact, Goldstone (1998) proposed that the development of categories involves at least one of these stages: the sensitisation of category-relevant dimensions, the desensitisation of irrelevant dimensions and/or the selective sensitisation of relative dimensions at the category boundary. He suggested that although there might be an innate predisposition towards the sensitisation of certain dimensions over others, there is also the possibility of plasticity.

RDD (2000: 395) believe that Berinmo categories have been created in a contrastive manner, through a selective sensitisation and increased attention to difference rather than a series of evolutionary stages that differentiate and recombine a reduced set of universals. Therefore, they defend the hypothesis that colour categorisation operates in terms of relative similarity. Dedrick (1996) describes this as the relative comparison of similarity (X is more like Y than it is like Z) that produces category boundaries. RDD support that idea arguing that children learn colour categories faster if they are presented in opposition to others (2000: 396) and that the basis of those similarity judgements is language.

Ultimately, after all the empirical evidence collected through their experiments, RDD conclude that there is a deep influence of language on colour categorisation as it has an impact on both perceptual and memory processes (2000: 396).

2.2.6. Reconciling positions

As we have seen, relativism and universalism are the two main dogmas in colour semantics. To close this section, I will review a middle ground between these two approaches. As Regier and Kay stated, both approaches aim to respond to two fundamental questions: “a) Is colour naming across languages largely a matter of arbitrary linguistic convention? b) Do cross-language differences in color naming cause corresponding differences in color cognition?” (2006: 51). A relativist would say yes to both premises, while a universalist would say no to both. Some researchers find this radical and apparently irreconcilable opposition unproductive. An example of how this dichotomy started to be questioned is the event “Rethinking linguistic relativity”, an international symposium by the Wenner-Gren Foundation in 1991. Authors like Gumperz and Levinson (1991) suggested that milder forms of these approaches could be compatible.

The universalists Regier and Kay (2009) contributed considerably to the reconciliation of the relativist/universalist opposition with a paper in which they explain they had found coexisting evidence for both. They worked on the idea that there is a considerable

linguistic impact on colour categorisation when the stimulus is presented in the right visual field but less so when it is presented in the left (Gilbert, Regier, Kay & Ivry 2006). As the left hemisphere of the brain has been observed to be dominant for language and the visual fields are displayed contralaterally to the brain, half of our visual field would be interpreted according to our first language whereas the other half would be less influenced by it.

One of Gilbert et al.'s (2006) experiments found that cross-category targets were identified faster than same-category targets in the right visual field only. Exploring this further by adding a concurrent task of remembering a number series, this effect was eliminated, demonstrating that the right visual field is language-based. Adding other concurrent non-language-based tasks did not have an impact on categorical perception and confirmed its linguistic nature. Furthermore, Drivonikou et al. (2007) explored this and although confirmed that colour categorical perception is stronger in the right visual field, they found a significant effect in the left visual field too. However, the longer response time in the left visual field suggests this categorical perception effect might be caused by cross-callosal transfer, which refers to the passing of information through the connection between the two hemispheres.

Moreover, there have been some experiments with infants that suggest the existence of preverbal categorical perception. This raises questions about how that prelinguistic categorical perception could develop into language-driven right visual field categorical perception in adults. Regier and Kay conclude that as prelinguistic categorical perception seems to occur in most European languages, it could be the starting point for the development of linguistic categorisation (2009: 441).

This categorical perception observed in toddlers was attested in the left visual field only. Franklin et al. (2008) have pointed out that the migration of the categorical perception effect from the right hemisphere to the left hemisphere is caused by the acquisition of colour terms. This raises new questions such as whether those prelinguistic categories are transferred to the left hemisphere and operate as starting points for the linguistic categories or whether they are built from zero. In any case, work with split-brain patients has showed no left visual field / right hemisphere categorical perception which demonstrates that even if that prelinguistic categorical perception was transferred to the left hemisphere, it would be permanently erased by language (Franklin et al. 2008; Gilbert et al. 2006).

I will address now the second big question in colour semantics: are colour categories formed by universal forces or independent linguistic conventions? Since the work of Rosch with the Dani people in the early 1970s, the balance seemed to favour universalism, but as seen above the RDD investigations with the Berinmo people tilted it towards linguistic relativity. However, Kay and Regier (2007) addressed the Berinmo case by contrasting its colour category boundaries with the 110 languages of the WCS. They challenged the idea that the only constraint to colour categories was contiguity.

They created artificial variants of the Berinmo colour system by moving them several points along the hue dimension while maintaining category shapes and their positions relative to each other. They then compared the variant systems with the data found in the WCS. The results show that the actual Berinmo colour system matches the WCS colour systems better than any other hypothetical possibility. Thus, they demonstrated that colour categories are constrained not only by contiguity but also by location within the colour space.

Nevertheless, Roberson, Davidoff, Davies and Shapiro (2005) revisited the case of Berinmo, this time contrasting it with English and Himba, a language spoken in Namibia. They found that Berinmo and Himba have a similar colour system based around the same foci. However, their category boundaries differ noticeably, and each group showed categorical perception according to the boundaries of their own language.

Another point which reconciles the relativist-universalist opposition concerns simple principles of categorisation. As Jameson and D'Andrade (1997) pointed out, the existence of patterns in colour categorisation might be due to irregularities in the colour space and the need to construct efficient systems of concepts. In other words, the interaction of lightness, saturation and hue creates a series of "bumps" or focal colours and there is a tendency to create colour terms that are informative about that reality. Thus, such an irregular surface would create both universal tendencies and "deviations".

Regier, Kay and Khetarpal (2007) developed this into the idea of well-formedness, that is the extent to which a partition maximises perceptual similarity within colour categories and minimises it across them. These researchers created theoretically optimal colour naming systems and contrasted them with some of the data in the WCS. The conclusion is that although there are languages that do not fit the pattern, there is a strong tendency in colour systems to partially follow the principle of well-formedness. Thus, they conclude that well-formedness would explain the universal tendencies in colour naming. However, they also point out that the WCS contains different colour systems that are equally well-formed, and that cultural factors and linguistic convention would play a role in choosing among those systems. Thus, well-formedness and its variants would account for both universalism and linguistic relativity.

Another possibility presented by Regier and Kay (2009) is that colour naming may reflect the perceptual colour space or the proportion of colours in the world. Certain authors have suggested that the universal perceptual structures are based on invariants in the environment (Shepard 1992, 2001) developed through human evolution (Regan et al. 2001).

Regarding Regier, Kay and Khetarpal's well-formedness there are several criticisms to be made. It is difficult to assess the well-formedness of a language's colour system when it is measured with artificial colour charts (Munsell, OSA, CIE etc.) which have all been observed to fail to represent uniform perceptual intervals between two adjacent colours

(Derefeldt, Hedin & Sahlin 1990; Indow 1988). Specifically, the Munsell chart, used by the WCS, has been accused of enhancing the discriminability of focal colours as "the perceptual distances of the horizontal and vertical axes are not equivalent and the third axis (saturation) varies unsystematically" (Lucy & Shweder 1988: 930).

Furthermore, we should remember that human languages do not create their colour vocabularies according to one of those colour charts but rather to describe colour in the world. As Saunders and van Brakel, and Wierzbicka have stressed numerous times, trying to describe all colour systems through the precise combination of hue, lightness and saturation printed on chips means leaving behind many other characteristics of colour in the world such as shape, texture, glossiness, fluorescence, background or surrounding colour etc. that are of the greatest relevance for many languages. We should consider whether reducing the complexity of how world languages describe colour to make them fit with a biased measuring rod is legitimate and we should question the scope of such universal conclusions.

Finally, Regier and Kay (2009) address the function of colour naming: communication about colour within a speech community. Dowman (2007) suggested that world languages develop their colour systems through cultural evolution in an idealised colour space. Furthermore, Regier and Kay (2009) wonder how much of the colour naming systems can be explained by social transmission *per se* and how much is due to individual biases and expectations. This is addressed by Griffiths and Kalish (2007) who pointed out the existence of a shared prior bias by each learner within the social transmission chain. The language itself would take on the form of a learning bias in the learner's mind that sets a series of expectations about how the categories should be. These biases and expectations would also be reaffirmed by colour diet. The presence of certain colours in the environmental system would be internalised over time and then externalised in social interaction.

After all this discussion, it seems clear now that neither universalism nor linguistic relativity is sufficient by itself to explain the complexity of world colour semantics and that further research is needed in order to fully understand how these two opposite forces intertwine.

2.3. Galician and other related romance languages

2.3.1. Portuguese Colour Studies

With more than 230 million speakers (Ethnologue 2022), Portuguese is the sixth language in the world by number of speakers. However, it was not included in any of the big cross-linguistic projects studying the Semantics of Colour. Hence, it was absent from the 98 languages listed in BK and from the other 110 in the WCS, the latter being focused on pre-industrial languages.

The work of Correia (2006) builds on the ideas of Van de Velde (1996) about colour terms in French having a special relationship with the dimension of space and behaving as mass nouns as they resist the formation of plurals.

Correia states that Portuguese colour terms are also closely linked to the dimension of space and behave like mass nouns (2006: 115). She compares the nominal and adjectival forms of these through the following examples:

(1)a. *Há muita nostalgia$_N$ nessa melodia.*
"There is a lot of nostalgia in this melody"
b. *Há mais nostalgia$_N$ nesta melodia do que na outra.*
"There is more nostalgia in this melody than in the other one"
(2)a. *Esta melodia é muito nostalgica$_{Adj.}$*
"This melody is very nostalgic"
b. *Esta melodia é mais nostálgica$_{Adj.}$ do que a outra*
"This melody is more nostalgic than the other one"

(3)a. *Há muito branco$_N$ neste quadro.*
"There is a lot of white in this painting"
b. *Há mais branco$_N$ neste quadro do que no outro.*
"There is more white in this painting than in the other one"
(4)a. *Este quadro é muito branco$_{Adj.}$*
"This painting is very white"
b. *Este quadro é mais branco$_{Adj.}$ do que o outro.*
"This painting is whiter than the other one"

As Correia states, colour terms in Portuguese operate as an extensive entity in opposition to actual property terms that work as intensive entities. Thus, saying that one melody has *more nostalgia* than the other means that that property is more *intense*, whilst saying that a painting is *more white* than the other means that a *larger area* is covered with this colour (2006: 115). Furthermore, she points out that colour names derive from adjectives and both are homonyms that can only be distinguished by the syntactic environment and the use of the masculine article preceding the nouns (Correia 2006: 116) e.g. *O cavalo branco$_{Adj}$ pasta no prado* vs *O branco$_N$ transmite paz* ('The white horse grazes in the field vs White instills peace').

European Portuguese has 11 BCCs. However, Correia highlights the fact that three of these categories do not have a single BCT but a pair of available terms. Firstly, there are two terms for WHITE, *branco* and *alvo*, although the latter is used almost exclusively in poetic language (2016: 17). Secondly, there are two alternatives available for BLACK: *negro* and *preto*. The difference lies in sociolinguistics as the former is considered more correct and formal amongst older people (2006: 17).

Finally, RED can be conveyed through *vermelho* or *encarnado*. This is the most interesting case as both labels are available in everyday language and they seem to have the same denotata (Correia 2006: 120). *Vermelho* is the oldest term, attested in the middle of the thirteenth century already as an abstract colour term (Swearingen (2002: 65-66) whilst *encarnado* is the past participle of the verb *encarnar* 'to incarnate, become flesh' which was not used as a colour term until the sixteenth century (Machado 1977 s.v. *encarnado*). Although they seem to describe the same portion of the colour space, these terms have different sociolinguistic values. *Encarnado* is perceived as the better term for Standard Portuguese as it is used by the upper classes and in Lisbon. *Encarnado* is preferred because of the political connotations of *vermelho* which in the past was used to refer to Communist Party members (Correia 2006: 21). Despite this, after exploring some corpora Correia observes that the frequency of use of *vermelho* is clearly dominant and that it is the most productive term in connection with derivatives, compounds and collocations. Thus, she concludes that *vermelho* is the only BCT for red in European Portuguese (2006: 123).

Another important point should be made regarding Portuguese BCCs. As mentioned earlier, according to the UE theory, RED is one of the first colour categories to arise in the evolutionary sequence whilst PURPLE is created later from the fuzzy intersection of RED and BLUE. Swearingen (2014) stresses that Portuguese is an example of a particular evolutionary path involving a shift in colour category boundaries and the relocation of prototypes (2014: 79). Swearingen reports that the original BCT for RED in Portuguese was *roxo*, but it was substituted by a secondary term *vermelho* (2014: 80). Surprisingly, *roxo* did not fall into disuse but underwent a semantic shift in its denotational range and came to designate PURPLE (2014: 79).

According to Swearingen, Portuguese provides evidence for one variation of how this emergence takes place (2014: 79).

Swearingen explains that *roxo* was the BCT for RED in early Galician-Portuguese and coexisted with *vermelho*, which was a hyponym: "given the intrinsic fuzziness of colour category boundaries and the overlap inherent in linguistic hyperonymic-hyponymic relations, certain hues would have been denoted by both terms and this would have been reflected in their semantic and pragmatic applications" (2014: 86). At a later stage, the socio-economic environment (the rise of a lucrative dyeing industry around the red tincture extracted from an insect named kermes (*kermes vermilio*) made the semantic applicability of the term *vermelho* start to broaden whilst shrinking the denotata of *roxo* (2014: 87) to the margins of this wider or extended RED. Thus, eventually extended RED divided further into independent categories with their own prototypes: RED (*vermelho*) PURPLE (*roxo*) and ORANGE (*cor de laranja*) (2014: 87).

According to Swearingen, a similar process took place with the Galician word *roxo* and the Catalan *roig* which were substituted by cognates of Latin *vermiculus* as BCTs for RED. However, *roxo* and *roig* preserved different denotata. In the case of Galician, *roxo*

designates shades of non-reddish brown, fair hair and complexion or ruddiness (DRAG). The Catalan word *roig* is a less frequent and contextually limited synonym denoting a red or ruddy hue (DLC). Swearingen affirms that both languages developed different colour terms for PURPLE, *morado* in Galician and *morat* in Catalan (2014, 88). However, the validity of this last statement about Galician is questionable and will be discussed in the following section.

Swearingen attributes the substitution of *roxo* for *vermelho* as a BCT to the high saturation of kermes-red. The fact that *roxo* had a wide denotational range including dull and vivid, pure and mixed red, whilst *vermelho* referred to a vivid red hue only, might have caused the reduction of the denotata of *roxo* to the peripheral areas of the category in contrast to *vermelho*, a more salient and prototypical red (2014: 88).

Although the substitution of an established BCT by a new term has been found in many languages, Swearingen stresses that "the re-employment of an older term for a reduced area of its former denotational range that does not include the macro-category's prototypical area seems to be less common" (2014: 88).

2.3.2. Spanish Colour Studies

Lillo et al. (2018) explored BCTs/BCCs in three dialects of Spanish: Castilian, Mexican and Uruguayan. This team identified some characteristics that define "colorimetric signs of identity" for BCCs (2018: 16). The first is that not every category accepts the same levels of saturation within its boundaries. These researchers found a gap between the denotational area of RED and ORANGE and the achromatic end of the spectrum. This means that these BCCs do not include low saturated colours and therefore they do not share boundaries with the achromatic BCCs (WHITE and BLACK) (2018: 14-15). They warn that this cannot be revealed by using the WCS colour set as it includes few low saturated colours (2018: 15). Instead, they used CIE u', v' coordinates and 34 colour transitions (2018: 8-9).

The second colorimetric sign of identity is lightness. This team found that there are some categories that have a reduced lightness range, such as RED that has a value of 60 for the RED-PINK boundary and about 30 at the RED-BROWN boundary. In contrast, GREEN extends from about value 95 in the GREEN-WHITE boundary to about 10 in the GREEN-BLACK boundary (2018: 15). Finally, the third value is the size of the denotata. It was observed that the chromatic area is inversely related to the lightness of the achromatic categories, with WHITE being the smallest area, GREY bigger, and BLACK the biggest (2018: 15).

Lillo et al. found that Castilian and Mexican Spanish have 11 equivalent BCCs. Uruguayan, however, has 12 BCCs adding CELESTE. CELESTE is a derived BCC that emerged from an initial wider BLUE and is defined as the perfect balance between BLUE and WHITE sensations (2018: 17). Where this equilibrium is broken in favour of BLUE is considered the boundary between CELESTE and BLUE. This critical point is perceived similarly by

speakers of the three dialects but only taken as the boundary by Uruguayan because of specific linguistic and cultural factors, thus providing support for the LRH (2018: 17).

The Uruguayan term *celeste* covers a similar area of the colour space to the sky-blue term in Italian *azzurro* (Bimler & Uusküla 2017; Paggetti & Menegaz 2010). This similarity seems not to be accidental as the substantial Italian immigration to this country in the nineteenth and twentieth centuries seems to have fuelled the rise of *celeste* in Uruguayan (Goebel, 2010). The existence of *celeste* as a BCT has also been attested in Argentina, Chile, Paraguay (González-Perilli, Rebollo, Maiche & Arévalo 2017) and Guatemala (Harkness 1973) which are areas that received an important influx of Italian immigrants (Lillo et al. 2018: 17).

Thus, Lillo et al. conclude that the three Spanish dialects have similar BCTs—BCCs both in number and in colorimetric delimitation. The main difference is CELESTE, an extra derived BCC in Uruguayan. In this dialect this new category characterised by light and not very saturated blues arose at the extremities of BLUE because of specific linguistic and cultural factors. However, this provides evidence for a weak LRH only, as this Uruguayan category was created based on a chromatic variation that is similarly perceived by speakers of all three dialects (2018: 16).

According to MacDonald and Mylonas (MacDonald & Mylonas 2014), both female and male speakers of Spanish have a turquoise category, and females separate sky-blue whilst men separate ochre. These authors found that the bigger gender differences in Spanish were in the yellow, blue and pink areas.

2.3.3. Galician Colour Studies

Colour Semantics in Galician is essentially unchartered territory to be explored. To date there are only two works that have addressed this topic: Villanueva Gesteira (2009) and my own Master's thesis (Teixeira Moláns 2014) followed by a book chapter based on the latter (2019). For several reasons these works should be considered preliminary and far from authoritative about how Galician divides the colour space.

Firstly, in terms of representativeness, both works collected data in a very reduced context: about 20 informants from a single village each. This kind of sample is common in much Colour Studies fieldwork which collects data in one location or among one social group e.g. students of a university. However, this has proven to be inappropriate for the Galician language. Galician sociolinguistics are complex and the influence of Spanish is uneven across the map and the different social dimensions. Evidence of this variability is that the data collected by Villanueva and myself show substantial levels of variation in the lexical choices, and most importantly in the categorical division. The fact that these works do not agree in their conclusions makes evident the need for further research involving a bigger sample of informants from different areas of the Galician territory.

Secondly, both the work of Villanueva Gesteira (2009) and Teixeira Moláns (2014) are first approaches to the topic that were designed to collect labels for the 11 BK focal colours and to compare them across generations. Neither of the two works aimed at mapping these categories. Therefore, a consistent measurement of the semantic extension of these categories remains to be undertaken.

Having said this, I will examine in detail these two works. Villanueva Gesteira (2009) investigates lexical change in colour vocabulary across three generations. She analyses the data collected thoughtfully with an insightful sociolinguistic analysis. However, her work is not as useful it could be for the purposes of this thesis as it is focused on the lexicon, the labels of the concepts, not on their denotata. Regarding the stimulus used for her data collection she mentions 16 colour chips: 11 of them representing BK focal colours and another 5 described as bright green, bright blue, darker white, dark green and brighter brown (2009: 173) but no samples of any kind are provided. We cannot find any diagram with the responses to those stimuli, which makes it difficult to know what the data in the discussion refers to.

Nevertheless, reviewing this work is still worthwhile. The lexical forms attested in her fieldwork give an insight into some of the possible Galician BCTs and her analysis of these terms across generations provides valuable examples of linguistic change and the impact of language contact in this semantic field.

Villanueva Gesteira interviewed 22 informants from two areas of the municipality of Cotobade (Pontevedra). Those were chosen to represent three generations: 5 women above 70 years old; 5 women and 5 men of unspecified middle age; and 7 people between 30 and 4 (2009: 173).

Villanueva Gesteira's data indicate that the Spanish loan *rojo* is the most widespread term for RED. The oldest generation initially used *rubio,*[10] but later in life this term was narrowed to qualify objects whilst the Spanish word *rojo* heard at school became the name for the colour. Since the second generation attended school more consistently it shows a deeper assimilation of the Spanish term. However, it presents variability in gender: males still use *rubio* applied to objects whilst women tend to use Sp *rojo* or the Galicianisation *roxo* in all contexts. As the third generation was schooled in both languages when Galician became official and had its own standard, it shows a polarisation of codes. They respond with either the Galician Standard term *vermello* or the Spanish *rojo* (2009: 175). Villanueva Gesteira highlights the lack of family transmission of this vocabulary as the third generation does not show the word *rubio* from the first generation or *roxo* from the second one, but the lexical choice used at school and in the media (2009: 176).

Words for YELLOW present a similar pattern. The traditional term *amarelo* was learnt first by the older generation and the Spanish loan *amarillo* was acquired later and used since

[10] All the terms discussed in this section are Galician words unless stated otherwise.

then. *Amarelo* is fossilised in collocations. The second generation reports Sp *amarillo* and only exceptionally *amarelo*. In contrast, the youngest generation uses the Galician Standard *amarelo* learnt at school and even corrects their older relatives when using the Spanish word (Villanueva Gesteira, 2009: 177).

The most popular BCT for BROWN is *marrón*, which is absent from the Galician lexicographical history, and is replacing the local *castaño.* The oldest speakers use *castaño* and are aware of this recent change towards *marrón.* This new term is the only BCT for the second and third generation. However, some women use *castaño* only with reference to eyes and hair and it is perceived as particularly inappropriate to describe clothes (2009: 179).

Villanueva Gesteira reports that when asking for a BCT for ORANGE the first and second generations had longer response times. Their most common answer was *butano* (as butane gas bottles in the area are painted a vivid orange) and some of them labelled it *rubio*, *roxo* (for RED). However, the third generation had a specific BCT: *naranxa* (Galicianisation of Spanish *naranja*), and *laranxa* (2009: 179-180).

Elderly people give *aborrallado* and *gris* as BCTs for GREY. However, they report awareness of a recent change towards *gris,* which is confirmed by the absence of this term in lexicography until the twentieth century. The second generation uses mainly *gris* and *aborrallado* only for animals, whilst the youngest group has only *gris* (Villanueva Gesteira, 2009, 180) The third generation does not have a clear prototype for GREY which contrasts with the first generation whose BCT, *aborrallado*, is a derivational adjective from *borralla* 'ashes' (2009: 180) with clear reference to their prototype.

The elderly informants in Villanueva Gesteira's study name the purple colour chip with the expression *da cor do viño* (wine-coloured) and others with *lila, malva.* The second generation use mostly *violeta* but also *malva* and *lila.* The young speakers use *violeta, malva* and *lila*. These informants know all three words but use only one; the rest are considered equivalent. Villanueva Gesteira stresses the lack of knowledge of the original referents to those terms as the reason for them to be equated (2009: 181).

When it comes to meaning, Villanueva Gesteira notices a change in prototypes. Nevertheless, looking for idioms comparable to the English "as black as coal" she seems to seek to identify changes in cultural referents, rather than changes in the best example of a category within the colour space. Thus, regarding RED she reports a prototype change in which the predominance of *grana* (pomegranate) in the first generation decays in the second*: grana, naranxa* (orange)*, tomate* (tomato)*;* and finally disappears in the third: *lume* (fire), *sangue* (blood) and *tomate*. She points out this change in the prototypical objects, but no hue analysis is made. Firstly, the fact that the prototype of RED changes from focal red—red pomegranate— to a chromatically more complex reality such as fire is not addressed. And secondly, no comment is provided for the case of a woman of the second generation who states "roxo coma unha laranxa, coma unha

grana" which equates an orange and a pomegranate as good examples of prototypical RED.

It is evident that Villanueva Gesteira's analysis is based on the BK assumption of 11 universal categories as she affirms that the young generation "responds uniformly to the 11 focal colours" (2009: 187). She points out that the first generation and mostly the second have only seven well established terms whilst the remaining colours, such as orange, present more "problems of recognition" (2009: 187).

Although the concept *categories* does not appear consistently throughout the text, when speaking about ORANGE she occasionally states that categories are different from person to person and it feels she is getting "into a darker field" (2009: 179-180). The fact that some informants described the orange chip as *rubia* or *roxa* (RED) is only mentioned in passing and attributed to idiolects.

Similarly, the fact that two of five elderly informants were unable to give a monolexemic label to the purple stimulus is not discussed further. The comparative expression provided, *da cor do viño* (wine-coloured), seems comparable to saying "as the colour of aubergines, as the colour of pistachios" and suggests that for these informants this is not a basic category.

In her conclusions, Villanueva Gesteira only brings up the mechanisms such as making sense generalisations from prototypical objects (*butano* for ORANGE) or creations (*aborrallado* for GREY) by which these colours are exclusively named. Thus, by ignoring she is implying such colours should be considered separate. In other words, she is discussing changes in labels or strategies to name "the 11 prototypical colours" (2009: 187) and leaving behind the dissident voices that point out an underlying categorical segmentation that is more complex than her analysis recognises.

However, Teixeira Moláns' (2014) fieldwork, provided stronger evidence in this direction. The data was collected in Carnota, a small coastal village from A Coruña county. This research requested terms for the 11 BK focal colours together with vocabulary for the colour of eyes, hair, animals and some food. The goal of the investigation was to compare the language of the oldest inhabitants (above 55, mean: 71) and that of a younger generation (under 35, mean: 24). A total of 24 informants were tested: 12 individuals of each age group in which gender was also represented equally.

This study used pictures of objects representing the BK 11 BCC foci together with a series of images to request colour vocabulary specific for certain objects. For the array of pictures used and a table of all responses see Teixeira Moláns (2014) annexes.

Regarding BCTs, in Teixeira Moláns (2014) informants used the same label for BLACK, WHITE, GREEN, and BLUE across generations. When it came to RED, the Spanish loan *rojo* was elicited from all informants but in the elderly group the terms *vermello* and *encarnado* were also provided. YELLOW was mainly labelled with the Spanish loan *amarillo* except by two individuals in both age groups who replied *amarelo*.

Castaño is the traditional term for BROWN whilst *marrón* seems to be a recent introduction as it is absent from the historical lexicography (Villanueva 2009, Teixeira Moláns 2014) see further etymological notes in Section 6.7.3). Thus, the elderly fluctuate between the two terms while the younger use mainly *marrón*. However, some gender differences were shown: elderly women use *marrón* more often than men and only young men use *castaño* as a BCT. Having said that, the picture used to recall a label for this BCT was a brown sweater. Some informants in Villanueva Gesteira (2009 179) expressed the view that *castaño* is not an appropriate term for clothes. Therefore, if this belief was widespread among informants it could have caused lower numbers of the term among women as they are traditionally more sensitive in their use of colour vocabulary and are culturally more interested in clothes.

The term for PINK was unanimously labelled *rosa* except by two elderly informants. One used the derived word *arrosada.* The other interviewee is the only case in which this colour was not considered an independent category but they doubted if it belonged within RED or ORANGE.

When combining the values of all the terms labelling these colours as independent categories, the generational differences in categorisation become evident. The informants' responses to the pictures representing ORANGE and PURPLE were the most significant findings in Teixeira Moláns (2014) as the younger generation fully agreed on naming both colours with independent labels while half of the elderly informants had no specific name for these colours (Figure 2.8).

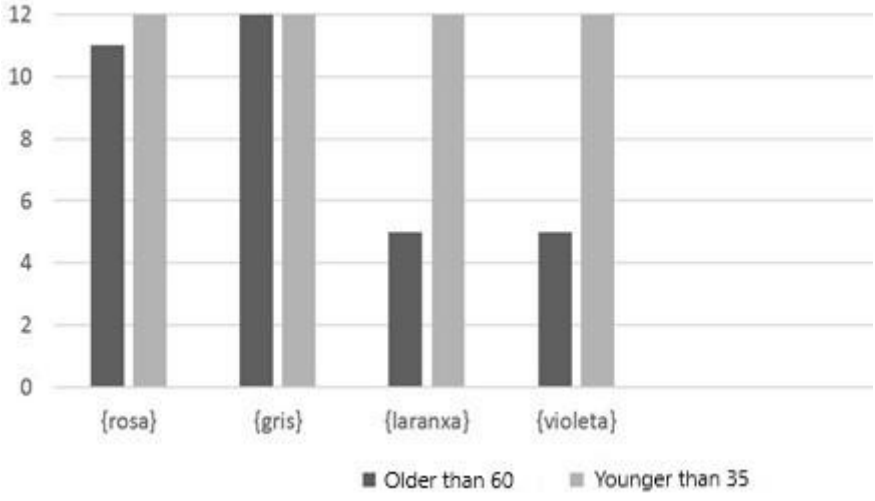

Figure 2.8. Number of informants with a specific label for pink (*rosa*), light grey (*gris*), orange (*laranxa*) and purple (*violeta*) pictures. Informants above 60 in dark grey, under 35 in bright. Data collected in Teixeira Moláns 2014, adapted from Teixeira Moláns (2019: 304)

Regarding ORANGE, seven young people used the Spanish word *naranja* and five the phonetic adaptation *naranxa*. In contrast, the answers of the elderly informants were extremely heterogeneous. Only seven elderly people had an independent label for this colour: 5 used *naranja*/*laranxa* and two named it after a known orange object *tella* (roof tile). The rest of the elderly interviewees included this colour within another BCC: YELLOW (3), BROWN (1) or did not offer any response (1) (see Figure 2.9).

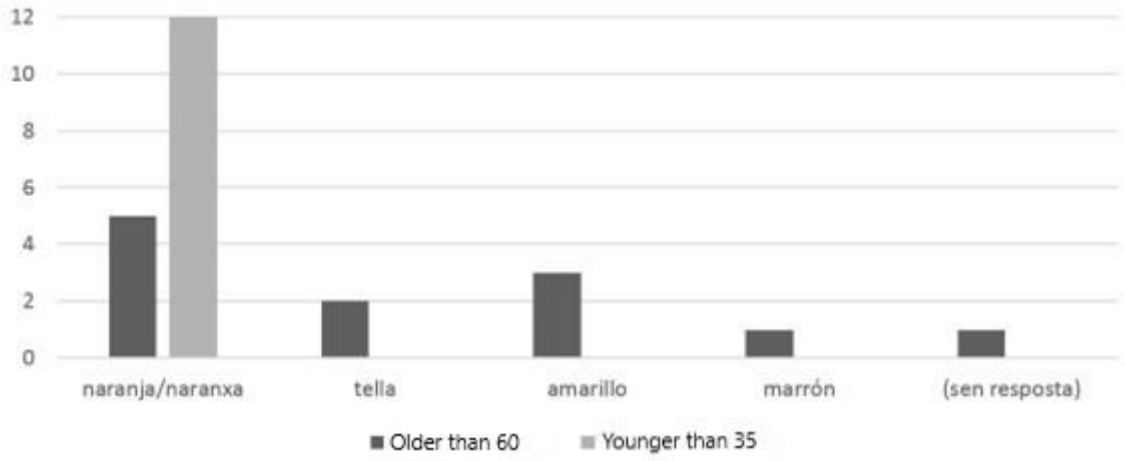

Figure 2.9 Responses for the orange stimulus by two Galician generations, above 60 in dark, under 35 in light; *sen resposta*, 'no response'. Data collected in Teixeira Moláns 2014, adapted from Teixeira Moláns (2019: 305)

The remaining BCT was requested with the picture of a purple bike helmet. The particular shade of purple used as a stimulus was found *a posteriori* not to be one of the most reported foci of PURPLE in the 20-language sample of BK, but was slightly closer to BLUE in the colour space. Despite the fact that this shade would not be considered a universal best example for PURPLE in BK, a strong contrast was found between the absolute consensus of the younger group including this in an independent category and once again high levels of variation among the older informants' responses.

Beyond the absolute consensus on classifying the stimulus in the same category, 11 of 12 young informants also used the same label: *violeta* and only the oldest of them used *lila*. However, in the group of elderly people only 5 had a BCT for this colour and they used up to four different terms: *lila*, *violeta*, *morado* and *malva*. Finally, the most remarkable finding is that half of the elderly informants agreed on categorising this as BLUE and one informant gave no answer (see Figure 2.10).

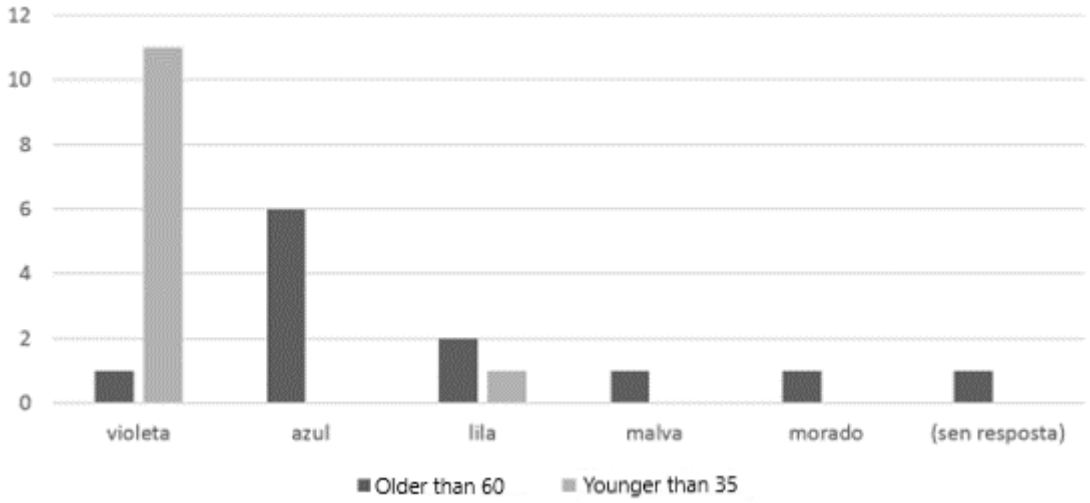

Figure 2.10 Responses for the purple stimulus by two Galician generations, above 60 in dark, under 35 in light; *sen resposta*, 'no response'. Data collected in Teixeira Moláns (2014), adapted from Teixeira Moláns (2019: 306)

In conclusion, according to my pilot fieldwork, ORANGE might not be an independent category for a large part of the elderly generation, and this might be also the case for PURPLE. Thus, these areas of the colour space would be covered by YELLOW+ORANGE and BLUE+PURPLE respectively.

There were also significant differences in the colour terms attested in Villanueva Gesteira (2009) and Teixeira Moláns (2014) for the elderly generation. Regarding RED, the former attests the term *rubio* whilst the latter finds *encarnado* and *vermello*. When it comes to GREY there were also differences: Villanueva Gesteira's *aborrallado* versus Teixeira Moláns' *gris*. The name for ORANGE reported in the former, *butano,* was not found in any of the latter's informants, and *vice versa*, *tella*, the one found in Teixeira Moláns, had zero cases in Villanueva Gesteira.

The most striking divergences between these two studies, however, concern the categorical division. As mentioned above, neither study undertook a mapping of these concepts across the colour space but used focal colour chips as reported in BK.

In both works there are examples of Galician terms which are used by more men than women. That was the case of *rubio* in Villanueva Gesteira (2009) and *castaño* in Teixeira Moláns (2014). This seems to reflect a general tendency in Galician sociolinguistics in which women are more prone to switch languages in favour of Spanish (Mapa Sociolingüístico de Galicia (2008: 76–79).

In Villanueva Gesteira (2009), the informants that did not have an independent label for BK focal ORANGE named it *rubio* or *roxo*, therefore within RED. By contrast, the subjects in Teixeira Moláns (2014) who had no specific term for this colour categorised it as *amarelo*/Sp *amarillo* (YELLOW). This might suggest individual or dialectal differences regarding the boundaries between RED and YELLOW. However, this could also be caused

by differences in the stimuli used, but there are no samples of Villanueva Gesteira's materials available to corroborate this.

Similarly, the different results in Villanueva Gesteira (2009) and Teixeira Moláns (2014) regarding PURPLE may reflect the use of different areas of the category as stimuli, or alternatively, actual different category boundaries between BLUE and PURPLE across generations or the absence of PURPLE as a BCC in a part of the elderly population.

Although Villanueva Gesteira and I collected data in a single municipality and had similar total numbers of informants, our studies differ substantially in their distribution. Villanueva Gesteira (2009) aimed to represent three generations: first generation: 5 women above 70 years old, second generation: 5 women, 5 men (ages not specified), third generation: 7 people, between 4 and thirty. In contrast, Teixeira Moláns (2014) investigated the language of the elderly (mean: 71) and of a younger generation (mean: 24) and tested 12 individuals in each group. The fact that in Villanueva Gesteira (2009) the elderly generation was under-represented might explain why her data barely suggests the differences in categorisation that were attested in Teixeira Moláns (2014), using a balanced sample of informants.

2.4. Research questions

In view of these inconclusive results and the need for further investigation, the present research aims to answer the following questions:

- What are the Basic Colour Terms of the Galician language?
    - How many Basic Colour Categories is the colour space divided into?
    - How are these categories labelled, how do the labels vary and which realities do they refer to?
- How have they changed over time?
- How are they being affected by contact with global languages?

CHAPTER 3. FIELDWORK METHODOLOGY

3.1. Introduction

The first core goal of this research is to investigate the traditional Galician BCTs in order to establish whether or not the universalist theses by Kay and colleagues apply to this language. A first approach to this was fieldwork undertaken in the summer of 2014 (Teixeira Moláns 2014, 2019) which retrieved colour terms for the 11 BK foci. This work suggested that the generation of Galicians born before the 1950s has only 9 BCTs and that they are among the ones predicted by BK in 1969 for a language at Stage VI (Teixeira Moláns 2014).

The current fieldwork will challenge the robustness of these initial findings by testing them with a bigger sample of informants from different parts of Galicia. The scope of the present investigation needs to be wider as it aims to extensively explore the boundaries of these 9 categories and establish their foci by means of a full array of colour chips. The detailed exploration of these categories through the tools widely used within colour semantics allows in-depth discussion of the relevance of universalism and relativism to explain Galician BCTs and enable them to be contrasted with those of other languages.

The second main goal of this research is the comparison of the traditional Galician BCTs used by the oldest living generation —mainly monolingual— with the ones used by a younger generation of Galicians, the first to study Galician at school but also consistently exposed to Spanish and English. The interest of this contrast was also pointed out in the experimental work by Teixeira Moláns (Teixeira Moláns 2014, 2019) in which the generation born from 1980 onwards showed they had 11 BCTs while their older counterparts had only 9.

Ultimately, this research aims to analyse traditional Galician colour terminology before it underwent extensive contact with other languages and to see whether the data supports or challenges the universalist claims. In addition, the contrast of the traditional BCTs with those used by the multilingual younger generation pursues the investigation of linguistic change in this semantic field. The observed linguistic change in the Galician younger generations (Teixeira Moláns 2014, 2019) suggests a strong assimilation to the semantic structures of the socially prestigious languages in the community.

The use of two contemporary age groups to study diachronic semantic change is known as the apparent time construct. It assumes that older speakers have an earlier form of the language while younger speakers have a later form. This is based on the belief that language patterns settle early in life (Lucy & Gaskins 2001) and do not change much during adulthood. However, people can learn new vocabulary or concepts later in life and native speakers are often aware of recent language changes (Vejdemo 2017: 114; Villanueva Gesteira 2009: 179–180). However, the apparent time construct is a

necessary compromise and is the best way to study this language and test our theories with living informants.
Nevertheless, this approach should be supplemented with other methods. Corpus analysis can provide historical and extra contemporary evidence of language use and will provide an auxiliary methodology in Chapter 6.

Thus, to address the research questions I will undertake two main tasks. The core of this investigation consists in carrying out fieldwork in which two generations of native speakers will be interviewed and tested regarding their BCTs/BCCs. The second phase will contrast the fieldwork results with the historical sources, namely the online corpus *Tesouro Informatizado da Lingua Galega,* Galician Language Computerised Thesaurus, (TILG) which contains a rich sample of texts from the seventeenth century to the 2010s.

3.**2. Preliminary methodological considerations**

3.2.1. In-person versus online research

Current technology provides the opportunity to consider new means of collecting data. Using an online test as a research tool has many advantages. One of them is time and resources optimisation as it gives the possibility of collecting data from several distant locations, sometimes even simultaneously. Moreover, collecting data online instead of face-to-face eliminates the need for physical interaction between the investigator and the informants. This became a crucial aspect of the methodology as physical interaction became severely restricted by the coronavirus pandemic in 2020.

An example of an online data collection methodology in colour semantics is shown in Griber, Mylonas and Paramei (2018) (hereafter GMP). Their paper explained an innovative methodology for studying the Russian blues. GMP's online colour naming experiment consisted of six steps (2018: 360).

1) The interviewees were requested to adjust the display of their devices to RGB [Red, Green, Blue additive colour model] and adjust the brightness to see 21 degrees of grey.
2) Then informants had to provide data about the lighting conditions.
3) Participants were tested for colour vision deficiency.
4) A non-restricted colour naming task using 20 colour chips was presented with freedom of response. One of the colours was randomly chosen and presented twice to assess consistency. Response times were measured between the presentation of the stimulus and the first keystroke.
5) Personal data was collected including colour experience.
6) Finally, a summary of the responses was provided, and participants had the possibility of adding comments.

The technology in GMP (2018) provided a small sample of colours (20) for each participant randomly selected from a total of 600 samples in the Munsell Renotation Dataset (page 360). This was another advantage as GMP could explore the Munsell colour space with a high level of detail while keeping the task short and comfortable for individual informants.

Although online data collection offers evident advantages it also has important drawbacks. Through the following paragraphs I will defend my decision to maintain the original in-person data collection methodology even though, because of the Covid 19 pandemic, this meant having to postpone the fieldwork until the second year of my project.

The core goal of this research is to investigate the traditional Galician basic colour terminology as used by the elderly and to compare it with that of a younger generation. In order to find the oldest vocabulary in use, the former target group had to be as old as possible, normally between 80 and 90 years old. This means that the opportunity to collect primary data from Galicians born in the 1930s is unique as there will not be further opportunities in the future. Thus, making the right decision about the methodology for data collection was of the utmost importance.

Relying on digital devices and access to the internet introduces serious bias towards the kind of informants who could take part in the research. Firstly, the informants who did not have access to these tools would be excluded, which introduces a socio-economic slant. Secondly, beyond having access to these devices, individuals have to be able to handle them comfortably. This implies a severe restriction within the group of elderly informants. Finally, the very fact of handling digital devices assumes that participants can read which is not necessarily the case with elderly Galician informants as we will explain below.

Although these circumstances could be alleviated by the assistance of a third person such as a relative or a caregiver, this would inevitably introduce interference.

As mentioned in Chapter 1, the Galician language did not become co-official with Spanish and introduced in school until 1981. Therefore, every child who attended school in Galicia before that year received their education entirely in Spanish. Since this investigation aims to describe the vocabulary of essentially monolingual speakers, this circumstance makes illiterate informants or those who had not had much exposure to the educational system preferable.

Even if the informants could read for themselves, the fact of having to manipulate electronic devices with which they were most likely not familiar could cause alienation and discomfort that would affect the ease of their performance.

Furthermore, the generation born in the 1930s has experienced a civil war and a 40-year-long dictatorship in which their native language was openly prosecuted in public life (Freixeiro Mato 1997:90) and its use at school was ridiculed and even physically

punished. This had obvious consequences for community self-esteem with the most widespread characteristic being the feeling of *autoodio* or self-hatred. Thus, having to answer questions on a digital device, besides the before-mentioned alienation, would give the impression to the informants of being assessed, so that they would activate defence mechanisms and ultimately refuse to participate.

In order to avoid this, personal mediation is crucial. The investigator must make the informant feel comfortable and safe and demonstrate an honest interest in their knowledge. Regarding the latter point, in addition to this low self-esteem about their language, the general population is also aware that traditional Galician is being lost and that words that they once heard as children are not used anymore, particularly rural vocabulary and words in traditional sayings and songs. In addition, although they have not learned Galician at school like their younger counterparts, the elderly generation is conscious of the dialectal richness of the language as differences can be noticed from village to village. Furthermore, since its creation in 1985, the Galician television channel has been broadcasting news and interviews from the whole territory and has contributed towards enhancing this perception of linguistic wealth. This awareness by the informants is fundamental to counterbalance the feeling of self-hatred and to allow them to engage with the investigator and understand the legitimacy of the conducted research. Hence, the researcher needs to be present to manage this personal mediation.

Moreover, the investigator must be *in situ* to control the research conditions: selecting informants according to the preferred characteristics; undertaking the normal vision test; guaranteeing the same lighting conditions; explaining the tasks and answering any questions the informants might have; directing, taking notes and recording open questions; ensuring the completion of the tests, and so on.

3.2.2. Stimuli

When it comes to research tools, exploring colour semantics with an array of colour chips is far from being an objective methodology. Colour systems such as Munsell, Ostwald and OSA artificially select a series of intersections of the three dimensions — brightness, hue and saturation—, and represent only one interpretation of the whole colour space (Saunders & van Brakel 1997b: 175). However, although it is not a perfectly refined analytic tool, so far colour systems are the best method we have to study colour and to compare it intra- and cross-linguistically.

Nevertheless, we should not rely on colour chips alone to describe colour vocabularies because hue, brightness and saturation are not always the only significant features. We have seen extreme examples of this in languages such as Kwakwala and Burarra (Wierzbicka 2006; Saunders 1992) in which hue is not a relevant feature by itself but is deeply intertwined with other visual features such as luminescence, lustrousness or animation which are not contained in colour chips.

The limitation of using only colour chips to study colour semantics has been stressed by Saunders (1992). As a defender of the need to respect the native's point of view she delved into the Kwakiutl culture before researching their colour terms. She interviewed some Kwakwala language speakers and asked for descriptions of fruits, vegetables, coloured illustrations of plants and animals, strings of coloured beads and packets of sequins presented to them. Only once she had collected information by interviewing and presenting culturally relevant objects, did she move on to colour chips (1992: 144–145). Through this approach she ascertained that the meaning of some of the Kwakwala *colour* terms included notions such as lustre, texture and smokiness (1992: 153–172).

For this reason, any serious and rigorous approach to the visual or colour semantics of any group must avoid assumptions about how the speech community describes objects and landscapes in their everyday life. Thus, in order to avoid any *a priori* constraints, this research uses objects which are familiar to the speakers to test if their spontaneous descriptions include any visual information other than colour. Following this, a second phase tests hue extensively through colour chips.

In order to make the dialogue compatible with previous research and to enable direct comparison with other studied languages I needed to use a standardised set of colour chips as well as familiar objects. And for that a decision about which colour system and collection of colour chips to use had to be made. Munsell colour chips were excluded as they have been severely criticised for not presenting an evenly spread range of stimuli and for artificially highlighting the alleged universal foci (see Chapter 2). In addition, Munsell colour chips have a glossy finish that could be problematic for informants. Uusküla and Eessalu (2018) compared a range of studies using Munsell and Color-Aid colour chips and concluded that the glossy surface of the Munsell colour chips was confusing and caused distortions at least in the responses concerning BLACK.

Moreover, colour semantics studies using Munsell colour chips tend to request labelling for the 330 individual colour chips, and this has been found to cause fatigue in informants (WCS 2009: 14). This was extremely discouraging as in my investigation half of the target informants were elderly people.

The strongest alternative was the Color-Aid Corporation (henceforth CAC). The CAC is based on the Ostwald colour system (Ostwald 1939) which has three main features: colour tone i.e *hue*, amount of white i.e. *tint* and amount of black i.e. *shade*. The achromatic colours are also divided into eight grades depending on the amount of white or black. CAC uses a modification of the Ostwald system and consists of 24 chromatic colours, namely, 6 basic colours: Y: yellow; O: orange; R: red; V: violet; B: blue; G: green and the hues in between them: YOY: yellow-orange-yellow, YO: yellow-orange etc. Each of the fully saturated hues are also presented in four tints in which the amount of white increases, from T1 to T4, and in three shades in which the quantity of black increases from S1 to S3. Thus, by looking at the name of a chip, for instance YGY S3, we know we are talking about a greyish yellow with a green element. This nomenclature was found

to be very transparent and convenient to handle, analyse and present data. CAC also includes ten extra hues that do not belong to the Ostwald system. The CAC chips have not been found to highlight any particular area of the colour space and have a matte surface.

In addition, Davies and colleagues (Davies & Corbett 1994; Davies et al. 1992) started working with a selection of 65 tiles from the 220 CAC array, a much smaller number of colour chips than Munsell, that are evenly spread across the colour space and easily converted into the CIE standard (Commission Internationale de l'éclairage, 1931).[11] Moreover, these same 65 tiles have been used since then in a range of investigations (Uusküla & Bimler 2016; Uusküla 2007, 2014) which promised to be very productive for cross-linguistic comparison. For all these reasons, it was decided to work with this selection of the CAC chips.

3.3. Informants' description

3.3.1. Location

The main fieldwork took place during seven weeks in June-August 2021. Data was collected from 98 informants interviewed over a cross-section of the Galician map, distributed across 11 municipalities. These data collection points were selected from the areas with the highest percentages of Galician speakers according to the last two reports by the Galician Institute of Statistics (2013, 2019) in an attempt to cover the Galician territory as evenly as possible.

The most recent report by the Galician Institute of Statistics (2019) provided the percentage of inhabitants who use only or primarily the Galician language per region. Figure 3.1 shows their map with the selected data collection points superimposed. The previous study by the Galician Institute of Statistics (2013) however provided data by municipality which can be found in Figure 3.2 with the overlay of the research target areas.

[11] The CIE is one of the first colour systems defined mathematically. It represents colour in a three-dimensional space. In words of Davies, "the coordinates are roughly brightness (Y), proportion of redness (x), and proportion of greenness (y); by implication the proportion of blueness is present as 1 — (x + y)" (1992: 1086); for an in-depth review of this and other colour systems see (Hunt & Pointer 2011).

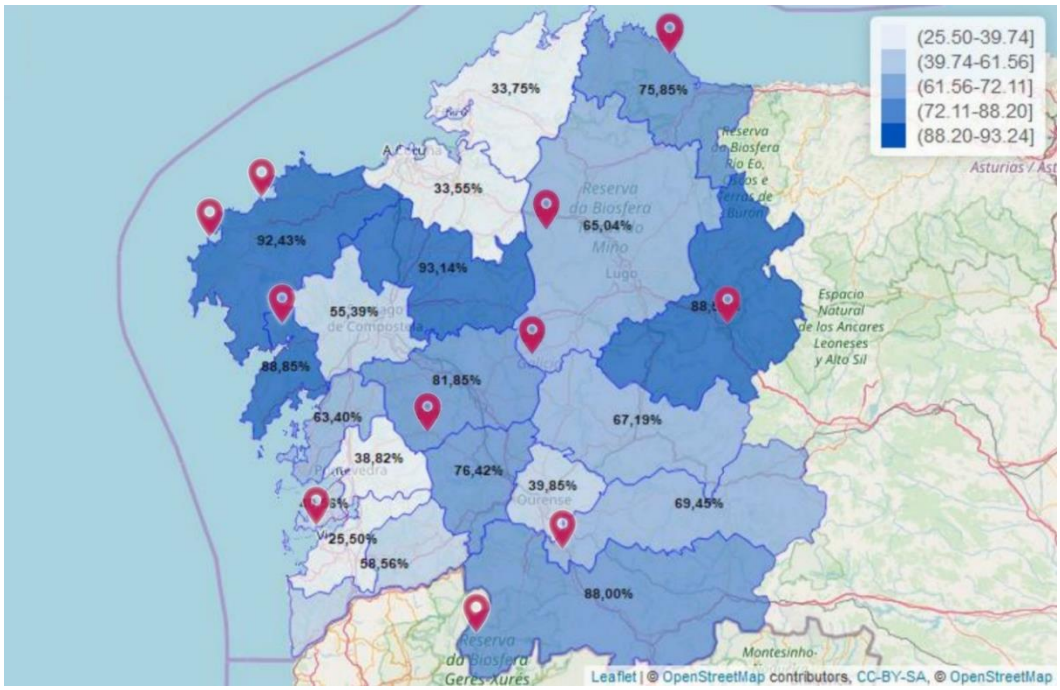

Figure.3.1 Percentage of speakers of the Galician language by region (Galician Institute of Statistics 2019), Lea flet| ©OpenStreetMap contributors CC-BY-SA with my data collection points superimposed.

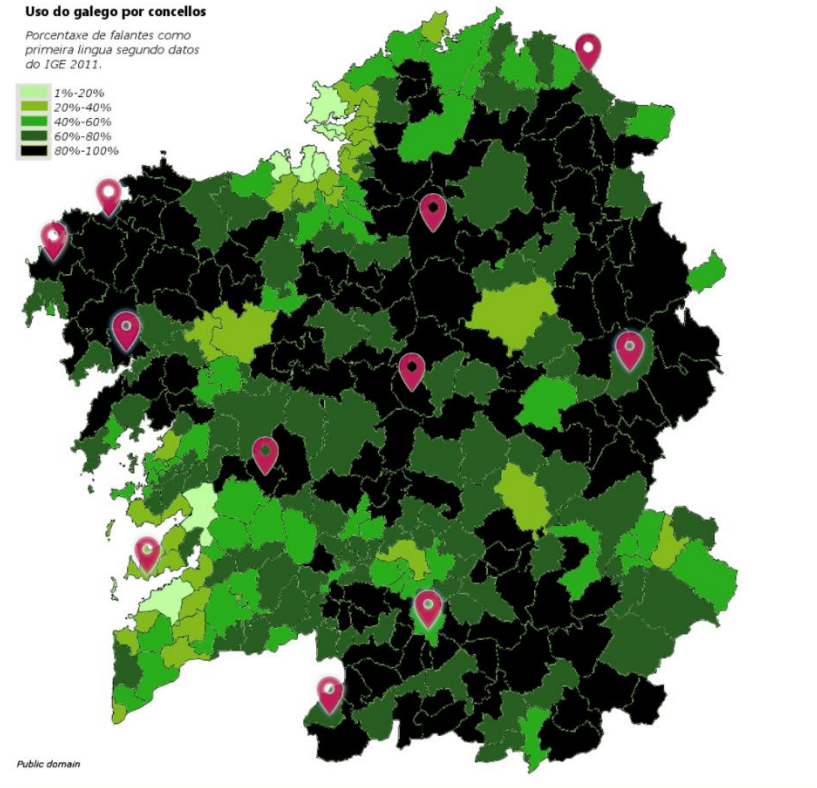

Figure 3.2 Percentages of speakers who have Galician as first language by municipality (Galician Institute of Statistics 2011) with my data collection points superimposed.

This study aimed to obtain a balanced representation of the Galician language spoken across the territory, but it was not designed to address the dialectological dimension of this language (see Sánchez Rei 2011; Fernández Rei 1990). Galician has three main dialects which divide the Galician map into three big vertical areas. These main dialects are defined by morphological and phonetic differences, whilst every lexical item that presents variation in Galician has an independent isogloss.[12] Furthermore, as mentioned in Section 2.3.3, Galician colour semantics is still to be developed as a research field, and there are no previous investigations that could suggest a reason for prioritising some areas rather than others.

Although the focus of this investigation is not contrasting dialects, the selected data collection points are spread across the Galician territory and the data analysis might still reveal diatopic differences.

3.3.2. Age and linguistic profile

The core goal of the fieldwork was to investigate the basic colour terms in Traditional Galician and check the level of stability or semantic change over time. Based on the apparent time construct, by looking at two generations I should be able to study two different stages of the language. Firstly, to study the oldest Galician still in use it was necessary to interview the oldest informants possible who are essentially monolingual in Galician. Secondly, I aimed to contrast this with the Galician spoken by young adults who have Galician as a first language, but who are necessarily multilingual because of having been born after 1980 and having been exposed to Spanish and English at school.

The first age group consisted of the oldest informants possible, in their eighties and nineties in 2021, therefore, subjects born in the 1930s and 1940s who are essentially monolingual in Galician. This linguistic profile is very common amongst the elderly as 48.48% of the population above 65 was reported as always speaking Galician in 2018 (Instituto Galego de Estatística 2019) and this percentage is even higher amongst people in their eighties and nineties.

Furthermore, as my goal was to study elderly informants who are essentially monolingual in Galician, being illiterate or not having attended much school was a preferred characteristic as before 1980 Galician schools instructed only in Spanish.

Although the general rate of illiteracy of the Galician population in 2001 was 2.1% (Galician Institute of Statistics, 2002), the proportion of illiterate individuals amongst the

[12] The isoglosses for the main three dialects do not match with the isoglosses for individual lexical items. The former are three big strips that divide the Galician territory vertically. An example of this lack of correspondence is the distribution of the two variants for the personal pronoun you —*ti* / *tu*—. The form *tu* is used in a part of the territory shaped in an inverted c as it is present in the East but also in the North and on the border with Portugal in the South (see the Galician Language Atlas (Blanco & García 2000: 172)).

population born before the 1950s is necessarily higher. Gabriel (2013) reports that the public schooling rate in Galicia in the 1930s was 60% and this number did not grow in the next two decades but even declined to 55% in the 1950s (2013: 296). Furthermore, Gabriel stresses that the number of children registered at school does not equal the number of literate children. According to the data contained in his paper the percentage of literate children in the 1940s was 25% lower than the ones in school (2013: 296) because success in the literacy programme was affected by many factors, such as the irregularity and seasonality of assistance (2013: 298). Furthermore, the index of illiteracy in the first half of the twentieth century was characterised by a considerable gender differential. Gabriel reports that the index of illiteracy in women in 1940 was 18% higher than in men (2013: 290).

However, some of these individuals would not remain illiterate but would learn to read and write at home or later in life in classes for adults, when joining the army or emigrating (2013: 298). In any case, regardless of the proportion of illiterates amongst today's elderly Galicians, my selection of informants did not intend to represent the most common educational profile of this generation. Rather, this study intended to describe the language of elderly informants who are essentially monolingual in Galician and as little exposed to Spanish as possible. Therefore, informants with a long exposure to a schooling system in Spanish were not eligible.

Similarly, informants who have always lived in Galicia were preferred to people who emigrated and spent time immersed in other languages.

The second age group consisted of young adults born in the 1980s and 1990s who have Galician as their first language. This age range was selected because after the Galician language was given official status in 1981, children born in those decades were the first generation of Galicians to be schooled in Galician and Spanish and eventually also exposed to English. As schooling became compulsory and children were educated in both languages, the members of this generation cannot be considered monolingual. Rather our target informants were those who have Galician as their first language and who kept using it as their everyday language until the present. In terms of use, the percentage of adults aged 30-49 who were reported to speak only Galician in 2018 was 23.66% (Instituto Galego de Estatística 2019).

Amongst those young adults who were reported as only speaking Galician there is a subgroup known as *neofalantes* (new speakers). These are individuals who were raised speaking Spanish but consciously decided to become Galician speakers later in life. The 'new speakers' phenomenon is not exclusive to Galician society, as it happens in other contexts with minority languages such as Irish or Scottish Gaelic (O'Rourke & Walsh 2020; O'Rourke & Pujolar 2015).

Although the prototypical *neofalante* is a person who was raised speaking Spanish in an urban context with no contact with Galician beyond lessons at school, the linguistic

backgrounds of *neofalantes* are variable. In any case, the selected data collection points for both generations were areas with a dominant presence of Galician. Whenever I encountered cases of new speakers in these areas, they had spent their life immersed in that 'Galician-dominant' environment.

Thus, this study prioritised informants who had Galician as their first language and who had continued speaking this language into adulthood. However, in the absence of such informants, *neofalantes* were welcomed as participants.

Both groups were equally representative of gender. All participants were tested for colour deficiency with The City University Colour Vision Test (1980), as it asks for similarity judgements of a series of coloured dots and does not require subjects to recognise numbers, as does the Ishihara test, which might be a problem for illiterate informants.

3.4. Tasks

Informants were asked to perform 5 tasks.

3.4.1. Elicited list

Informants were asked to say as many colour terms as they can in two minutes. This task aimed to identify basic colour terms and classify them by salience and frequency.

3.4.2. Free naming of culturally relevant objects

This activity presented a series of familiar objects or pictures of them and ask informants to describe how they look with two words. These objects were coloured but also had other visual characteristics as fluorescence, brilliance, sparkle, texture etc (Figure 3.3 below). This task aimed to track spontaneous descriptions of everyday realities. Secondarily it sought to identify descriptors other than colour and measure their salience and frequency.[13]

3.4.3. Tile naming

Informants were asked to name 65 4.5"x 6" matt-finished colour chips from the Color-Aid Corporation 220 sample. The precise colour chips were the ones used by Davies

[13] The order in which these stimuli were presented to participants was carefully designed. The three first objects were a red pen, an orange notebook and a purple pope's robe which are all manufactured objects that can be found in different colours so there was no imposition of any labelling strategy. These are the only responses analysed in this thesis (5.4.). Only once that data was registered, a mix of natural and manufactured objects was presented to them. Some of those objects could be a traditional labelling strategy for certain colours e.g. red wine, terracotta tiles, gas bottles, and others not necessarily so e.g. slate tiles, octopus, foxglove flowers, clothing, etc. In addition, this second part of the task, was looking into registering other visual information which exceeded the scope of this thesis and will be analysed in future work. One could argue that exposure to the stimuli connected with some traditonal labelling could have influenced later responses but, since these were presented along many other objects, I believe it would not necessarily influence any later response if those participants did not already have that terminology.

and colleagues (Uusküla 2007, 2014; Davies & Corbett 1994; Davies et al. 1992). The goal was to establish the colour categories' denotata or semantic extension.

3.4.4. Best example

Participants were asked to identify the best example of the terms elicited in task 1 in a full colour array. The task sought to identify the focus or best example of each colour category.

Figure 3.3 Task 2 stimuli

3.4.5. Description of suggested terms

Participants were asked about a series of terms. These were Traditional Galician colour terms and also Standard Galician forms. This task served diverse purposes, such as checking the vitality of these terms and collecting informants' definitions.

The following were labels for the red area of the colour space: *rubio, roxo, encarnado, vermello, colorado, granate.* There were alternative labels for grey, such as *borrallado, cincento*, and for black, such as *mouro, preto*, together with other less well-defined colour terms such as *pardo*. The task, however, was open and gave the opportunity to report other colour terms not contained in the list.

3.5. Testing the methodology: pilot fieldwork

3.5.1. Pilot fieldwork informants

The pilot fieldwork collected data during September 2020 in a Galician village named Cangas in the county of Pontevedra. The percentage of everyday speakers of Galician in this coastal area is lower than in other regions, a mean of only 20-40% of the population according to the IGE (2011). Nevertheless, this data collection point was selected for the pilot fieldwork because it is the researcher's home area and so provided the personal contacts that could give access to informants, particularly elderly ones.

The target age groups were elderly people born before 1940 and adults born from 1980 onward. A total of seven participants undertook the test.

Despite the difficulty of accessing elderly informants, three of the participants were above 80 years old. The limited access to informants of that age range urged me to collect data from two younger male informants, born in 1948 and in 1953. These informants were targeted because of their sociolinguistic profile. Deep-sea fishermen spend most of their lives with other Galician co-workers, away from the influence of Spanish. The younger of these two extra participants had also emigrated to a Spanish-speaking area. He had spent about seven years living in Argentina which had an impact on his language, as we will see below.

When a given village has 20—40% of Galician speakers, that percentage is always lower amongst the younger population (see Chapter 1). Thus, finding locals born in the 1980s who were everyday Galician speakers was even more challenging than accessing elderly ones. Nevertheless, two informants born in this decade undertook the test.

3.5.2. Pilot fieldwork methodological reflections

3.5.2.1. Interaction and instructions to informants

It was observed that when there were close relatives in the house there was a tendency for them to want to be present during the test. Insisting that they leave the room created

a certain tension, so sometimes allowing them to be present if they promised to be silent was the only way to proceed with the interview. This promise was not always kept, so notes were made on the interrupted responses.

3.5.2.2. Colour vision test

As I did not have access to the printed City University Colour Vision test (1998) I decided to use the video version of this, available at the City University web site. This video consists of a cluster of pixels that change and move across the screen. All that the subjects have to do is to report if they stop seeing this cluster at any point, in which case they would have some kind of colour blindness. This version of the test does not require any other task from the participants and relies completely on the subject's report. This is far from ideal as they might be reluctant to admit they have difficulties about seeing the figure and the experimenter would have no other way to assess the subject's performance.

The experimenter kept verbal engagement throughout the duration of the video asking *Is the figure still there? Is it moving?* Although the interviewer never asked about the colour of the target, participants tended to say *Yes, it is still there, now it is yellower/ greener* etc. This tendency of subjects to describe the colour of the figure seems to have had an impact on Task 1. Some informants mumbled, trying to remember the colours they had seen in the colour vision test, and started their elicited lists by mentioning those colour terms.

None of the informants reported ceasing to see the figure, so all of them passed the colour vision test. In addition, their detailed and accurate description of what they were seeing confirmed these were not false reports. Although it can be said that this procedure succeeded in assessing colour blindness, this colour test will not be maintained as a research tool in the main fieldwork for the reasons detailed below.

Firstly, reporting seeing or not seeing the figure is not a reliable methodology by itself as it does not provide any way to check the veracity of those statements. Secondly, mentioning the hue of the figure could be a way for the experimenter to corroborate that the participant is actually seeing the target. However, assessing the veracity of a description depending on the matching of the linguistic descriptions by the subject and the experimenter is not a consistent procedure. Colour vision tests are normally based on identifying figures against a series of backgrounds (e.g. the Ishihara plates) or on similarity judgements (City University Colour Vision Test (Fletcher 1998)) and they are effective tools to measure colour vision regardless of any linguistic variation between the subject and the experimenter.

Finally, and most importantly, triggering colour terms in the colour vision test has proved to severely interfere with the outcome of the following research tasks. When asked for a list of colour terms in Task 1, several informants started by mentioning the colours they could remember from the colour vision test.

In order to prevent this interference, in the main fieldwork I will use the printed City University Colour Vision Test (Fletcher 1998) as it only requires similarity judgements without the naming of any hue. This test consists of a total of ten plates. The first four show several rows of three coloured circles from which the participant has to identify the sequences in which one of the circles is different. The last 6 plates consist of a central coloured circle surrounded by another four. The participant is required to identify which of the surrounding colours matches the central one. This test is very thorough and allows the identification of the colour vision deficiencies of protanomaly, deuteranomaly and tritanomaly. The *tritan* deficiencies are of particular interest as they affect the perception of blue —among other colours— and are commonly found in elderly people. In line with the perceptual compensatory mechanism pointed out in Hardy et al. (2005), tritanomalous elderly individuals are found to use BCTs in a similar way to other speakers as they apply a partial compensation (Lillo, Moreira, del Tío, Álvaro & Durán 2012), namely, a white normalisation called the von Kries-type mechanism. Thus, knowing which individuals have this condition will be extremely useful when analysing and comparing responses. Excellent lighting is, however, of the greatest importance, particularly when testing elderly people who might need twice as much light as their younger counterparts to achieve the same performance (Fletcher 1998).

Finally, the colour vision test was undertaken after most of the research tasks were finished to avoid interferences, as was done in Davies et al. (1992: 1069). This colour vision test requires a certain level of attention to prevent poor performance due to excessive fatigue at the end of the test. It was, therefore, undertaken immediately before the last part of the questionnaire, namely, Task 5: free definitions of suggested terms.

3.5.2.3. Task 1. Elicited list

Task 1 consisted in requesting an elicited list of colour terms. Due to the illiteracy of some of the elderly informants, the researcher wrote down the words as the participants spoke. It was found to be difficult to write them down as informants speak and to check the chronometer at the same time. For the main fieldwork the researcher plans to use an app that makes a sound when reaching the time references.

The fact of the interviewer writing down the informants' words as they spoke made them want to stop the task after a few seconds if they were unable to remember a new term. Despite this, Task 1 allowed at least two minutes for each interviewee.

The task was described with the sentence *Dígame todos os nomes de cores que coñeza/saiba* 'Tell me all the colour names you know'. However, elderly people had problems understanding the required task. It was not easy for some of them to understand the abstract notion of colour names. The interviewer had to explain she was interested in the names of the colours that things can have, such as clothes, cars etc. One elderly informant named colour terms as the colours of cars they knew and clothes they own. Another had difficulties remembering a long list of terms, so some were her names for the colour of objects pointed out by a present but silent relative. This

interference might not affect the categorisation or the labelling of hues but it alters the order of appearance, which is fundamental to establish the salience of BCC/BCTs. These responses of informant no.3 that were interfered with are marked with an asterisk in Figure 14.

The elicited list is a core procedure in colour semantics that establishes a list of BCT candidates by measuring the order of appearance and frequency across informants. Thus, the earliest recorded terms that are present in the list of most informants are considered potential BCTs while the terms mentioned later and by fewer people are less likely to be so. However, the participants' performance in this task was not as successful as expected. There were many cases in which certain terms were elicited in Task 1 but not mentioned again during the colour chips naming (Task 3). This casts doubt on whether the terms collated in the elicited list were used regularly by the informants or if they had heard those words, but they did not know their meaning. Although less likely, another possibility is that those colours were not represented at all in the 65 chips sample. Finally, this could also be due to knowing several terms for the same colour — as we will see with RED and PURPLE— but using consistently only one of them.

Similarly, another way to show inconsistency between Tasks 1 and 3 is that there were terms that did not appear in the elicited list but were used several times when naming the colour chips. To prevent this happening the main fieldwork will allow up to five minutes for Task 1. Although the elicited list task is only the first approach to establish candidate colour terms, this procedure seems not to be particularly effective with informants who do not react well to a memory task or do not fully understand the notion of a colour term as an abstraction as opposed to being applied to objects.

The data gathered in Task 1 was also relevant as it would help to determine a series of candidates for BCTs that needed to be assigned a best example in Task 4. I decided to gather as much information as possible and analyse it later. Thus, I asked for the best examples of all the terms in the elicited list and if there were other terms that occurred in the tile naming task, I requested a best example for them as well.

3.5.2.4. Task 2. Free naming of culturally relevant objects

Task 2 consisted of requesting a colour term for a series of 16 pictures of familiar objects or for the objects themselves (see Figure 3.3) presented individually against a grey cloth. In contrast with the elicited list, this task was very easy to conduct and informants were very comfortable with it. It is worth considering expanding this part of the test.

3.5.2.5. Task 3. Tile naming

This part of the test consisted of presenting individually 65 8cm x 8cm colour tiles against a grey cloth and asking participants to name the colour. The task is quite long and because of fatigue a couple of elderly informants stopped being coherent with their

responses for the last few tiles. I decided to take a break after the first half of the colour chips had been named. I used this couple of minutes to write down the terms elicited in Task 1 in the blanks in Task 4 which were to be assigned a best example.

3.5.2.6. Task 4. Best example

Task 4 aimed to identify the focus or best example of the different BCCs. For this, an array of 210 CAC colour tiles was presented to the participants, who were asked to point to the best example of each of the terms they had mentioned in the elicited list. The instructions were "Which of these colours would you say is [Term 1] as such?". The requested task was understood by informants much better than expected. In one of the first interviews after formulating the requested information in two different ways, the informant confirmed that s/he understood what I was saying by replying: *Si, o azul verdadeiro* 'Yes, true blue'. From that point on I incorporated that expression to describe the task *Cal destes é o verdadeiro (+ termo de cor)?* '*Which of these is the true* (+ colour term)?' and it worked very well with the elderly.

The difficulty in this task was the distribution of shades on the array. The fact that the CAC does not have an integrated colour scheme obliged me to configure my own with a small square of each chip of the standard set glued onto an A3 sized sheet of cardboard. The initial distribution followed the company numbering of the chips but unfortunately the bottom squares containing the shades S1, S2 and S3 showed anything but a balanced transition. See Figures 3.4 and 3.5 below.

Color-aid 220 Designations & Numbering Chart*

	Y	YOY	YO	OYO	O	ORO	RO	ROR	R	RVR	RV	VRV	V	VBV	BV	BVB	B	BGB	BG	GBG	G	GYG	YG	YGY
HUE	1	9	17	25	33	41	49	57	65	73	81	89	97	105	113	121	129	137	145	153	161	169	177	185
T1	2	10	18	26	34	42	50	58	66	74	82	90	98	106	114	122	130	138	146	154	162	170	178	186
T2	3	11	19	27	35	43	51	59	67	75	83	91	99	107	115	123	131	139	147	155	163	171	179	187
T3	4	12	20	28	36	44	52	60	68	76	84	92	100	108	116	124	132	140	148	156	164	172	180	188
T4	5	13	21	29	37	45	53	61	69	77	85	93	101	109	117	125	133	141	149	157	165	173	181	189
S1	6	14	22	30	38	46	54	62	70	78	86	94	102	110	118	126	134	142	150	158	166	174	182	190
S2	7	15	23	31	39	47	55	63	71	79	87	95	103	111	119	127	135	143	151	159	167	175	183	191
S3	8	16	24	32	40	48	56	64	72	80	88	96	104	112	120	128	136	144	152	160	168	176	184	192

Before using your Color-aid 220 packet, number reverse side of each sheet as shown in this chart. Use a soft pencil with an eraser. Do not press hard to prevent marring. Read all instructions before starting.

(1) Have 220 deck ready with bright yellow side facing up. (2) Turn this first yellow sheet over and write in "1" at a corner. (3) Continue in this manner until you arrive at sheet #220. (Ignore the printing you may encounter on some sheets.)

Note: Errors will throw off numbering. If last sheet in deck is not #220, you have at least one of four error types: stuck sheets, duplicate colors, wrong numbering or, in very rare cases, a missing color.

Optional: After numbering, write in the 220 Color-aid designations: Color #1 = Y-HUE, color #2 = Y-T1 ... color #84 = RV-T3 ... color #192 = YGY-S3 ... color #206 = GRAY 7 ... color #218 = COBALT BLUE, etc.

GRAY			
1A	193	5A	201
1	194	5	202
2A	195	6A	203
2	196	6	204
3A	197	7A	205
3	198	7	206
4A	199	8A	207
4	200	8	208
BLACK			209
WHITE			210

SUPPLEMENTS	
PRIMROSE YELLOW	211
LIFE RED	212
ROSE RED	213
MAGENTA	214
MAROON	215
SIENNA BROWN	216
BURNT UMBER	217
COBALT BLUE	218
NAVY BLUE	219
CYAN BLUE	220

*Insert for 6"x 9" & 4.5"x 6" Color-aid 220 packets

Figure 3.4 CAC Designations and numbering chart.

Figure 3.5 CAC tiles displayed by numbering chart.

After trying different distributions, I decided to go for the one that transitions the hues as smoothly as possible, even though it leaves similar shades on different edges of the array. In addition, the original 220-tile array was reduced to 210 as the 10 extra hues ¾COBALT BLUE, PRIMROSE RED, SIENNA BROWN, etc.¾, could not be incorporated. Finally, the achromatic colours had to be placed separately at the bottom of the display (see Figure 3.6).

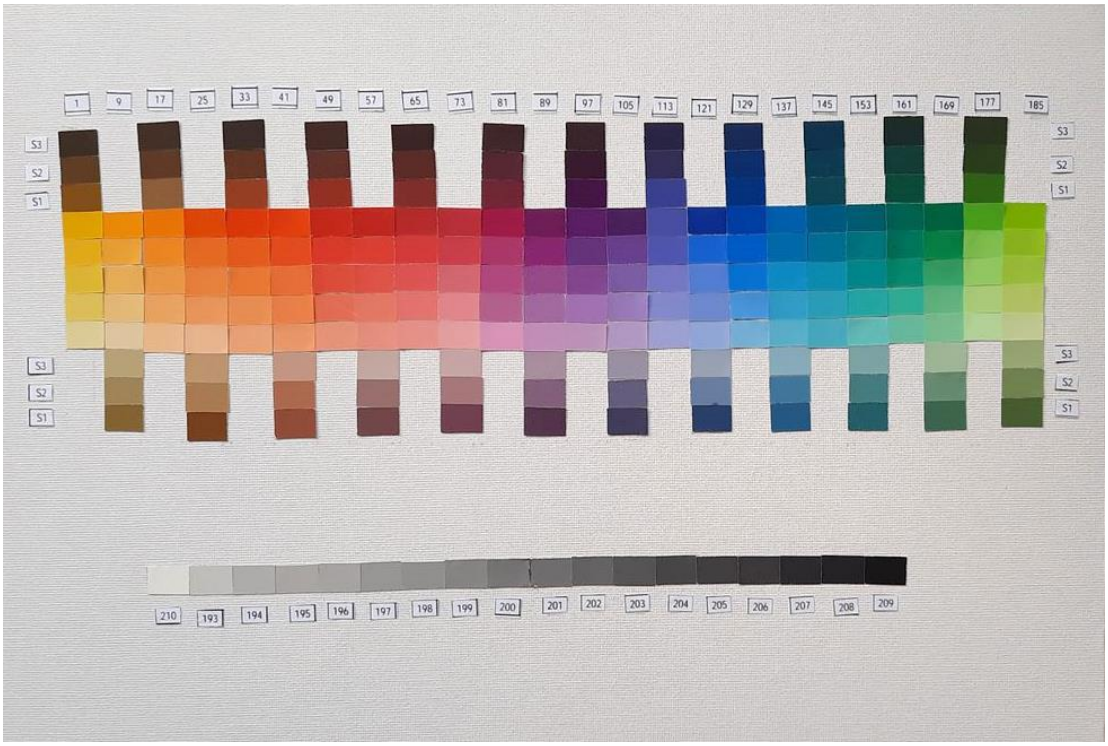

Figure 3.6 Task 4 Best Example Stimuli

Although informants understood very well the concept of best example, it was difficult for them to find what they had in mind in the array. When informants were trying to decide on the best examples, they kept jumping from one edge of the array to the other, instead of concentrating on one area, so it is most likely that the difficulty of assigning a best example and the big differences between informants are caused by the distribution of hues across the array. In any case, it was clear that this distribution confused the informants and, therefore, other alternatives had to be considered to test the best example in the main fieldwork as we will see below.

The methodology used in the cross-linguistic study by Uusküla and Bimler (2016) — henceforth UB— to test foci was based on the labelling in a tile naming task. The hues named with just a BCT were considered part of the focus as opposed to the hues labelled with a modifier such as *dark*, *pale* etc. which were considered to be located in the periphery of the category (2016: 9–13). These authors computed the tiles that received unqualified BCTs for each category and located these stimuli in an empirical similarity space, using multi-dimensional scaling. This allowed the location of the responses to be averaged, thus revealing centroids or centres of mass, and also to establish confidence levels depending on the agreement between participants (2016: 11).

This multi-dimensional scaling consisted of a similarity matrix in which the responses for all of the 58 chromatic tiles were compared with each other. The estimate of similarity values ranged from 1 to 0, the latter being the most common entry as most pairs of tiles were not labelled the same. The results were averaged by language to prevent distortions caused by different sample sizes (2016: 12).

Using this method, this investigation found that "the extent of inter-language variability is not the same in all nine categories" (2016: 15). These languages most often coincided on two tiles receiving the unqualified BCTs for YELLOW, ORANGE, RED and GREY. However, three tiles tended to be labelled with the terms for PINK, PURPLE and GREEN. Moreover, the terms for BLUE and BROWN were found to be the ones that show wider variability as up to five tiles were identified as the foci of their respective categories. Beyond the number of different tiles identified as foci for each BCC, this work also shows the distance between these hues. The categories showing the greatest differences between focal points across languages are BLUE, PINK and BROWN (2016: 15).

The method of calculating the centroids, of balancing the calculations considering the different samples and of having awareness of the confidence levels was considered very robust and it was decided it should be implemented in the present investigation. However, the methodology of obtaining the data about focus judgements seems not to be the best.

My own experience with my Master's thesis and the pilot fieldwork is that the use of modifiers is frequently affected by the order in which the colour chips are presented to participants rather than producing independently stable descriptions. If two similar hues are presented close to each other in the sequence, informants tend to modify the BCT to mark variation and compare them. This does not mean that a certain hue is, for instance at the dark end of the category but just that it is darker than the one presented earlier. In fact, informants frequently do not make isolated judgements but, rather, comparison statements such as "a darker blue", "darker than the previous one" etc.

UB acknowledge this tendency (2016: 9): "if two, three or even four green, blue or purple tiles occurred in a sequence, subjects tended to vary responses by adding modifiers or using other linguistic tools to make variation". In addition, it is suspected that the informant, unaware of the range of stimuli that are going to be shown next, cannot adjust his/her responses to be consistent with his/her total responses.

We can see that there were inconsistencies in which certain colour chips pointed out as foci of a certain category in Task 4 were included in another category in the tile naming Task 3. This is the case of young Inf7 who picked tile ROR S3 as the focus of BEIS but labelled it *rosa* in Task 3. Similarly, elderly Inf3 chose HUE YGY as the focus of VERDE but named this same tile Sp *amarillo pálido* 'pale yellow'[14] in Task 3. These could be just

[14] The relationship between YELLOW and GREEN was explored further in the main fieldwork. The existence of a YELLOW+GREEN macrocategory has been attestested in many Salishan languages spoken in the Northwest of USA and Canada. McLaury suggests that at least in Shuswap, once RED separated from an original WARM macrocategory, YELLOW expanded and included also GREEN (1987b: 109).

isolated mistakes, but there are other inconsistencies that are much more common and which directly affect the methodology of UB and so should discourage us from taking the naming results too literally.

Young Inf6 chose tile B T1 as the focus for BLUE but named that same tile *azul escuro de mar* 'sea dark blue' in Task 3. This informant also picked tile GRAY 2 as the focus of GRIS but labelled that hue as *gris claro* 'light grey' in the previous task. Another example of this is elderly Inf5 who picked tile HUE GYG as the focus of VERDE but labelled it *verde claro* 'light green' in Task 3. This same participant chose tile HUE BVB as the focus of BLUE but named it *azul escuro* 'dark blue' in the naming task.[15]

If we had followed UB's method of looking at the data in the naming task alone, we would not have reached the same conclusions as those from the participants' direct reports about the category foci when presented with a range of stimuli. UB themselves are aware of this "if our subjects had been requested to indicate focal color areas explicitly, it is possible that different findings would have emerged" (2016: 13). Therefore, after seeing the inconsistencies between the naming task results and an explicit best example task it seems more than advisable that the identification of foci should be an independent task.

Nevertheless, because of the problems noted with the CAC display, it was decided to use the 65 tiles used in Task 3 for the best example task. The researcher will present these tiles again to the participants but, this time, not independently but grouped according to their own categorisation. The subject will be given the opportunity to rearrange the tiles if s/he wishes and will then be asked to indicate the best example in each group. This technique of requesting a best example from a selection of tiles was also used in Uusküla (2014) when investigating Italian blue terms.

This procedure has the disadvantage of requiring a few extra minutes so the researcher can arrange the tiles according to the response sheet, but it strengthens the test in several aspects:

> 1) This new methodology requests foci for the categories to be actively selected in Task 3 as opposed to inferring from the elicited list. We have seen that some participants forget in the elicited lists terms that they then use profusely across the test, and others mention terms in the list, the category membership of which they judge to be uncertain.

[15] The data on BROWN, BLACK and WHITE were disregarded when comparing the results of the designated foci in the full display and the results following Bimler and Uusküla's (2016) methodology. As noted above, the dispositon of the CAC hues in the display could have been confusing for informants. This affected BROWN the most as the candidate hues were dispersed on the edges rather than being concentrated in one single area like the other hues. For this reason, the pilot fieldwork results for BROWN are not as reliable as for the other categories and therefore were disregarded for this methodological comparison. The white and black tiles were presented at the extremes of separate non-chromatic progression and it is suspected this might have conditioned the responses. For this reason they have also been omitted from the comparison.

2) It allows participants to confirm or adjust their responses which tests their consistency and ultimately increases the reliability of the data collected.

3) Requesting best examples by presenting the colours organised in discrete categories facilitates the identification of BCTs versus non-BTCs.

4) Using these 65 tiles exclusively helps comparison with other investigations in colour semantics. It establishes common ground for comparison with the cross-linguistic study by UB and many other investigations as the equivalence in CIE is available for these tiles but not for the whole CAC array.

3.5.2.7. Task 5 Description of suggested terms

The test finished with Task 5. This part of the test consists in requesting definitions for a series of proposed colour terms. The task was considered secondary as it simply aimed to check if the informant knew or used any other colour term —mostly non-basics— not mentioned in the previous tasks, and to collect direct definitions about this vocabulary. However, participants visibly enjoyed this part of the test more than the previous ones. The task turned out to be very productive and even resulted in the attestation of some meanings that had not been considered and that cannot be found in dictionaries as will be seen in the sections below.

In view of all this, it was decided that Task 5 should be expanded in two steps. Firstly, the participant will be requested to give a free definition of the term and, secondly, they will be directly asked if they use or have heard certain meanings or contexts of use for it. These two stages aim to distinguish initial and completely spontaneous responses from information given in the later inquiries. Registering the information collected in these two steps allows the separation of the first definition that comes to the participant's mind —without any kind of external direction—from information given in response to later questions which could arguably represent secondary meanings or contexts of use in decay. For example, in response to a definition for the term *rubio*, some elderly people might say that it is used to describe blond hair. Further questions would concern whether that term could be used to refer to blush or red objects such as clothes. Even if they reply yes to these inquiries, it is relevant to register these responses separately so we are able to compare them with informants who say in the first step that *rubio* refers to red objects and/or blush.

3.5.2.8. Conclusions about the fieldwork methodology

After analysing the methodology of the pilot fieldwork, a series of conclusions were reached that impacted the main fieldwork. Firstly, the aspects and tasks that were retained are listed:

- Task 2. consisting of naming pictures, worked very well and was very comfortable for participants.
- Task 3, consisting of naming 65 individual colour chips, also remained unchanged.
- Task 5, requesting definitions for a list of given terms, was very productive for collecting data and participants seemed to be very relaxed with it.

Secondly, a range of warnings about how to improve the performance of the tests are presented:

- The elicited list —Task 1— should not be underestimated. It needs to be explained carefully and participants should be given time to understand what the task is about.
- It was learnt that having other people present in the room while the test is being performed is a common occurrence. Knowing how to negotiate the rules is fundamental to avoid interference.
- Fatigue is an important factor to consider with elderly informants. Taking time to rest in between tasks is fundamental to ensure the test is completed successfully. Having to set up the new Task 4 from the responses given in Task 3, added, of necessity, an extra pause which allowed participants to rest.
- The general lighting conditions from the pilot fieldwork, shade outdoors or indoors by a window, were maintained. However, the lighting needed to be particularly good when elderly people undertake the colour vision test.

Finally, these are the modifications of the fieldwork methodology that were implemented in the main fieldwork:

- The colour vision test was changed in the main fieldwork to the printed version of the City University Colour Vision Test as originally planned. This is more extensive and reliable and allows the diagnosis of specific colour vision deficiencies. The test instructions recommend at least 600 lux so this was tested and guaranteed in every interview.
- The colour vision test was not performed first but at the end of the interview to avoid any interference.
- The full CAC array was not used again as stimuli for Task 4. Instead, the foci were requested from the participant's grouped tiles in the previous task.
- Having seen the high productivity of Task 5, it was expanded into two steps: registering first a free definition and, secondly and separately, the responses to further enquiries such as context of usage.

3.5.3. Pilot fieldwork data analysis

Given the low reliability of the digital colour vision test, the data collected during this pilot will not be analysed at this time or included in the discussion of the main data collection.

Nevertheless, this data could be used in the future along with discarded data from the main data set collected from participants who did not pass the colour vision test or had ambiguous results. Although this data is not reliable when it comes to colour vision and categorisation, it is still valuable as additional evidence of the vitality of certain terms across the territory among this age group.

3.5.4. Further methodology: TILGA, DdD, DRAG, Estraviz

In addition to collecting primary data through fieldwork, I will also use online resources to investigate these colour terms. I will use mainly three lexicographical resources. Two of those will help in exploring contemporary meanings: the *Dicionario da Real Academia Galega* (DRAG) and the *Dicionário Estraviz*. The other, the *Dicionario de Dicionarios* (DdD) containing resources from the nineteenth and twentieth centuries will aid in gaining a historical perspective.

The most important tool, though, will be the *Tesouro Informatizado da Lingua Galega* (TILG) which contains a large sample of texts from the last four centuries: nearly 31 million words dating from 1612 to 2013. This database will provide insights about frequency, meaning and contexts of usage across time.

CHAPTER 4. DATA PROCESSING AND DATA ANALYSIS METHODOLOGY

4.1. Data processing methodology

This chapter will discuss the processing of the data collected in fieldwork. It will explain how the personal data was processed and how the extensive range of responses were first transcribed and made uniform, and then organised in a series of increasingly inclusive groups. This data processing was undertaken through spreadsheets in Microsoft Excel. Thus, I will also refer to the disposition of the data in columns, rows, tables etc., that were created within this software.

4.1.1. Participants sorting

4.1.1.1. Data collection point

As stated in Chapter 3.3.1, when undertaking fieldwork in the different collection points, participants were chosen for being locals. This means that this section refers not only to the place where data was retrieved but also where the participant lived.

4.1.1.2. Place of birth

In general, all participants were born in Galicia. Just a few exceptions were born abroad in a Galician family and then moved to Galicia during their childhood. Participants whose place of birth matched their current residence were preferred. A common circumstance was they were born in a neighbouring village and then married and moved to their current location. These cases were also welcome in order to collect more complete data from the area being described.

4.1.1.3. Other residences

This section refers to other residences within Galicia. This aims to identify the influence of Spanish in case the participant lived in Galician cities or of other dialects of Galician language if they lived in other areas.

4.1.1.4. Emigration

Participants who never lived outside Galicia or did so for less than a year were processed with *No* in this section. If they lived abroad for a longer period, the name of the country or Spanish Autonomous Community was added, followed by the number of years in the following column.

4.1.1.5. Education

The range of schooling backgrounds was simplified into five basic categories: *Illiterate*, *Primary school*, *High school*, *Higher education* and *N/A*. The first two categories apply to elderly participants only. *Illiterate* refers to individuals who cannot read and write whilst *Primary school* comprises a range of situations and very often, particularly as regards women, the individuals in this category did not finish this level. The purpose of this classification is to identify not just levels of literacy but exposure to other languages as,

because of their age, the ones able to read and write were exposed to schooling exclusively in Spanish.

The categories *High school* and *Higher education* are meant to identify further access to education. This section is somewhat complementary with the question *Relation with colours* in which a variety of situations were noted, ranging from having a degree in Fine Arts, Cinema or even Galician Linguistics, to practising as a hobby painting or knitting.

N/A groups participants for whom I do not have information about their education. However, we know that all young participants have been schooled at least until their teenage years as this has been compulsory in Galicia since the 1960s. In addition, it is safe to assume that the elderly participants I do not have specific data about in this regard could at least read and write as they read and signed the consent form handed to them. Moreover, illiterate participants always made me aware of this circumstance when I first approached them as they tended to believe they were not suitable for the interview.

4.1.1.6. Year of birth

This study being a generational comparison, the year of birth (YOB) was fundamental to define the two groups. Elderly participants were preferred to be as old as possible, and their YOB ranged from 1921 to 1954. Young participants were sought to be adults born from the 1980s onwards and the sample of young participants ranged from individuals born in 1976 to those born in 2000. The youngest member of the elderly group and oldest of the young were only 22 years apart. However, this is not the most common case: the average YOB of the elderly participants was 1933 as opposed to 1988 in the young group, which constitutes a difference of 55 years.

4.1.1.7. Other languages

As explained in Chapter 3.3.2, participants were chosen for being either monolingual or at least having Galician as their main everyday language. However, as Spanish is also official in Galicia, all these participants had knowledge of this language in some degree. This circumstance, though, ranged from knowing just a few words in some elderly people to fluency in most of their young counterparts.

The linguistic background of participants was encoded in two columns named *Other Language 1* and *Other language 2* (OL 1 and OL 2). For the reasons set out above, the most common *Other language 1* among participants was Spanish. However, the criterion to include Spanish as an actual second language was the report of the participants themselves. The ones who directly said “I know no Spanish” or: “I know very little Spanish”, “My Spanish is bad”, “I know some Spanish, I never use it” were not processed as having this as their other language.

The column *Other language 2*, often contains foreign languages, at times, several of them.

4.1.1.8. Colour vision

For purposes of clarity, the colour vision test conclusion was also simplified in an adjacent column into three categories: *normal*, *tritan* and *other*, the last one including the red-green deficiencies, the dubious results and the non-tested cases. The reason for grouping the last three together is that that these results cannot be used for denotational analysis and they will serve to look at lexical attestations only.

4.1.2. Response sorting

In this section, the methodology for processing the tile naming task data will be presented first. The rationale is that this was the most complex data section and it required the development of a more comprehensive data processing methodology. The details of how the data of the elicited list and best example tasks was processed will be presented afterwards as they were mostly a simplified version of this.

Finally, we will see the methodology to process the data from the object description and the term definition tasks. These are grouped together as they required a special approach.

4.1.2.1. Tile naming data

During the tile naming, Task 3, it was rare that participants gave a single BCT as a response. This was particularly true for elderly participants. It was decided to be as comprehensive and respectful with the data as possible. Thus, when processing the data in Microsoft Excel, I created a series of columns to organise the different stages of the responses.

Firstly, I set a column for the first term mentioned, a second column for those cases when participants came with a second term and, finally, a third column named *final response* for those cases in which participants were doubting between two terms and which they chose if pressured to give a single term. Table 4.1 shows an extract of how these multiple responses were organised in the database.

First term	First term modifier	Second term	Final response	Comments	Task 4 modification 1
azul	oscuro				
negro					
verde					
verde					
negro		marrón oscuro	marrón oscuro		verde oscuro
No Response					
gris					
naranxa					
marelo					
naranxa					
blanco		gris claro	gris claro		
azul					
No Response					
rosa					
rosa	claro			clariño	
color do viño					
marrón					
No Response					
No Response					
Sp rojo		roxo	roxo		granate

Table 4.1 Tile naming data organisation in the Excel spreadsheet

As can be seen in Table 4.1, the first term mentioned, taken as the most important cognitively, was decided to be split and processed in two columns: the first one containing the colour term and the second one containing the modifier, if any. Initially, the reason for this split was not just to separate modifiers such as *claro* 'light' or *escuro* 'dark' but rather to isolate modifiers containing other colour terms which would contaminate the counting of tokens when using Microsoft Excel formulas containing a wildcard (*). For instance, in an attempt to count how many speakers classified a certain hue as blue, if the modifiers were not separated, an Excel formula searching for the label *azul** could also count as such the phrase *violeta azulado* 'bluish purple' when, in fact, the classification is not blue but purple. However, an even more efficient method was suggested by Dr. Mari Uusküla during my data analysis residency at Tallinn University. Instead of counting tokens in Microsoft Excel by designing comprehensive formulas, which could lead to errors, we used instead pivot tables which would consider a full column and count tokens by reading the content of the cells fully and literally.

This led to a very effective counting but a great variety of labels to work with. Thus, it was decided to create a series of adjacent columns in which I would group some of these variations under unified labels. This method is more effective because filters can be used

in one column to see at once the full range of distinct variations, select the appropriate ones, and unify them in the next column without leaving anything out.

Displayed in Table 4.2 below is the example of two terms and their variations attested in the tile naming, and how those were grouped by unified labels in the contiguous column.

Unified first term	First term
amarelo and variants	amarelo
	amarelento
	marelo
naranxa and variants	anaranxado
	color naranxa
	naranxa
	naranxado
	naranxo

Table 4.2. Examples of unified terms in the Excel spreadsheet

With regard to this label unification, there are some cases in which the variants are the same root with different suffixes, whereas others constitute different lexical items: *grisáceo* 'greyish' is a derived word from *gris* whilst *rubio* and *roibo* are lexical variations, in this case distinct dialectal evolutions from Latin *rubeus*. However, this distinction is not always easy to make. The form *azuliño* could be either a diminutive form of *azul* or a Galicianisation of the term *azulino/azulina* which is suspected to have a more restricted denotation than *azul* as will be discussed in Chapter 5. In this case, *azuliño, azuliña, azulino* and *azulina* were considered a distinct group separate from *azul* until the analysis reveals the contrary.

The benefit of this organisation is that the original data is always preserved in its own column whilst additional columns are added to unify and count the data according to different criteria. This kind of unification was made for both the tile naming and the best example tasks responses.

Thus, for the tile naming task, for instance, we have the column *First term* which has the literal response with minimal intervention in the transcription. This has a column to the right for comments, which include notes about pronunciation or metalinguistic comments by the participant.

On the left of this main column there is a series of columns unifying these responses in the following manner. Immediately attached to the *First term* there is the column called *Unified term* in which are grouped different flexional and derivational forms of the same lexeme. For instance, *naranxa*, *color naranxa*, *anaranxado* etc. are grouped together as *naranxa and variant*s.

The next column on the left is called *Unified cognates and references* and it was used to group responses containing cognates derived from Latin or other languages. This counts together, for instance, Galician *laranxa* and *naranxa* with Spanish loan *naranja*. The Standard Galician term was chosen to name the unifying cognate labels: *laranxa and cognates*.

This column is useful to quantify which extralinguistic referents are used to name a certain colour. For instance, when discussing the strategies to name the colour orange, this allows counting how many tokens refer to the fruit as opposed to roof tiles or gas bottles. In this level of organisation are merged together not only strict cognates but also other names which refer to a common topic e.g. *color uva* 'grape colour' was included in the macro group *color viño and cognates* referring to wine*;* similarly, *color cielo* and *celeste* were grouped together as both are direct references to the sky.

Finally, in order to look at particular categories and their candidate colour terms (CTs), a last column was created. This level helps to organise responses and identify denotational discrepancies and overlaps for the different CT candidates. This column is named *Unified candidate terms* and it includes all the terms used for a certain area of the colour space. For instance, the label *All orange candidates* includes *laranxa and cognates* but also *color tella and cognates, butano and variants* and other alternative responses such as *color caldeira* etc. Table 4.3 sets out all the first term responses in the tile naming task organised in these four levels.

All candidates	**Unified cognates and references**	**Unified terms**	**Terms**	**Term Tokens**
All GREEN candidates	verde	verde and variants	verde	974
			verdoso	12
			verdón	1
	caqui	caqui and variants	caqui	9
			color caqui	1
	guardia civil	guardia civil	guardia civil	4
	aceituna	aceituna	aceituna	1
All BLUE candidates	azul	azul and variants	azul	716
			azui	9
			azulado	9
		azulón	azulón	29
		azulino and variants	azulino	12
			azuliño	4
			azulina	4
			azuliña	1
	añil	añil	añil	10
	color cielo	color cielo and variants	color cielo	5

			cielo	1
		celeste	celeste	3
All PURPLE candidates	lila	lila and variants	lila	198
			color lila	8
	morado	morado	morado	144
	violeta	violeta	violeta	133
	malva	malva	malva	58
	color viño and cognates	color viño and variants	color viño	16
			viño	11
			viñado	2
			color do viño	2
			aviñado	2
			color de viño	1
			tinto	1
			color do viño tinto	1
		Sp color vino and variants	Sp vino	1
			Sp color vino	1
		borgoña/viño tinto	borgoña/viño tinto	1
		color uva	color uva	1
	púrpura	púrpura	púrpura	17
	morado/violeta	morado/violeta	morado/violeta	2
	violeta/morado	violeta/morado	violeta/morado	2
	berenxena and cognates	berenxena	berenxena	1
		Sp berenjena	Sp berenjena	1
	lila/morado	lila/morado	lila/morado	1
	obispo	color do obispo	color do obispo	1
	lirio	color lirio	color lirio	1
	amoras	amoras	amoras	1
All BROWN candidates	marrón	marrón and variants	marrón	480
			amarronzado	1
	castaño	castaño	castaño	37
	chocolate	chocolate and variants	chocolate	10
			color chocolate	5
			color do chocolate	2
	pardo	pardo	pardo	7
	madeira and cognates	Sp color madera	Sp color madera	2
		madeira	madeira	1

	marrón/castaño	marrón/castaño	marrón/castaño	3
	topo	color topo and variants	topo	1
			color topo	1
	tabaco	color tabaco and variants	tabaco	1
			color tabaco	1
	castaño/marrón	castaño/marrón	castaño/marrón	1
All PINK candidates	rosa	rosa and variants	rosa	492
			rosado	15
			arrosado	7
			color rosa	5
			rosado/rosa	2
	fuscia	fuscia	fuscia	11
	magenta	Sp magenta	Sp magenta	2
All YELLOW candidates	amarelo and cognates	Sp amarillo and variants	Sp amarillo	291
			Sp amarillento	2
		amarelo and variants	amarelo	88
			marelo	16
			amarelento	1
		Sp amarillo/marelo	Sp amarillo/marelo	2
		Sp amarillo/amarelo	Sp amarillo/amarelo	2
	ocre	ocre	ocre	16
	dourado and cognates	dourado	dourado	2
		Sp dorado	Sp dorado	2
	mostaza	mostaza	mostaza	1
All GREY candidates	gris	gris and variants	gris	393
			grisáceo	2
			agrisado	1
			color gris	1
	oscuro	oscuro and variants	oscuro	3
			color oscuro	1
	perla	perla	perla	2
	plateado	Sp plateado	Sp plateado	2
	color abstracto	color abstracto	color abstracto	1
	fume	color fume	color fume	1
	plomo	color plomo	color plomo	1
	ceniza	ceniza	ceniza	1

	opaco	color opaco	color opaco	1
All ORANGE candidates	laranxa and cognates	Sp naranja and variants	Sp naranja	103
			Sp color naranja	11
			Sp anaranjado	10
			Sp naranjo	1
		laranxa and variants	laranxa	88
			alaranxado	1
		naranxa and variants	naranxa	67
			anaranxado	6
			color naranxa	2
			naranxo	1
			naranxado	1
		naranxa/laranxa	naranxa/laranxa	5
	tella and cognates	color tella and variants	color tella	20
			tella	14
			cor tella	2
			tellas	1
		Sp teja	Sp teja	1
	butano	color butano and variants	butano	16
			color butano	10
			bombona gas butano	1
	caldeiro	caldeiro and variants	caldeiro	5
			color caldeira	1
	pemento	color pemento and variants	color pemento	4
			color pemento molido	1
	ovo and cognates	color do ovo and variants	color ovo	2
			xema dos ovos	1
			color do ovo	1
		Sp color huevo	Sp color huevo	1
	ladrillo	color ladrillo and variants	color ladrillo	2
			ladrillo	1
	color naranxa/butano	color naranxa/butano	color naranxa/butano	2
	color terra	color terra	color terra	1
		color barro	color barro	1
	azafrán	azafrán	azafrán	1
	ámbar	ámbar	ámbar	1
	canela	canela	canela	1

All RED candidates	roxo and cognates	Sp rojo	Sp rojo	193
		roxo	roxo	24
		Sp rojo/roxo	Sp rojo/roxo	4
		roxo/Sp rojo	roxo/Sp rojo	2
	vermello	vermello	vermello	68
	granate	granate	granate	36
	encarnado	encarnado	encarnado	36
	Sp rojo/vermello	Sp rojo/vermello	Sp rojo/vermello	4
	Sp rojo/encarnado	Sp rojo/encarnado	Sp rojo/encarnado	2
	roxo/vermello	roxo/vermello	roxo/vermello	2
	carmín	carmín	carmín	2
	rubio	rubio and variants	rubio	1
			roibo	1
	roxo/encarnado	roxo/encarnado	roxo/encarnado	1
	fresa	Sp fresa	Sp fresa	1
	encarnado/Sp rojo	encarnado/Sp rojo	encarnado/Sp rojo	1
	Sp rojo/roxo/vermello	Sp rojo/roxo/vermello	Sp rojo/roxo/vermello	1
	colorado	colorado	colorado	1
All PALE candidates	beis	beis and variants	beis	136
			color beis	1
	crema	color crema and variants	crema	17
			color crema	16
	carne	color carne and variants	color carne	22
			carne	5
			cor carne	2
	claro	claro and variants	claro	16
			color claro	2
	crú and cognates	Sp crudo and variants	Sp crudo	7
			Sp color crudo	2
		crú	crú	1
	tostado	tostado	tostado	9
	area	area	area	6
	pálido	pálido and variants	pálido	4
			color pálido	1
	pastel	color pastel and variants	pastel	2
			color pastel	2
	café	café con leite	café con leite	2
		descafeinado	descafeinado	1
	descolorido	descolorido	descolorido	2

	palla	color palla	color palla	1
	mate	color mate	color mate	1
	merengue	cor merengue	cor merengue	1
All BLACK candidates	negro	negro	negro	181
All WHITE candidates	branco and cognates	Sp blanco	Sp blanco	120
		branco	branco	14
		blanco/branco	blanco/branco	1
All PINK-ORANGE border candidates	salmón	salmón	salmón	33
	coral	coral	coral	1
All GREEN-BLUE border candidates	turquesa	turquesa	turquesa	17
	verdeazul	verdeazul	verdeazul	1
	aguamarina	aguamarina	aguamarina	1
	azul-verde	azul-verde	azul-verde	1
All GREEN-YELLOW border candidates	limón	color limón	color limón	2
	verde-amarelo	verde-amarelo	verde-amarelo	1
	lima	color lima	color lima	1
	No Response	No Response	No Response	123
	Colour in between	Colour in between	Colour in between	44
Total				**6500**

Table 4.3 Tile naming data. Four levels of organisation in the Excel spreadsheet

This classification is not free from difficult decisions such as in which group to include *canela* 'cinnamon', *madeira* 'wood', *color opaco* 'opaque colour*', color mate* 'matt colour' etc. These problematic cases were resolved by looking at the specific tile they were used for and the hue proportion.

Some terms included in these macro groups are probably not actual candidates for the whole category but rather more restrictive; however, we cannot know that *a priori*. Examples of this would be to include *granate* 'crimson' in All RED candidates or *ocre* 'ochre' in All YELLOW candidates. Actually, it will be this joint comparison of all the possible candidates and the range of tiles each of those were used for that will reveal the distribution and the hierarchy between them.

Some participants showed that the borders between some of their BCCs are in the process of rearranging and creating new independent categories. Thus, three macro groups were created to look at the candidates for name categories possibly arising in the GREEN-BLUE, GREEN-YELLOW and PINK-ORANGE borders. Examples of this would be *turquesa*, *color lima* and *salmón* respectively.

Some participants provided complex responses: two or three words that they considered equivalents. A full list appears in Table 4.4 below.

Sp *rojo/roxo/vermello*	*castaño/marrón*
Sp *rojo/vermello*	Sp *amarillo/amarelo*
Sp *rojo/encarnado*	Sp *amarillo/marelo*
Sp *rojo/roxo*	*naranxa/laranxa*
roxo/vermello	*color naranxa/butano*
roxo/encarnado	*blanco/branco*
*roxo/*Sp *rojo*	*violeta/morado*
*encarnado/*Sp *rojo*	*morado/violeta*
marrón/castaño	*borgoña/viño tinto*

Table 4.4. All complex responses

Several options were considered about how to process these responses:

1. To count just the first term. This is not ideal since those terms are provided in parallel and it would involve manipulation of the responses.
2. To count them as tokens for both terms. This was decided against as it would distort the response-participant ratio.
3. To consider them unique responses. I decided to count them as responses of their own in the term and unified term levels. Then, those composed of two cognates were classified as such in the third level or as unique responses if they combined words from different sources. In the fourth level, all complex responses were included as candidates for the corresponding category.

Table 4.5 shows an example of the different processing of two complex responses for red:

All candidates	Unified cognates and references	Unified terms	Terms
All RED candidates	roxo and cognates	Sp rojo	Sp rojo
All RED candidates	roxo and cognates	roxo/Sp rojo	roxo/Sp rojo
All RED candidates	encarnado/Sp rojo	encarnado/ Sp rojo	encarnado/ Sp rojo

Table 4.5. Examples of processing complex responses in the Excel spreadsheet

Finally, some participants could not find a name for the hue presented to them and simply provided a statement such as "this is a colour between x and y". These responses were kept because they provide some information. However, they could not be processed with the others and were encoded in the *Unified terms* column as *Colour in between* to count this sense of non-precision in the participants.

There were other participants who could not provide a response at all; those were encoded as *No response*. Finally, there were some participants who did not undertake certain tasks or parts of tasks. In those cases, the blanks were filled with the gloss *Not undertaken* in order to differentiate between somebody not being able to provide a name for a colour and not being asked.

In conclusion, all the first term responses for the tile naming task were ultimately sorted into the macro groups shown in Table 4.6.

All WHITE candidates	All PALE candidates
All BLACK candidates	All GREEN-BLUE border candidates
All RED candidates	All GREEN-YELLOW border candidates
All YELLOW candidates	All PINK-ORANGE border candidates
All BLUE candidates	Colour in between
All GREEN candidates	No Response
All BROWN candidates	Not Undertaken
All PINK candidates	
All PURPLE candidates	
All ORANGE candidates	
All GREY candidates	

Table 4.6. All macro groups

4.1.2.2. Elicited list and best example data

The elicited list task data, Task 1, was processed with just the first three levels of organisation. Elicited lists collect from participants long and unrestricted lists of colour terms. This dataset is very heterogeneous and serves, based on a series of parameters,

to differentiate basic from non-basic colour terms. Thus, the last level, grouping all different candidate labels for the same BCC, was considered not to be useful here.

The data gathered during the best example task, Task 4, was processed with the four levels of organisation and reduced to the same macro groups with the addition of one named *Independent*. This label groups all those colour chips that participants were unable to accommodate in their BCCs and verbally conveyed that they did not belong to any.

4.1.2.3. Free naming of culturally relevant objects

The object description task data, Task 2, was more complex than the previous ones because the stimuli were not just colour tiles but objects or pictures of objects. This meant that participants mostly provided several colour terms for different elements or areas. In addition, this task was designed to collect other visual descriptors referring to neon nuances, shine, transparency, etc., and several columns had to be added to accommodate this information. When this was sorted, the four levels of organisation were then applied to these terms.

4.1.2.4. Definition of suggested terms

The term definition task, Task 5, presented its own challenges and a couple of organisational options were tried before making a final decision. In this case, participants had to define a series of proposed colour terms and report their contexts of use. Then, participants were asked if a specific term would be suitable for a series of contexts of use such as skin, hair, cattle, plants and clothes.

The first organisational option tried was to process the data simply replicating the questionnaire structure. However, this produced a table with columns with very heterogeneous text in each cell, impossible to be counted.

Therefore, a new system was implemented. It consisted of a very long sequence of columns organised in clusters for each term. The core column always contained the participant's literal definition of the term. Then the information contained in these definitions was extracted and codified in contiguous columns so the recurrent meanings could be quantified. Table 4.7 below shows a sample of the data for the term *rubio*. Adjacent to the *Rubio Full Definition* column, a series of columns called *Rubio RED Main Hue Sense*, *Rubio YELLOW Main Hue Sense* and *Rubio BROWN Main Hue Sense* were created and ticked with *yes* accordingly.

Rubio term	Rubio Variant Form	Rubio RED Main Hue Sense	Rubio YELLOW Main Hue Sense	Rubio BROWN Main Hue Sense	Rubio Full Definition
rubio	rubio	yes			vermello apagado, rojo apagado, ollos azules
rubio	roibo	yes	yes		sei que ten truco. pelo rubio igual a pelo louro, vaca rubia, roxa, si cara roiba, púxose roibo
rubio	rubio				pelo claro
rubio	rubio		yes		pelo amarillo, raios de sol
rubio	roibo	yes	yes		amarillo claro, si cara roiba
rubio	roibo	yes	yes		pelo amarillo, roibo, persoa colorada. si bolígrafo e saia roibos
rubio	roibo	yes			roibo, colorado, bolígrafo e saia roibos
rubio	roibo	yes		yes	tira a marrón
rubio	roibo	yes	yes		pelirrojo, roibo ou rubio, tamén pelo claro, ganado rubio, cor entremedias, si cara roiba, colorada con pecas
rubio	roibo	yes	yes		pelo amarelo, rubio castelán, roibo galego

Table 4.7. Term definition task data processing, sample of rubio. Main colour senses codification

The same procedure was applied for the reported contexts of use. A column named *Rubio Full Context* contained all the contexts stated by the participant and the contiguous columns classified those. See Table 4.8. below.

Rubio Full Context	Rubio Context Cow	Rubio Context Hair	Rubio Context Bright Eyes	Rubio Context Pale Skin
ollos			yes	
pelo, vacas	yes	yes		
pelo		yes		
pelo		yes		
pelo, cara		yes		
pelo, cara,		yes		
cara				
cara				
pelo, animal, cara	yes	yes		
pelo, cara		yes		yes

Table 4.8. Term definition task data processing, sample of rubio. Reported contexts of use codification

Finally, all the information collected from the questions tackling specific contexts of use had their own column. Affirmative or negative responses were encoded as *yes* or *no* respectively. If participants provided further information, such as other examples, those were transcribed in the *Full Definition* column. See Table 4.9. below.

Rubio Context Red Face	Rubio Context Pen	Rubio Context Skirt
no	no	no
yes	no	no
no	no	no
no	no	no
yes	yes	no
yes	yes	yes
yes	yes	yes
yes	no	N/A
yes	no	no
no	no	N/A

Table 4.9. Term definition task data processing, sample of rubio. Proposed contexts of use codification

This system had to be constantly reviewed as the data processing was progressing as some of the meanings collected were not anticipated. Examples of this were the sense of 'discoloured' for *roxo*, understood as a participle of the verb *arroxar* 'to whiten', and the sense 'pale skin' for *rubio*. Once these were identified as recurrent meanings, separate columns were implemented to quantify them.

4.2. Conclusion

The sociolinguistic context of Galician, in constant contact with Spanish, together with its rich dialectal variation produced an extremely heterogeneous database. The data looked scattered compared to other colour naming databases I had access to such as Uusküla and Bimler (2016). Thus, processing this data in ways that could be quantified and ultimately compared with similar studies constituted a challenge by itself. However, after a careful study of the terms, implementing a series of increasingly inclusive levels of organisation allowed the measurement of the lexicon according to different criteria without losing or altering the original data.

In the next chapter, *Data Analysis*, along with the categorical distribution, there will be constant references to these different levels to discuss the labelling of those categories. Aspects such as the presence of a certain dialectal form, the proportion of the Galician cognate versus the Spanish one, or diverse references to the same object will be highlighted when characterising the BCTs used by the different age and gender subgroups.

CHAPTER 5. DATA ANALYSIS

5.1. Elicited list analysis

The total number of participants during the elicited list with normal colour vision was as follows: 19 elderly males, 25 elderly females, 16 young males and 18 young females.

Tables 5.1.1. to 5.1.6. show total frequencies (Freq), the percentage of frequencies in respect to the subgroup (%), the mean position (MP) and the cognitive salience index (hereafter CSI). The cognitive salience index (Sutrop 2001) is calculated by dividing the total frequency by the product of the number of participants and the mean position: CSI = F/(N MP). Tables also show the ranks of all those parameters.

Elicited lists of normal colour vision participants collected a total of 1267 tokens of which 226 were unique terms and expressions. These unique terms and expressions were then filtered so lexical variants were grouped together (e.g. *rubio* and *roibo, tella* and *color tella*).

However, forms such as *azulado*, *agrisado* or *amarronzado*, derived from other colour terms, *azul* 'blue', *gris* 'grey' and *marrón* 'brown', were counted separately from those. These forms were provided with almost no exception in addition to the non-derived colour terms and to refer to shades that were not the actual colours but resembled them as in 'bluish', 'greyish' and 'brownish'. In contrast, forms such as *rosado* or Sp *anaranjado,* derived from the name for an object, *rosa* 'rose', Spanish *naranja* 'orange', were counted together with the non-derived version as variants of those. These derived forms were frequently found among elderly participants as their only term for PINK and ORANGE. These forms were less common among young participants and only one young female opposed *rosa*/*rosado* and *laranxa*/*anaranjado* as different shades.

Cognates were then grouped together (e.g. Gal. *branco* and Sp. *blanco,* Gal*. amarelo* and Sp*. amarillo*)[16]. After these processes the total number of distinct terms or expressions was 181.

These are not like other elicited lists (for instance Davies and Corbett 1994, Uusküla and Bimler 2016a) and their particularities presented numerous challenges for the analysis. The existence of a range of alternative terms for RED (*vermello*, *encarnado*, *rubio, roxo* and Sp *rojo*) and for PURPLE (*morado*, *violeta*, *lila*, *malva*, *purpura*, *color viño*, etc.) divided up the values to be expected for these categories and impacted on the lists as a whole[17].

[16] Nevertheless, the cognates *rojo* and *roxo* were not as they are not necessarily equivalents in denotation.

[17] Moreover, these terms have different meanings for different people. For instance, they can be alternative terms for PURPLE and some participants provide them in pairs as equivalents (*morado/violeta* 'purple') which only adds up to the range of items in the list, whilst others provided several of these terms separately understanding them as hyponyms (*morado* 'purple' *lila* 'lilac').

However, elicited lists work with terms, not categories or interpretations of categories, and this is how this data looks when looking from the lexical perspective alone.

Strictly, elicited list should be about terms. However, in this context of two related languages in contact, participants know and often use interchangeably several terms. This wide range of variants and lack of consensus makes the elicited complex and difficult to interpret. For this reason, I decided at least to group cognates together.

In addition, dividing the sample by age and gender led to groups ranging from 16–25 participants, which is smaller than desirable[18]. In addition, lists from elderly participants tended to be extremely short and to miss basic colour categories which makes the lists not very informative, even to measure the prevalence or significance of basic colour terms. Furthermore, the difference in length from elderly and young participants made it also very difficult to compare any parameter across the two groups.

Nevertheless, when seen comparatively, frequency was a quite informative measurement for most categories. This was not the case for RED or PURPLE as the multiple candidate terms, in addition to double responses combining those, divided up the frequency of these categories.

The MP is useful if the term has a high frequency; otherwise, this measurement is misleading. There were a few terms mentioned only once or twice but first in those lists that produced high MPs that severely impacted on the MP rank.

The CSI somehow counterbalances these two measurements but cannot be blindly trusted as at times the MP value is biased, as explained above.

Thus, increasing the sample, e.g. looking at the data from all participants of the age groups, instead of dividing it by gender, helps to balance out the anomalies. Thus, after reviewing the data of the four subgroups, data from the two age groups and the two genders will be also discussed in search of broader regularities.

5.1.1. Elderly males' elicited list

Elderly participants were generally uncomfortable providing an elicited list of colour terms. This was more so among elderly males. Therefore, their lists were generally short, the average was 11.8 terms. Furthermore, they showed a low consensus rate and some obvious basic colour terms in Galician such as *negro* 'black' or *verde* 'green' were not mentioned by all participants.

Table 5.1 shows how only ten terms had a frequency of 42.1% or above: *azul* 'blue', *amarelo* or cognates 'yellow', *branco* or cognates 'white', *verde* 'green', *negro* 'black', *marrón* 'brown', Sp *rojo* 'red', *rosa* 'pink', *violeta* 'violet' or 'purple', and *gris* 'grey'. After

[18] Generally, is recommended a sample of 20 to 30 informants (Weller and Romney, 1988).

these, the frequency drops significantly to the next three terms which had a frequency of 31,5%: *castaño* 'brown', *beis* 'beige' and *laranxa* or cognates 'orange'.

Nevertheless, not all ten terms ranking first in frequency appeared in the first ten positions. The two first in the MP rank were two pairs of alternative terms for RED that were given only once each: Sp *rojo/vermello* and *vermello/roxo*. The next in the ranking were also alternative terms for RED: Sp *rojo*, *roxo*, and *vermello*, followed by *amarelo* 'yellow', *azul* 'blue', *verde* 'green', *branco* 'white', *negro* 'black'. After those first ten terms there were *encarnado* 'red', *laranxa* 'orange' and *beis* 'beige'.

Finally, combining these two parameters and looking into the CSI rank, the elderly males' ten term elicited list would be: *amarelo* 'yellow', *azul* 'blue', Sp *rojo* 'red', *verde* 'green', *branco* 'white, *negro* 'black', *marrón* 'brown', *vermello/roxo* 'red', *roxo* 'red' and *violeta* 'purple'. The next in the rank are another two pairs of alternative terms for red Sp *rojo/roxo* and Sp *rojo/vermello*, followed by *gris* 'grey', *rosa* 'pink', *laranxa* and cognates 'orange', and *beis* and variants after which there is a drop of 0.0094 CSI until the next candidate *castaño*.

Despite the anomalies caused by the different lexical candidates for RED, the data still show some expected outcomes. The first terms appearing in the first positions were often alternative labels for RED. These were followed by primary colours: YELLOW, BLUE, GREEN, WHITE and BLACK. However, it is remarkable that BEIGE tended to appear in lists before any of the terms for PURPLE, BROWN or GREY. Elderly males clearly preferred *violeta* as a BCT for PURPLE although if we were to add up all the other candidate terms this category would have a higher salience. Nevertheless, almost half of the elderly males' lists (9/19) did not contain any terms for PURPLE.

Although *gris*, *rosa* and *laranxa* and cognates have the same CSI, their frequency was 10–17% apart. R*osa* had 47.37% and *laranxa* 31.58% which means the latter was absent from more than two thirds of the elderly males' lists. Less predictable was also that terms for ORANGE and BEIGE had the same frequencies and they tended to appear next to each other in the mean position rank. This resulted in a difference of only 0.0023 in CSI value. Thus, if we consider *laranxa* to be basic among elderly males, so is *beis*. The traditional term *castaño* with a drop of a 0.0094 CSI would be the next candidate for basicness, unless we consider it just an alternative term for BROWN.

Term	Freq	Rank F	%	MP	Rank MP	Salience	Rank S
amarelo and cognates	18	2	94.74%	3.4444	6	0.2750	1
azul and variants	19	1	100.00%	3.8947	7	0.2568	2
Sp *rojo*	9	6	47.37%	2.1111	3	0.2244	3
verde	17	3	89.47%	4.0000	8	0.2237	4
branco and cognates	18	2	94.74%	5.5000	9	0.1722	5
negro	16	4	84.21%	5.5625	10	0.1514	6
marrón	13	5	68.42%	8.6923	18	0.0787	7
vermello/roxo	2	12	10.53%	1.5000	2	0.0702	8
roxo	3	11	15.79%	2.3333	4	0.0677	9
violeta	8	7	42.11%	7.8750	15	0.0535	10
Sp *rojo/roxo*	1	13	5.26%	1.0000	1	0.0526	11
Sp *rojo/vermello*	1	13	5.26%	1.0000	1	0.0526	11
gris	8	7	42.11%	8.8750	20	0.0474	13
rosa and variants	9	6	47.37%	10.0000	23	0.0474	14
laranxa and cognates	6	8	31.58%	6.6667	12	0.0474	14
beis and variants	6	8	31.58%	7.0000	13	0.0451	16
castaño	6	8	31.58%	8.8333	19	0.0357	17
morado	5	9	26.32%	9.0000	21	0.0292	18
granate	4	10	21.05%	8.5000	17	0.0248	19
azul mariño and cognates	4	10	21.05%	9.2500	22	0.0228	20
verde claro	3	11	15.79%	8.0000	16	0.0197	21
lila and variants	4	10	21.05%	11.7500	26	0.0179	22
fuscia and variants	3	11	15.79%	9.0000	21	0.0175	23
ocre	3	11	15.79%	9.0000	21	0.0175	23
encarnado	2	12	10.53%	6.0000	11	0.0175	23
vermello	1	13	5.26%	3.0000	5	0.0175	23
añil	3	11	15.79%	10.3333	24	0.0153	27
azul claro	3	11	15.79%	10.6667	25	0.0148	28
verde escuro and variants	2	12	10.53%	7.5000	14	0.0140	29
color crema and variants	2	12	10.53%	12.0000	27	0.0088	30
verde botella	1	13	5.26%	6.0000	11	0.0088	30
color manteca	1	13	5.26%	6.0000	11	0.0088	30

gris perla	2	12	10.53%	12.5000	28	0.0084	33
verde pistacho	1	13	5.26%	7.0000	13	0.0075	34
marfil	1	13	5.26%	8.0000	16	0.0066	35
azul escuro and variants	1	13	5.26%	9.0000	21	0.0058	36
caqui	1	13	5.26%	9.0000	21	0.0058	36
verde limón	1	13	5.26%	9.0000	21	0.0058	36
dourado and cognates	1	13	5.26%	9.0000	21	0.0058	36
color cerezo	1	13	5.26%	10.0000	23	0.0053	40
rubio and variants	1	13	5.26%	12.0000	27	0.0044	41
gris azulado	1	13	5.26%	12.0000	27	0.0044	41
Sp *rojo carruaje*	1	13	5.26%	13.0000	29	0.0040	43
tostado	1	13	5.26%	13.0000	29	0.0040	43
gris escuro and variants	1	13	5.26%	13.0000	29	0.0040	43
pardo	1	13	5.26%	13.0000	29	0.0040	43
negro escuro and variants	1	13	5.26%	13.0000	29	0.0040	43
malva	1	13	5.26%	13.0000	29	0.0040	43
negro claro	1	13	5.26%	14.0000	30	0.0038	49
marrón oscuro	1	13	5.26%	15.0000	31	0.0035	50
prateado and cognates	1	13	5.26%	15.0000	31	0.0035	50
marrón claro	1	13	5.26%	16.0000	32	0.0033	52
bronce	1	13	5.26%	16.0000	32	0.0033	52
cobre and variants	1	13	5.26%	17.0000	33	0.0031	54
verde fuscia	1	13	5.26%	18.0000	34	0.0029	55

Table 5.1 Elderly males' elicited list data

5.1.2. Elderly females' elicited list

Elderly females' lists were also short; their average was 12,4 terms. Only ten terms had a frequency of 40.00 % or above. As can be seen in Table 5.1.2, these terms were: *negro* 'black', *branco* or cognates 'white', *amarelo* or cognates 'yellow', *azul* 'blue', *rosa* 'pink', *verde* 'green', Sp *rojo* 'red', *marrón* 'brown', *gris* 'grey' and *laranxa* or cognates 'orange'. After these, the frequency drops to a series of terms that were mentioned by only 24.00%: *azul mariño* or cognates 'navy blue', *lila* 'lilac' or 'purple', *morado* 'purple', *beis* 'beige' and *castaño* 'brown'.

Nearly a third of elderly females did not mention any term for PURPLE in their elicited lists (8/25). In addition, 60.00% of those did not mention any term for ORANGE.

Similarly to their male counterparts, not all the most frequent terms among elderly females appeared in the first positions. The top in the MP rank were three terms or pairs of alternative terms for RED that were mentioned first once each: r*oxo, vermello/*Sp *rojo* and Sp *rojo/rubio*. The second position is shared by expressions mentioned only once: *rosa claro* 'light pink' and *colorines* 'colourful'. Next in the MP rank are *azul* 'blue', *verde* 'green', and Sp *rojo* 'red', *vermello* 'red', *malva* 'mauve', *amarelo* and cognates 'yellow', *branco* and cognates 'white', and *rosa* 'pink'. Following in the MP rank were *azul mariño* and cognates 'navy blue', *encarnado* 'red', and *negro* 'black'.

It is relevant that some categories expected to be basic ranked much lower than the extra five red terms would cause. Examples are *laranxa* and cognates and *gris* that ranked 24 and 25 in the MP classification. Such a low position seems to correspond to a low significance of these categories.

Thus, the resulting ten-term CSI rank is as follows: *azul*, *verde*, *branco* and cognates, *amarelo* and cognates, *negro*, *rosa* and variants, Sp *rojo*, *marrón*, *gris*, *laranxa* and cognates. The following four terms shared the eleventh position: *azul mariño* and cognates and three alternative terms or pairs of terms for RED mentioned only once: *roxo*, *vermello/Sp rojo* and Sp *rojo/rubio*.

If we look into the CSI values, elderly females would consider *laranxa* and cognates to be as basic as *azul mariño* as they are only 0.0008 apart. However, a difference of 18.18% in their frequencies highlights a hierarchy among them: *laranxa* and cognates were mentioned by 45.45% whilst *azul mariño* and cognates were only mentioned by 27.27% of the elderly females.

The different terms for PURPLE individually had CSI values well below *laranxa* and *azul mariño*. However, considering that 11/25 provided one of these terms only, if we counted the values of *lila*, *morado*, *violeta, malva,* etc. together, PURPLE should definitely be considered basic.

The next candidates for basicness would be *beis*, *azul claro*, *granate* and *castaño* with CSI values ranging from 0.0257–0.0229. See Table 5.2.below.

Term	**Freq**	**Rank F**	**%**	**MP**	**Rank MP**	**Salience**	**Rank S**
azul and variants	22	4	100.00%	3.2727	3	0.2689	1
verde	20	6	90.91%	4.0000	4	0.2000	2
branco and cognates	24	2	109.09%	5.3333	9	0.1800	3
amarelo and cognates	23	3	104.55%	5.1304	8	0.1793	4
negro	25	1	113.64%	6.7200	13	0.1488	5
rosa and variants	21	5	95.45%	5.9048	10	0.1423	6
Sp *rojo*	15	7	68.18%	4.4667	5	0.1343	7

marrón	14	8	63.64%	8.3571	18	0.0670	8
gris	13	9	59.09%	10.0000	25	0.0520	9
laranxa and cognates	10	10	45.45%	9.8000	24	0.0408	10
azul mariño and cognates	6	11	27.27%	6.0000	11	0.0400	11
roxo	1	16	4.55%	1.0000	1	0.0400	11
vermello/Sp **rojo**	1	16	4.55%	1.0000	1	0.0400	11
Sp *rojo/rubio*	1	16	4.55%	1.0000	1	0.0400	11
lila and variants	6	11	27.27%	7.5000	15	0.0320	15
morado	6	11	27.27%	9.1667	21	0.0262	16
beis and variants	6	11	27.27%	9.3333	23	0.0257	17
malva	3	14	13.64%	4.6667	7	0.0257	17
azul claro	5	12	22.73%	8.0000	16	0.0250	19
granate	5	12	22.73%	8.2000	17	0.0244	20
castaño	6	11	27.27%	10.5000	27	0.0229	21
violeta	5	12	22.73%	9.2000	22	0.0217	22
encarnado	3	14	13.64%	6.3333	12	0.0189	23
azul escuro and variants	4	13	18.18%	8.5000	19	0.0188	24
vermello	2	15	9.09%	4.5000	6	0.0178	25
rosa claro and variants	1	16	4.55%	3.0000	2	0.0133	26
colorines	1	16	4.55%	3.0000	2	0.0133	26
verde escuro and variants	3	14	13.64%	10.3333	26	0.0116	28
rubio and variants	2	15	9.09%	7.0000	14	0.0114	29
azul ceo and cognates	3	14	13.64%	11.0000	28	0.0109	30
vermellón and cognates	1	16	4.55%	4.0000	4	0.0100	31
rosa vivo	1	16	4.55%	4.0000	4	0.0100	31
ocre	1	16	4.55%	4.0000	4	0.0100	31
color viño and variants	3	14	13.64%	12.3333	31	0.0097	34
azul celeste	3	14	13.64%	13.0000	32	0.0092	35
verde mar	3	14	13.64%	14.3333	34	0.0084	36
verde claro	2	15	9.09%	10.0000	25	0.0080	37
fuscia and variants	2	15	9.09%	11.5000	29	0.0070	38
verde chai	1	16	4.55%	6.0000	11	0.0067	39
rosa pálido	2	15	9.09%	13.0000	32	0.0062	40
verde limón	2	15	9.09%	13.0000	32	0.0062	40
violeta/malva	1	16	4.55%	7.0000	14	0.0057	42

verde musgo	1	16	4.55%	7.0000	14	0.0057	42
limón	1	16	4.55%	8.0000	16	0.0050	44
rosa escuro and variants	1	16	4.55%	8.0000	16	0.0050	44
Sp *amarillo fuerte*	1	16	4.55%	8.0000	16	0.0050	44
color pálido	1	16	4.55%	8.0000	16	0.0050	44
ceniza	1	16	4.55%	8.0000	16	0.0050	44
agrisado	1	16	4.55%	9.0000	20	0.0044	49
azulón	1	16	4.55%	9.0000	20	0.0044	49
verde kiwi	1	16	4.55%	9.0000	20	0.0044	49
color cielo	1	16	4.55%	9.0000	20	0.0044	49
c*olor tella* and variants	1	16	4.55%	10.0000	25	0.0040	53
verde diferente	1	16	4.55%	10.0000	25	0.0040	53
branco roto and cognates	1	16	4.55%	10.0000	25	0.0040	53
mazá roja	1	16	4.55%	10.0000	25	0.0040	53
mazá golden	1	16	4.55%	11.0000	28	0.0036	57
marrón oscuro	1	16	4.55%	11.0000	28	0.0036	57
salmón	1	16	4.55%	12.0000	30	0.0033	59
gris escuro and variants	1	16	4.55%	12.0000	30	0.0033	59
marrón claro	1	16	4.55%	12.0000	30	0.0033	59
rosa pau and cognates	1	16	4.55%	13.0000	32	0.0031	62
color pastel	1	16	4.55%	13.0000	32	0.0031	62
verde claro/verde limón	1	16	4.55%	13.0000	32	0.0031	62
gris claro	1	16	4.55%	13.0000	32	0.0031	62
prateado and cognates	1	16	4.55%	13.0000	32	0.0031	62
color botella	1	16	4.55%	13.0000	32	0.0031	62
turquesa	1	16	4.55%	14.0000	33	0.0029	68
pardo	1	16	4.55%	15.0000	35	0.0027	69
pedra	1	16	4.55%	15.0000	35	0.0027	69
caqui	1	16	4.55%	16.0000	36	0.0025	71
dourado and cognates	1	16	4.55%	17.0000	37	0.0024	72

Table 5.2 Elderly females' elicited list data

5.1.3 Elderly participants' elicited list

The joint list of all elderly participants looks much more like the elicited lists found in the literature (for instance Davies and Corbett 1994, Uusküla and Bimler 2016a).

The average list contained 12.13 terms. The first nine terms in the frequency rank had a value of 47.73% or above: *branco* and cognates, *azul* and variants, *amarelo* and cognates, *negro*, *verde*, *rosa* and variants, *marron*, Sp *rojo*, and *gris*. After these the frequency drops by 11.37% with *laranxa* and cognates at 36.26%, and then *violeta* 29.55% and *beis* and variants and *castaño* both with 27.27%.

The first position in the MP rank was filled with pairs of alternative terms for RED mentioned only once: *vermello/*Sp *rojo*, Sp *rojo/vermello*, Sp *rojo/roxo*, Sp *rojo/rubio*. The second and third positions were also taken by terms for red: *vermello/roxo* and *roxo*. Then followed *colorines*, *rosa claro* and variants, also only mentioned once. Then there was *azul* and variants, followed by *verde* which shared a position with *vermellón* and *rosa vivo*, these last two only mentioned once. Then followed *amarelo* and cognates, *branco* and cognates followed by three terms only mentioned once: *verde chai*, *color manteca* and *verde botella*. Terms such as *violeta* and *marrón* do not appear in the list until much later, ranking 21st and 22nd respectively. Similarly, *laranxa* and *gris* rank 24th and 30th.

Looking into the CSI rank the first eight terms are: *azul* and variants, *amarelo* and cognates, *verde*, *blanco* and cognates, Sp *rojo*, *negro*, *rosa* and variants and *marrón*. After these there is a drop of 0.0221 with *gris* at 0.0499, *roxo* 0.0455, *laranxa* and cognates 0.04022. Next is *violeta* with 0.0352, the favourite but not the only term for PURPLE, so this category would be certainly basic and higher in the rank.

Thus, ORANGE would be the last of the so-called universal basic categories to be acquired, present only in 36.36% of the elderly participants. The next candidate for basicness would be *beis* with a CSI of 0.0334 mentioned by the 27.27% followed by *azul mariño* and cognates with 0.0311 mentioned by 22.73%. For a summary of this CSI Rank see Figure 5.1 below.

Some elderly participants used several red terms, not as pairs given as equivalents but provided separately along the list (10/44). Some of those participants (5/44) provided *rojo* along with Galician terms. Perhaps the Spanish loan *rojo* is perceived as the term for focal RED and so it seems the latter terms are perceived to denote other hues, perhaps more natural shades, less saturated as an echo of their extended RED denotation. Nevertheless, others (5/44) provided separately different Galician terms which could mean they denote different shades. Some of these are *colorado* and *vermellón*, though, which do not necessarily represent candidates for unitary RED. See Table 5.3 below.

Term	Freq	Rank F	%	MP	Rank MP	Salience	Rank S
azul and variants	41	2	93.18%	3.5610	5	0.2617	1
amarelo and cognates	41	2	93.18%	4.3902	8	0.2122	2
verde	37	3	84.09%	4.0000	7	0.2102	3
branco and cognates	42	1	95.45%	5.4048	9	0.1766	4
Sp *rojo*	24	6	54.55%	3.5833	6	0.1522	5
negro	41	2	93.18%	6.2683	12	0.1487	6
rosa and variants	30	4	68.18%	7.1333	15	0.0956	7
marrón	27	5	61.36%	8.5185	22	0.0720	8
gris	21	7	47.73%	9.5714	30	0.0499	9
roxo	4	16	9.09%	2.0000	3	0.0455	10
laranxa and cognates	16	8	36.36%	8.6250	24	0.0422	11
violeta	13	9	29.55%	8.3846	21	0.0352	12
beis and variants	12	10	27.27%	8.1667	19	0.0334	13
azul mariño and cognates	10	12	22.73%	7.3000	16	0.0311	14
vermello/roxo	2	18	4.55%	1.5000	2	0.0303	15
castaño	12	10	27.27%	9.6667	31	0.0282	16
morado	11	11	25.00%	9.0909	28	0.0275	17
lila and variants	10	12	22.73%	9.2000	29	0.0247	18
granate	9	13	20.45%	8.3333	20	0.0245	19
vermello/ Sp *rojo*	1	19	2.27%	1.0000	1	0.0227	20
Sp *rojo/roxo*	1	19	2.27%	1.0000	1	0.0227	20
Sp *rojo/rubio*	1	19	2.27%	1.0000	1	0.0227	20
Sp *rojo/vermello*	1	19	2.27%	1.0000	1	0.0227	20
azul claro	8	14	18.18%	9.0000	27	0.0202	24
encarnado	5	15	11.36%	6.2000	11	0.0183	25
vermello	3	17	6.82%	4.0000	7	0.0170	26
malva	4	16	9.09%	6.7500	13	0.0135	27
azul escuro and variants	5	15	11.36%	8.6000	23	0.0132	28
verde claro	5	15	11.36%	8.8000	26	0.0129	29
verde escuro and variants	5	15	11.36%	9.2000	29	0.0124	30
ocre	4	16	9.09%	7.7500	17	0.0117	31
fuscia and variants	5	15	11.36%	10.0000	32	0.0114	32
rubio and variants	3	17	6.82%	8.6667	25	0.0079	33
colorines	1	19	2.27%	3.0000	4	0.0076	34
rosa claro and variants	1	19	2.27%	3.0000	4	0.0076	34

añil	3	17	6.82%	10.3333	33	0.0066	36
azul ceo and cognates	3	17	6.82%	11.0000	34	0.0062	37
verde limón	3	17	6.82%	11.6667	35	0.0058	38
vermellón and cognates	1	19	2.27%	4.0000	7	0.0057	39
r*osa vivo*	1	19	2.27%	4.0000	7	0.0057	39
color viño and variants	3	17	6.82%	12.3333	37	0.0055	41
azul celeste	3	17	6.82%	13.0000	39	0.0052	42
verde mar	3	17	6.82%	14.3333	41	0.0048	43
color crema and variants	2	18	4.55%	12.0000	36	0.0038	44
verde chai	1	19	2.27%	6.0000	10	0.0038	44
color manteca	1	19	2.27%	6.0000	10	0.0038	44
verde botella	1	19	2.27%	6.0000	10	0.0038	44
gris escuro and variants	2	18	4.55%	12.5000	38	0.0036	48
caqui	2	18	4.55%	12.5000	38	0.0036	48
gris perla	2	18	4.55%	12.5000	38	0.0036	48
rosa pálido	2	18	4.55%	13.0000	39	0.0035	51
dourado and cognates	2	18	4.55%	13.0000	39	0.0035	51
marrón oscuro	2	18	4.55%	13.0000	39	0.0035	51
prateado and cognates	2	18	4.55%	14.0000	40	0.0032	54
pardo	2	18	4.55%	14.0000	40	0.0032	54
marrón claro	2	18	4.55%	14.0000	40	0.0032	54
verde pistacho	1	19	2.27%	7.0000	14	0.0032	54
violeta/malva	1	19	2.27%	7.0000	14	0.0032	54
verde musgo	1	19	2.27%	7.0000	14	0.0032	54
Sp *amarillo fuerte*	1	19	2.27%	8.0000	18	0.0028	60
color pálido	1	19	2.27%	8.0000	18	0.0028	60
ceniza	1	19	2.27%	8.0000	18	0.0028	60
limón	1	19	2.27%	8.0000	18	0.0028	60
rosa escuro and variants	1	19	2.27%	8.0000	18	0.0028	60
marfil	1	19	2.27%	8.0000	18	0.0028	60
agrisado	1	19	2.27%	9.0000	27	0.0025	66
color cielo	1	19	2.27%	9.0000	27	0.0025	66
verde kiwi	1	19	2.27%	9.0000	27	0.0025	66
azulón	1	19	2.27%	9.0000	27	0.0025	66
mazá roja	1	19	2.27%	10.0000	32	0.0023	70
branco roto and cognates	1	19	2.27%	10.0000	32	0.0023	70
verde diferente	1	19	2.27%	10.0000	32	0.0023	70

color tella and variants	1	19	2.27%	10.0000	32	0.0023	70
color cerezo	1	19	2.27%	10.0000	32	0.0023	70
mazá golden	1	19	2.27%	11.0000	34	0.0021	75
salmón	1	19	2.27%	12.0000	36	0.0019	76
gris azulado	1	19	2.27%	12.0000	36	0.0019	76
verde claro/verde limón	1	19	2.27%	13.0000	39	0.0017	78
tostado	1	19	2.27%	13.0000	39	0.0017	78
negro escuro and variants	1	19	2.27%	13.0000	39	0.0017	78
Sp *rojo carruaje*	1	19	2.27%	13.0000	39	0.0017	78
color botella	1	19	2.27%	13.0000	39	0.0017	78
color pastel	1	19	2.27%	13.0000	39	0.0017	78
rosa pau and cognates	1	19	2.27%	13.0000	39	0.0017	78
gris claro	1	19	2.27%	13.0000	39	0.0017	78
negro claro	1	19	2.27%	14.0000	40	0.0016	86
turquesa	1	19	2.27%	14.0000	40	0.0016	86
pedra	1	19	2.27%	15.0000	42	0.0015	88
bronce	1	19	2.27%	16.0000	43	0.0014	89
cobre and variants	1	19	2.27%	17.0000	44	0.0013	90
verde fuscia	1	19	2.27%	18.0000	45	0.0013	91

Table 5.3 Elderly participants' elicited list data

See figure 5.1 below ordering the terms in EP's elicited lists by CSI.

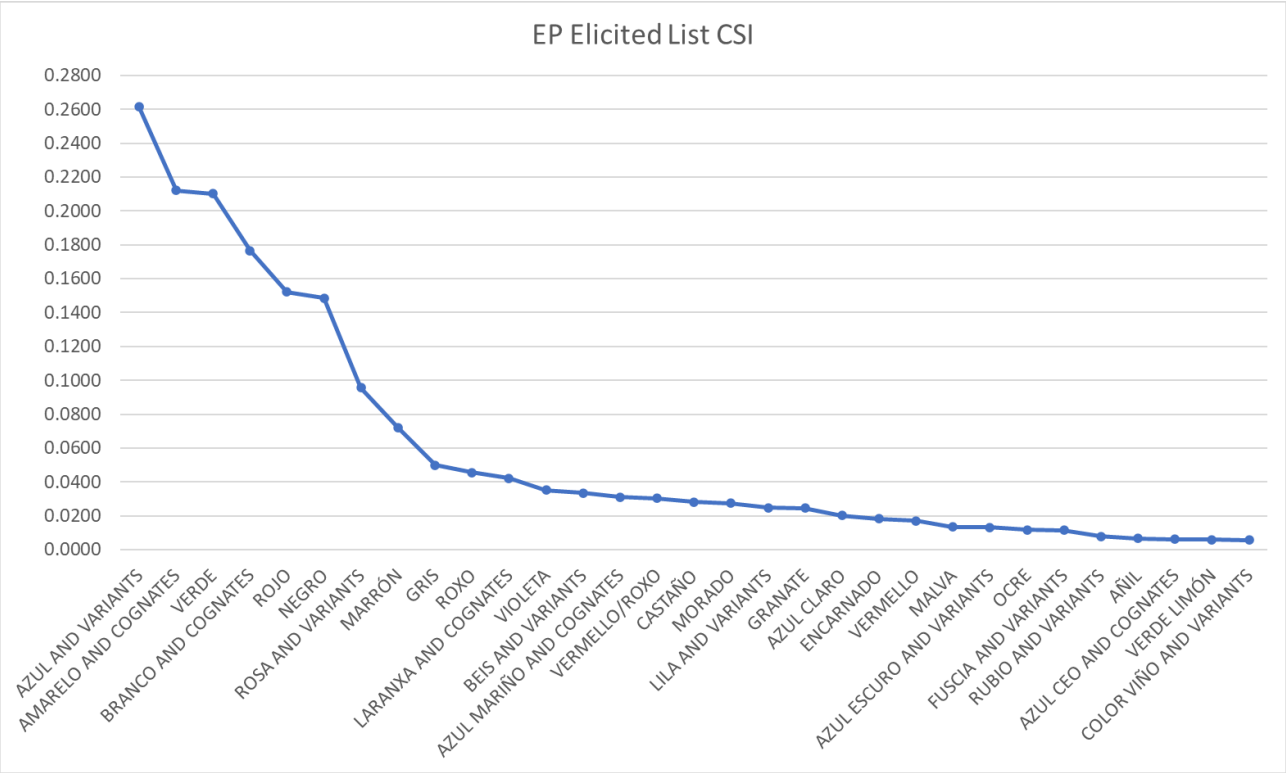

Figure 5.1 Elderly participants elicited list CSI (selected terms)[19]

5.1.4. Young males' elicited list

Young males' lists were a bit longer than those of their elderly counterparts: 18.8 terms on average. There were 13 terms that had a frequency of 50.00% or above: *amarelo* and cognates, *negro*, *azul* and variants, *branco* and cognates, *verde*, *gris*, *rosa* and variants *marrón*, *laranxa* and cognates, *vermello*, *beis* and variants, *morado* and *violeta*. After these the frequency drops to 37.50% (*lila* and variants) and three terms with 31.50%: *prateado* and cognates, *azul mariño* and cognates and *granate*.

The MP position rank is as follows: *amarelo* and cognates, *negro*, *roxo*, *azul* and variants, *branco* and cognates, *verde*, *vermello*, *roxo/rubio*, *pardo*, *encarnado*, *laranxa* and cognates, *morado*, *violeta/púrpura*, After these follow *violeta*, *rosa* and variants and *lila* and variants.

The thirteen-term CSI rank is as follows: *amarelo* and cognates, *negro*, *azul* and variants, *branco* and cognates, *verde*, *vermello*, *laranxa* and cognates, *rosa*, *gris*, *marrón*, *morado*, *violeta* and *beis* and variants. After these, the CSI I drops by 0.0138 with *lila* and variants and two alternative terms for RED: *roxo* and *encarnado*. The rank continues with *prateado* and cognates, *azul mariño* and cognates, *dourado* and cognates and *granate*.

[19]For clarity I did not include in these diagrams terms with a frequency less than two when adding both groups.

Thus, *beis* is the first candidate for basicness among young males with a CSI of 0.0540 followed by *lila* with 0.0402. See Table 5.4 below.

Term	**Freq**	**Rank F**	**%**	**MP**	**Rank MP**	**Salience**	**Rank S**
amarelo and cognates	16	1	100.00%	4.3750	1	0.2286	1
negro	16	1	100.00%	4.6875	2	0.2133	2
azul and variants	16	1	100.00%	5.0625	4	0.1975	3
branco and cognates	16	1	100.00%	5.2500	5	0.1905	4
verde	16	1	100.00%	5.5000	6	0.1818	5
vermello	12	4	75.00%	5.8333	7	0.1286	6
laranxa and cognates	13	3	81.25%	7.2308	10	0.1124	7
rosa and variants	15	2	93.75%	9.1333	14	0.1026	8
gris	16	1	100.00%	11.0625	21	0.0904	9
marrón	15	2	93.75%	10.6667	19	0.0879	10
morado	8	6	50.00%	7.8750	11	0.0635	11
violeta	8	6	50.00%	8.1250	13	0.0615	12
beis and variants	11	5	68.75%	12.7273	25	0.0540	13
lila and variants	6	7	37.50%	9.3333	15	0.0402	14
roxo	3	10	18.75%	5.0000	3	0.0375	15
encarnado	3	10	18.75%	7.0000	9	0.0268	16
prateado and cognates	5	8	31.25%	14.0000	28	0.0223	17
azul mariño and cognates	5	8	31.25%	15.6000	31	0.0200	18
dourado and cognates	4	9	25.00%	12.5000	24	0.0200	19
granate	5	8	31.25%	15.8000	33	0.0198	20
maxenta and cognates	3	10	18.75%	9.6667	16	0.0194	21
Sp *rojo*	3	10	18.75%	10.3333	18	0.0181	22
azul celeste	4	9	25.00%	14.0000	28	0.0179	23
púrpura	3	10	18.75%	11.3333	22	0.0165	24
fuscia and variants	4	9	25.00%	16.0000	34	0.0156	25
ocre	4	9	25.00%	17.5000	37	0.0143	26
branco roto and cognates	3	10	18.75%	13.3333	27	0.0141	27
caqui	3	10	18.75%	15.6667	32	0.0120	28
celeste	3	10	18.75%	16.3333	35	0.0115	29
color viño and variants	3	10	18.75%	17.0000	36	0.0110	30

color crema and variants	3	10	18.75%	17.0000	36	0.0110	30
turquesa	2	11	12.50%	12.0000	23	0.0104	32
roxo/rubio	1	12	6.25%	6.0000	8	0.0104	32
pardo	1	12	6.25%	6.0000	8	0.0104	32
color carne and variants	2	11	12.50%	12.5000	24	0.0100	35
cián	2	11	12.50%	15.5000	30	0.0081	36
burdeos	2	11	12.50%	15.5000	30	0.0081	36
azul claro	2	11	12.50%	16.0000	34	0.0078	38
verde pistacho	2	11	12.50%	16.0000	34	0.0078	38
violeta/púrpura	1	12	6.25%	8.0000	12	0.0078	38
rosa fuscia	2	11	12.50%	17.0000	36	0.0074	41
antracita	2	11	12.50%	17.0000	36	0.0074	41
grisáceo	1	12	6.25%	10.0000	17	0.0063	43
azulón	1	12	6.25%	11.0000	20	0.0057	44
salmón	1	12	6.25%	11.0000	20	0.0057	44
crimson	1	12	6.25%	12.0000	23	0.0052	46
brillos	1	12	6.25%	12.0000	23	0.0052	46
pistacho	1	12	6.25%	12.0000	23	0.0052	46
verde turquesa	1	12	6.25%	12.0000	23	0.0052	46
azul prusia	1	12	6.25%	13.0000	26	0.0048	50
azul turquesa	1	12	6.25%	13.0000	26	0.0048	50
mate	1	12	6.25%	13.0000	26	0.0048	50
malva	1	12	6.25%	14.0000	28	0.0045	53
brillante	1	12	6.25%	14.0000	28	0.0045	53
rubio and variants	1	12	6.25%	15.0000	29	0.0042	55
satinado	1	12	6.25%	15.0000	29	0.0042	55
color café	1	12	6.25%	15.0000	29	0.0042	55
branco óso	1	12	6.25%	15.0000	29	0.0042	55
rosa chicle	1	12	6.25%	16.0000	34	0.0039	59
blanco polar	1	12	6.25%	16.0000	34	0.0039	59
azul marengo	1	12	6.25%	16.0000	34	0.0039	59
color aluminio	1	12	6.25%	16.0000	34	0.0039	59
negro/preto	1	12	6.25%	16.0000	34	0.0039	59
azul augamariña	1	12	6.25%	17.0000	36	0.0037	64
color cereixa	1	12	6.25%	17.0000	36	0.0037	64

oxidación	1	12	6.25%	17.0000	36	0.0037	64
añil	1	12	6.25%	17.0000	36	0.0037	64
rosa pau and cognates	1	12	6.25%	18.0000	38	0.0035	68
amarronzado	1	12	6.25%	18.0000	38	0.0035	68
aguamarina	1	12	6.25%	18.0000	38	0.0035	68
gris cinsa	1	12	6.25%	19.0000	39	0.0033	71
verde lima	1	12	6.25%	19.0000	39	0.0033	71
canela	1	12	6.25%	20.0000	40	0.0031	73
blanco perla	1	12	6.25%	20.0000	40	0.0031	73
color tella and variants	1	12	6.25%	20.0000	40	0.0031	73
azul escuro and variants	1	12	6.25%	20.0000	40	0.0031	73
azul ceo and cognates	1	12	6.25%	22.0000	41	0.0028	77
cor moura	1	12	6.25%	22.0000	41	0.0028	77

Table 5.4 Young males' elicited list data

5.1.5. Young females' elicited list

The young females' lists were the longest of all subgroups: 24,1 terms on average. There were 17 terms that had a frequency of 50.00% or above: *amarelo* and cognates, *azul* and cognates, *verde*, *negro*, *laranxa* and cognates, *marrón*, *branco* and cognates, *rosa* and variants, *gris*, *lila* and variants, *granate*, *violeta*, *morado*, *beis* and variants, *azul mariño* and cognates, *ocre* and *dourado* and cognates. After these, the frequency drops to 44.44% which was shared by two alternative terms for RED, *vermello* and Spanish Sp *rojo*, *turquesa* and *prateado* and cognates.

We see there is no basic term for RED in the first 17 frequency positions. This is because tokens were divided equally among *vermello* and Sp *rojo*, (44.44% each) and *encarnado* (11.11%).

The first two positions in the MP rank were for alternative terms for RED: *vermello* and *encarnado*. Following were *amarelo* and cognates, *azul* and variants, *verde*, Sp *rojo*, *negro*, *violeta, azul claro*, *branco* and cognates, *rosa* and variants, *laranxa* and cognates, *marrón*, *morado*, *añil*, *azul escuro* and *malva*. Next was *gris* after which the MP drops a full point.

Thus, we can see the first 17 positions in the MP rank do not reflect the frequency list hierarchy. This is caused by the alternative red terms being mentioned early in the lists, and the fact that some young females were giving variations of colours after mentioning the basic colour term as in *azul*, *azul claro*, *azul oscuro*, etc.

The first sixteen terms in the CSI rank are: *amarelo* and cognates, *azul* and variants, *vermello*, *verde*, *negro*, *branco* and cognates, *laranxa* and cognates, *rosa* and variants, *marrón*, Sp *rojo*, *gris*, *violeta*, *morado*, *lila* and variants, *encarnado*, and *granate*. After a drop of 0.0160 the next term is *beis* and variants.

We see that *violeta* and *morado* have lower frequencies because they are alternative terms for PURPLE but they have a higher CSI because they tend to appear earlier in lists. Meanwhile, *lila* has a higher frequency because it is the main term for *lilac* but it tends to appear later in lists. However, *lila* with a 0.0556, a drop of only 0.0023 in CSI with respect to the terms for PURPLE, is the first contestant for basicness among young females followed closely by *granate* 0.0533. See Table 5.5 below.

Term	**Freq**	**Rank F**	**%**	**MP**	**Rank MP**	**Salience**	**Rank S**
amarelo and cognates	18	1	100.00%	3.6667	3	0.2727	1
azul and variants	18	1	100.00%	4.0000	4	0.2500	2
vermello	8	7	44.44%	1.8750	1	0.2370	3
verde	18	1	100.00%	4.2222	5	0.2368	4
negro	18	1	100.00%	7.7778	7	0.1286	5
branco and cognates	17	2	94.44%	8.0588	9	0.1172	6
laranxa and cognates	18	1	100.00%	8.8889	11	0.1125	7
rosa and variants	17	2	94.44%	8.8824	10	0.1063	8
marrón	18	1	100.00%	9.5000	12	0.1053	9
Sp *rojo*	8	7	44.44%	4.3750	6	0.1016	10
gris	17	2	94.44%	10.7647	16	0.0877	11
violeta	12	4	66.67%	8.0000	8	0.0833	12
morado	10	5	55.56%	9.6000	13	0.0579	13
lila and variants	13	3	72.22%	13.0000	20	0.0556	14
encarnado	2	13	11.11%	2.0000	2	0.0556	14
granate	13	3	72.22%	13.5385	21	0.0533	16
beis and variants	10	5	55.56%	14.9000	24	0.0373	17
ocre	9	6	50.00%	15.4444	27	0.0324	18
azul mariño and cognates	10	5	55.56%	18.9000	34	0.0294	19
turquesa	8	7	44.44%	16.5000	29	0.0269	20
dourado and cognates	9	6	50.00%	18.6667	33	0.0268	21
fuscia and variants	7	8	38.89%	15.2857	26	0.0254	22
prateado and cognates	8	7	44.44%	19.3750	37	0.0229	23

malva	4	11	22.22%	10.5000	15	0.0212	24
verde botella	6	9	33.33%	19.0000	35	0.0175	25
añil	3	12	16.67%	10.0000	14	0.0167	26
salmón	5	10	27.78%	17.0000	30	0.0163	27
azul celeste	4	11	22.22%	14.5000	23	0.0153	28
verde pistacho	4	11	22.22%	17.5000	31	0.0127	29
maxenta and cognates	3	12	16.67%	14.0000	22	0.0119	30
color carne and variants	5	10	27.78%	23.8000	48	0.0117	31
azul ceo and cognates	4	11	22.22%	19.5000	38	0.0114	32
verde claro	4	11	22.22%	19.7500	39	0.0113	33
branco roto and cognates	4	11	22.22%	19.7500	39	0.0113	33
azul escuro and variants	2	13	11.11%	10.0000	14	0.0111	35
rosa pau and cognates	4	11	22.22%	22.7500	46	0.0098	36
celeste	2	13	11.11%	12.5000	19	0.0089	37
color tella and variants	3	12	16.67%	19.3333	36	0.0086	38
color viño and variants	3	12	16.67%	19.3333	36	0.0086	38
verde escuro and variants	3	12	16.67%	20.3333	41	0.0082	40
cián	2	13	11.11%	14.0000	22	0.0079	41
verde auga and cognates	3	12	16.67%	21.3333	43	0.0078	42
azul claro	1	14	5.56%	8.0000	8	0.0069	43
color area and variants	2	13	11.11%	17.5000	31	0.0063	44
púrpura	2	13	11.11%	18.0000	32	0.0062	45
amarelo ovo	2	13	11.11%	19.5000	38	0.0057	46
burdeos	2	13	11.11%	19.5000	38	0.0057	46
berenjena	2	13	11.11%	20.0000	40	0.0056	48
color crema and variants	2	13	11.11%	21.0000	42	0.0053	49
amarelo limón and cognates	2	13	11.11%	21.5000	44	0.0052	50
transparente	2	13	11.11%	22.0000	45	0.0051	51
navy	1	14	5.56%	11.0000	17	0.0051	51
camel	2	13	11.11%	23.0000	47	0.0048	53
vermellón and cognates	2	13	11.11%	24.0000	49	0.0046	54
azulado	2	13	11.11%	24.0000	49	0.0046	54
carmín	1	14	5.56%	12.0000	18	0.0046	54

roxo	1	14	5.56%	12.0000	18	0.0046	54
castaño	1	14	5.56%	12.0000	18	0.0046	54
arcodavella	1	14	5.56%	13.0000	20	0.0043	59
topo	1	14	5.56%	13.0000	20	0.0043	59
buganvilla	1	14	5.56%	13.0000	20	0.0043	59
agrisado	1	14	5.56%	14.0000	22	0.0040	62
gaspeado	1	14	5.56%	14.0000	22	0.0040	62
borgoña/viño tinto	1	14	5.56%	14.0000	22	0.0040	62
aguamarina	1	14	5.56%	14.0000	22	0.0040	62
difuminado	1	14	5.56%	15.0000	25	0.0037	66
rosa chicle	1	14	5.56%	16.0000	28	0.0035	67
con vetas	1	14	5.56%	16.0000	28	0.0035	67
crudo	1	14	5.56%	16.0000	28	0.0035	67
blanco nuclear	1	14	5.56%	17.0000	30	0.0033	70
agua	1	14	5.56%	17.0000	30	0.0033	70
cor lume	1	14	5.56%	17.0000	30	0.0033	70
fosforito	1	14	5.56%	18.0000	32	0.0031	73
cobre and variants	1	14	5.56%	18.0000	32	0.0031	73
mostaza	1	14	5.56%	18.0000	32	0.0031	73
pistacho	1	14	5.56%	19.0000	35	0.0029	76
verde marengo	1	14	5.56%	19.0000	35	0.0029	76
caqui	1	14	5.56%	19.0000	35	0.0029	76
verde militar	1	14	5.56%	20.0000	40	0.0028	79
grafito	1	14	5.56%	21.0000	42	0.0026	80
rosa fuscia	1	14	5.56%	21.0000	42	0.0026	80
blanco crudo	1	14	5.56%	22.0000	45	0.0025	82
verde prado and variants	1	14	5.56%	22.0000	45	0.0025	82
nude	1	14	5.56%	22.0000	45	0.0025	82
blanco sucio	1	14	5.56%	23.0000	47	0.0024	85
azul eléctrico	1	14	5.56%	23.0000	47	0.0024	85
perla	1	14	5.56%	23.0000	47	0.0024	85
champán	1	14	5.56%	24.0000	49	0.0023	88
ámbar	1	14	5.56%	24.0000	49	0.0023	88
amarillento	1	14	5.56%	24.0000	49	0.0023	88
rubio and variants	1	14	5.56%	25.0000	50	0.0022	91

rosa pastel	1	14	5.56%	25.0000	50	0.0022	91
metalizado	1	14	5.56%	25.0000	50	0.0022	91
azul pastel	1	14	5.56%	26.0000	51	0.0021	94
marrón terra	1	14	5.56%	26.0000	51	0.0021	94
azul verdoso	1	14	5.56%	26.0000	51	0.0021	94
colores fosforitos	1	14	5.56%	27.0000	52	0.0021	97
gris metalizado	1	14	5.56%	27.0000	52	0.0021	97
azul añil	1	14	5.56%	27.0000	52	0.0021	97
azul cián	1	14	5.56%	28.0000	53	0.0020	100
esmeralda	1	14	5.56%	28.0000	53	0.0020	100
Sp *amarillo chillón*	1	14	5.56%	28.0000	53	0.0020	100
azabache	1	14	5.56%	29.0000	54	0.0019	103
amarelo fosforito	1	14	5.56%	29.0000	54	0.0019	103
verde fosforito	1	14	5.56%	30.0000	55	0.0019	105
rubí	1	14	5.56%	30.0000	55	0.0019	105
laranxa fosforito	1	14	5.56%	31.0000	56	0.0018	107
encarnado tella	1	14	5.56%	31.0000	56	0.0018	107
grisáceo	1	14	5.56%	32.0000	57	0.0017	109
multicolor	1	14	5.56%	34.0000	58	0.0016	110

Table 5.5. Young females' elicited list data

5.1.6. Young participants' elicited list

The average young participant list had 21.56 terms. Their first 15 terms had a frequency of 52.94% or above: *amarelo* and cognates, *azul* and variants, *verde*, *negro*, *branco* and cognates, *marrón*, *gris*, *rosa* and variants, *laranxa* and cognates, *beis* and variants, *vermello*, *violeta*, *lila* and variants*, morado* and *granate*. After these the frequency drops to 44.12% with *azul mariño* and cognates. The list continues with *ocre*, *dourado* and cognates and *prateado* and cognates all with 38.24%.

The first position in the MP rank was *amarelo* and cognates and the second *vermello*. The rank continued with *azul* and variants *verde*, several terms for RED: *encarnado*, Sp *rojo* and *roxo/rubio* followed by *pardo.* The last two were provided only once, though. The rank continues with *negro*, *branco* and cognates, *roxo*, *violeta/púrpura* provided only once, *violeta*, *laranxa* and cognates, *morado*, *rosa* and variants, *marrón* and *gris*.

Thus, the resulting CSI rank is *amarelo* and cognates, *azul* and variants, *verde, negro, branco* and cognates, *vermello*, *laranxa* and cognates, *rosa* and variants, *marrón*, *gris* and *violeta*. There is a significant drop of 0.0132 until the next, *morado*. After these the rank is closely followed by Sp *rojo*, *lila* and variants, *beis* and variants and *granate*.

Considering *morado* and Sp *rojo* as alternative terms for PURPLE and RED, the first candidate for basicness among the young group is *lila* with a CSI of 0.0472 mentioned by 55.88% of participants. The next term would be *beis* 0.0449, mentioned by 61.76%, followed by *granate* 0.0374, mentioned by 52.94%. For a summary of this CSI Rank see Table 5.6 and Figure 5.2. below.

Term	**Freq**	**Rank F**	**%**	**MP**	**Rank MP**	**CSI**	**Rank S**
amarelo and cognates	34	1	100.00%	4.0000	1	0.2500	1
azul and variants	34	1	100.00%	4.5000	3	0.2222	2
verde	34	1	100.00%	4.8235	4	0.2073	3
negro	34	1	100.00%	6.3235	7	0.1581	4
branco and cognates	33	2	97.06%	6.6970	8	0.1449	5
vermello	20	6	58.82%	4.2500	2	0.1384	6
laranxa and cognates	31	4	91.18%	8.1935	12	0.1113	7
rosa and variants	32	3	94.12%	9.0000	14	0.1046	8
marrón	33	2	97.06%	10.0303	15	0.0968	9
gris	33	2	97.06%	10.9091	16	0.0890	10
violeta	20	6	58.82%	8.0500	11	0.0731	11
morado	18	8	52.94%	8.8333	13	0.0599	12
Sp *rojo*	11	11	32.35%	6.0000	6	0.0539	13
lila and variants	19	7	55.88%	11.8421	21	0.0472	14
beis and variants	21	5	61.76%	13.7619	25	0.0449	15
granate	18	8	52.94%	14.1667	27	0.0374	16
encarnado	5	16	14.71%	5.0000	5	0.0294	17
azul mariño and cognates	15	9	44.12%	17.8000	42	0.0248	18
ocre	13	10	38.24%	16.0769	36	0.0238	19
dourado and cognates	13	10	38.24%	16.7692	38	0.0228	20
prateado and cognates	13	10	38.24%	17.3077	40	0.0221	21
fuscia and variants	11	11	32.35%	15.5455	33	0.0208	22
turquesa	10	12	29.41%	15.6000	34	0.0189	23
roxo	4	17	11.76%	6.7500	9	0.0174	24
azul celeste	8	13	23.53%	14.2500	28	0.0165	25
maxenta and cognates	6	15	17.65%	11.8333	20	0.0149	26
malva	5	16	14.71%	11.2000	18	0.0131	27
branco roto and cognates	7	14	20.59%	17.0000	39	0.0121	28

salmón	6	15	17.65%	16.0000	35	0.0110	29
púrpura	5	16	14.71%	14.0000	26	0.0105	30
verde pistacho	6	15	17.65%	17.0000	39	0.0104	31
añil	4	17	11.76%	11.7500	19	0.0100	32
color carne and variants	7	14	20.59%	20.5714	52	0.0100	33
celeste	5	16	14.71%	14.8000	30	0.0099	34
color viño and variants	6	15	17.65%	18.1667	44	0.0097	35
verde botella	6	15	17.65%	19.0000	47	0.0093	36
cián	4	17	11.76%	14.7500	29	0.0080	37
color crema and variants	5	16	14.71%	18.6000	46	0.0079	38
azul ceo and cognates	5	16	14.71%	20.0000	50	0.0074	39
caqui	4	17	11.76%	16.5000	37	0.0071	40
rosa pau and cognates	5	16	14.71%	21.8000	56	0.0067	41
burdeos	4	17	11.76%	17.5000	41	0.0067	42
azul claro	3	18	8.82%	13.3333	24	0.0066	43
azul escuro and variants	3	18	8.82%	13.3333	24	0.0066	43
color tella and variants	4	17	11.76%	19.5000	48	0.0060	45
verde claro	4	17	11.76%	19.7500	49	0.0060	46
pardo	1	20	2.94%	6.0000	6	0.0049	47
roxo/rubio	1	20	2.94%	6.0000	6	0.0049	47
rosa fuscia	3	18	8.82%	18.3333	45	0.0048	49
verde escuro and variants	3	18	8.82%	20.3333	51	0.0043	50
verde auga and cognates	3	18	8.82%	21.3333	54	0.0041	51
pistacho	2	19	5.88%	15.5000	32	0.0038	52
aguamarina	2	19	5.88%	16.0000	35	0.0037	53
rosa chicle	2	19	5.88%	16.0000	35	0.0037	53
violeta/púrpura	1	20	2.94%	8.0000	10	0.0037	53
antracita	2	19	5.88%	17.0000	39	0.0035	56
color area and variants	2	19	5.88%	17.5000	41	0.0034	57
amarelo ovo	2	19	5.88%	19.5000	48	0.0030	58
berenjena	2	19	5.88%	20.0000	50	0.0029	59
rubio and variants	2	19	5.88%	20.0000	50	0.0029	59
grisáceo	2	19	5.88%	21.0000	53	0.0028	61
amarelo limón and cognates	2	19	5.88%	21.5000	55	0.0027	62
transparente	2	19	5.88%	22.0000	57	0.0027	63

azulón	1	20	2.94%	11.0000	17	0.0027	63
navy	1	20	2.94%	11.0000	17	0.0027	63
camel	2	19	5.88%	23.0000	58	0.0026	66
vermellón and cognates	2	19	5.88%	24.0000	59	0.0025	67
azulado	2	19	5.88%	24.0000	59	0.0025	67
brillos	1	20	2.94%	12.0000	22	0.0025	67
carmín	1	20	2.94%	12.0000	22	0.0025	67
verde turquesa	1	20	2.94%	12.0000	22	0.0025	67
castaño	1	20	2.94%	12.0000	22	0.0025	67
crimson	1	20	2.94%	12.0000	22	0.0025	67
azul turquesa	1	20	2.94%	13.0000	23	0.0023	74
buganvilla	1	20	2.94%	13.0000	23	0.0023	74
arcodavella	1	20	2.94%	13.0000	23	0.0023	74
topo	1	20	2.94%	13.0000	23	0.0023	74
mate	1	20	2.94%	13.0000	23	0.0023	74
azul prusia	1	20	2.94%	13.0000	23	0.0023	74
brillante	1	20	2.94%	14.0000	26	0.0021	80
agrisado	1	20	2.94%	14.0000	26	0.0021	80
borgoña/viño tinto	1	20	2.94%	14.0000	26	0.0021	80
gaspeado	1	20	2.94%	14.0000	26	0.0021	80
satinado	1	20	2.94%	15.0000	31	0.0020	84
difuminado	1	20	2.94%	15.0000	31	0.0020	84
branco óso	1	20	2.94%	15.0000	31	0.0020	84
color café	1	20	2.94%	15.0000	31	0.0020	84
con vetas	1	20	2.94%	16.0000	35	0.0018	88
negro/preto	1	20	2.94%	16.0000	35	0.0018	88
blanco polar	1	20	2.94%	16.0000	35	0.0018	88
azul marengo	1	20	2.94%	16.0000	35	0.0018	88
color aluminio	1	20	2.94%	16.0000	35	0.0018	88
crudo	1	20	2.94%	16.0000	35	0.0018	88
cor lume	1	20	2.94%	17.0000	39	0.0017	94
azul augamariña	1	20	2.94%	17.0000	39	0.0017	94
agua	1	20	2.94%	17.0000	39	0.0017	94
blanco nuclear	1	20	2.94%	17.0000	39	0.0017	94
oxidación	1	20	2.94%	17.0000	39	0.0017	94

color cereixa	1	20	2.94%	17.0000	39	0.0017	94
cobre and variants	1	20	2.94%	18.0000	43	0.0016	100
amarronzado	1	20	2.94%	18.0000	43	0.0016	100
fosforito	1	20	2.94%	18.0000	43	0.0016	100
mostaza	1	20	2.94%	18.0000	43	0.0016	100
verde lima	1	20	2.94%	19.0000	47	0.0015	104
gris cinsa	1	20	2.94%	19.0000	47	0.0015	104
verde marengo	1	20	2.94%	19.0000	47	0.0015	104
verde militar	1	20	2.94%	20.0000	50	0.0015	107
canela	1	20	2.94%	20.0000	50	0.0015	107
blanco perla	1	20	2.94%	20.0000	50	0.0015	107
grafito	1	20	2.94%	21.0000	53	0.0014	110
verde prado and variants	1	20	2.94%	22.0000	57	0.0013	111
nude	1	20	2.94%	22.0000	57	0.0013	111
blanco crudo	1	20	2.94%	22.0000	57	0.0013	111
cor moura	1	20	2.94%	22.0000	57	0.0013	111
blanco sucio	1	20	2.94%	23.0000	58	0.0013	115
azul eléctrico	1	20	2.94%	23.0000	58	0.0013	115
perla	1	20	2.94%	23.0000	58	0.0013	115
champán	1	20	2.94%	24.0000	59	0.0012	118
ámbar	1	20	2.94%	24.0000	59	0.0012	118
amarillento	1	20	2.94%	24.0000	59	0.0012	118
rosa pastel	1	20	2.94%	25.0000	60	0.0012	121
metalizado	1	20	2.94%	25.0000	60	0.0012	121
azul verdoso	1	20	2.94%	26.0000	61	0.0011	123
marrón terra	1	20	2.94%	26.0000	61	0.0011	123
azul pastel	1	20	2.94%	26.0000	61	0.0011	123
colores fosforitos	1	20	2.94%	27.0000	62	0.0011	126
azul añil	1	20	2.94%	27.0000	62	0.0011	126
gris metalizado	1	20	2.94%	27.0000	62	0.0011	126
esmeralda	1	20	2.94%	28.0000	63	0.0011	129
azul cián	1	20	2.94%	28.0000	63	0.0011	129
Sp *amarillo chillón*	1	20	2.94%	28.0000	63	0.0011	129
amarelo fosforito	1	20	2.94%	29.0000	64	0.0010	132
azabache	1	20	2.94%	29.0000	64	0.0010	132

rubí	1	20	2.94%	30.0000	65	0.0010	134
verde fosforito	1	20	2.94%	30.0000	65	0.0010	134
laranxa fosforito	1	20	2.94%	31.0000	66	0.0009	136
encarnado tella	1	20	2.94%	31.0000	66	0.0009	136
multicolor	1	20	2.94%	34.0000	67	0.0009	138

Table 5.6 Young participants' elicited list data

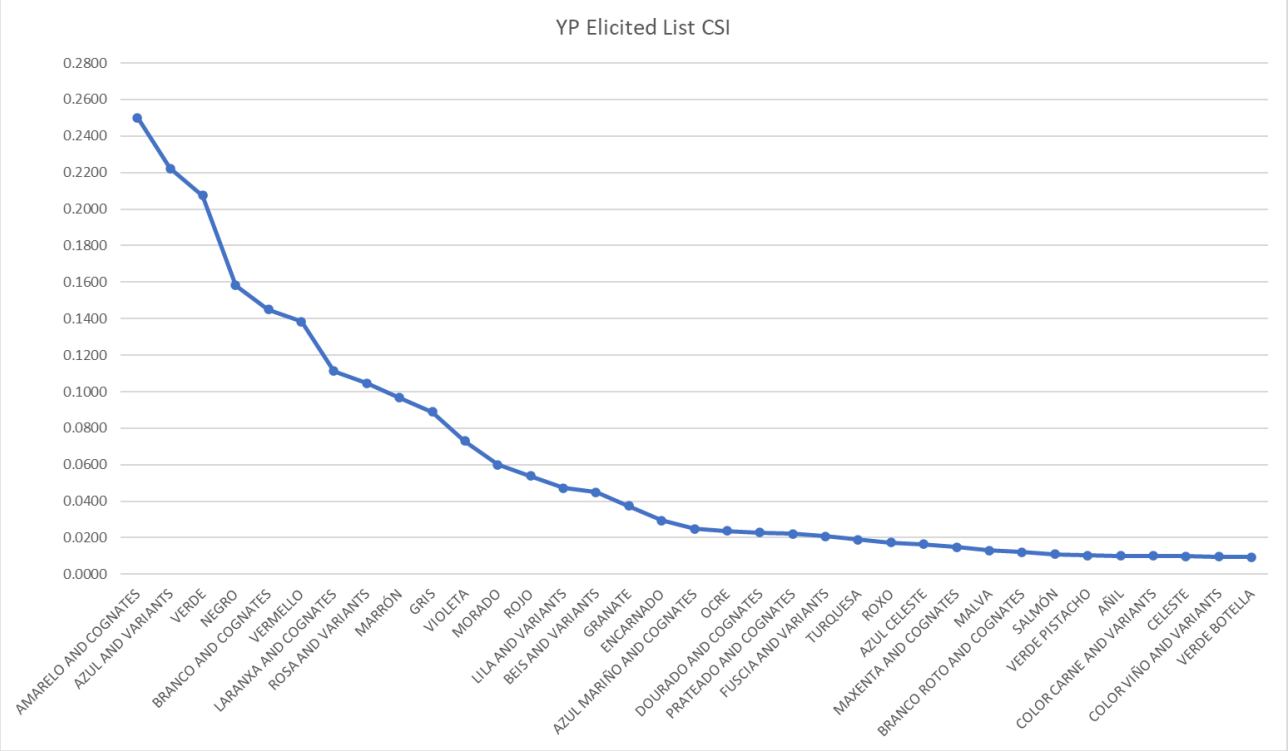

Figure 5.2 Young participants elicited list CSI (selected terms)[20]

See figure 5.2 above ordering the terms in YP's elicited lists by CSI.

5.1.7. Generational contrasts

Before starting the comparison of the elicited lists of different subgroups we should remember that their sample is not identical: elderly males (EM): 19; elderly females (EF): 25; young males (YM): 16; young females (YF): 18. Thus, when comparing frequencies, it is convenient to look at the percentage of frequencies rather than the total. Similarly, when comparing the MP or MP Rank across groups we need to remember there is a difference in length of the lists. See Table 5.7.

[20] For clarity I did not include in these diagrams terms with a frequency less than two when adding both groups.

	EM	EF	YM	YF	EP	YP
Average list length	11.8	12.4	18.8	24.1	12.1	21.5

Table 5.7. Average number of terms in elicited lists

Similarly, the comparison of the CSI across groups has to be done with caution as the existence of multiple lexical variants for RED and PURPLE along with differences in consensus rates in the elderly and young groups can produce similar CSI rates for very different circumstances. Examples are three different pairs of terms for RED that were mentioned by the 2.27% of the elderly group but in the first position have an almost identical CSI value (0.0227) to *dourado* and cognates which was mentioned by 38.24% of the young group but in the 16.8 position (0.0228). See Table 1.8 below.

Group	Term	Freq	Rank F	%	MP	Rank MP	CSI	Rank CSI
EP	Sp *rojo/roxo*	1	19	2.27%	1.000	1	0.0227	20
	Sp *rojo/rubio*	1	19	2.27%	1.000	1	0.0227	20
	Sp *rojo/vermello*	1	19	2.27%	1.000	1	0.0227	20
YP	*dourado* and cognates	13	10	38.24%	16.7692	38	0.0228	20

Table 5.8 Examples of similar CSI values for different cases

5.1.7.1. Orange

The term *laranxa* and cognates had a low frequency among elderly participants (36.36%). Less than a third of elderly males (31.58%) and less than half of elderly females (40.00%) used these terms in their elicited lists. This contrasts strongly with the high frequencies among their young counterparts (91.18%) who also showed noticeable differences between genders (YM: 81.25%; YF: 100%).

The position in the MP rank for elderly participants was lower (11) than the one for their younger counterparts (7). However, the MP was higher in males than females in both age groups (EM: 6.7 vs EF: 9.8; YM: 7.2 vs YF: 8.9)

These differences get quite neutralised by frequency but still create slightly different CSI in elderly males (0.0474) and elderly females (0.0408) but almost identical values in the young group (YM:0.1124; YF: 0.1125).

In conclusion, this data suggests a striking generational shift in the significance of ORANGE. In addition, a gender contrast was found as males of both age groups had significantly lower frequencies than females but higher MP. Most surprisingly, *laranxa* and cognates had only 81.25% of frequency in young males' lists which is low for a category that was assumed to be basic for the young group. See Table 5.9 below.

The prevalence of ORANGE in females can be related to their observed general preference for warm colours (Bonnardel et al. 2017). The higher MP in men could be related to having shorter lists or the possibility that they recently learned it and that they are more aware of it.

	Term	Freq	Rank F	%	MP	Rank MP	Salience	Rank S
EM	*laranxa* and cognates	6	8	31.58%	6.6667	12	0.0474	14
EF	*laranxa* and cognates	10	10	40.00%	9.8000	24	0.0408	10
YM	*laranxa* and cognates	13	3	81.25%	7.2308	10	0.1124	7
YF	*laranxa* and cognates	18	1	100.00%	8.8889	11	0.1125	7
EP	*laranxa* and cognates	16	8	36.36%	8.6250	24	0.0422	11
YP	*laranxa* and cognates	31	4	91.18%	8.1935	12	0.1113	7

Table 5.9 *Laranxa* and cognates in elicited lists

5.1.7.2. Pink

A remarkable gender bias about *rosa* 'pink' is observed among the elderly generation. It had a frequency of only 47.37% among elderly males whilst among their female counterparts this was almost double (84.00%). Similarly, this term tended to appear in elderly females' lists almost twice as often (5.9) than in those of their male counterparts (10.0). These two factors produced very different CSI for PINK in the two genders (EM: 0.0474, EF: 0.1423). However, this gender difference was not observed in the young group as they had similar frequencies (YM: 93%; YF: 94%), and relatively similar positions in the MP Ranks (YM: 14; YF:10) and CSI (YM:0.1026; YF:0.1063). See Table. 5.10 below.

This could be related to females' colour preference for PINK, attested in many works, and replicated in Bonnardel et al. (2017) who also stress that the particular hue is culture dependent.

	Term	Freq	Rank F	%	MP	Rank MP	Salience	Rank S
EM	*rosa* and variants	9	6	47.37%	10.0000	23	0.0474	14
EF	*rosa* and variants	21	5	84.00%	5.9048	10	0.1423	6
YM	*rosa* and variants	15	2	93.75%	9.1333	14	0.1026	8
YF	*rosa* and variants	17	2	94.44%	8.8824	10	0.1063	8
EP	*rosa* and variants	30	4	68,18%	7.1333	15	0,0956	7
YP	*rosa* and variants	32	3	94,12%	9.0000	14	0,1046	8

Table 5.10 *Rosa* in elicited lists

5.1.7.3. Beige

	Term	Freq	Rank F	%	MP	Rank MP	Salience	Rank S
EM	*beis* and variants	6	8	31.58%	7.0000	13	0.0451	16
EF	*beis* and variants	6	11	24.00%	9.3333	23	0.0257	17
YM	*beis* and variants	11	5	68.75%	12.7273	25	0.0540	13
YF	*beis* and variants	10	5	55.56%	14.9000	24	0.0373	17
EP	*beis* and variants	12	10	27.27%	8.1667	19	0.0334	13
YP	*beis* and variants	21	5	61.76%	13.7619	25	0.0449	15

Table 5.11 *Beis* and variants in elicited lists

Beis had considerably lower frequencies among the elderly group (27.27%) than among their young counterparts (61.76%). However, it had a higher position in the MP rank among the elderly group (19) than among the young (25).

Although its CSI value among elderly participants (0.0334) was lower than among their young counterparts (0.0449), relatively, *beige* is more salient for the elderly participants as it has a higher position in the CSI rank (13) than it does among their young counterparts (15). See Table 5.11 above.

5.1.7.4. Purple

As will be discussed in the next sections of this chapter, in Galician there seem to be a few competing terms for PURPLE. Moreover, some of these terms are considered synonyms by some participants and for others they are hyponyms. In Table 5.22 below can be seen the contrast between the two age groups when it comes to the number of purple terms contained in their elicited lists. See Table 5.12 below.

	EP	EM	EF	YP	YM	YF
No term for purple	38.63%	47.38%	32.00%	-	-	-
1 term for purple	34.09%	21.05%	44.00%	26.47%	37.50%	16.66%
2 or more terms for purple	27.27%	31.57%	24.00%	73.52%	62.50%	83.33%

Table 5.12 Number of purple terms in elicited lists

	Term	Freq	Rank F	%	MP	Rank MP	Salience	Rank S
EM	*violeta*	8	7	42.11%	7.8750	15	0.0535	10
	morado	5	9	26.32%	9.0000	21	0.0292	18
	lila and variants	4	10	21.05%	11.7500	26	0.0179	22
EF	*lila* and variants	6	11	24.00%	7.5000	15	0.0320	15
	morado	6	11	24.00%	9.1667	21	0.0262	16
	violeta	5	12	20.00%	9.2000	22	0.0217	22
YM	*morado*	8	6	50.00%	7.8750	11	0.0635	11
	violeta	8	6	50.00%	8.1250	13	0.0615	12
	lila and variants	6	7	37.50%	9.3333	15	0.0402	14
YF	*violeta*	12	4	66.67%	8.0000	8	0.0833	12
	morado	10	5	55.56%	9.6000	13	0.0579	13
	lila and variants	13	3	72.22%	13.0000	20	0.0556	14
EP	*violeta*	13	9	29.55%	8.3846	21	0.0352	12
	morado	11	11	25.00%	9.0909	28	0.0275	17
	lila and variants	10	12	22.73%	9.2000	29	0.0247	18
YP	*violeta*	20	6	58.82%	8.0500	11	0.0731	11
	morado	18	8	52.94%	8.8333	13	0.0599	12
	lila and variants	19	7	55.88%	11.8421	21	0.0472	14

Table 5.13 *Violeta*, *morado* and *lila* in elicited lists

The terms *violeta*, *morado* and *lila* have similar frequencies. Nevertheless, violeta seems to be the favourite for both age groups (EP: 29.55%, YP:58.82%) as opposed to *morado* (EP:25.00%, YP: 52.94%) and *lila* (EP:22.73%, YP:55.88%). Nevertheless, when looking into the numbers for the term *lila* among young speakers, we should bear in mind that 50.0% of them used *lila* along with another purple term.

The MP rank is very close for *morado* and *lila* among elderly participants (28 and 29) and so is their CSI rank (17 and 18). Among the young group, *morado* and *lila* have a

noticeable distance in the MP rank (13 and 21) which get reduced at the CSI rank (12 and 14). See Table 5.13 above.

The elderly group had a mild preference for *violeta*. The young group also preferred *violeta* but the three candidates are much closer, only suggesting that *lila* tends to appear later in lists and, since 50.00% of this group named it along with other purple terms, it might be a candidate for a second purple term.

5.1.7.5. Grey

Gris was mentioned by less than half of the elderly participants (47.73%) and by almost all their young counterparts (97.06%). The position in the MP rank was also lower for the elderly group (30) than for the young group (16).

Although their CSI values were very different (EP: 0.0499, YP:0.0890) they reached similar positions in their respective CSI ranks (9 and 10). Nevertheless, the 9th position in the elderly group CSI rank consisted of a significant drop of 0.0221 from the 8th. See Table 5.14 below.

	Term	Freq	Rank F	%	MP	Rank MP	Salience	Rank S
EM	*gris*	8	7	42,11%	8,8750	20	0,0474	13
EF	*gris*	13	9	52,00%	10,0000	25	0,0520	9
YM	*gris*	16	1	100,00%	11,0625	21	0,0904	9
YF	*gris*	17	2	94,44%	10,7647	16	0,0877	11
EP	*gris*	21	7	47,73%	9,5714	30	0,0499	9
YP	*gris*	33	2	97,06%	10,9091	16	0,0890	10

Table 5.14. *Gris* in elicited lists

5.1.7.6. Brown

The term *marrón* appeared in well above half of the elderly participants' lists (61.36%) and in nearly all of those of their young counterparts (97.06%). In addition, its position in the MP rank among the elderly participants was 22 as opposed to 15 in younger counterparts. Although the CSI of *marrón* among the elderly group was lower (0.0720) than their younger counterparts' (0.0969) their CSI rank position was similar (EP:8; YP:9). See Table 5.15 below.

Castaño was quite popular among the elderly participant's lists (27.27%) and its MP ranked 31. However, some of those participants used this term exclusively (9.09%) whilst others used *castaño* along *marrón* (18.18%). From this we can infer that for the

former group *castaño* is their term for BROWN and for the latter, one of those terms is a hyponym of the other. In contrast, *castaño* was almost unattested among the young group as it gathered one single token across the subgroup (2.94%.).

	Term	**Freq**	**Rank F**	**%**	**MP**	**Rank MP**	**Salience**	**Rank S**
EM	*marrón*	13	5	68.42%	8.6923	18	0.0787	7
	castaño	6	8	31.58%	8.8333	19	0.0357	17
EF	*marrón*	14	8	56.00%	8.3571	18	0.0670	8
	castaño	6	11	24.00%	10.5000	27	0.0229	21
YM	*marrón*	15	2	93.75%	10.6777	19	0.0879	10
	castaño	0	-	-	-	-	-	-
YF	*marrón*	18	1	100.00%	9.5000	12	0.1053	9
	castaño	1	14	5.56%	12.0000	18	0.0046	54
EP	*marrón*	27	5	61.36%	8.5185	22	0.0720	8
	castaño	812	10	27.27%	9.6667	31	0.0282	16
YP	*marrón*	33	2	97.06%	10.0303	15	0.0968	9
	castaño	1	20	2.94%	12.0000	22	0.0025	67

Table 5.15 *Marrón* and *castaño* in elicited lists

5.1.7.7. Navy

	Term	Freq	Rank F	%	MP	Rank MP	Salience	Rank S
EM	*azul mariño* and cognates	4	10	21.05%	9.2500	22	0.0228	20
EF	*azul mariño* and cognates	6	11	24.00%	6.0000	11	0.0400	11
YM	*azul mariño* and cognates	5	8	31.25%	15.6000	31	0.0200	18
YF	*azul mariño* and cognates	10	5	55.56%	18.9000	34	0.0294	19
EP	*azul mariño* and cognates	10	12	22.73%	7.3000	16	0.0311	14
YP	*azul mariño* and cognates	15	9	44.12%	17.8000	42	0.0248	18

Table 5.16 *Azul mariño* and cognates in elicited lists

The term *azul mariño* and cognates is nearly as popular among elderly males' lists (21.05%) as among those of their female counterparts (24.00%). However, it tended to appear earlier in elderly females' lists (position 11 in their MP rank) than in those of elderly males (position 22).

Among the young group, *azul mariño* and cognates was much more frequent among females (55.56%) than among their male counterparts (31.25%). Nevertheless, this term appeared a bit higher among young males MP rank (position 32) than in those of their female counterparts (position 34). See Table 5.16 above.

Thus, the elderly participants' average frequency (22.73%) is doubled among their young counterparts (44.12%). However, *azul mariño* and cognates is much higher in the elderly group MP (position 16) than in that of the young group (position 42).

The resulting ranks of CSI for this term (EP:14; YP:18) suggest that *azul mariño* is a candidate for basicness among elderly participants more than it is among their young counterparts.

5.1.8. All participants' elicited list

Term	Freq	Rank F	%	MP	Rank MP	Salience	Rank S
azul and variants	75	1	96,15%	3,9867	4	0,2412	1
amarelo and cognates	75	1	96,15%	4,2133	6	0,2282	2
verde	71	2	91,03%	4,3944	10	0,2071	3
branco and cognates	75	1	96,15%	5,9733	12	0,1610	4

negro	75	1	96,15%	6,2933	14	0,1528	5
Sp *rojo*	35	7	44,87%	4,3429	8	0,1033	6
rosa and variants	62	3	79,49%	8,0968	17	0,0982	7
marrón	60	4	76,92%	9,3500	23	0,0823	8
laranxa and cognates	47	6	60,26%	8,3404	19	0,0722	9
vermello	23	12	29,49%	4,2174	7	0,0699	10
gris	54	5	69,23%	10,3889	28	0,0666	11
violeta	33	8	42,31%	8,1818	18	0,0517	12
morado	29	9	37,18%	8,9310	20	0,0416	13
beis and variants	33	8	42,31%	11,7273	35	0,0361	14
lila and variants	29	9	37,18%	10,9310	29	0,0340	15
granate	27	10	34,62%	12,2222	38	0,0283	16
azul mariño and cognates	25	11	32,05%	13,6000	43	0,0236	17
roxo	8	20	10,26%	4,3750	9	0,0234	18
encarnado	10	18	12,82%	5,6000	11	0,0229	19
vermello/roxo	2	26	2,56%	1,5000	2	0,0171	20
castaño	13	16	16,67%	9,8462	24	0,0169	21
ocre	17	13	21,79%	14,1176	48	0,0154	22
fuscia and variants	16	14	20,51%	13,8125	45	0,0149	23
azul claro	11	17	14,10%	10,1818	26	0,0139	24
Sp *rojo/roxo*	1	27	1,28%	1,0000	1	0,0128	25
Sp *rojo/rubio*	1	27	1,28%	1,0000	1	0,0128	25
Sp *rojo/vermello*	1	27	1,28%	1,0000	1	0,0128	25
vermello/ Sp *rojo*	1	27	1,28%	1,0000	1	0,0128	25
malva	9	19	11,54%	9,2222	22	0,0125	29
dourado and cognates	15	15	19,23%	16,2667	61	0,0118	30
prateado and cognates	15	15	19,23%	16,8667	64	0,0114	31
azul celeste	11	17	14,10%	13,9091	46	0,0101	32
azul escuro and variants	8	20	10,26%	10,3750	27	0,0099	33
turquesa	11	17	14,10%	15,4545	55	0,0091	34
verde claro	9	19	11,54%	13,6667	44	0,0084	35
añil	7	21	8,97%	11,1429	31	0,0081	36
verde escuro and variants	8	20	10,26%	13,3750	42	0,0077	37
color viño and variants	9	19	11,54%	16,2222	60	0,0071	38

maxenta and cognates	6	22	7,69%	11,8333	36	0,0065	39
branco roto and cognates	8	20	10,26%	16,1250	59	0,0064	40
azul ceo and cognates	8	20	10,26%	16,6250	62	0,0062	41
salmón	7	21	8,97%	15,4286	54	0,0058	42
verde pistacho	7	21	8,97%	15,5714	57	0,0058	43
color crema and variants	7	21	8,97%	16,7143	63	0,0054	44
verde botella	7	21	8,97%	17,1429	66	0,0052	45
caqui	6	22	7,69%	15,1667	53	0,0051	46
rubio and variants	5	23	6,41%	13,2000	41	0,0049	47
púrpura	5	23	6,41%	14,0000	47	0,0046	48
color carne and variants	7	21	8,97%	20,5714	76	0,0044	49
celeste	5	23	6,41%	14,8000	51	0,0043	50
colorines	1	27	1,28%	3,0000	3	0,0043	51
rosa claro and variants	1	27	1,28%	3,0000	3	0,0043	51
r*osa pau* and cognates	6	22	7,69%	20,3333	75	0,0038	53
color tella and variants	5	23	6,41%	17,6000	69	0,0036	54
cián	4	24	5,13%	14,7500	50	0,0035	55
pardo	3	25	3,85%	11,3333	32	0,0034	56
verde limón	3	25	3,85%	11,6667	34	0,0033	57
rosa vivo	1	27	1,28%	4,0000	5	0,0032	58
burdeos	4	24	5,13%	17,5000	68	0,0029	59
verde mar	3	25	3,85%	14,3333	49	0,0027	60
azulón	2	26	2,56%	10,0000	25	0,0026	61
agrisado	2	26	2,56%	11,5000	33	0,0022	62
vermellón and cognates	3	25	3,85%	17,3333	67	0,0022	63
color manteca	1	27	1,28%	6,0000	13	0,0021	64
roxo/rubio	1	27	1,28%	6,0000	13	0,0021	64
verde chai	1	27	1,28%	6,0000	13	0,0021	64
rosa fuscia	3	25	3,85%	18,3333	71	0,0021	67
gris escuro and variants	2	26	2,56%	12,5000	39	0,0021	68
gris perla	2	26	2,56%	12,5000	39	0,0021	68
marrón oscuro	2	26	2,56%	13,0000	40	0,0020	70
rosa pálido	2	26	2,56%	13,0000	40	0,0020	70
marrón claro	2	26	2,56%	14,0000	47	0,0018	72
verde musgo	1	27	1,28%	7,0000	15	0,0018	72

violeta/malva	1	27	1,28%	7,0000	15	0,0018	72
verde auga and cognates	3	25	3,85%	21,3333	78	0,0018	75
pistacho	2	26	2,56%	15,5000	56	0,0017	76
aguamarina	2	26	2,56%	16,0000	58	0,0016	77
Sp *amarillo fuerte*	1	27	1,28%	8,0000	16	0,0016	77
ceniza	1	27	1,28%	8,0000	16	0,0016	77
color pálido	1	27	1,28%	8,0000	16	0,0016	77
limón	1	27	1,28%	8,0000	16	0,0016	77
marfil	1	27	1,28%	8,0000	16	0,0016	77
rosa chicle	2	26	2,56%	16,0000	58	0,0016	77
rosa escuro and variants	1	27	1,28%	8,0000	16	0,0016	77
violeta/púrpura	1	27	1,28%	8,0000	16	0,0016	77
antracita	2	26	2,56%	17,0000	65	0,0015	86
cobre and variants	2	26	2,56%	17,5000	68	0,0015	87
color area and variants	2	26	2,56%	17,5000	68	0,0015	87
color cielo	1	27	1,28%	9,0000	21	0,0014	89
verde kiwi	1	27	1,28%	9,0000	21	0,0014	89
amarelo ovo	2	26	2,56%	19,5000	73	0,0013	91
berenjena	2	26	2,56%	20,0000	74	0,0013	92
color cerezo	1	27	1,28%	10,0000	25	0,0013	92
mazá roja	1	27	1,28%	10,0000	25	0,0013	92
verde diferente	1	27	1,28%	10,0000	25	0,0013	92
grisáceo	2	26	2,56%	21,0000	77	0,0012	96
amarelo limón and cognates	2	26	2,56%	21,5000	79	0,0012	97
mazá golden	1	27	1,28%	11,0000	30	0,0012	98
navy	1	27	1,28%	11,0000	30	0,0012	98
transparente	2	26	2,56%	22,0000	80	0,0012	98
camel	2	26	2,56%	23,0000	81	0,0011	101
azulado	2	26	2,56%	24,0000	82	0,0011	102
brillos	1	27	1,28%	12,0000	37	0,0011	102
carmín	1	27	1,28%	12,0000	37	0,0011	102
crimson	1	27	1,28%	12,0000	37	0,0011	102
gris azulado	1	27	1,28%	12,0000	37	0,0011	102
verde turquesa	1	27	1,28%	12,0000	37	0,0011	102

arcodavella	1	27	1,28%	13,0000	40	0,0010	108
azul prusia	1	27	1,28%	13,0000	40	0,0010	108
azul turquesa	1	27	1,28%	13,0000	40	0,0010	108
buganvilla	1	27	1,28%	13,0000	40	0,0010	108
color botella	1	27	1,28%	13,0000	40	0,0010	108
color pastel	1	27	1,28%	13,0000	40	0,0010	108
gris claro	1	27	1,28%	13,0000	40	0,0010	108
mate	1	27	1,28%	13,0000	40	0,0010	108
negro escuro and variants	1	27	1,28%	13,0000	40	0,0010	108
Sp *rojo carruaje*	1	27	1,28%	13,0000	40	0,0010	108
topo	1	27	1,28%	13,0000	40	0,0010	108
tostado	1	27	1,28%	13,0000	40	0,0010	108
verde claro/verde limón	1	27	1,28%	13,0000	40	0,0010	108
borgoña/viño tinto	1	27	1,28%	14,0000	47	0,0009	121
brillante	1	27	1,28%	14,0000	47	0,0009	121
gaspeado	1	27	1,28%	14,0000	47	0,0009	121
negro claro	1	27	1,28%	14,0000	47	0,0009	121
branco óso	1	27	1,28%	15,0000	52	0,0009	125
color café	1	27	1,28%	15,0000	52	0,0009	125
difuminado	1	27	1,28%	15,0000	52	0,0009	125
pedra	1	27	1,28%	15,0000	52	0,0009	125
satinado	1	27	1,28%	15,0000	52	0,0009	125
azul marengo	1	27	1,28%	16,0000	58	0,0008	130
blanco polar	1	27	1,28%	16,0000	58	0,0008	130
bronce	1	27	1,28%	16,0000	58	0,0008	130
color aluminio	1	27	1,28%	16,0000	58	0,0008	130
con vetas	1	27	1,28%	16,0000	58	0,0008	130
crudo	1	27	1,28%	16,0000	58	0,0008	130
negro/preto	1	27	1,28%	16,0000	58	0,0008	130
agua	1	27	1,28%	17,0000	65	0,0008	137
azul augamariña	1	27	1,28%	17,0000	65	0,0008	137
blanco nuclear	1	27	1,28%	17,0000	65	0,0008	137
color cereixa	1	27	1,28%	17,0000	65	0,0008	137
cor lume	1	27	1,28%	17,0000	65	0,0008	137
oxidación	1	27	1,28%	17,0000	65	0,0008	137

amarronzado	1	27	1,28%	18,0000	70	0,0007	143
fosforito	1	27	1,28%	18,0000	70	0,0007	143
mostaza	1	27	1,28%	18,0000	70	0,0007	143
verde fuscia	1	27	1,28%	18,0000	70	0,0007	143
gris cinsa	1	27	1,28%	19,0000	72	0,0007	147
verde lima	1	27	1,28%	19,0000	72	0,0007	147
verde marengo	1	27	1,28%	19,0000	72	0,0007	147
blanco perla	1	27	1,28%	20,0000	74	0,0006	150
canela	1	27	1,28%	20,0000	74	0,0006	150
verde militar	1	27	1,28%	20,0000	74	0,0006	150
grafito	1	27	1,28%	21,0000	77	0,0006	153
blanco crudo	1	27	1,28%	22,0000	80	0,0006	154
cor moura	1	27	1,28%	22,0000	80	0,0006	154
nude	1	27	1,28%	22,0000	80	0,0006	154
verde prado and variants	1	27	1,28%	22,0000	80	0,0006	154
azul eléctrico	1	27	1,28%	23,0000	81	0,0006	158
blanco sucio	1	27	1,28%	23,0000	81	0,0006	158
perla	1	27	1,28%	23,0000	81	0,0006	158
amarillento	1	27	1,28%	24,0000	82	0,0005	161
ámbar	1	27	1,28%	24,0000	82	0,0005	161
champán	1	27	1,28%	24,0000	82	0,0005	161
metalizado	1	27	1,28%	25,0000	83	0,0005	164
rosa pastel	1	27	1,28%	25,0000	83	0,0005	164
azul pastel	1	27	1,28%	26,0000	84	0,0005	166
azul verdoso	1	27	1,28%	26,0000	84	0,0005	166
marrón terra	1	27	1,28%	26,0000	84	0,0005	166
azul añil	1	27	1,28%	27,0000	85	0,0005	169
colores fosforitos	1	27	1,28%	27,0000	85	0,0005	169
gris metalizado	1	27	1,28%	27,0000	85	0,0005	169
Sp *amarillo chillón*	1	27	1,28%	28,0000	86	0,0005	172
azul cián	1	27	1,28%	28,0000	86	0,0005	172
esmeralda	1	27	1,28%	28,0000	86	0,0005	172
amarelo fosforito	1	27	1,28%	29,0000	87	0,0004	175
azabache	1	27	1,28%	29,0000	87	0,0004	175
rubí	1	27	1,28%	30,0000	88	0,0004	177

verde fosforito	1	27	1,28%	30,0000	88	0,0004	177
encarnado tella	1	27	1,28%	31,0000	89	0,0004	179
laranxa fosforito	1	27	1,28%	31,0000	89	0,0004	179
multicolor	1	27	1,28%	34,0000	90	0,0004	181

Table 5.17. All participants' elicited list data

5.1.9. Conclusion

In conclusion, ORANGE would seem to be the last of the so-called universal basic categories to be acquired by the elderly participants, present only in 36.36% of this group and with a CSI of 0.0422. The next candidate for basicness would be *beis* with a CSI of 0.0334 mentioned by 27.27% followed by *azul mariño* and cognates with a CSI of 0.0311 mentioned by 22.73%.

Considering *morado* and Sp *rojo* as alternative terms for PURPLE and RED, the first candidate for basicness among the young group is *lila* with a CSI of 0.0472 mentioned by 55.88% of participants. *lila* has much lower CSI among the elderly since this term is probably just an alternative term for PURPLE. However, this is the first candidate for basicness among the young group not as PURPLE but as a separate category LILAC. The next candidate for basicness among the young group is *beis* which follows closely with a CSI of 0.0449 mentioned by 61.76% and then by *granate* 0.0374 mentioned by 52.94%.

Figure 5.1.8 below summarises the differences in CSI values for the two age groups. One of the main differences is that Sp *rojo* has a much higher CSI for elderly participants than it does for their young counterparts. Conversely, *vermello* has a higher CSI for young participants than it does for the elderly group. It is also apparent that *laranxa* has a much higher CSI in young than in elderly participants. The three main purple terms, *violeta*, *morado* and *lila,* all have higher values in the young than the elderly and so do *marrón* and *gris*.

See Figure 5.3 below comparing the terms in EP and YP's elicited lists by CSI.

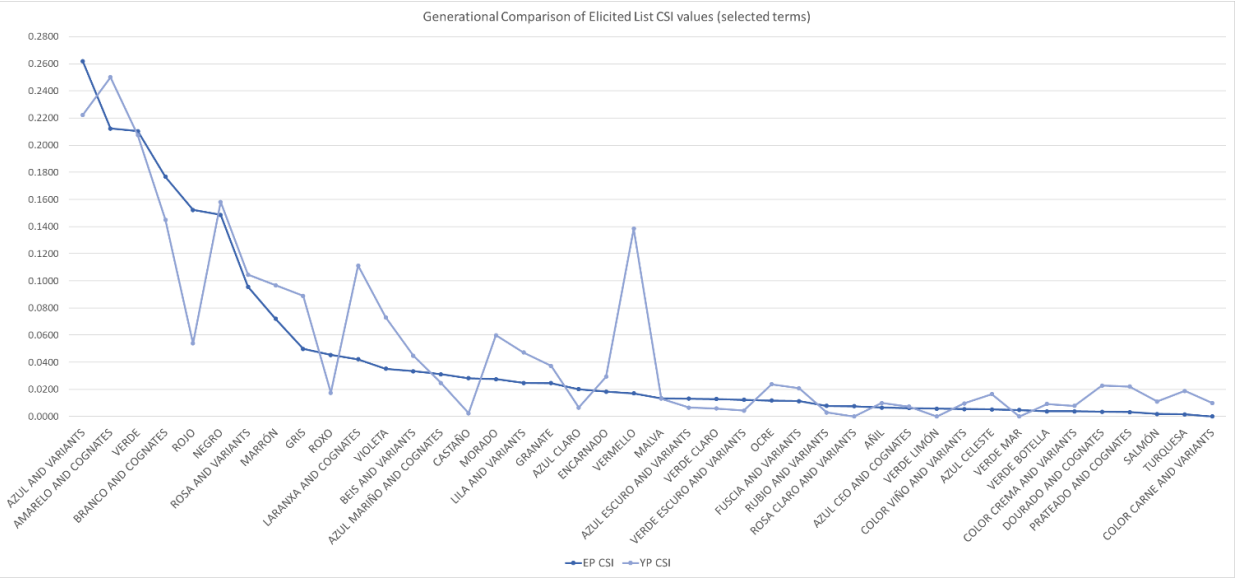

Figure 5.3 Comparison of CSI elicited list values in elderly and young groups (selected terms)[21]

5.1.9. Other visual descriptors

Further research should investigate other visual descriptors provided by young participants in these elicited lists. Some referred to shine and metallic appearance: *brillante*, *metalizado* and to fluorescence: *fosforito* (used alone and in combination with colour terms). Others used expressions referring to several colours appearing together: *multicolor*, *arcodavella* 'rainbow', in patterns: *jaspeado ´piebald´*, *con vetas* 'with veins' and to the absence of colour altogether: *transparente*.

5.2. Tile naming analysis

This section will analyse the data collected during the tile naming data. The total sample of elderly participants with normal vision is 44. However, one of those did not finish the tile naming task. Thus, the sample for this task is 43/44 elderly participants and 34 young counterparts. The results for participants with a tritanopia condition and other colour deficiencies are analysed in a separate section.

[21] For clarity I did not include in these diagrams terms with a frequency less than two when adding both groups.

Tiles with similar results will be discussed together and only responses provided by at least two participants will be presented. However, individual responses are noted if they share a given naming strategy attested in a bigger group.

5.2.1. Tile nos. 1 HUE Y and 9 HUE YOY

Generally, the two age groups agreed to name tile HUE Y with either the term *amarelo* or the Spanish cognate *amarillo*. This was true for 42 out of 44 elderly participants (EP: 42/44) and for all their 34 young counterparts (YP:34/34). The Galician form *amarelo* was attested more frequently among the young participants than their elderly counterparts (EP:7/44; YP:19/34)[22]. The increase of use of the traditional term within the young group is most likely a consequence of this being the form in Standard Galician[23]. Moreover, in both generations, *amarelo* was slightly more popular among males than their female counterparts (EP:2/25 females versus 5/19 males; YP:8/18 females versus 11/16 males). *Amarelo* was the favourite term among young males, used by two thirds of the group (11/16). Conversely, the Spanish loan *amarillo* was the response of the strong majority of the elderly females (21/25), two thirds of the elderly males (13/19) and over half of the young females (10/18).

A totally different response was given by only two elderly participants, female and male, HXTLXC and DRZGWR, who labelled the stimulus with the Spanish loan *naranja*. These participants seemed to have adopted the Spanish label but applied it to their previous categorial segmentation, apparently a YELLOW+ORANGE. They used the Spanish loan for ORANGE to name all orange and yellow tiles, with this case of pure yellow being the most extreme example. These participants maintained the label substitution for this macrocategory all throughout the tile naming task as no tokens of *amarelo* or the Spanish cognate *amarillo* were found. This labelling seems to be a hypercorrection. Most likely, the label for this YELLOW+ORANGE category was originally *amarelo* or the Spanish cognate *amarillo* and when these participants used it to describe some orange stimuli, they were corrected. Thus, instead of creating a separate category, these speakers replaced the label for "naranja" for the whole YELLOW+ORANGE category.

Colour semanticists believe that when the split of YELLOW from MACRORED occurs, ORANGE generally remains within MACRORED.[24] However, in these participants we observe a different segmentation: they use RED and YELLOW+ORANGE categories.

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[22] These numbers include the tokens of *amarelo* and the variant *marelo*. The latter was attested just twice for tile HUE Y (by one young female and one elderly male) and three times for tile HUE YOY (the same participants plus one more young female).

[23] as noted in the Chapter 1, Standard Galician became official in 1981 and all Galicians schooled in the 1980s and onwards had to learn it as part of the compulsory content. This contrasts strongly with the experience of their elderly counterparts who, if they went to school at all in the 1930s or 1940s, were instructed in Spanish exclusively and reprimanded or punished for using Galician.

[24] The Kay's evolutionary sequence (1975: 260) (see Figure 2.1.2.1) shows stage II with RED in upper-case letters representing a category consisting of more than one hue (red, orange, yellow, pink). At Stage III or

The responses for tile HUE YOY follow the same paradigm as those of HUE Y. Both generations generally agreed in labelling tile HUE YOY *amarelo* or its Spanish cognate (EP: 41/43; YP: 33/34). We observe the same distribution of *amarelo* and Spanish loan *amarillo* across the subgroups as well. The former is the most popular term among young males (10/16) and the latter is so among elderly females (22/24) and elderly males (13/19) and constitutes half of the young female responses (8/16). The remaining two elderly participants, HXTLXC and DRZGWR, also named this tile Sp *naranja* as discussed above.

To conclude, tiles HUE Y and HUE YOY were considered to belong to YELLOW by all young participants and the vast majority of the elderly group. The traditional label *amarelo* was found more often among young participants and it was dominant among young males. Only two elderly participants showed a different categorisation and included these hues within a YELLOW+ORANGE category which is rather infrequent among the Colour Semantics literature.

5.2.2. Tile no. 17 HUE YO

The naming patterns of tile HUE YO show a clear generational contrast. On one hand, most elderly participants named this tile *amarelo* or its Spanish cognate whilst only a small proportion of their young counterparts did so (EP: 37/43; YP: 7/34). On the other hand, most young participants labelled this stimulus as *laranxa* or its Spanish cognate and just a few elderly counterparts agreed with them (EP: 4/43; YP: 24/34).

When it comes to *amarelo* and the Spanish cognate *amarillo*, within the elderly group these tokens came evenly from females and males (EP: 21/24 females and 16/19 males), but within the young group there was a strong gender difference as almost all tokens came from young males (YP: 1/18 females versus 6/16 males). As with previous tiles, the term *amarelo* was attested in males almost exclusively (EP: 1/24 females versus 4/19 males; YP: 0/18 females versus 6/16 males).

Regarding *laranxa* and the Spanish cognate *naranja*, the few tokens in the elderly group came from both males and females (two each) whilst among the young group these came mostly from females (16/18 females versus 8/16 males). If we look at particular orange terms, we see that young males were more inclined to use traditional terms than the Spanish loan whilst females were more evenly divided between the two options. Young males preferred either *laranxa* or the hybrid form *naranxa* (6/16) rather than the Spanish loan *naranja* (2/16); young females, however, did not show this preference (9/18 vs 7/18 respectively).

IV, we see 'yellow' appear in the sequence, represented in lower-case letters indicating that it develops as a category denoting a single hue. This implies that during this partition orange remains within RED.

A few young participants stressed this hue was neither of these two categories. One young male used an expression of the type *Colour in between*, another the term *mostaza* 'mustard' and one young female used the Spanish expression *color huevo* 'egg colour'.

In conclusion, tile HUE YO is crucial to pinpoint the generational differences of the categorial division in this area of the colour space. This tile appears to be on the border between YELLOW and ORANGE for young participants. For almost all young females this hue clearly belongs to ORANGE but young males are divided in considering it either ORANGE or YELLOW. The strong majority of the elderly participants agree on regarding this hue as YELLOW.

5.2.3. Tile no. 13. YOY T4

Tile YOY T4 is a pale yellowish shade. The main naming solution for it across the two generations was *amarelo* or its Spanish cognate (EP: 19/44; YP: 17/34). The second term attested was *beis* and could also be found in both age groups: (EP: 7/44; YP: 8/34). A similar case is *color crema* 'custard' used in both generations (EP: 3/44; YP: 2/43). *Ocre* was found in both groups as well, but with higher numbers among the young (EP: 1/44; YP: 3/34).

The labelling of this tile as *gris* or *branco* —or cognates— however, was only attested in elderly participants (4/44 and 3/44 respectively).

It seems both generations agree either in including this tile within YELLOW or in using a range of shared labels for a warm pale colour. The dissidence comes from some elderly participants who label this hue with non-chromatic terms such as *gris* and *branco* or even *beis*. As will be seen below, at times *beis* is also used by this age group as a term for GREY.

5.2.4. Tile no. 15 YOY S2

Tile YOY S2 is a desaturated yellowish shade. The most common response offered by the elderly participants (15/44) was *amarelo* or its Spanish cognate. However, only one young participant backed up this response (1/34), although a few young participants used the terms *dourado* 'golden' (3/34)[25] and *ocre* (3/34), which could be interpreted as hues related to YELLOW.

The young group, however, was almost evenly divided between another three options: *verde*, *marrón* and *beis*. The term with most tokens was *verde* which was also provided by some elderly participants but in a smaller proportion (EP: 4/44; YP: 8/34). Labelling as *verde* a shade that has no green component at all can be surprising. Nevertheless, it

[25] Two young males used the form *dourado*, whilst the remaining token was the Spanish loan *dorado,* employed by a young female. This seems to follow the general tendency of young males preferring the Galician forms over the Spanish loans.

might be explained as these participants found this desaturated shade of yellow to be similar to khaki and therefore a type of GREEN. Actually, a few others directly labelled this shade as *caqui ('khaki')* (EP: 3/44; YP: 2/34).

Close in numbers for the young group was the term *marrón* although it was also attested within their elderly counterparts (EP: 5/44; YP: 6/34). The traditional term for BROWN *castaño* was only found in a couple of elderly participants (2/44), both females.

The young group provided the same number of tokens for *beis* (EP: 5/43; YP: 6/34). Within this age group *beis* was used by a slightly higher proportion of females than males (4/18 females versus 2/16 males) whilst *color crema* was brought up only by males (2/18). Two more young females used other terms for a pale warm colour attested only once: *area* 'sand', and *tostado* ´toasted'.

The responses for tile YOY S2 offered by the young participants presented unusually low rates of consensus, which were mostly divided between GREEN, BROWN and BEIGE. A few young participants even identified this colour with features other than hue and used GOLDEN instead. Although the elderly group showed heterogeneous responses as usual, it had comparatively higher agreement rates by including this tile as YELLOW.

5.2.5. Tile no. 20 YO T3

Tile YO T3 is a pale orangish yellow and shows a similar situation to the one just discussed. The majority of elderly participants named this tile as *amarelo* or its Spanish cognate whilst a much smaller proportion of their younger counterparts did so (EP: 30/44: YP: 12/34). As in previous tiles, the term *amarelo* was found in higher rates among young males than their female counterparts (YP: 3/18 females vs 5/16 males). Tile YO T3 collected low rates of consensus among the young participants. Their second most attested response, *laranxa* or its Spanish cognate, had numbers close to their first; whilst this was given by just two elderly counterparts (EP: 2/44; YP: 8/34).

Young participants offered a series of terms that were attested in the older age group as well: *ocre* (EP: 1/44; YP: 4/34) *beis* (EP: 3/44; YP: 2/34) and *color crema* (EP: 1/44; YP: 2/34). Within the young group, *beis* and *color crema* were provided only by males whilst *ocre* was more common among females (YP:3/18 females versus 1/16 males). Additionally, the term *color carne* was provided by young females only (3/18). Thus, it seems that in this age group there is a gender preference when it comes to label this warm pale colour.

Furthermore, three elderly participants were unable to provide a label for this tile.

Although both generations use some terms to highlight the paleness of tile YO T3, the hue classification is different in the two age groups. Young participants were divided between whether it belongs to YELLOW, ORANGE or a warm pale category. In contrast, most of their elderly counterparts agreed in considering it YELLOW.

5.2.6. Tile nos. 25 HUE OYO and 33 HUE O

The naming patterns for tile HUE OYO and for HUE O were very similar. The most common response in both age groups was *laranxa* or its Spanish cognate[26], although the proportions in each generation were very different. All young participants agreed in naming tile HUE OYO *laranxa* or its Spanish cognate, but barely half of their elderly counterparts did so (EP:21/43; YP: 34/34). Similarly, tile HUE O also received these responses by the strong majority of the young participants, but only by a third of their elderly counterparts (EP: 16/44; YP: 32/34). The higher number of tokens of orange terms for HUE OYO rather than HUE O can be motivated by the tendency in elderly participants to use colour labels literally and oranges are rarely as red as HUE O. Within the elderly group, these responses were provided by a higher proportion of females (HUE OYO: 14/24 females versus 7/19 males; HUE O: 12/25 females versus 4/19 males).

In addition, a few more elderly participants used the expression *color butano* (HUE OYO 2/43; HUE O 5/44). It seems *color butano* is not just an alternative label for ORANGE, but has a more restricted semantic extension. Since these tiles gather more tokens than do paler and yellower hues, *color butano* seems to be mostly appropriate for a redder and highly saturated orange. A few elderly participants used expressions of the type *Colour in between* (HUE OYO; 2/43; HUE O; 1/44), followed by a few terms attested only once.

The second most common response among elderly participants, however, was to label these tiles with the Spanish loan *amarillo* (HUE OYO: 5/43; HUE O: 1/44) or *rosa* (HUE OYO 5/43; HUE O: 7/44). Most of the tokens of *amarillo* came from males (HUE OYO: 1/24 females versus 4/19 males; HUE O: 0/25 females versus 3/19 males). *Rosa,* nevertheless*,* was provided equally by the two genders (HUE OYO: 3/24 females versus 2/19 males; HUE O: 4/25 females versus 3/19 males).

Elderly participants JWMZFP, CWZEFF and BHTXZD, all male, who included tile HUE O within YELLOW, also used it for HUE Y[27], which shows they had an extensive YELLOW+ORANGE category that includes pure ORANGE. This same was true for the elderly participants HXTLXC and DRZGWR mentioned above, who also had a macrocategory that included HUE Y and HUE O although they had replaced the label with the Spanish term for ORANGE.

Another repeated response among the elderly participants was using red terms such as the Spanish loan *rojo* (HUE OYO: 3/43; HUE O: 6/44), *granate* (HUE O: 2/44) or the traditional terms (*encarnado* (HUE O: 1/44), *rubio* (HUE OYO: 1/43) and *vermello* (HUE

[26] These tokens comprise the variants: *laranxa*, the hybrid form *naranxa* and the Spanish loan *naranja*. The distribution of these follows what was observed for *amarelo/marelo* versus Sp *amarillo*: young males tend to use more traditional/Standard forms, *laranxa* (8/16) and *naranxa* (7/16), rather than Spanish loans, *naranja* (1/16).

[27] Participants JWMZFP, CWZEFF and BHTXZD used the term *amarillo* or *marelo* to name tiles HUE Y, HUE YOY, HUE YO and HUE O. Tile HUE OYO, placed in between YO and HUE O, received the term *amarelo* by CWZEFF only, whilst JWMZFP used Sp *rojo* and BHTXZD *tella*.

O: 1/44). Among young participants red terms gathered only two tokens and only for tile HUE O: *rojo* (1/34) and *vermello* (1/34).

We see that for the young group HUE OYO and HUE O belong unequivocally to ORANGE. Elderly participants' responses, however, were divided into four if not five different categories. Only a fraction of the elderly, mostly females, agree with the young whilst a few more use a separate orange term with a different semantic extension. The rest of the elderly group categorised these hues within RED, PINK or YELLOW (mostly males).

5.2.7. Tile no. 7 Y S2

A smaller proportion of elderly participants named tile Y S2 *marrón* (EP: 25/44) compared to young participants (YP: 27/34). The second main alternative for the elderly was the traditional term *castaño* (4/44), most of them being females (3/4) as opposed to a single token among the young group (1/34), also brought by a female.

Another few elderly participants labelled this stimulus *beis* (4/44) and *tostado* (2/44*)*, followed by a few more terms mentioned only once. The term *caqui* was attested in both generations but more so among young participants (EP: 1/44; YP: 3/34).

The main tendency in both generations was to name this hue with one of the terms for BROWN. Elderly females still use the traditional term *castaño* to some degree. The bigger dissidence is found among elderly participants who use a range of specific terms to highlight that this is a paler colour.

5.2.8. Tile nos. 24 YO S3 and 56 RO S3

In general, the two age groups agreed to consider tiles YO S3 and RO S3 to belong within BROWN. The term *marrón* was used by all or almost all the young participants (34/34 for YOS3 and 32/34 for RO S3) and it was the most attested term in the elderly group as well (33/44 and 34/44 respectively). Some members of the elderly group used the traditional term *castaño* (4/44 for YO S3 and 2/44 for RO S3) or these two terms equally (1/44 for each tile) which contrasts with a single token of *castaño* in the young group for tile RO S3. A few elderly male participants used alternative terms for BROWN such as *chocolate* (2/44 for YO S3, plus one token for RO S3 provided by one elderly female), *tostado* (1/44 for each tile), *pardo* (1/44 for YO S3), *color barro* 'mud colour'(1/44 for RO S3), *color tabaco* (1/44 for RO S3).

Tile RO S3 was classified within other categories by three elderly females: *lila* (1/44), *gris* (1/44) and *negro* (1/44).

We see an overall agreement in the categorisation of hues YO S3 and RO S3 as BROWN. The only difference is in labelling: although *marrón* was the favourite term among the

two age groups, the traditional term *castaño* could still be found among the elderly participants along with other alternative terms.

5.2.9. Tile nos. 40 O S3 and 72 R S3

The responses for tile O S3 and R S3 followed the same pattern. Most participants classified these tiles as BROWN. Although in different proportions, the most popular term was *marrón* in both age groups. Its presence was bigger among young participants (28/34 for O S3 and 31/34 for R S3) than among their elderly counterparts (24/43 and 29/43 respectively). Nevertheless, most tokens of *marrón* in the elderly group came from females (18/24 females versus 9/19 males for O S3 and 19/24 females versus 10/19 males for R S3).

The traditional term *castaño* was found more often among the elderly group (4/43 for O S3 and 2/43 for R S3) as the young mentioned it only once for each tile. *Chocolate* was attested a few times among the elderly participants for R S3 (3/43) and *pardo* and *oscuro* once each for O S3.

A significant proportion of the elderly participants classified these tiles as BLACK. The term *negro* was mentioned often by the elderly participants (11/43 for O S3 and 5/43 for R S3), whilst fewer young counterparts did so (2/34 for O S3). A gender bias was identified as this categorisation came mainly from elderly males (9/19 for O S3 and 5/19 for R S3). *Gris* was also found a few times among both age groups (EP: 2/43 for both tiles; YP: 3/34 for O S3).

Most elderly participants, particularly females, agreed with the young in classifying these hues within BROWN. However, a fraction of the elderly participants, mostly males, considered these BLACK. In addition, a couple of elderly participants classified these hues as GREY and some young participants agreed but only for O S3.

5.2.10. Tile no. 38 O S1

The most common response for tile O S1 in both age groups was *marrón* (EP:24/43; YP: 26/34). In addition, four elderly participants used the traditional term *castaño* and one more used the two terms interchangeably. Two elderly participants used the term *chocolate*, and another two used *tostado*.

The term *color tella* 'terracotta roof tile colour' was attested in a few participants among both age groups (EP:3/43; YP: 4/34). *Laranxa* or its Spanish cognate, however, was found mostly in young participants (EP: 1/43; YP: 4/34).

The main tendency was to classify this hue as BROWN although the elderly group shows a higher heterogeneity in the lexicon. The option of classifying this tile as ORANGE was stronger within the younger group. We cannot assume *color tella* is a synonym for

ORANGE, nor that it has the same semantic extension for elderly and young participants. In this case, the elderly might understand it as a subtype of BROWN.

5.2.11. Tile no. 216 SIENNA BROWN

Tile SIENNA BROWN collected extremely heterogeneous responses to the extent that the young group was almost evenly split between three options whilst the responses by their elderly counterparts were even more disaggregated.

Using a brown term was a strong option in both age groups but more so among the elderly participants. *Marrón* was attested in both (EP:13/43; YP:11/34). The use of *marrón* was higher among females, particularly young (EP: 8/24 females versus 5/19 males; YP: 9/18 females versus 2/16 males). The elderly group also used other brown terms: *castaño* (4/43) *tostado* (2/43), *pardo* (1/43) *chocolate* (1/43) and perhaps also should be added here the Spanish expression *color madera* ('wood colour') (1/43).

A second option was to use an expression such as *color tella* or its Spanish cognate. These were found in the two age groups but in a higher proportion among young participants (EP:6/43; YP:10/34), especially young males (6/16). The expression *color ladrillo* ('brick colour') mentioned by one elderly participant (1/43) is related to the previous one as roof tiles and bricks are usually both made of terracotta. In addition, the expression *caldeiro* or *caldeira* ('pot, bucket' and 'boiler' in reference to those made of copper) was used by one young participant (1/34) and for this tile and a few other orange tiles by one elderly counterpart (1/43).

The term *laranxa* or its Spanish cognate was one of the three options for the young group (9/34) and was also attested among some elderly participants (4/43). Another elderly participant used *color butano* (1/43).

There were some tokens of red terms among the elderly participants and some young males: the Spanish loan *rojo* (EP:2/43; YP:1/34), *vermello* (EP:1/43; YP:1/34), *encarnado* (EP: 1/43) and *roxo* (YP: 1/34).

In conclusion, the young group was evenly divided in considering SIENNA BROWN either part of BROWN, TERRACOTTA or ORANGE. Half of their elderly counterparts categorised it as BROWN and the rest were divided between TERRACOTTA, ORANGE and RED.

5.2.12. Tile no. 41 HUE ORO

The young group had an almost unanimous response (32/34) for tile HUE ORO: *laranxa* or its Spanish cognate. In contrast, this term was provided by a third of their elderly counterparts (14/44), most of them females (11/25 females versus 3/19 males). Some elderly participants provided the term *color butano* (3/44) and one more used the two

possibilities equally. Two elderly participants mentioned individual expressions to refer to this hue specifically: *color caldeiro*, *color pemento*.

The second most common answer among the elderly group was to use a red term: the Spanish loan *rojo* (10/44), *encarnado* (2/44), *roxo* (1/44), either *roxo* or *encarnado* (1/44) or *granate* (1/44). However, these red terms showed a strong gender bias: most tokens of *rojo* (6/11), and all of *encarnado* (2/2) were provided by elderly males.

Another well-attested term was *rosa* (6/44), given by a slightly higher proportion of females (4/25) than males (2/19).

Once again a strong contrast is observed if the two generations are compared. While the young group strongly agree in classifying this hue as ORANGE, the responses provided by the elderly participants are almost evenly split between ORANGE (mostly females), and RED (mostly males), with the addition of those who consider it PINK.

5.2.13. Tile no. 44 ORO T3

The most common response for tile ORO T3 in young participants was *laranxa* or its Spanish cognate but this was attested only in a quarter of the elderly participants (EP: 11/43; YP: 24/34). Three elderly participants used *color tella* for this tile (3/43).

Among the elderly group, nearly as frequent as *laranxa* were the tokens for *rosa* (10/43) and almost as many for *amarelo* or its Spanish cognate (9/43). The tokens of *rosa* were given more often by elderly females (7/24) than males (3/19).

A few young participants agreed to name this tile *salmón*, a form totally absent among their elderly counterparts (EP: 0/43; YP: 6/34). This term was used by a slightly higher proportion of females (4/18) than males (2/16).

Most of the young group categorised this hue within ORANGE, although a few others stressed the paleness and/or pinkness of this hue by using the term *salmón*. Nevertheless, the elderly group was divided evenly in considering this hue ORANGE, PINK or YELLOW. Unlike tile O S1, that collected the term *color tella* from both age groups, only the elderly mentioned this term for tile ORO T3, which suggests that the semantic extension of this term is different for the two generations[28].

5.2.14. Tile no. 48 ORO S3

The responses for tile ORO S3, a warm desaturated colour, were very heterogeneous within both age groups.

[28] It is important to bear in mind that elderly participants tend to use colour terms quite literally. Terracota roof tiles can range in colour, particularly as they age or get dirty. Aware of this, elderly participants might use the term *color tella* to refer to a wider spectrum of hues.

The term with more tokens among the elderly is *beis* which has proportionally lower numbers among their younger counterparts (EP: 10/43; YP: 5/34). The young group's preferred term is *color carne* which had, once again, no attestation within the elderly group (EP: 0/43; YP: 9/34). The tokens of *color carne* were collected more often among young females (7/18) than males (2/16).

Only some elderly females agreed with some young participants in considering this tile *rosa* (EP: 6/43; YP: 8/34). A few elderly and young participants coincided on naming it *marrón* (EP: 3/43; YP: 6/34), while a couple of elderly participants used the traditional term *castaño* (2/43).

Elderly participants provided a long list of terms to refer to a warm colour. Terms attested more than once were *crú* or its Spanish cognate (2/43), *pálido* (2/43), and references to coffee (2/43). As for the young group, a couple mentioned *color salmón* (2/34).

Three elderly participants labelled tile ORO S3 with the term *gris* (3/43) and another one used *ceniza* (Spanish word for 'ash'). Another three used purple terms: two tokens of *malva* and one of *violeta*.

It seems that the strongest tendency in both age groups is to include tile ORO S3 in a WARM PALE category. The terms used to label this category vary depending on the generation: elderly participants preferred *beis* whilst their young counterparts lean towards *color carne*.

Among the elderly group, males showed an extensive list of responses while some females agreed with some young participants in considering this hue PINK. Some members of both age groups categorised this tile as BROWN.

The biggest dissidence in this main generational consensus comes from a fraction of the elderly group (7/43), who did not categorise tile ORO S3 within a warm category but as GREY or PURPLE instead.

5.2.15. Tile no. 52 RO T3

There are not many stimuli for which the elderly group's responses showed a higher consensus than those of the young: tile RO T3 is one of them. The dominant response in this age group, exceeding half of the participants, was the term *rosa* (25/43). However, this overall agreement rate is due to most elderly females giving this response (19/24). Although this was also the most common response among the elderly males it was in a lower proportion (6/19). The rest of the elderly group's responses had far fewer tokens: *laranxa* or the Spanish cognate (4/43) were found in both genders but the rest of the possibilities came only from males: *color tella* or its Spanish cognate (2/43), *amarelo* or its Spanish cognate (2/43) and *granate* (2/43).

Their younger counterparts, however, were almost evenly split between three options: *salmón* (11/34), *rosa* (9/34) and *laranxa* or its Spanish cognate (9/34). Two elderly participants used an expression such as *Colour in between*, which is very common in this age group. However, for this tile, two young participants also used an expression which seems to go along with the general categorisation pattern of the group. The young group seems to consider tile RO T3 be on the border between PINK and ORANGE. Two thirds of the young participants chose one or the other whilst the other third used a specific name for this area: *salmón*. Most tokens of this term came from females (8/11). Some of those young participants might understand *salmón* as a secondary term, whilst for others it may be an emerging BCT.

This categorical refinement in this region by the younger participants strongly contrasts with the high consensus among their elderly counterparts considering it within PINK.

5.2.16. Tile nos. 49 HUE RO and 57 HUE ROR

In general, the two generations agreed on tiles HUE RO and HUE ROR being RED. However, the terms used varied strongly across the two generations. The only terms present in both age groups in a similar proportion were the Spanish loan *rojo* (EP:17/43; YP:10/34 for HUE RO; EP:21/44; YP:12/34 for HUE ROR) and, although much less frequently, *roxo* (EP:3/43: YP:2/34 for HUE RO and EP:4/44; YP:3/34 for HUE ROR). One elderly participant used *roxo* interchangeably with *rojo* when naming both tiles and so did one young participant with *vermello* for HUE RO.

Similarly, *encarnado* had few tokens and was used by elderly participants, either alone (5/43 for HUE RO and 3/44 for HUE ROR) or in combination with others (1/44 for HUE ROR), more often than by their young counterparts (2/34 and 1/34 respectively). The term *granate* was attested by two elderly participants only (2/43 for HUE RO and 2/44 for HUE ROR).

The most popular label among the young participants is the Standard Galician red term *vermello* (18/34 for HUE RO and 17/34 for HUE ROR), which was rarely attested among their elderly counterparts (2/43 and 1/44 respectively). However, its distribution was not even across the genders: *vermello* was the absolute favourite red term among young males (12/16 and 11/16) but not so much among young females (6/18 for both tiles) who always gathered a few more tokens of the Spanish loan *rojo* (8/18 and 9/18).

Thus, these tiles were classified as RED by all the young participants and most of their elderly counterparts. However, a significant proportion of the elderly participants classified these tiles within other categories. Tile HUE RO received eight terms for ORANGE: *color butano* (4/43, only females) or *laranxa* or the Spanish cognate (4/42) whilst four elderly males considered it PINK labelling this tile *rosa* (4/19). Tile ROR was classified

by a fraction of the elderly females also as PINK or ORANGE instead: *rosa* (5/44) [29] and *laranxa* or its Spanish cognate (2/44).

5.2.17. Tile no. 65 HUE R

Tile HUE R was labelled with the Spanish loan *rojo* by nearly half of the elderly participants and nearly a third of their young counterparts (EP:20/43; YP:10/34).

The second most attested red term among the elderly participants, *encarnado*, had far fewer tokens than their first option and is almost absent within the young group (EP:5/43; YP:1/34). The third most popular term among EP, *roxo*, was very close to the second and also appeared only once among YP (EP:4/43; YP:1/34). One participant in each group also used Galician *roxo* in combination with other red terms. A couple of elderly participants also used *granate* (2/43).

The most popular label within the young group is the Standard Galician term *vermello* (14/34) plus other two who used it interchangeably with other red terms. This preference for *vermello* within the young group contrasts with only two tokens of this term among the elderly participants (2/43). Nevertheless, following the same trend, the most tokens of *vermello* (11/16) came from young males.

It is surprising that a fraction of both groups labelled tile HUE R, pure red, with the term *rosa* (EP:5/43; YP:5/34). Furthermore, a few elderly participants used the term *laranxa* or the Spanish cognate *naranja* to name this hue (3/44).

We see that in general both groups agree in categorising HUE R as RED although the labels change depending on the age group. Despite the Spanish loan *rojo* being dominant in the elderly group and strong in the young, young participants, namely young males, have a preference for the Standard Galician *vermello*. Traditional red terms such as *encarnado* and *roxo* seem to be in decline as they gather very few tokens and mostly among elderly participants.

Alternative categorisations were PINK, attested in both groups, and ORANGE found only in elderly participants.

5.2.18. Tile no. 73 HUE RVR

The most common response for tile HUE RVR among the elderly participants was the Spanish loan *rojo* (19/43) in addition to another two who used it indiscriminately with other red terms. This was the preferred response by elderly males (10/19). *Roxo* appeared only once in each age group in combination with *rojo*. The red term *vermello*, however, did gather some tokens from the elderly (2/43) and young participants (4/34)

[29] The only male that did not categorise HUE ROR as a RED, did it as PINK. He provided one of those five tokens of *rosa*.

and in addition to a few tokens of *encarnado* (EP:2/43; YP:1/34). *Granate* was also found once in each group. All the red terms attested in the young group came from males.

In general, the strongest response among the young participants, two thirds, was *rosa* (24/34). However, most of these tokens (16/24) came from females. This term represented a second option close to the first among the elderly group (12/43). Alternative pink terms such as *fuscia* were provided by females, once in each group, and the Spanish loan *magenta* only once by another young female.

Overall, elderly males tended to categorise tile HUE RVR as RED, elderly females and young males were divided between RED and PINK whilst all young females agreed it belonged to PINK.

5.2.19. Tile no. 60 ROR T3

The most common response among elderly and young participants for tile ROR T3 was *rosa* (EP:30/43; YP:27/34). However, there were important differences across the two age groups regarding gender. The tokens of *rosa* in the young group were attested evenly in the two genders whilst among their elderly counterparts the vast majority of the tokens came from females (21/29). In other words, almost all elderly females chose *rosa* as their label for this tile (22/24). Although the most common response among elderly males was also *rosa* (8/19), this subgroup had a lower consensus rate as they used a range of terms including several *No response* (3/19), *amarelo* (1/19), and the Spanish loans *rojo* (2/19) and *naranja (1/19).* This last was also seconded by one elderly female.

For the young group the only other alternative to *rosa* was the term *salmón* (7/34) which was also used evenly by both genders[30].

Thus, although elderly males struggled to name this category, the main tendency in both age groups was to classify tile ROR T3 as PINK whilst a few young participants seem to be developing a specialised category named *salmón*.

5.2.20. Tile no. 64 ROR S3

The responses for tile ROR S3 were very diverse but in general ran in parallel in both age groups. The most attested term among the elderly participants was also the second among their young counterparts: *beis* (EP:10/43; YP:5/34). Among the elderly females *beis* was more popular (7/24) than males (3/19). Some elderly participants, also almost exclusively females, used related expressions such as *color crema* (2/43) or simply *claro* (3/43). The young group, however, preferred other terms such as *color carne* (2/34) and *color pastel* (2/34). In addition to these, there were a few more terms referring to a

[30] In contrast with tile RO T3 whose tokens of *salmón* came mostly from females (8/11).

warm pale colour that were attested only once in a single age group, among these *crú* or the Spanish cognate *crudo*, attested a total of two times, once in each age group.

A few participants in both age groups used the term *branco* (EP:4/43; YP:2/34) but all the tokens from the elderly group came from males. It seems that elderly females preferred specific terms for a pale colour whilst some males would simply include this hue in the white category.

Conversely, the favourite response among the young participants was the second option for their elderly counterparts: *rosa* (EP:9/43; YP: 16/34). The tokens of *rosa* among the elderly participants came more predominately from females (7/24 versus 2/19 males). In addition, a few tokens of *marrón* were attested in both age groups (EP:2/43; YP:2/34).

The main clear generational dissidence comes from a fraction of the elderly participants who used the term *gris* to label this hue (6/43). These tokens came in a bigger proportion from males (4/19) than females (2/24).

It seems that both age groups struggled in categorising tile ROR S3 but also tended to navigate between the same options. These were mainly a PALE WARM or PINK category and less often WHITE and BROWN. The only obvious difference is that some elderly participants preferred to categorise this tile as GREY, whilst none of the young participants did so.

Before moving on to new tiles, Table 5.18 below shows 14 categorisation patterns identified for the red, orange and pink areas across the subgroups. The ordering of these categorisation patterns is based firstly on the scope of denotation of the categories: from wider to narrower. Thus, the list commences with macrocategories (RED+ORANGE+PINK, RED+ORANGE, YELLOW+ORANGE, PINK+ORANGE), continues with unitary categories (RED, ORANGE, PINK) and ends with further partitions (SALMON, FUCHSIA). Secondarily, they are ordered by the degree of labelling standardisation: from not having a label at all to having a fully established term. Figure 5.4 represents the proportion of these categorisation patterns across the age and gender subgroups.

Table 5.18 Tile naming categorisation patterns of the red, orange and pink areas across the subgroups

	EM	EF	YM	YF
1. RED+PINK+ORANGE	10,53%	4,17%	-	-
2. RED+ORANGE /RED+ORANGE, YELLOW+ORANGE, no PINK	15,79%	-	-	-
3. RED+ORANGE /RED+ORANGE, YELLOW+ORANGE, PINK	21,05%	16,67%	-	-
4. RED+ORANGE, PINK+ORANGE	15,79%	4,17%	-	-
5. RED, PINK+ORANGE	5,26%	12,50%	-	-
6. RED/ORANGE confusion, PINK	-	12,50%	-	-
7. RED, PINK, ORANGE (no label/improvised)	5,26%	-	-	-
8. RED+PINK, ORANGE	5,26%	4,17%	-	-
9. RED, PINK (no label/improvised), ORANGE	5,26%	-	-	-
10. RED, PINK, ORANGE (*butano*)	5,26%	4,17%	-	-

11. RED, PINK, ORANGE (*laranxa* and cognates)	10.53%	41,67%	87,50%	61,11%
12. RED, PINK, ORANGE, SALMON	-	-	12,50%	27,78%
13. RED, PINK, ORANGE, FUCHSIA	-	-	-	5,56%
14. RED, PINK, ORANGE, SALMON, FUCHSIA	-	-	-	5,56%

Figure 5.4 Proportional presence of the categorisation patterns of the red, orange and pink areas across the subgroups

5.2.21. Tile no. 80 RVR S3

The most popular label for tile RVR S3, a desaturated pale pink, was *rosa* in both age groups. However, this preference was stronger among the young participants: this term constitutes over three quarters of their responses, whilst it was used by only half of their elderly counterparts (EP:21/43; YP:27/34). Furthermore, most tokens of *rosa* among elderly participants (17/21) were provided by females.

A much less attested second choice for the elderly group was *gris*, backed by one single young participant (EP:7/43; YP:1/34). Some elderly males used the related term *beis* (3/43) and a few more used *marrón* (3/43) and one elderly female *castaño* (1/43).

The second choice for the young participants was to use a purple term. A few used *lila* (3/34) and others *morado* (2/34). A couple of elderly males also used purple terms but they were attested only once each: *color viño* and *púrpura*.

The young group strongly agrees tile RVR S3 belongs within PINK. The only and much less attested alternative for them would be PURPLE. In contrast, most elderly females considered it PINK and a few of them GREY, whilst elderly males were evenly divided between four options: PINK, GREY, BEIGE and BROWN.

5.2.22. Tile no. 78 RVR S1

Participants found tile RVR S1, a slightly desaturated red-purple, particularly difficult to label. Actually, six of the elderly participants could not provide a response and even a young counterpart was also unable to choose a term. The rest of the participants were especially divided in their opinions.

The main tendency in both age groups was to use a purple term. The clear favourite among the young participants was *morado* which was also attested in the elderly (EP:6/43: YP:11/34). The expression *color viño* also gathered higher numbers among the young (EP:4/43; YP:5/34). Another two young females used references to wine with terms such as *borgoña/viño tinto* and *color uva* ('grape colour'). *Lila* was attested in both groups (EP:5/43; YP.5/34) as well as *violeta* (EP:2/43; YP:4/34) and *malva* (EP:1/43; YP:2/34). There were a few other alternative purple terms attested only once: the elderly mentioned *color do obispo* ('bishop robe colour') and Spanish *añil 'indigo'* and the young the Spanish loan *berenjena* ('eggplant').

A few members of the two age groups, all of them females except one young male, used the term *rosa* (EP:4/43; YP:2/34).

Regardless of the joint tokens for purple terms, the individual response attested the most among the elderly participants was *marrón* (8/43) plus one token for the alternative term *castaño*. However, this was not backed by any of their young counterparts. The same happened with a couple of elderly participants who labelled this tile *gris* (2/43*)*, an unattested solution among the young group.

In general, despite the confusion, the two age groups tended to categorise tile RVR S1 as PURPLE. Among the wide range of labels available for this category, young participants tend to prefer *morado* over the rest whilst their elderly counterparts are more evenly divided. As we will see in the sections below (5.2.23-28), *color viño* is one of the alternative terms for unitary PURPLE provided by the elderly participants and it is rarely mentioned by their young counterparts. However, tile RVR S2 gathered more tokens than usual for this expression. This suggests that *color viño* has a more restricted semantic extension for the young participants than it has for the older group.

Alternatively, a few members of the two groups agreed to include this hue within PINK. The main dissidence comes from a fifth of the elderly participants who categorised RVR S1 as BROWN, and a few others who categorised this hue as GREY. Neither of these options was backed by any of their young counterparts.

5.2.23. Tile no. 81 HUE RV

Labelling tile HUE RV with a term for purple was the response of the vast majority of the elderly participants (25/44) and more than half of their younger counterparts (18/34). *Morado* and *violeta* were attested in both age groups but the elderly show a slight preference for the first (EP:8/44; YP:4/34) and the young for the second (EP:4/44; YP:7/34). *Lila* was attested in both groups with similar numbers (EP:5/43; YP:5/34) as well as a few tokens of *púrpura* (EP:2/44; YP:1/34). Provided by elderly participants alone were the expressions *color viño* (3/44) and *malva* (3/44).

However, the individual response attested the most in both groups was *rosa*. Whilst the tokens of this term represent a relatively small fraction of the elderly participants (10/44), within the young group they constitute nearly half of their responses (14/34). Nevertheless, in both age groups, most of these tokens came from females (7/10 and 10/14 respectively).

A few elderly participants used terms for RED. Some used the Spanish loan *rojo* (4/44) or *granate* (1/44).

Overall, when it comes to categorising HUE RV, there are important gender differences. Although the two options were registered, young females were almost evenly split between PINK and PURPLE whilst young males preferred the latter. Elderly females considered the two options but also preferred PURPLE. Most elderly males also categorised this tile as PURPLE but the rest were divided between PINK and a third option: RED.

5.2.24. Tile no. 213 ROSE RED

The majority of the young participants labelled tile ROSE RED as *rosa* (28/34). A few, all female but one, used specialised terms such as *fuscia* (3/34) and *magenta* (1/34).

The most common response among the elderly group was also *rosa* but in a lower proportion than their younger counterparts (22/44). These tokens of *rosa* came mostly from females (19/22). The second most popular answer among the elderly participants was to use a red term: Spanish loan *rojo* (11/44), *encarnado* (2/44), *roxo* (1/44), *granate* (1/44), and two double and one triple response that provided some of those terms as equivalents: *encarnado/rojo* (1/44), *rojo/roxo* (1/44) and *rojo/roxo/vermello* (1/44)[31]. The greater part of these red terms (14/18) was used by elderly males. Finally, a few participants used a purple term such as: *morado* (1/44), *violeta* (1/44) and *lila* (1/44).

[31] One of the elderly participants used the Spanish loan *narania* for tile ROSE RED. The use of this term for a hue with a pink element could be interpreted as either the adoption of a foreign label but not its precise meaning or extra evidence of a PINK+ORANGE category.

Overall, we see that most of the elderly females agree with the young group in categorising tile ROSE RED as PINK whilst for the majority of elderly males it belonged within RED.

5.2.25. Tile no. 83 RV T2

The most popular response for tile RV T2 was *rosa* across the two groups. However, it represented a bigger proportion among the young participants (EP:20/44; YP:20/34) who also added one more token of the related term *fuscia* (1/34). An important gender bias regarding this term was identified as roughly two thirds of its tokens (EP:13/20; YP:14/20) in both age groups came from females. In fact, the vast majority of young female participants (14/18) labelled tile RV T2 *rosa*, while less than half of their male counterparts did so (6/16). Similar usage rates to young males were also found among elderly females (12/25) and even lower among elderly males (7/19).

The second most common labelling strategy in the two groups was to use a purple term. These came mostly from elderly female and young male participants. There were tokens for most of the terms in both age groups but the favourite term among elderly participants (mostly female) seems to be *lila*, whilst their young counterparts (mostly male) showed no preference for any of them: *lila* (EP:9/44; YP:3/34); *morado* (EP:4/44; YP:3/34), *violeta* (EP:1/44; YP:4/34). The terms *color viño* and *malva* were attested once in elderly participants only, whereas *púrpura* gathered two tokens only among the young group.

All elderly female participants labelled tile RV T2 with either *rosa* or a purple term. Elderly male participants, however, showed a wider range of possibilities. Some agreed with their female counterparts and a few used either the Spanish loan *rojo* (2/19), the related term *granate* (1/19), *azul* (1/19) or *añil* (1/19).

Overall, tile RV T2 was categorised by most young female participants as PINK. Young male and elderly female participants were almost evenly split into considering it either PINK or PURPLE. Although some elderly male participants also agreed in categorising this tile as PINK, this subgroup was mostly divided across many other possibilities such as PURPLE, RED or BLUE.

5.2.26. Tile no. 89 HUE VRV

Tile HUE VRV received purple terms from the vast majority of participants. The only ones attested in both age groups in a similar proportion were *morado,* one of the main candidates (EP:10/43; YP:13/34), and with many fewer tokens *malva* (4/43; YP:2/34). *Lila,* on the contrary, was much more popular among the elderly group than among their younger counterparts (EP:13/43; YP:3/34) and the opposite was true for *violeta* (EP:3/43; YP:12/34). A few tokens were also gathered for *púrpura*, especially from the

young participants (EP: 1/43; YP: 3/34). Nevertheless, the expression *color viño* was attested within the elderly participants alone (4/43), all males.

A few elderly participants used the term *rosa* (3/43, all female), another one the Spanish loan *rojo* (1/43) and one more the related term *granate* (1/43). Only one elderly participant labelled tile HUE VRV *azul* (1/43), and one young counterpart used the related Spanish term *añil* (1/34).

The two generations seemed to agree in categorising tile HUE VRV as PURPLE. Although most of the alternative labels can be found in both groups and some have about the same popularity (*morado*), there is a preference for *lila* among the elderly and a higher presence of *violeta* among the young participants. It seems that only elderly participants consider the expression *color viño* a suitable label for central PURPLE.

The dissidence in categorisation comes mostly from just a few elderly participants who would rather categorise this hue as PINK, all female, or RED.

5.2.27. Tile no. 97 HUE V

The main tendency in the two age groups was to name tile HUE V, pure purple, with a purple term. The most popular label among the elderly participants was *lila*, which gathered many fewer tokens within their young counterparts (EP:16/43; 4/34). The opposite was true for *violeta*: it was the favourite term among the young participants, but it was barely attested among their elderly counterparts (EP:2/43; YP:16/34). As in other purple tiles, *morado* was found in similar proportions (EP:9/43; YP:9/34) as well as *malva* (EP:2/43; YP:1/34) and *púrpura* (EP:1/43; YP:1/34). The expression *color viño* was again attested among elderly participants only (4/43), three of them male.

Three elderly participants, all male, labelled tile HUE V *azul* (3/43) and one other used the Spanish loan *añil* (1/43). This last term was also attested in one young participant (1/34).

In addition, one elderly female used the term *rosa* (1/43) and another one *granate* (1/43). Furthermore, three elderly participants were unable to provide a response.

Young participants categorised tile HUE V as PURPLE. In this case, each gender used the alternative terms in the same proportion, generally agreeing that pure purple should be called *violeta* or *morado*. The fact that very few young participants used *lila* for a pure purple tile seems to support what will be suggested for tile VRV S3: *lila* is used by young female participants as a specialised term for pale bluish-purple shades.

Lila, however, has a different meaning in the older group. It was the preferred term for pure purple among the elderly female participants, whilst their male counterparts did not show a preference for any purple term.

The rest of the elderly participants disagreed with this categorisation: a few males included tile HUE V within BLUE and a couple of females within redder categories such as PINK or CRIMSON.

5.2.28. Tile no. 105 HUE VBV

Purple terms were the dominant response for tile HUE VBV in both groups. Actually, all young participants used a purple term except one, whilst there were a few more dissident opinions among their elderly counterparts (EP:36/43; YP:33/34). Excluding *color viño,* that was again only attested in elderly participants (4/43), three of them males, the rest of the purple terms could be found in both groups. The preferred terms among the young participants were *violeta* followed by *morado* and the preferred terms among the elderly participants were *lila* followed by *morado*. The results were: *violeta* (EP:6/43; YP:17/34), *lila* (EP:13/43; YP:4/34), *morado* (EP:10/43; YP:11/34), *malva* (EP:4/43; YP:1/34).

There were no gender differences in the use of these terms across the young group, but they could be found within their elderly counterparts. Almost half of the elderly females that replied with a purple term used *lila* (10/23), whilst their male counterparts offered all the purple terms in a more even proportion. This strong preference for *lila* among elderly females made it the favourite term across the whole group.

In addition, the main dissidence within the elderly group came from a few male participants who used *azul* to label this tile (4/43) and one more token for the related term *añil* (1/43) which was also used by one young female participant.[32]

Overall, we see that the young group agreed to categorise tile HUE VBV as PURPLE and that both genders used the alternative terms in the same proportion too. The majority of their elderly counterparts also included this hue within PURPLE, but elderly females have a preference for one of the terms that their male counterparts do not. A few elderly male participants disagreed with everyone else by categorising this tile as BLUE.

5.2.29. Tile no. 96 VRV S3

The responses for tile VRV S3, a pale and desaturated bluish purple, showed strong contrasts between the two age groups. Within the elderly participants there were once again lower consensus rates compared to the young group and, in fact, up to four participants were unable to provide a response (4/44). The term attested the most among the elderly participants was *gris* (13/44). Most of these tokens (10/13) came from elderly females. This contrasts with just two tokens of *gris* among their young

[32] Only one young female used the Spanish term *añil* consistently for unitary PURPLE. DRAG defines Galician *anil* as "a dark blue substance derived from the indigo plant" and "one of the colours on the solar spectrum between blue and violet". Thus, it is uncertain if she meant it as a blue or purple term.

counterparts (2/34. In addition to these, two more elderly participants used the expression *color cielo* ('sky colour') (2/44) and another two the term *beis* (2/44) both of which seem to be synonyms of *gris* for some members of this group. Furthermore, another two used the Spanish loan *blanco* (2/44) and a couple more defined it as either *claro* (1/44) or *color crema* (1/44).

The elderly group's responses containing purple terms (16/44) were just a few more tokens than for *gris*. In contrast, the purple terms were the dominant response within the young group (30/34). Most of the alternative purple terms were attested in both generations. However, the tokens for each term were more evenly split among the elderly participants than they were among their younger counterparts whose preferred term for this tile was clearly *lila*: (EP:6/44; YP:15/34), having far fewer tokens of *violeta* (EP:4/44; YP:7/34); *malva* (3/44; YP:5/34); *morado* (EP:3/44; YP:2/34). Regardless of the different degrees of dominance of the term *lila* in the two age groups, a shared characteristic is that most of its tokens (EP: 5/6; YP:12/15) came from female rather than male participants.

Lastly, two elderly females labelled this tile as *rosa* (2/44).

To conclude, elderly participants were almost evenly divided between categorising tile VRV S3 as either PURPLE or GREY whilst the young group strongly agreed in categorising this hue as PURPLE. This behaviour in elderly participants can be interpreted as they stressed the desaturation of this hue more than their young counterparts so their GREY category is not purely achromatic but extends into desaturated hues, particularly cold ones.

Although the consensus about the categorisation of tile VRV S3 as PURPLE is almost absolute among the young group, there seem to be important intragroup differences across the gender dimension. The predominance of one of the alternative purple terms (*lila*) for this tile in young female participants suggests the existence of either a secondary term specialised in the paler blue end of the PURPLE category or even the rise of an independent BCC as will be explored in section 6.12.1.

5.2.30. Tile no. 109 VBV T4

Tile VBV T4 is a pale bluish purple. All young participants' responses for it were purple terms (34/34). Although this was also the most common response among the elderly group, it constituted roughly half of the sample: (25/44). Most purple terms were attested in the two age groups but the clear favourite was *lila*, especially among the young group: *lila* (EP:12/25; YP:23/34), *violeta* (EP:5/25; YP:5/34), *malva* (EP:4/25; YP:3/34), *morado* (EP:3/25; YP:3/34).

Nevertheless, a gender bias was observed. The vast majority of young female participants (14/18) used the label *lila* and a few more *malva* (3/18). In contrast, only

half of their male counterparts used *lila* (9/16) and the other half used *violeta* (4/16) and *morado* (3/16). This last option was backed by one single young female counterpart.

Elderly female participants were extremely heterogeneous in their responses and shared patterns with both their young female counterparts and the young male participants. Some of them showed a higher preference for *lila* and *malva* than the males of their generation, accounting for the majority of the tokens of those terms (8/12 and 3/4 respectively) Like the young male participants, some elderly females were happy to use the other purple terms for this tile.

In addition, a few elderly females categorised tile VBV T4 as *rosa* (3/25) or the related term *fuscia* (1/25). Furthermore, one more agreed with some of her elderly male counterparts in labelling this tile *azul* (3/19).

Another elderly male also used the related term *añil* (1/19). One elderly female joined a couple of her elderly male counterparts in considering this tile *gris* (3/44). Finally, four elderly participants, three of them males, did not provide a response for this tile.

Overall, we see strong generational and gender contrasts when it comes to categorising tile VBV T4. At one extreme there was the unanimous agreement of the young group in considering this tile part of PURPLE, with only females having a strong preference for the term *lila,* which seems to be in the process to become separate category. Half of the elderly group also categorised this tile as PURPLE and their female members had a mild preference for *lila* too. At the other extreme, alternative categorisations came from some elderly females who classified this hue as PINK, and from some elderly males who consider it either BLUE or GREY, with a few female counterparts agreeing with them.

5.2.31. Tile no. 113 HUE BV

The response for tile HUE BV, a bluish purple, produced more tokens for purple terms across both age groups. These terms constituted the strong majority of the young participants' responses (27/34) as opposed to half of their elderly counterparts (23/43). Most terms could be found among the two groups but, in this case, there was a strong preference for *violeta* and *lila* within the young group and for *lila* and *morado* within the elderly group: *violeta* (EP:1/23; YP:15/27), *lila* (EP:9/23; YP:7/27), *morado* (EP:9/23 YP:3/27) followed by a series of purple terms attested only once: elderly participants mentioned *color viño*, *malva*, *color lirio* and *púrpura*.

The second option for both age groups was to use *azul*. This represented a bigger proportion within the elderly participants (16/43) but it was still fairly well attested within the young group (6/34). Another young participant also used the related term *añil* (1/34).

Within the young group, besides general agreement on using *violeta*, the rest of the choices showed a mild gender bias. The tokens of *azul* came mostly from females (5/6)

and those of *lila* from males (5/7). This seems to support the idea that in general for young females *lila* is a term appropriate only for pale purple, whilst their male counterparts do not make this distinction.

In conclusion, the majority of the young group agreed on categorising tile HUE BV as PURPLE and had *violeta* as their favourite label. Nevertheless, a few young participants, mostly female, included this tile within BLUE. The elderly group, however, was more evenly split between considering tile HUE BV either PURPLE or BLUE, with no gender differences.

5.2.32. Tile no. 119 BV S2

Tile BV S2 is a very dark bluish purple. The main response among the young group was to use a purple term (23/34). Their preferred terms were *violeta* and *morado* (9/23 each) whilst the rest had far fewer tokens: *lila* (2/23), *púrpura* (2/23) and *malva* (1/23). A third of the young participants labelled this tile *azul* (11/34). Two of those used the term *azul mariño* or cognates 'navy' (2/11).

These were also the labelling options for the elderly group but their proportions were inverted. Among this group *azul* accounted for more than half of the responses (25/43), one of which was *azul mariño* or cognates (1/25). Most of the remaining responses were purple terms. The tokens of these terms were quite evenly distributed: *lila* (5/16), *morado* (5/16), *violeta* (3/16) and *malva* (3/16).

Overall, both age groups considered tile BV to belong to PURPLE or BLUE. The first option was more prominent among the young and the second among the elderly participants.

Before moving on to new tiles, Table 5.19 below shows 17 categorisation patterns identified in the purple area across the subgroups. Similarly to Table 5.2.1, the ordering of these categorisation patterns is based firstly on the scope of denotation of the categories. Thus, the list commences with a macrocategory (BLUE+PURPLE) followed by intermediary stages (the absence of unitary PURPLE; BLUE+PURPLE, PURPLE (*color viño*)). It continues with various denotations of unitary PURPLE (PURPLE, extended BLUE; PURPLE) and the list ends with the partition of new categories (LILAC; RED PURPLE, BLUE PURPLE). A secondary criterion to organise variations of those is strategy of labelling. For instance, the variations of unitary PURPLE are ordered from older and more spontaneous labellings (*color viño*) to adaptations of terms with narrower denotations (*lila/malva*). The sequence follows with attempts to use terms meant for unitary PURPLE (inconsistent labelling) and ends with the usage of any stable term (purple). Figure 5.5 represents the proportion of these categorisation patterns across the age and gender subgroups.

	EM	EF	YM	YF
1. BLUE+PURPLE	15,79%	-	-	-
2. no PURPLE	10,53%	8,33%	-	-
3. BLUE+PURPLE, PURPLE (*color viño*)	10,53%	-	-	-
4. PURPLE (*color viño*)	5,26%	4,17%	-	-
5. PURPLE (*color viño*/confusing labels), extended BLUE	5,26%	8,33%	-	-
6. PURPLE (*lila/malva*) extended BLUE	5,26%	16,67%	-	11,11%
7. PURPLE (*lila/malva*)	21,05%	25,00%	6,25%	5,56%
8. PURPLE (inconsistent labelling), extended BLUE	-	-	6,25%	-
9. PURPLE, extended BLUE	-	8,33%	-	-
10. PURPLE (inconsistent labelling)	-	-	12,50%	-
11. PURPLE	26,32%	16,67%	31,25%	-
12. PURPLE, LILAC, extended BLUE	-	-	-	11,11%
13. PURPLE (*lila*), lilac	-	4,17%	-	-
14. PURPLE (inconsistent labelling), LILAC	-	-	6,25%	5,56%
15. PURPLE, LILAC	-	8,33%	37,50%	50,00%
16. RED PURPLE, BLUE PURPLE	-	-	-	5,56%
17. RED PURPLE, BLUE PURPLE, LILAC	-	-	-	11,11%

Table 5.19 Tile naming categorisation patterns of the purple area across the subgroups

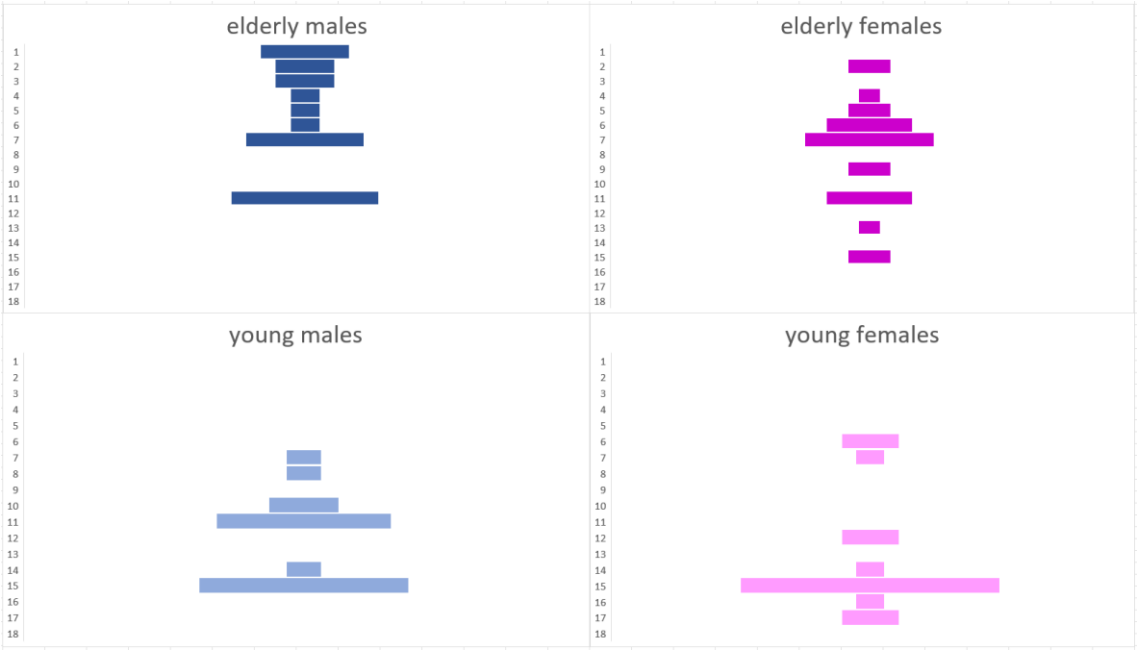

Figure 5.5 Proportional presence of the categorisation patterns of the purple area across the subgroups

5.2.33. Tile nos. 121 HUE BVB, 129 HUE B and 130 B T1

Tiles HUE BVB, HUE B and B T1 gathered the same response across all ages and genders: *azul*. The agreement was absolute for B T1 (EP:44/44; YP:34/34) and almost so for HUE B (EP:42/43; YP:34/34). Although all participants also used the term *azul* for HUE BVB (EP: 44/44; YP:34/34), four of the young participants used the expression *azul mariño* or cognates (4/34).

Therefore, we see both age groups unanimously agreed in categorising tiles HUE B, B T1 and HUE BVB as BLUE. However, the last one is considered by some young participants 'navy blue' which seems a hyponym of BLUE for the darker end of the category.

5.2.34. Tile no. 128 BVB S3

Tile BVB S3 is a pale desaturated purplish blue. The vast majority of the young and elderly participants used the term *gris* to name this tile. However, the agreement was, as usual, stronger among the young group (EP:27/44; YP:29/34). A few elderly participants used the related term *beis* (4/44) and one young counterpart used the term *area* ('sand'). One elderly participant used the Spanish loan *plateado* ('silver') and another one *color opaco* ('opaque colour').

Within the elderly group, a couple of males used *blanco* (2/44) and another two just qualified the tile as *claro* ('light') (2/44).

However, the second ranking term in both groups was *azul* (EP:6/44; YP:4/34). This appreciation of the blue hue in the elderly group came mostly from females (5/6).

Overall, most of the young group agreed that tile BVB S3 should be categorised as GREY and only a few preferred BLUE instead. No gender differences were observed in the young group for this tile. Although the main tendency among elderly participants was also to classify this hue within GREY, this was less prominent and they used various labels. In addition, their alternative categorisations showed a gender bias: BLUE came mostly from females whilst WHITE or LIGHT were chosen only by males.

5.2.35. Tile nos. 137 HUE BGB and 140 BGB T3

Both age groups strongly agreed in labelling tile HUE BGB *azul* (EP:40/43; YP:34/34). Only three elderly participants said otherwise and used the term *verde* (3/43).

The responses for tile BGB T3, a pale greenish blue, among the elderly participants were the same as for the previous tile: *azul* (40/44) and *verde* (3/44). Their young counterparts, however, did not unanimously agree this time. The majority still used *azul* (31/34) and another three tried to pinpoint some nuances and provided one term each: two young females used *aguamarina* ('sea water') and *añil* and one young male *celeste*.

Therefore, overall, both age groups considered HUE BGB part of BLUE whilst only a few elderly participants categorised it as GREEN. Both generations also agreed that tile BGB

T3 belongs within BLUE although a few elderly participants considered it GREEN and a few young participants acknowledged some nuances.

5.2.36. Tile nos. 145 HUE BG and 146 BG T1

The responses gathered for tile HUE BG were almost identical to those for BG T1. The main response in the two age groups was *azul* for both tiles (EP:32/44; YP:24:/34 and EP:30/44; YP:23/34 respectively). The second option, *verde*, was collected in a bigger proportion among the elderly group than their young counterparts (EP:11/44; YP:4/34 and EP:11/44; YP:5/34).

In the young group, the tokens of *azul* were frequently followed by the modifier *turquesa* (6/24 and 5/23) whilst this happened only once with *verde*. These tokens of *turquesa* as a modifier were attested in both genders although in a slightly higher proportion among females (7/12). In contrast, this modifier was provided by one elderly participant only, also female. Moreover, some members of the young group labelled these hues with the term *turquesa* by itself, without qualifying any BCT (6/34 for HUE BG and 5/34 for BG T1). These tokens of *turquesa* as an independent label came fundamentally from females (5/6 and 4/5)[33]. In addition, one elderly female also used this term on its own. This was used to label tile BG T1 which also received the syntagma *nin verde nin azul* ('neither green nor blue') as well as *Colour in between* from another elderly female.

Thus, we see that tiles HUE BG and BG T1 were considered to belong to the same category by most of the participants. They were generally categorised as BLUE by the two age groups. The second option among the elderly was clearly GREEN. Nevertheless, the rest of the young group was divided between GREEN and a separate category: TURQUOISE. Although both genders used *turquesa* as a modifier of BLUE, they were almost exclusively young females who considered TURQUOISE an independent category. Thus, it seems that the young group is in the process of developing a new category TURQUOISE as a result of partition at the boundary between BLUE and GREEN although it still presents a strong gender bias.

5.2.37. Tile nos. 151 BG S2 and 153 HUE GBG

The most common response for tiles BG S2 and HUE GBG was *verde* in both age groups. Nevertheless, this term was found in a higher proportion among the young participants (EP:30/43; YP:29/34 and EP:29/44; YP:28/34 respectively). The second option for both

[33] Furthermore, one of these young females, participant QQQHZH, labelled HUE BG *turquesa apagado* ('muted turquoise') and BG T1 as *turquesa claro* ('light turquoise'*)*. The use of modifiers along with this term seems to add to arguments for its status slowly changing towards basicness.

groups was *azul*, but, conversely, this was more popular among the elderly participants (EP:10/43; YP:4/34 and EP:11/44; YP:5/34).

Elderly males used *azul* slightly more often than elderly females (6/19 versus 4/24 for tile BG S2 and 7/19 versus 3/25 for tile HUE GBG). Some of the elderly females preferred an expression such as *Colour in between* acknowledging both the green and blue components (3/24 and 2/25 respectively).

Among the young group, the dissidence came mostly from females as they used *azul* more than their male counterparts (3/18 versus 1/16 for BG S2 and 4/18 versus 1/18 for HUE GBG). In addition, one young female used the term *turquesa* (1/18) for both tiles.

In conclusion, we see that the main tendency in both age groups is to classify these tiles as GREEN. Among the elderly participants, there were similar numbers of males and females who disagreed. However, males classified them as BLUE and females either as BLUE or a Colour in between the two categories. Among the young group members, it was almost only females who disagreed with the general tendency by considering it BLUE and residually TURQUOISE. Thus, we see that only a small fraction of elderly and young females considered these hues to be on the border between GREEN and BLUE.

5.2.38. Tile no. 159 GBG S2

Tile GBG S2 is a desaturated bluish green that generally gathered tokens of *azul* among both groups (EP:26/44; YP:24/34). Nevertheless, a good fraction of the participants considered it *verde*, mostly elderly (EP:15/44; YP:6/34). These tokens of *verde* came mostly from females in the elderly group (10/15) and males in the young group (5/6).

In the elderly group there were three participants who used a combination of these two terms: *verdeazul* (1/44), *azul-verde* (1/44) and an expression such as *Colour in between*. Among the young group there was one *Colour in between* label from one male participant (1/34) which contrasts with three tokens of the specialised term *turquesa* from the females (3/34).

Thus, despite the higher content of green, this tile was mostly categorised as BLUE probably as a result of being a desaturated hue. Some members of both age groups still considered it GREEN, especially elderly females and elderly and young males. Although there were attempts in all subgroups to reflect the combination of the blue and green components, only young females seemed to agree on a specific label, which could eventually develop into a basic category TURQUOISE. This is happening already in other languages e.g. *turquoise/teal* are on their way to become basic in English (Mylonas and MacDonald 2015: 8-10).

5.2.39. Tile nos. 161 HUE G and 169 GYG

The consensus about which term describes tiles HUE G and HUE GYG is absolute among the young participants and almost absolute among their elderly counterparts: *verde* (EP:41/43; YP:34/34 for tile HUE G and EP:43/44; YP: 34/34 for tile HUE GYG). The only dissidence was one token of *azul* for each tile (1/43 and 1/44 respectively). Therefore, there is no doubt that these two tiles belong to GREEN for both age groups.

5.2.40. Tile no. 168 G S3

Tile G S3 is a dark desaturated green. The dominant response across the two age groups was *verde* (EP:39/44; YP:34/34). Only a few elderly participants disagreed: three used *azul* (3/44) one *negro* (1/44) and one gave *No response*.

Thus, the young group unanimously agreed to classify G S3 as GREEN and so did most of their elderly counterparts. However, a few elderly participants categorised it as BLUE perhaps resulting from the darkness of the hue and confusion with a dark navy.

5.2.41. Tile nos. 173 GYG T4 and 174 GYG S1

Tile GYG T4 is a pale yellowish green. The most common response across the two age groups was *verde* (EP:37/44; YP:33/34). The only young participant that disagreed used *azul* instead (1/34). *Azul* was used by two elderly males (2/44) and there were two tokens of *Colour in between* labels (2/44), one of which was from a male who stated the hue was a mix of *azul* and *verde*. In addition, another elderly male used the term *violeta* (1/44) plus two who gave *No response*.

Tile GYG S2 is a dark desaturated yellowish green. All young participants and most of their elderly counterparts labelled it *verde* (EP:40/43; YP:34/34). One elderly participant used *azul* (1/43), another one *gris* (1/43) and another *malva* (1/43).

In conclusion, both tiles GYG T4 and GYG S1 were categorised as GREEN by the majority of the participants. The only consistent alternative came from a very few elderly males who considered GYG S1 BLUE instead.

5.2.42. Tile no. 177 YG

Tile YG collected unanimous consensus among the young group and almost so among their elderly counterparts. *Verde* was the term used by all of them (EP:41/43; YP:34/34). The only exception was one token of *azul* and one *No response* among the elderly participants. Thus, tile YG was considered part of GREEN by the two age groups.

5.2.43. Tile no. 184 YG S3

Tile YG S3 is a dark desaturated yellow-green. All young participants but one used *verde* (33/34) and so did almost all of their elderly counterparts (39/44). The remaining young participant used *caqui* whilst the other elderly participants used *gris* (2/44), *marrón* (1/44) or *negro* (1/44) plus one *No response*. Most of these alternative tokens (3/4) among the elderly came from males.

In conclusion, tile YG S3 was regarded as GREEN by most of the members of both age groups. Only a very few elderly males considered it too dark to be part of GREEN.

5.2.44. Tile nos. 185 HUE YGY and 192 YGY S3

The most popular response for tile HUE YGY was *verde* in both age groups. However, although the consensus among the young participants was almost absolute (30/34) it was less so among their elderly counterparts (29/43). The second option, *amarelo* or its Spanish cognate, was frequently attested among the elderly (12/43), being more popular among males (7/19) than females (5/24). In contrast, it collected only two tokens among their young counterparts (2/34), also males.

The remaining tokens were spread across a few terms attested only once each. One member of each age group tried to acknowledge the mixture of hues: the elderly participant used an expression such as *Colour in between*: *entre verde e amarillo* and the young one combined the two hues in *verde-amarelo*. In addition, one member of each age group used references to citrus fruits perhaps to stress one of the two hues: yellowness by the elderly participant with *limón* (´lemon´) and greenness by the young one with *lima* ('lime').

Tile YGY S3 is a pale desaturated greenish yellow. The young group agreed unanimously in labelling this tile *verde* (34/34). Although *verde* was also the most common response within the elderly group, it was provided by a little fewer than half of their members (21/43). The second most popular term among the elderly group was *amarelo* or its Spanish cognate (8/43). Three more, all male, used *beis* (3/43), followed by two tokens each of *gris* (2/43) and *claro* (2/43), and one token each of *blanco* (1/43) and *crudo* (1/43). Up to five elderly participants (four of them females) were unable to provide a response (5/43).

In conclusion, for the young group tiles HUE YGY and YGY S3 unequivocally belong to GREEN. In contrast, although this was also the option with more tokens among their elderly counterparts, an important section of them classified tile HUE YGY as YELLOW and YGY S3 as either YELLOW or a pale category. Thus, we can conclude that the two age groups do not share the same boundary between YELLOW and GREEN. Some of the elderly participants have a YELLOW category that expands into GREEN more than other members of their age group and their young counterparts. Furthermore, it was only a fraction of the elderly participants who acknowledged the desaturation of YGY S3 in their categorisation.

5.2.45. Tile no. 210 WHITE

Most participants from the two age groups used the term *branco* or the Spanish cognate to label tile WHITE (EP:36/43; YP:29/34). A few members of both groups considered that this colour was not proper white but *beis* (EP:4/43; YP:2/34), or *gris* (EP:2/43; YP:1/34) and a couple of young participants used *crú* ('raw', 1/34) and *color crema* (1/34)[34]. Among the young group, most tokens for these terms were from female participants (4/5).

Overall, the two age groups considered this tile to belong within WHITE. The dissidence came from a few elderly participants who classified it as BEIGE or another PALE category and so did some of their young female counterparts.

5.2.46. Tile nos. 194 GRAY 1 and 196 GRAY 2

Tiles GRAY 1 and GRAY 2 received the label *gris* from the majority of the two age groups (EP:22/44; YP:25/34 and EP:20/44; YP:26/34 respectively). The second option, *branco* or its Spanish cognate, was also shared by the two groups but it was used by a higher proportion of elderly participants (EP: 11/44; YP:6/34 and EP:11/44; YP:5/34).

For tile GRAY 1, the term *branco* or its Spanish cognate was attested in a higher proportion in elderly females (8/25) than males (3/19). Elderly males were more inclined to indicate the paleness of this tile and represented most tokens (3/4) of the following terms: *claro* (2/44), *pálido* (1/44), *color cielo* (1/44). In addition, some elderly males also labelled GRAY 1 with chromatic terms such as *verde* (1/44*)* and *azul* (1/44) which were also attested once each for both of these tiles among the young group. One elderly female used *lila* (1/44).

The term *beis* was attested frequently among the elderly group for tile GRAY 2 (10/44) and less so for tile GRAY 1 (3/44), whilst it was mentioned only once for each tile among their young counterparts. This increase in tokens for *beis* in elderly participants when naming a darker colour is difficult to explain if it is not being seen as a synonym of *gris* or a general confusion on where to draw the border between WHITE or PALE and GREY.

Overall, tiles GRAY 1 and GRAY 2 were categorised as GREY by the majority of the two age groups. Although the categorisation as WHITE was a second option for both groups, it was more prominent within the elderly group. Thus, some elderly participants seem to have a wider WHITE category which expands more into GREY than that of other elderly participants and most of their young counterparts. The value of *beis* as either an alternative label for GREY or a separate PALE category remains unclear in these tiles.

[34] One elderly female usedd the term *verde* to label tile WHITE.

5.2.47. Tile nos. 200 GRAY 4 and 204 GRAY 6

Tile GRAY 4 received the term *gris* from all young participants and the majority of the elderly participants (EP:35/43; YP:35/34). One more elderly participant used the Spanish loan *plateado* ('silver'). The second most attested term among the elderly group was *beis* (4/43) followed by the Spanish loan *blanco* (2/43) and then *claro* (1/43)[35].

Tile GRAY 6 also received the term *gris* from all young participants and the majority of the elderly participants (EP:30/43; YP:34/34). However, the rest of the elderly group provided different responses for this tile. Although *beis* was registered a couple of times (2/43), a few chromatic terms collected together a few more tokens: *verde* (3/43), *marrón* (3/43) and even *lila* (1/43).

The attribution of GRAY 6 to chromatic categories by some of the elderly participants can be attributed to either semantic or physiological phenomena. The three elderly female participants who used *verde* to label this tile, HXTLXC, JAYAAC and BJUITX, could either have a GREEN category that extends into purely achromatic hues or have experienced a small vision lapse due to tiredness[36]. The hypothesis of a vision lapse seems to be the most likely as in the next task two of these three participants, JAYAAC and BJUITX, changed their responses to *marrón* first and finally to *gris*. The three tokens of *marrón,* all used by elderly male participants IOIJVU, LLYPSN and BHTXZD, could also be caused by vision tiredness, as we saw above that this was one of the alternative responses for some of their counterparts. However, two of these participants, IOIJVU and BHTXZD, did not change their response during the next task. In any case, the existence of traditional colour terms such as *pardo*, which comprises a range of meanings of which some belong to a BROWN+GREY category, could be related to this fuzzy boundary between the two categories for these elderly participants. Finally, the connection between LILAC and GREY in elderly speakers has already been stressed in previous sections, particularly when discussing Tile no. 96 VRV S3.

Two elderly participants highlighted the darkness of tile GRAY 6 with the expressions *oscuro* (1/43) and *negro* (1/43). In contrast to the reference to silver made for tile GRAY 4, one elderly participant used for tile GRAY 6 *color plomo* ('lead color') perhaps stressing that it is a darker and metaphorically heavier colour. One last elderly participant gave *No response.*

In conclusion, despite the variation in labelling, it seems that in general both generations agreed in categorising tiles GRAY 4 and 6 within GREY.

5.2.48. Tile nos. 208 GRAY 8 and 209 BLACK

[35] One elderly female labelled *lila* tile GRAY 4.

[36] The labelling of tile GRAY 6 as *verde* was attested in this data collection in subjects who tested to have a tritan defect, AWFEOF, CTCZUI and SRLWBP or a deuteran defect, OKOBAS.

The general response across the two age groups for tiles GRAY 8 and BLACK was *negro* (EP:35/44; YP:25/34 and EP:38/43; YP:28/34 respectively).

When it comes to GRAY 8, some members of both age groups considered it *gris*, although this was attested more strongly among the young participants (EP:4/44; YP: 8/34). Nevertheless, this appreciation of this tile not being fully black came exclusively from females in the elderly group (4/4) and mostly from females among the young group (6/8).

Tile BLACK also collected some tokens of brown terms among the elderly: *marrón* (2/43) and *castaño* (1/43). Two more elderly participants used *verde* to label this tile (2/43).

In conclusion, most members of the two age groups considered these two tiles to belong within BLACK. The reluctance to include the paler colour in this category came mostly from females in both age groups who preferred to categorise it as GREY. Some elderly participants did not include the darkest tile of the set within BLACK either but within BROWN or GREEN.

5.3. Best example analysis

5.3.1. Introduction

The best example task procedure consisted of grouping tiles according to the responses provided during the tile naming task and presenting them back to the participant, one group at a time. Participants were given the opportunity to confirm or make changes in their categorisations. In other words, each participant was asked if they were happy with their groupings or if, now that they saw all the members of the group together, they wanted to make any changes and move any tile to another group. Once they were satisfied with the members of the group, they were asked to choose the best example (BE) of that category.

The changes made by participants tended to be towards making their responses more cohesive. Examples of this would be moving around ambiguous colours such as very dark or desaturated ones. Nevertheless, groups or categorisations that comprised several unitary colours were at times examined and new groups were formed. For instance, some of the elderly participants who had classified orange tiles as RED, YELLOW or PINK did at this stage identify some or all central orange tiles as separate even if they did not have a term for the category.

These changes are the reason why the data discussed in this section are slightly different from the results in the tile naming task. In the tables below, participants who significantly changed their responses from the tile naming task are marked with an asterisk (*).

All young participants undertook the BE task but not all elderly participants undertook or finished it. The totals in this section will be 15 elderly males, 23 elderly females, 16 young males and 18 young females.

This refers to the first best example chosen from the categorisation provided during the tile naming task.

5.3.2. BE yellow

In general, all the elderly males who undertook the BE task did have a unitary YELLOW category (15/15). Nevertheless, this unitary YELLOW usually had a wider denotation. For the majority it included tile 17 HUE YO (12/15) and for some also 44 ORO T3 (3/15: IOIJVU, FVVIHY and LDOJUY) and 192 YGY S3 (2/15: IOIJVU and QMYVHI).

Their most common BE was 1 HUE Y (12/15[37]) and the rest chose 9 HUE YOY (3/15). The most popular label for it was the Spanish loan *amarillo* (12/15) followed by *amarelo* (3/15). QMYVHI also chose tile 17 HUE YO as the BE of a category called *ocre* 'ochre'.

Similarly, all elderly females had a unitary YELLOW category with a wider denotation. For most of them YELLOW included tile 17 HUE YO (19/23) and for some 44 ORO T3 (EXJOMA, VBFITY, TYVOFV, UNVFTA, GPXTBB) and 192 YGY S3 (EXJOMA, UWGSVK, TYVOFV and RZQDAR). The BE chosen by most of them was 1 HUE Y (18/23), but a few preferred tile 9 HUE YOY (4/23) and only one picked 17 HUE YO. All of them used the Spanish loan *amarillo* as a label (23/23).

All of the younf group had a unitary YELLOW category. All males chose tile 1 HUE Y as its BE (16/16). The majority used the Spanish loan *amarillo* as a label (10/16) but more than one third used the traditional term *amarelo* (6/16).

Several young males selected tile 15 YOY S2 as the BE of an adjacent yellow category (4/16). Two called it *ocre* (2/16), one *dourado* (1/16) and another *beis* (1/16).

Most of the young females preferred tile 1 HUE Y (15/18) but a few others chose tile 9 HUE YOY (3/18). Young females were slightly more inclined to use Sp *amarillo* (10/18) rather than *amarelo* (8/18).

Several young females also chose tile 15 YOY S2 as the BE of one of their categories (4/18), *beis* or *beis/ocre* (2/18), *dourado* (1/18) and one last had no particular label for it.

In conclusion, during the BE task all participants had a unitary YELLOW category. However, the denotation of this category was wider for the elderly participants than for their

[37] As noted above, the number of elderly males who completed the BE task is 15. CWZEFF was one of those who did not finish the task and will be generally excluded from this section. Nevertheless, he did provide a BE for YELLOW (SP *amarillo*) and he agreed with the majority of the group in choosing tile 1 HUE Y.

younger counterparts as it included some tiles at the ORANGE and pale GREEN borders. Nevertheless, both age and gender groups agreed in choosing primarily tile 1 HUE Y as the BE of this category and tile 9 HUE YOY as a distant second option. Although the two alternative terms were used in both groups, the dominant label across the elderly group was the Spanish loan *amarillo* whilst among their young counterparts *amarelo* represented one third to a half of the tokens.

5.3.3. BE red

Some of the elderly males did not have a unitary RED category (4/15). Instead, IOIJVU had a RED+PINK+ORANGE category with its BE at 213 ROSE RED called *rojo*. FWFJMA and BHTXZD, however, operated with a RED+ORANGE category. They chose tiles 57 HUE ROR and 213 ROSE RED respectively as its BE. Both had alternative labels for this category. The former used *roxo/encarnado* and the latter *rojo/encarnado*. DZXLSU grouped all red and pink tiles in a single category called *rosa* for which he chose 65 HUE R as its BE.

However, the majority of elderly males did have a unitary RED category (11/15).[38] Among them, tiles 49 HUE RO and 57 HUE ROR were almost equally popular as BE (5/11 and 4/11 respectively), followed by 65 HUE R and 73 HUE RVR that were chosen once each. Their most popular labels were Spanish loan *rojo* (5/11) and *roxo* (4/11) followed by a couple who used interchangeably *rojo/encarnado* (1/11) and *rojo/vermello* (1/11).

A few elderly females also lacked a clear unitary RED category (5/23). VBFITY had not partitioned ORANGE and clearly operated a RED+ORANGE category called *rojo* with its BE at 49 HUE RO. Another few struggled to differentiate these two categories. CRZTKW, although using the label Sp *naranja*, chose almost identical BEs for RED and ORANGE: 41 HUE ORO for *roxo* and 33 HUE O for *naranxa*. Others, such as BJUITX and UWGSVK, despite having a RED (*rojo* at 57 HUE ROR and *butano* at 49 HUE RO) and a designated ORANGE category, red and orange tiles were distributed across those categories in various manners. YXQKTX (who chose 57 HUE ROR for her *rojo* category) was even unable to classify some of those tiles in either. FJTOJG, however, would not make a clear categorisation and labelled individually some red (*rojo,* BE 57 HUE ROR; *butano,* BE 49 HUE RO) and orange shades (Sp *naranja,* BE 33 HUE O; *pemento;* BE 25 HUE OYO).

The remaining elderly females did have a unitary RED category (17/23). Their most popular BE were tiles 49 HUE RO (7/17) and 65 HUE R (6/17) followed by 57 HUE ROR (3/17) and one token of 73 HUE RVR. The label used the most was the Spanish loan *rojo* (12/17) or this interchangeably with other terms *rojo/encarnado* (2/17), *rojo/roxo* (1/17), whilst the terms *encarnado* and *vermello* were used once each.

[38] As we will see in the next section, one of these, FVVIHY, besides a RED category had also an ORANGE+PINK category that included some red tiles, 49 HUE RO and 65 HUE R. This is an example in which the partition of some parts of MACRORED or extended RED is not fully completed.

All young males had a unitary RED category (16/16). Their clear favourite BE was tile 49 HUE RO (12/16) followed by 57 HUE ROR (3/16) and 65 HUE R (1/16). The most popular label was *vermello* (9/16), and a few more used it interchangeably with other terms, *encarnado/vermello* (2/16) and *roxo/vermello* (1/16). Other labels used were *roxo* (2/16) and Spanish loan *rojo* (2/16).

UEGMOK and LDPHWN also had also a second red category called *granate* 'crimson' and chose as its BE 213 ROSE RED and 73 HUE RVR respectively.

Likewise, all young females had a unitary RED category (18/18). Young females also agreed with their male counterparts in choosing more often tile 49 HUE RO as the BE of the category (13/18) followed by 57 HUE ROR (4/18) and 65 HUE R (1/18). The most used labels were *vermello* (7/16) and the Spanish loan *rojo* (6/18), followed by a few who used those two terms interchangeably (3/18), or *encarnado* (1/18) and *rojo/encarnado* (1/18).[39]

Thus, we observe a clear contrast between the two generations. About one fourth of the elderly, both males and females, did not establish a clear unitary RED category. Elderly participants did not (or were unsure about how to) partition RED and ORANGE (EM:4/15, EF:5/23). This contrasts with the other age group as unitary RED was a category for all young participants (YM:16/16, YF:18/18).

Tile 49 HUE RO was the most chosen tile as BE of unitary RED across all subgroups but in different proportions. Elderly participants had close second options, 57 HUE ROR in males and 65 HUE R in females, however, HUE RO was clearly the dominant response among young participants. There were also important differences in labelling. Elderly participants used a wide range of names, with *rojo* and *roxo* the main ones among males, and *rojo* among females. Among young participants, males used mostly *vermello* whilst females were split between *vermello* and *rojo*. We see an important presence of the Spanish loan *rojo* across the elderly generation. Furthermore, this loan word appears in both age groups always in a higher proportion in females than males.

5.3.4. BE orange

A third of the elderly males did not have a separate ORANGE category (5/15). These participants did not choose any orange tile as the BE of their categories. A couple of those did not partition ORANGE. For them all orange tiles belonged either to RED or YELLOW. This was the case of IOIJVU, who did not have a separate PINK category either. Similarly, despite having a PINK category, FWFJMA also maintained all orange tiles within RED or YELLOW.

[39] Tiles 213 ROSE RED and 73 HUE RVR were also selected by a couple of young females, UUJPLW and BYHDHO, but they were considered the BE of a dark pink category, called *fuscia* and *magenta* respectively. RMZDCV also had a *fuscia* category but chose tile 81 HUE RV as its BE.

Similarly, BHTXZD had some orange tiles attached to RED but another was included in a category called *tella*, for which he chose tile 52 RO T3 as its BE. This could be considered a rising PINK+ORANGE category.[40]

The rest did not have separate ORANGE or PINK categories but instead had a single category comprising both. PABVPD and OTTZVM operated with a PINK+ORANGE category called *rosa* for which they chose tile 52 RO T3 and 81 HUE RV as their BE.[41]

The remaining ten did select either 25 HUE OYO (7/10), 33 HUE O (2/10) or 41 HUE ORO (1/10) as BE of one of their categories. Although one of those, FVVIHY, selected an orange stimulus, 25 HUE OYO, for one of his categories, he labelled it *rosa* and had no independent PINK category which suggests that, similarly to PABVPD, OTTZVM and BHTXZD, he operated with a single category comprising PINK+ORANGE.[42]

In addition, a few identified a category around ORANGE, but did not have label for it (3/10). SLZHJG simply said it was a separate colour, UXXMXB said *nin amarillo nin rojo* and WNUYZA doubted between *color palla/caldeiro*. The remaining six did have a name for this category (6/10).[43] Two, XAFMOJ and QMYVHI, used *butano*, and four used either the Spanish loan *naranja* or the Galician term *laranxa*.

Three elderly females clearly did not have a separate orange category either (3/23). VBFITY distributed the orange tiles across RED, PINK and YELLOW. EXJOMA and JAYAAC operated with a PINK+ORANGE category that both called *rosa* and for which they chose as BE tile 69 R T4 and 41 HUE ORO respectively.

However, we should add to these four more participants who struggled to differentiate ORANGE from RED (4/23). CRZTKW chose as BE of RED tile 41 HUE ORO and for ORANGE tile 33 HUE O, which are almost identical orange tiles. Similarly, UWGSVK chose tile 49 HUE RO as the BE of her RED category which she called *butano* and chose as BE tile 41 HUE ORO as the BE of *naranja* but this grouped together most orange and red tiles. BJUITX,

[40] BHTXZD included two of the central oranges (33 HUE O, 41 HUE ORO) within RED but also had a category called *tella* with a BE at 52 RO T3 containing (25 HUE OYO, 44 ORO T3, 52 RO T3, 216 SIENNA BROWN, 38). However, unlike PABVPD and OTTZVM, he did not include tiles 69 R T4 and 60 ROR T3 in this category (which were categorised as YELLOW instead). Although for BHTXZD this category did not include tile 69 R T4, for many the BE of PINK, I consider it to be a rising PINK+ORANGE as the BE chosen is 52 RO T3, the centre of the ORANGE to PINK transition and the BE of PINK itself for many other participants. Nevertheless, the inclusion of dark orange and browner tiles, 216 SIENNA BROWN and 38, along with the label *tella* 'roof tile' suggests that this category denotation still follows the range of shades observable in its prototype rather than a more abstract category.

[41] During the tile naming task, PABVVPD labelled tiles 33 HUE O and 41 HUE ORO as *roxo*. However, during the BE task he grouped tiles 25 HUE OYO, 33 HUE O and 41 HUE ORO together and named them *fuscia*, which he considered a subtype of *rosa*. Thus, I considered this a PINK+ORANGE category.

[42] FVVIHY, agreeing with BHTXZD, did not include tile 69 R T4 in his PINK+ORANGE category, which was simply labelled as *claro* 'light'. This PINK+ORANGE category was in fact wider as it also included some red tiles such as 49 HUE RO and 65 HUE R blurring the border of RED and ORANGE.

[43] The only male that did not categorise HUE ROR as a RED, did it as PINK. He provided one of those five tokens of *rosa*.

besides a RED category, identified a category with its BE at 41 HUE ORO but named it *granate* and included in it also several red tiles.

In addition, YXQKTX chose tile 57 as the BE for *rojo* and 33 as the BE for *color butano*. However, the former included some orange tiles (41) and she was unable to allocate some of the focal red and orange tiles (33, 65) in either of those categories. Furthermore, FJTOJG chose very close red tiles, 57 HUE ROR and 49 HUE RO, as BE of two categories, *rojo* and *butano* and picked two similar orange tiles, 33 HUE O and 25 HUE OYO, as representatives of Sp *naranja* and *pemento*. Thus, despite being aware of the new labels, these four participants seemed to operate with the notion of RED and ORANGE being the same entity which made them very unsure about what to apply these terms to.

A couple more identified an ORANGE category but still had no label for it (2/23). GBUOEB moved orange tiles from PINK to RED to finally conclude 25 HUE OYO and 33 HUE O were a separate category that she did not have a name for. VRBKIA identified a category with its BE at 33 HUE O, that she simply described as being *nin amarillo nin rojo/fuscias.*[44]

The remaining elderly females did have a clearer separate ORANGE category (14/23). They showed a preference for tile 25 HUE OYO as its BE (7/14), followed by tile 33 HUE O (5/14) and tile 41 HUE ORO (2/14). The most common label was the Spanish loan *naranja* (5/14) or the hybrid form *naranxa* (4/14). A few agreed in naming this category *butano* (3/14), and another two used interchangeably *butano* and *naranxa* or cognates (2/14).

All young males had an ORANGE category. The most popular BE was tile 25 HUE OYO (13/16) and just a few chose tile 33 HUE O (2/16) or 41 HUE ORO (1/16). The most common labels were the Standard Galician term *laranxa* (8/16) followed by the hybrid form *naranxa* (6/16), using interchangeably those two (1/16) and the Spanish term *naranja* (1/16).

Only four of these participants had further partitions in this area (4/16). EEVBDO and QBOGAO established another category with its BE at 52 RO T3 called *salmón,* whilst a very similar tile, 60 ROR T3, was chosen by LIMKLH **a**s the BE of *color carne*. LDPHWN and QBOGAO agreed on a category called *tella* with its BE at 216 SIENNA BROWN.

All young females had an ORANGE category (18/18). Most of them chose tile 25 HUE OYO as its BE (13/18) followed by tile 33 HUE O (4/18) and tile 41 HUE ORO (1/18). The most popular labels were either the Standard Galician *laranxa* (8/18) or the Spanish loan *naranja* (6/18) followed by the hybrid form *naranxa* (3/18) and the interchangeable use of *naranxa/laranxa* (1/18).

[44] GBUOEB gives two alternative descriptions of this category, *nin amarillo nin rojo/fuscias*, which tell us about a perceived equivalence between a Colour in between *yellow and red* and PINK. This could be additional evidence of the idea sustaining the PINK+ORANGE category used by other elderly participants or simply not knowing what the meaning of the term *fuscia* is.

Two young females, XZCCAS and UHSEQV, had a separate category at the darker end of this area and chose tile 216 SIENNA BROWN as its BE. They used labels *color tella* and *color caldeira* respectively.

Six young females had a separate category labelled *salmon* (6/18). For five of them its BE was at the border between ORANGE and PINK (four, FUIDNC, OOJDPV, UHSEQV and UUJPLW, chose tile 52 RO T3 and another, XZCCAS tile 60 ROR T3) whilst the remaining two, EPNJDL and MVHQAD chose a pale orange, tile 44 ORO T3.

In conclusion, the categorisation of the orange area of the colour space shows important generational differences. All young participants operated with a clear unitary ORANGE category but about a third of the elderly group did not. They had either not partitioned it from RED or YELLOW, had an ORANGE+PINK category or had difficulties telling ORANGE apart from RED. The remaining two thirds distinguished a unitary ORANGE category, although some of them did not have a specific label for it.

The BE for ORANGE in both age groups tended to be 25 HUE OYO, 33 HUE O or 41 HUE ORO. However, there were noticeable generational differences in labelling. Although the Spanish loan *naranja* and the hybrid *naranxa* were found in both age groups, the Standard Galician *laranxa* was almost absent in the elderly group but had a strong presence among the young participants. Conversely, the term *butano* was used by elderly participants alone.

In addition, some participants had further divisions in this area. *Salmon* as a category between ORANGE and PINK was pointed out by a quarter of young participants, mostly females, as opposed to just a couple of elderly counterparts. The selected BEs for this category were mostly 52 RO T3 but also 60 ROR T3 and 44 ORO T3. The dominant term was *salmón*.

A couple of participants in each subgroup chose tile 216 SIENNA BROWN as the BE of a separate category. However, for elderly men it is labelled with a brown term ((*castaño*, *color chocolate*), whist elderly females and young men agreed in *color tella* and young females used also *color tella* and *color caldeira*.

Table 5.20 below combines the data discussed in this section and the next. In it participants of all subgroups are classified according to their categorisation patterns in the red-pink-orange area. Thus, we can see how elderly males were mostly in the earlier stages where partition of ORANGE did not occur or was not complete and how only two of them had a unitary ORANGE category with a stable label. There were elderly females at the same stages as their male counterparts, but the proportions were shifted as half of them had a separate ORANGE category. In addition, a few of those elderly females mentioned CRIMSON and SALMON as category candidates for basicness. The table also shows how all young participants were at the latest stages as all of them had at least a unitary ORANGE category. In the further phases there were gender differences. Although two young males mentioned SALMON as a category (2/16), young females did so almost

three times more (6/18). CRIMSON was mentioned as a category only by elderly females (2/23) and young males (2/16) and *fuscia* was pointed out as a separate category by young females alone (3/18).

	EM identifiers	**EM Total**	**EF identifiers**	**EF Total**	**YM identifiers**	**YM Total**	**YF identifiers**	**YF Total**
RED+PINK+ORANGE	IOIJVU	1	-		-		-	
RED+ORANGE PINK	FWFJMA	1	VBFITY	1	-		-	
RED+ORANGE PINK+ORANGE	BHTXZD	1	-					
RED PINK+ORANGE	PABVPD OTTZVM FVVIHY	3	EXJOMA JAYAAC	2	-		-	
RED / ORANGE confusion PINK	-		CRZTKW BJUITX UWGSVK YXQKTX FJTOJG	5	-		-	
RED PINK ORANGE (no label/impovised)	SLZHJG UXXMXB* WNUYZA	3	GBUOEB VRBKIA	2	-		-	
RED+PINK ORANGE	DZXLSU	1			-		-	
RED PINK (no label/improvised) ORANGE	XAFMOJ (butano) LDOJUY (larnanxa)	2	-		-		-	
RED PINK ORANGE (*butano*)	-		CAFBAI TYVOFV	2	-		-	
RED PINK ORANGE (*laranxa* and cognates)	DRZGWR QDXBBO	2	NQJDOE UNVFTA GPXTBB QBKQUE ZOYWTL RZQDAR UAMVND EKQSQD	8	ZGZRQU UWEBLE NDMKKAW RSLNQ AXE VKI VWFZNO MNQYDALI MKLH OTQHCF NXARHS SMMDBI TGACDT	12	ZHUNIC DXMAOI HIAQCH HVFPBE IDESVU KAAHBT QOEDKR FYGPDX QQQHZH UHSEQV	10
RED PINK ORANGE SALMON	QMYVHI (butano)	1	PDHQSB (salmon no label)	1	EEVBDO QBOGAO	2	FUIDNC OOJDPV XZCCAS EPNJDL MVHQAD	5

RED PINK ORANGE CRIMSON	-		TYJWXP SSITWE	2	UEGMOK LDPHWN	2	-	
RED PINK ORANGE FUSCIA	-		-		-		BYHDHO RMZDCV	2
RED PINK ORANGE SALMON FUSCIA	-		-		-		UUJPLW	1
Total subgroup participants		**15**		**23**		**16**		**18**

Table 5.20 Categorisation patterns of the red, pink and orange area. BE

Table 5.21 below compares the categorisation patterns shown across TN and BE tasks doe the red, orange and pink areas.

	EM		EF		YM		YF	
	TN %	**BE %**	**TN %**	**BE %**	**TN %**	**BE %**	**TN %**	**BE %**
RED+PINK+ORANGE	10.53	6.67	4.17	0.00	0.00	0.00	0.00	0.00
RED+ORANGE /RED+ORANGE, YELLOW+ORANGE, no PINK	**15.79**	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00
RED+ORANGE /RED+ORANGE, YELLOW+ORANGE, PINK	**21.05**	**0.00**	**16.67**	**4.35**	0.00	0.00	0.00	0.00
RED+ORANGE, PINK+ORANGE	15.79	13.33	4.17%	0.00	0.00	0.00	0.00	0.00
RED, PINK+ORANGE	**5.26**	**20.00**	12.50	8.70	0.00	0.00	0.00	0.00
RED / ORANGE confusion, PINK	0.00	0.00	**12.50**	**21.74**	0.00	0.00	0.00	0.00
RED, PINK, ORANGE (no label/improvised)	**5.26**	**20.00**	**0.00**	**8.70**	0.00	0.00	0.00	0.00
RED+PINK, ORANGE	5.26	6.67	4.17	0.00	0.00	0.00	0.00	0.00
RED, PINK (no label/improvised), ORANGE	5.26	13.33	0.00	0.00	0.00	0.00	0.00	0.00
RED, PINK, ORANGE (*butano*)	5.26	0.00	**4.17**	**8.70**	0.00	0.00	0.00	0.00
RED, PINK, ORANGE (*laranxa* and cognates)	10.53	13.33	41.67	39.13	87.50	75.00	61.11	55.56
RED, PINK, ORANGE, FUCHSIA	0.00	0.00	0.00	0.00	0.00	0.00	5.56	11.11
RED, PINK, ORANGE, CRIMSON	0.00	0.00	0.00	**4.35**	0.00	**12.50**	0.00	0.00
RED, PINK, ORANGE, SALMON	**0.00**	**6.67**	**0.00**	**4.35**	12.50	12.50	27.78	27.78
RED, PINK, ORANGE, SALMON, FUCHSIA	0.00	0.00	0.00	0.00	0.00	0.00	5.56	5.56

Table 5.21. Comparison of TN and BE categorisation patterns

5.3.5. BE pink

Several elderly males did not have a separate PINK category. As explained in Section 5.3.4. IOIJVU did not partition the ORANGE or PINK categories and PABVPD, BHTXZD, OTTZVM and FVVIHY operated with a PINK+ORANGE category. The first two chose tile 52 RO T3 as the BE, OTTZVM chose 81 HUE RV, and FVVIHY chose 25 HUE OYO.

In addition, DZXLSU did not have a distinct PINK category either. He grouped all red and pink tiles under the label *rosa* and chose tile 65 HUE R as its BE. Furthermore, LDOJUY did not have a clear PINK category either. His category *granate* with BE at 52 RO T3 included one red tile 57 HUE ROR but not 69 R T4 or 60 ROR T3 which he could not classify or provide a label for at all. Similarly, BHTXZD seemed not to have a PINK category either. As mentioned in Section 5.3.4 he used a category named *tella* with BE at 52 RO T3 that rather than a PINK+ORANGE seemed to be an extended ORANGE as it did not include tiles 69 R T4 or 60 ROR T3.

The rest of the elderly males did use unitary PINK (8/15) and they did not have any preference for the BE of the category: 69 R T4 (3/8) followed by 73 HUE RVR (2/8), and then by 52 RO T3, 60 ROR T3 and 81 HUE RV that were chosen once each.

However, some of those did not have a label or used terms that typically refer to other colours. SLZHJG selected tile 52 RO T3, a pale orangish pink, as the BE of his category but he could not name it and simply said it was a *separate colour*. QDXBBO chose as BE tile 60 ROR T3, also a mix of pink and orange and a relatively pale hue and called this category *fuscia*. FWFJMA chose 69 R T4 as BE and called it *color carne* 'flesh colour'. The remaining five labelled this category *rosa* (5/8).

Elderly females EXJOMA and JAYAAC operated with a PINK+ORANGE category that included tile 69 R T4 called *rosa*. They chose tile 69 R T4 and 41 HUE ORO respectively as the BE of this category.

Most of their counterparts, however, did have a separate PINK category (21/23). Their favourite BE was tile 69 R T4 (10/21) followed by tile 52 RO T3 (5/21), 83 RV T2 (4/21) plus one token each of 73 HUE RVR and 81 HUE RV. All of them agreed to name this category *rosa*.

All young males had a PINK category. Their favourite BE was tile 69 R T4 (13/16) whilst the darker tiles 73 HUE RVR and 213 ROSE RED[45] and paler 80 RVR S3 were chosen only once. All of them agreed in calling this category *rosa*.

Among young females, the most popular BE for PINK was tile 69 R T4 (11/18) followed by tile 83 RV T2 (3/18) 213 ROSE RED (2/18), 73 HUE RVR (1/18) and 52 RO T3 (1/18). All of them used the label *rosa*.

Some of those with the BE of PINK at tile 60 R T4 (3/11) also had a second pink category at the darker end of the spectrum. Two of them picked as its BE hues with a high content

[45] As commented in Section 5.3.3, tiles 73 HUE RVR and 213 were chosen by other young males to be the BE of *granate* 'crimson'.

of red, UUJPLW, 213 ROSE RED; BYHDHO, 73 HUE RVR, whilst RMZDCV chose tile 81 HUE RV which has a higher proportion of blue. Two of these participants labelled this second pink category *fuscia* and the other one *magenta*.

5.3.6. BE green

All elderly participants had a unitary GREEN category called *verde* (EM: 15/15; EF:23/23). Among elderly males the most popular BE was tile 169 HUE GYG (8/15), followed by 161 HUE G (5/15) and a couple of EM who chose 184 YG S3 (2/15). Elderly females also primarily preferred 169 HUE GYG (16/23) but their distant second options were 177 HUE YG (3/23) and 161 HUE G (2/23).

Every young participant also operated with a unitary GREEN category labelled *verde*. Most young males chose 169 HUE GYG (14/16) and only two chose 177 HUE YG. Most young females also chose 169 HUE GYG as the BE of this category (16/18) and tiles 177 HUE YG and 174 GYG S1 were chosen only once each.

Thus, we see that 169 HUE GYG is the favourite BE for GREEN across the two age groups. However, elderly males had a close second option, 161 HUE G, whilst elderly females and the whole young group had higher consensus rates.

5.3.7. BE blue

All elderly participants who undertook the BE task had a unitary BLUE category (EM:15/15; EF:23/23). Nevertheless, the denotation of this category was wider for some of them than for the rest of the group. For two thirds of the elderly males (10/15) BLUE comprised tiles 119 BV S2 and/or 113 HUE BV (8/16 and 6/16 respectively). This was true for a smaller proportion of the elderly females (7/23) as only for a few this category included 119 BV S2 (6/23) and/or 113 HUE BV (4/23).[46]

Among the young group there were important gender differences. No young male included tiles 119 BV S2 and 113 HUE BV within BLUE (0/16). In contrast, a significant proportion of young females (7/18) considered that one or both tiles belonged to BLUE (119 BV S2 5/18 and 113 HUE BV 5/18).[47] The most popular best example of BLUE among EP (50.00%) was BVB, slightly purple, while this was true for just one YP counterpart (2.94%). Similarly, a few YP (20.59%) chose tile BGB which in turn was chosen by one

[46] During the tile naming task a higher number of elderly male and female participants had labelled tiles 119 BV S2 and/or 113 HUE BV as BLUE (EM:10/15; EF:13/23). However, some of them, mostly females, changed some or all of their responses and moved these tiles into another category (namely PURPLE). The data provided in this section refer to those who mantained these tiles within BLUE during the BE task.

[47] During the naming task three young males included tile 119 BV S2 in BLUE and one of them also 113 HUE BV, but none of them maintained this categorisation during the BE task. A bigger proportion of young females (8/18) included 119 BV S21 and/or 113 HUE BV within BLUE during the tile naming task. Although two of them changed their minds about one or both tiles during the BE task, the vast majority kept their responses (7/18).

single elderly counterpart (2.63%). Most YP chose either tiles HUE B or B T1 (76.47%) which were also the choice by 44.74% of EP.

In addition, several participants had a separate category at the border of GREEN and BLUE. One elderly male called it *azulina* and chose tile 145 HUE BG as its BE and one young male called it *turquesa* and chose tile 146 BG T1. Nevertheless, this category was more common among young females (7/18). Three chose tile 146 BG T1 (3/7), another three 145 HUE BG (3/7) and one 153 HUE GBG. Although one of them used the term *añil* (‘indigo’) and another simply described it as *verde azulado* (‘bluish green’), four of them (4/7) agreed on the term *turquesa* and one more (1/7) used either *turquesa* or *aguamarina* (´seawater´).

5.3.8. BE purple

The number of purple categories was not the same across ages and genders. As can be seen in Table 5.22 below, elderly males had fewest purple categories, which increased progressively through elderly females and young males until almost doubling in young females.

This means that the majority of elderly males (11/15) had one single purple category. However, for some of those PURPLE was not a fully formed category as several central purple tiles such as HUE V and HUE VBV were categorised as BLUE (IOIJVU and FVVIHY).[48]

Table 5.22. Number of purple categories during the BE

	Elderly males (N:15)	**Elderly females (N:23)**	**Young males (N:16)**	**Young females (N:18)**
Total no. of purple categories	19	37	31	41
Average no. of purple categories group	**1.266**	**1.608**	**1.937**	**2.277**

Half of the elderly males who had one PURPLE category chose BE HUE V as its BE (5/11), followed by HUE VBV (3/11) and HUE VRV (3/11). The remaining four participants agreed with the rest of the group on choosing HUE V and HUE VBV as the BE for one of their categories, but they also had a second one for which they selected either a paler hue, VBV T4; a bluer hue, HUE BV; or a redder one, HUE RV and HUE VRV, as BE.

For the elderly males who had one single purple category, the most common label was *color viño* (3/11). In addition, BHTXZD, who had two categories, called one of them, HUE VBV, *viño azul* (‘blue wine’) and the other one, VBV T4, *viño blanco* (‘white wine’). The

[48]During the tile naming task, BHTXZD categorised as BLUE an even wider range of purple tiles but changed HUE V and HUE VBV into *color viño* during the BE task.

rest of the elderly males with one purple category used *morado* (1/11), *violeta* (1/11), using interchangeably *morado* or *violeta* (2/11), *lila* (2/11), using interchangeably *morado* or *lila* (1/11), and *malva* (1/11). The remaining three elderly males with two purple categories called the ones around HUE V and HUE VBV *morado, añil,* and *púrpura.* Two of them agreed in naming their second categories *lila*, one a paler hue*,* VBV T4*,* and the other a bluer and desaturated one, BV S2. The last one labelled his second category with a redder content, HUE RV, *morado*.

Over half of the elderly females also had one single purple category (12/23). The majority (11/12) agreed with their elderly counterparts on choosing as its BE either HUE VBV (6/11), HUE V (4/11) or HUE VRV (1/11), whilst another chose HUE BV instead. Their most common label for this single category was *lila* (6/12). The other terms were attested much less: one single token of *morado* and *malva* followed by combinations of all these terms (and *violeta*) used as synonyms (4/12).

Another significant proportion of the elderly females had two purple categories (7/23), and four participants had three (4/23). In general, these two groups agreed with the rest of their elderly female and male counterparts on choosing HUE VBV (8/11) or HUE V (3/11) as the BE of one of their categories. When it comes to the BE of their second and third categories, several of these participants chose paler hues, VBV T4 (5/11); less saturated hues, RVR S3 (1/11) and VRV S3 (2/11); or bluer hues, HUE BV (1/11) and BV S2 (1/11). Others preferred to establish their second and third categories at the redder end of the spectrum, HUE RV (3/11).

Among the eleven elderly females with several purple categories, the most common label for the one around HUE VBV and HUE V was *morado* (6/11) followed by *morado*/ *nazareno* (1/11) and *lila* (2/11). Within the seven elderly females who had a second and third category around paler, VBV T4, desaturated, RVR S3 and VRV S3, or bluer hues, HUE BV, the more common labels were *lila* (2/7), *malva* (2/7) and *lila/malva* (1/7), followed by *morado* (1/7) or no name (1/7). The five who had categories at the redder end of the spectrum, HUE RV and HUE VRV, used *color viño* (2/5), followed by one token each for *lila*, *malva* and *púrpura*.

Over a third of young males had one single purple category (6/16). All of them chose, like their elderly counterparts, either HUE VBV (3/6) or HUE V (3/6) as its BE. The labels for this category were very heterogeneous and mostly were pairs of alternative terms: *morado* (1/6), *violeta* (1/6) and combinations of those with *lila* and *púrpura* (4/6).

The rest of the young males had either two purple categories (5/16) or three (5/16). All these participants agreed with the rest on choosing either HUE V (7/10) or HUE VBV (5/10) for one of their categories[49]. Their second and third categories had their best

[49] Two of them, LDPHWN and QBOGAO, chose both tiles HUE VBV and HUE V as representatives of two separate categories, *violeta* and *morado*; and *lila* and *violeta* respectively.

example in a paler hue, VBV T4 (6/10) or in a bluer one, HUE BV (1/10) and BV S2 (1/10). Others chose redder hues, HUE RV (3/10) HUE VRV (1/10) and RVR S1 (1/10).

Young males with two and three purple categories used these labels for the categories around HUE V and HUE VBV: *violeta* (4/10), *morado* (3/10), *púrpura* (1/10) and combinations of those (3/10). The ones for paler and bluer hues, VBV, HUE BV and BV S2, were *lila* (3/10), *violeta* (2/10), *morado* (2/10) and *malva/lila* (1/10). The labels for the redder categories were *lila* (2/10), *violeta* (1/10) and *púrpura* (1/10).

Regarding young females, only three had one single purple category. Two of them agreed with the rest in choosing HUE V and HUE VBV as the BE, whilst the other, BYHDHO, chose BV S2, a considerably bluer and desaturated hue. They did not agree on a label and mentioned *malva*, *lila* and *violeta*.

The main trend among young females (15/18) was to have several purple categories: some of them had two (8/15), and some had three (6/15) or even four (1/15). Most of these participants, agreeing with the rest, chose HUE VBV (6/15) and HUE V (5/15) or HUE VRV (4/15) for one of their categories. Almost all young females with a second or more purple categories chose the paler VBV T4, with the strongest rate of consensus across the purple category (14/15). The remaining one chose a bluer and desaturated hue instead, HUE BV S2. Young females with three or more categories placed their BEs of these at the extremes of the hue spectrum: at redder tiles, HUE RVR (1/15); redder and desaturated, RVR S1 (3/15); and at bluer tiles, HUE BV (1/15), or at a darker, bluer and desaturated one, BV S2 (2/15).

The labels for the category around HUE VBV and HUE V and HUE VRV were *morado* (5/15) *violeta* (6/15) and using both terms interchangeably (3/15). The dominant term for the category around VBV T4 was *lila* (11/15), followed by *malva* (2/15), or using the two terms interchangeably (1/15). For the third categories, the terms on the bluer and darker end of the spectrum also oscillated between *violeta* (2/15) and *morado* (1/15), and for the redder end, the term *color viño*, (2/15).

In conclusion, it seems the majority of participants across ages and genders have a focal point around HUE V and HUE VBV, at times HUE VRV. See Table 5.23 below. However, in addition to this, half of the elderly females, most of the young males and almost all young females also have a second purple category whose BE is very often placed at VBV T4, but also HUE BV and BV S2. Some young participants, mostly females, have three categories, adding one extra at the redder, HUE RV, or darker blue, HUE BV and BV S2, ends of this region of the colour space.

	EM identifiers	**EM Total**	**EF identifiers**	**EF Total**	**YM identifiers**	**YM Total**	**YF identifiers**	**YF Total**
BLUE+PURPLE	IOIJVU FVVIHY	2						

PURPLE								
PURPLE	OTTZVM LDOJUY DZXLSU DRZGWR FWFJMA PABVPD QMYVHI UXXMXB SLZHJG	9	YXQKTX QBKQUE RZQDAR CRZTKW NQJDOE EKQSQD GPXTBB UAMVND VBFITY UNVFTA JAYAAC UWGSVK	12	AXEVKI ZGZRQU LIMKLH TGACDT WRSLNQ UWEBLE	6	FYGPDX ZHUNIC BYHDHO	3
PURPLE LILAC	WNUYZA XAFMOJ QDXBBO	4	SSITWE TYVOFV FJTOJG TYJWXP EXJOMA VRBKIA BJUITX	7	SMMDBI NDMKKA NXARHS MNQYDA VWFZNO (not lilac, redpurple)	5	KAAHBT IDESVU XZCCAS DXMAOI HVFPBE QQQHZH HIAQCH RMZDCV	8
PURPLE LILAC RED PURPLE			PDHQSB CAFBAI GBUOEB ZOYWTL	4	OTQHCF LDPHWN EEVBDO QBOGAO UEGMOK	5	OOJDPV MVHQAD FUIDNC UUJPLW EPNJDL QOEDKR	6
PURPLE LILAC RED PURPLE WINE COLOURED							UHSEQV	1
Total subgroup participants		15		23		16		18

Table 5.23. Categorisation patterns of the purple area BE

5.3.9. BE brown

All elderly and young participants had a unitary BROWN category. Among elderly males the most common BE was 56 RO S3 (8/15) followed by 72 R S3 (2/15), 7 Y S2 (2/15) and one token each of 38 O S1, 40 O S3 and 216 SIENNA BROWN. Most of them used the label *marrón* (13/15) and just a couple *castaño* (2/15)[50].

In addition to BROWN, XAFMOJ and FWFJMA chose tile 40 O S3, a dark desaturated brown, as the BE of a separate category. The former labelled it *pardo* and the latter *gris*. This category could be a reminiscence of one of the meanings of the traditional term *pardo* which comprises BROWN+GREY.

Among elderly females, tile 56 RO S3 was the most common BE (9/23) followed by 24 YO S3 (5/23), 40 O S3 (4/23) and one token each of 7 Y S2, 15 YOY S2, 38 O S1, 72 R S3 and 216 SIENNA BROWN. Almost all used the term *marrón* (21/23), and just a couple used instead *castaño* (1/23) or *color madeira* (1/23).

Nevertheless, most of them had more divisions within this area. Tile 7 Y S2, a comparatively lighter hue, was chosen several times as the BE of a separate category (6/23). Two of them labelled it *castaño* (2/6) and the rest *tostado* (1/6) *ocre* (1/6), *caqui* (1/6) and *lino* ('flax') (1/6). At the lighter and redder end of this area, tiles 216 SIENNA BROWN and 38 were chosen a few times as BE of a separate category (3/23 and 2/23 respectively). Together they gathered three tokens of the label *color tella* (3/23), *ocre* (1/23) and *butano* (1/23).

Among young males, the most common BE was 56 RO S3 (7/16) followed by 24 YO S3 (4/16), 72 R S3 (2/16), 38 O S1 (2/16) and one token of 40 O S3 (1/16). However, several of them made further divisions. Tile 15 YOY S2 was chosen by four of them as the BE of a separate category (4/16). Two of them labelled it *ocre*, another *beis* and one *dourado*. One more used the label *dourado* for a category with its BE at 7 Y S2. Two more chose SIENNA BROWN as the BE of *color tella*.

Within young females, tile 56 RO S3 was also the most popular BE (11/18), followed by 38 O S1 (5/18) and 24 YO S3 (2/18). Almost all of them used the term *marrón* (17/18) and the remaining one interchangeably *marrón/castaño* (1/18). Nevertheless, some of them segregated some tiles in this region as separate categories.

Tile 15 YOY S2 was selected four times as the BE of another category (4/18). Two of them used either the term *beis (1/18)* or either *beis/ocre* (1/18), another one *dourado* (1/18) and one did not have a label for it (1/18). Tile 216 SIENNA BROWN was chosen twice (2/18) as the BE of a category called *color tella* (1/18) and *color caldeira* (1/18).

To sum up, all participants had an unitary BROWN category. Tile 56 RO S3 was the favourite among all groups followed by 24 YO S3 but a range of other tiles was also

[50] Some of the elderly males made attempts to create other categories in this area. Tile 7 Y S2 was chosen twice as the BE of a separate category, which LDOJUY called *tostado* but SLZHJG did not have a name for. SLZHJG also separated 216 SIENNA BROWN as *color chocolate*.

chosen. The dominant label across the two groups was *marrón* although a few elderly participants used the term *castaño* (3/23).

Some made further divisions. On the lighter end of the spectrum tile 15 YOY S2 kept being chosen as the BE of a separate category by both groups (EP: 6/23; YP 8/34). Some terms were used by one age group only (EP: *castaño*; YP: *dourado*) but *ocre*, *beis* and *caqui* were used by both. On the lighter and redder end of the spectrum SIENNA BROWN and 38 O S1 were chosen as a separate category (EP:5/23; YP: 4/34) which tended to receive the term *color tella* by both groups (EP:3/5; YP:3/4)

5.3.10. BE grey

Some elderly males did not operate with a coherent unitary GREY category (6/15). IOIJVU used GREY+BEIGE+LILAC with BE at 109 VBV T4 called *beis*. LDOJUY operated with GREY+LILAC with BE at 204 GRAY 6 called *gris*. QDXBBO used GREY+BEIGE with BE at 128 BVB S3 called *gris*. In addition to those, a few more (3/6) were uncertain about the denotation of GREY and BEIGE. DRZGWR chose very similar BEs for *gris,* 194*,* and for *beis,*196*.* BHTXZD and FVVIHY did not have a fully developed GREY category as besides the BE 200, most of the other achromatic tiles were not included*.* In addition*,* FVVIHY did not even have a specific label, and simply called it *claro*.

The remaining elderly males did have a unitary GREY category (9/15). The most popular BE was 200 GRAY 4 (5/9) followed by 204 GRAY 6 (2/9) and 128 BVB S3 (1/9) and 40 (1/9). Their most popular term was *gris* (8/9) and one token of *color plomo* 'lead colour'.

A few elderly females did not have a clear unitary GREY category either (6/23). EXJOMA, despite having three separate labels, applied them randomly to grey, beige and lilac tiles and no BE was selected for any of these. A few others did not have a clear categorisation of GREY (5/23) and chose very similar tiles as BEs for two separate categories. This was the case of FJTOJG, EKQSQD, UNVFTA, SSITWE, TYJWXP who chose combinations of 196, 200, 204 and 128 as their BEs for *gris* and *beis*.

For SSITWE the categorisation of grey, beige and brown was not clear as these suffered several transfers of tiles from the tile naming to the BE task. *Beis* with BE at 128, which included also 13, got added a few pale grey tiles during the BE task. And *gris* with BE at 200, got added 204 which was considered initally *beis*, then *marrón* and finally *gris*. *Color chocolate* with BE at 48 can hardly be considered a BEIGE category as it is formed by just that tile and got an improvised label.

TYJWXP and EKQSQD did not have a beige category either[51]. However, they tended to group achromatic tiles together. TYJWXP labelled darker achromatic tiles as *gris* and paler 194 and 196 as *beis* or *blanco*. EKQSQD's *gris* comprised GREY+LILAC as it included

[51] Tiles 48, 64, 80 were considered PINK or LILAC and 13 was classified as YELLOW by TYJWXP and received no label by EKQSQD.

tiles 109 and 96 but the achromatic tiles received the *gris* and *beis* labels with no apparent logic.

FJTOJG and UNVFTA had a BEIGE category called *color crema* with BE at 13[52]. Nevertheless, they had a similar behaviour when it comes to grey as both agreed on categorising dark grey tiles 200, 204 as *gris* and some pale grey tiles as *beis*.

The remaining elderly females had a unitary GREY category (17/23). Most of them chose tile 200 (9/17) or 204 (7/17) and one 128 (1/17). All of them used the label *gris* (17/17).

When it comes to young males, all of them had a unitary GREY category[53](14/16). The majority preferred tile 200 GRAY 4 (11/16) as its BE followed by 128 BVB S3 (3/16) and 204 GRAY 6 (2/16). All of them used the term *gris* (16/16). All young females also operated with unitary GREY (18/18). Their preferred BE was also 200 GRAY 4 (16/18) followed by two tokens of 204 GRAY 6 (2/16). All labelled it *gris* (18/18).

5.3.11. BE beige

In our sample tiles 13 YOY T4, 48 ORO S3, 64 ROR S3 and 80 but also 15 YOY S2 and 20 YO T3 are candidates to be included in BEIGE. However, as advanced in the previous section, some elderly females do not consider the hue component and use it mainly for pale achromatic colours.

Nearly two thirds of the elderly males did not have a BEIGE category (9/15). Some operated with a big GREY+BEIGE+LILAC category (IOIJVU and LDOJUY[54] 2/9). In others, warm pale tiles were not partitioned from other categories, namely WHITE, YELLOW, PINK and BROWN. Tiles 48, 64 and 80 were often considered part of PINK or BROWN and 13 of WHITE or YELLOW (FWFJMA, FVVIHY, PABVPD and WNUYZA 4/9). See Table 5.24 below. In addition, others would label warm pale tiles as part of GREY or did not have a specific label for them (QDXBBO, DRZGWR and BHTXZD 3/9).

[52] This category for FJTOJG did not include 48 and 80 and for UNVFTA did not include 80 and 64, which both considered PINK.

[53] During the tile naming task almost all young males (14/16) and females (15/18) included tile 128 BVB S3 within GREY. The rest considered this tile BLUE, with the exception of one young female who categorised it as *area* instead. However, during the next task the three young females changed their responses, resulting in a total of 5/18 who considered 128 to belong to BLUE. The two male counterparts who initially agreed with them actually changed their reply to GREY resulting in a total of 1/16. This suggests that for almost all young males (15/16, as opposed to 12/18 female counterparts) GREY has a slightly wider denotation including 128 BVB S3 (QBOGAO also includes 96 VRV S3). This contrasts with a fraction of the young females (5/18) who were more restrictive and preferred to include in GREY only purely achromatic hues.

[54] LDOJUY operated with a GREY+BEIGE+LILAC throughout the tile naming task. During the BE task he moved tiles 48 and 64 to *tostado* but this is not considered a BEIGE category as the only consistent tile and chosen BE is 15, a quite dark hue.

The remaining third had a clear BEIGE category (6/15). Nevertheless, half of them applied this to one tile alone (3/6). In general, the preferred BE was 15 (3/6) but 20, 48 and 64 were chosen once each. The favourite label was *beis* (4/6), but they also used *ocre* (1/6) and improvised the term *descafeinado* 'decaffeinated' (1/6).

Some elderly females did not use a BEIGE category either (8/23). Some had not partitioned BEIGE and considered pale warm tiles 48, 64, 80 PINK or LILAC and 13 YELLOW (EKQSQD, ZOYWTL CRZTKW TYJWXP 4/8) or if they were identified as separate colours, they received no specific label (UAMVND and JAYAAC 2/8). Some applied the term *beis* only to light grey or to random tiles (EXJOMA and SSITWE 2/8).

Most of the elderly females, however, operated with at least one clear BEIGE category (15/23). Twelve of those had one pale warm category but the other three distinguished two. A range of tiles with similar tokens were chosen as BEs for these categories: 48 (6/15), 13 (5/15), 15 (3/15) 20 (2/15) and 64 (2/15). The main term was *beis*, as two thirds of the elderly females (10/15) used it for their (or one of their) warm pale category. The second was *color crema '*custard'[55] (4/15) followed by *crudo* or *crudo/carne* 'raw'/'flesh coloured' (2/15*), café con leite* 'coffee with milk' (1/15) and *arena* Spanish for 'sand' (1/15).

PDHQSB, YXQKTX and NQJDOE, who divided the pale warm into two categories, agreed on tile 13 being one of them, and PDHQSB and YXQKTX also coincided on the second one having its BE at 48.

Most of the young males had at least one separate pale warm category (13/16). The most common BEs of those were tiles 13 (5/16), 15 (4/16) and 48 (5/16), closely followed by 64 (3/16) and then 20 (2/16) and 80 (1/16). The category with BE at 13 received exclusively the labels *beis* (3/5) and *color crema* (2/5), whilst the one with BE at 15 received *ocre* (2/4), *dourado* (1/4) and *beis* (1/4). The category with BEs at 20 also received the names *ocre* (1/2) and *crema* (1/2). Tile 48 received the labels *color carne* (2/4), *pastel* (1/4) and *beis* (1/4) whilst tile 64 received *color carne* (1/3), *beis* (1/3) and *ocre* (1/3).

A significant proportion of the young males pointed out two separate pale warm categories (6/16). For most of them (4/6) the distinction seemed to be based on the darkness of the tiles (64 vs 15 (2/4) and 13 vs 20 (1/4) and 12 vs 48 (1/4) whilst the other two seemed to oppose tiles of similar darkness but with different hue compositions 64 vs 13 (1/2) and 20 vs 48 (1/2).

[55] *Crema* in Galician has a number of meanings, including 'cream, milk fat' but also 'custard'. However, milk fat usually receives other names (*nata*, *tona*) which are often used in opposition to the term *crema* as 'custard'. Notice the example in the DRAG: *Pasteis de crema e de nata* 'custard and cream pastries'. Thus*, color crema* could be used in reference to the yellowish white of milk fat but most commonly refers to the pale orangey yellow colour of custard.

	EM identifiers	EM Total	EF identifiers	EF Total	YM identifiers	YM Total	YF identifiers	YF Total
GREY+BEIGE+LILAC	IOIJVU LDOJUY	2	EXJOMA (confuses them all)	1			-	
GREY+LILAC	-		EKQSQD	1	-		-	
GREY+BEIGE	QDXBBO	1	-		-		-	
GREY/BEIGE confusion WHITE/GREY/BEIGE confusion	DRZGWR BHTXZD FVVIHY	3	SSITWE	1	-		-	
GREY GREY (confusing labelling *gris* vs *beis*)	PABVPD WNUYZA	2	ZOYWTL CRZTKW UAMVND JAYAAC TYJWXP	5	AXEVKI WRSLNQ NDMKKA	3	ZHUNIC XZCCAS	2
GREY WHITE+BEIGE	FWFJMA	1	-					
GREY (confusing labelling *gris* vs *beis*) BEIGE			UNVFTA FJTOJG	2				
GREY BEIGE (just one tile and/or improvised label)	UXXMXB XAFMOJ QMYVHI	3	CAFBAI	1	OTQHCF UEGMOK ZGZRQU LDPHWN	4	FUIDNC DXMAOI HIAQCH OOJDPV IDESVU QOEDKR	6
GREY BEIGE (several tiles, at least one consistent since Task 3)	OTTZVM SLZHJG DZXLSU	3	GPXTBB QBKQUE RZQDAR TYVOFV UWGSVK	9	LIMKLH MNQYDA EEVBDO QBOGAO UWEBLE	7	EPNJDL KAAHBT HVFPBE UHSEQV	4

			VBFITY VRBKIA GBUOEB BJUITX		VWFZNO SMMDBI			
GREY BEIGE 1 BEIGE 2 (one tile)	-		PDHQSB YXQKTX NQJDOE	3	TGACDT NXARHS	2	BYHDHO QQQHZH FYGPDX RMZDCV UUJPLW MVHQAD	6
Total subgroup participants		15		23		16		18

Table 5.24 Categorisation patterns of the grey and beige areas BE

Almost all young females had at least one pale warm category (15/18). Among those participants, tile 48 ORO S3 was the favourite BE (9/15) followed by tile 13 YOY T4 (5/15), tile 20 YO T3 (3/15), and tile 64 ROR S3 (2/15).

When the BE was 48 ORO S3 the category tended to receive the label *color carne* (6/9), and only a few times *beis* (2/9) or *area* (1/9). When the BE was 13 YOY T4 it received mostly the label *beis* (4/5) and only once *ocre* (1/5). When tile 20 YO T3 was selected it received the labels *color carne* (2/3) and *ocre* (1/3).

In addition to this tendency of different BEs to receive specific labels, several young females in fact distinguished two warm pale categories. Three of them, MVHQAD, UUJPLW and RMZDCV, opposed 48 ORO S3 and 13 YOY T4 and another two, FYGPDX and BYHDHO, distinguished two categories at 64 ROR S3 and 13 YOY T4. This suggests that for this subgroup the warm pale category might be undergoing some degree of partition based on hue content.

5.3.12. BE white

All young participants chose tile 210 WHITE as the BE of WHITE (34/34). This was also the most frequent choice by elderly participants (32/38). The rest of elderly participants did not create WHITE as a category during this task (6/38).

This category was labelled *branco* by all the elderly participants (32/32) and most young participants (24/34). The rest of young participants used *blanco* (10/34).

5.3.13. BE black

Both age groups agreed on tile 209 BLACK to be the BE of BLACK (EP:37/38; YP:34/34). All of them used the term *negro*.

5.4. Task 2 analysis

The Task 2 data revealed to be extremely rich. Along colour terms, participants offered many descriptors for visual properties beyond hue. Some of these descriptors referred to shine, transparency, sparkle and fluorescence. Sadly, the analysis of these matters surpasses the scope of this study, which is basic colour terms. This other data will need specific attention in future research. Nevertheless, this work will still review the answers referring to the main hue for three of the objects in Task 2: n.1. a red pen, n.2. a priest purple robe, and n.3. an orange notebook. These will provide extra evidence and support for the findings in the formal tasks of Elicited list, Tile naming and Best example.

5.4.1. Red pen

Stimulus n.1 was a red pen (see Figure 3.4.2). It was observed that the responses for this item were not affected by the result of the colour vision test: all EP used red terms. Lillo et al. (2012) found a von Kries-type white compensation mechanism among tritanomalous individuals. They relativised the relevance of the colour vision test result when it comes to studying BCTs: "although some aged people make tritan errors when responding to standard diagnostic tests (Birch, 2001), it appears inaccurate to call them tritanomalous when considering how they use BCTs" (2012: 466). Furthermore, it has been suggested that the perception of unique red it is not affected by aging defects (Fu et al. 2009).

Thus, in this section alone, I will consider together the responses of all EP (N=66) regardless of their colour vision result. Furthermore, the purpose of this task is to see the prevalence of the different candidates for BCT and their geographic distribution if any. Thus, since there happen to be so many alternative red terms, these extra participants (66 versus 44) will help registering some less frequent terms. Moreover, this extra sample will also help identifying any geographical distribution that would be otherwise too scattered.

The Spanish loan *rojo* was the term with the most frequencies among EP. Most EP mentioned it one way or another (51/66). For a fraction of those *rojo* was their only response (18/51) whilst most provided it along other red terms (33/51).

Encarnado was the next most attested term, the strongest of the Galician forms. It was mentioned by nearly a third of EP (20/66). The difference from other red terms is that

encarnado tended to be used alone or alongside *rojo* (16/20). Just a few times it was used in a list of other red terms (4/20).

Roxo followed closely (15/66). However, it was provided alone or alongside *rojo* much less often (7/15) and it was as often the first term in a list of other red words (8/15). The list followed with *vermello* (10/66) which appeared alone or in combination with *rojo* (6/10) and also in lists of other red terms (4/10). The most weakly attested term, *rubio/roibo,* gathered just a handful of tokens (7/66), which appeared only alongside *rojo* (4/7) or in combination with other red terms (3/7).

In order to interpret this complex picture and the saliency of these terms in respect of one another I designed the following procedure. I assigned a fixed value to the different positions in which these terms showed: appearing alone=2, appearing first in a list=1, appearing second in a list=0.5 and appearing third in a list=0.3. Then the different tokens were multiplied by these values. The results are shown in Table 5.25 below.

		Alone 2.0		First 1.0		Second 0.5		Third 0.3		
	Total tokens	Tokens	Total value	Tokens	Total value	Tokens	Total Value	Tokens	Total valu	Total
rojo	51	18	36.0	30	30.0	3	1.5	0	0.0	67.5
encarnado	20	5	10.0	1	1.0	13	6.5	1	0.3	17.8
roxo	15	2	4.0	4	4.0	9	4.5	0	0.0	12.5
vermello	10	1	2.0	1	1.0	6	3.0	2	0.6	6.6
rubio/roibo	7	0	0.0	1	1.0	5	2.5	1	0.3	3.8

Table 5.25. Task 2. Stimulus 1. Tokens and Saliency of red terms including Spanish loan *rojo* as a variant

We see that the Spanish loan *rojo* produced a value (67.5) nearly four times higher than the next candidate: *encarnado* (17.8). Then follows *roxo* (11.5*)*, *vermello* (6.3) and *rubio*/*roibo* (3.8). This measurement aims to account for the relative saliency of this group of terms. However, it does not seem to portray fairly the vitality of the Galician terms *per se*. If we take into consideration that these participants are exposed to both Galician and Spanish, the latter being considered prestigious, measuring the presence of *rojo* seems like measuring their competence in this language. If we want to measure the vitality of the Galician terms *per se*, the mention of the Spanish loan is a strong interference rather than another 'variant'. Moreover, beyond being ubiquitous and having prestige, the fact that Spanish has only this term for red whilst Galician has four, makes the saliency of *rojo* overpower the values of any of the Galician items.

Thus, if we understand *rojo* as an interference and remove it from the equation, as in ignoring every time is mentioned and focus on the Galician terms alone, a different picture arises. See Table 5.25 below.

		Alone 2.0		first 1.0		Second 0.5		third 0.3		
		Tokens	Total value	Tokens	Total value	Tokens	Total values	Tokens	Total valu	Total
rojo	51	18	36.0	30	30.0	3	1.5	0	0.0	67.5
encarnado	20	16	32.0	1	1.0	3	1.5	0	0.0	34.5
roxo	15	7	14.0	8	8.0	0	0.0	0	0.0	22.0
vermello	10	6	12.0	1	1.0	1	0.5	2	0.6	14.1
rubio/roibo	7	4	8.0	1	1.0	2	1.0	0	0.0	10.0

Table 5.26 Task 2. Stimulus 1. Tokens and Saliency of red terms excluding Spanish loan rojo as a variant.

In the first calculation *encarnado* was 5.3 points higher than the next candidate, *roxo* (17.8 vs 12.5 respectively). However, in this second calculation, ignoring the presence of the Spanish loan *rojo*, the position of *encarnado* the becomes even more dominant in relation to *roxo,* 12.5 points higher (34.5 vs 22.0).

Some geographical distribution can be found in the data. *Encarnado* gathered 20 tokens which were mainly registered in the south and along the coastline of Galicia. This term was attested in Entrimo (7/8 EP), Allariz-Vilar de Santos (3/7 EP), Cerdedo (1/4 EP), Cangas (3/7 EP), Muxía (4/4) and Burela (2/5). *Roxo* collected 15 tokens spread across distant locations: Outes (2/3 EP), Allariz (2/8 EP) and Burela-Xove (2/5).

The other terms had a weaker attestation and were found mainly inland, across several areas of county Lugo. The term *vermello* gathered 10 tokens, of which nearly half were registered in Guitiriz (4/7 EP). *Rubio/roibo* added up 7 tokens, of which nearly half were collected in Antas de Ulla (4/9 EP) and a couple more in Becerreá-Cervantes (2/6 EP).

When it comes to YP, the dominant term was Standard Galician *vermello,* mentioned by almost all (31/34). However, only a very few used on its own (4/31). *Rojo* was mentioned by a big proportion of YP (14/34) but it was provided by itself as a response only by 3/14. Actually, these two terms account for nearly two thirds of all YP responses (21/34). Only 13/34 mentioned any of the other red terms. Among these, *roxo* is the one registered the most (9/34), whilst *encarnado* (3/34) and *rubio*/*roibo* (2/34) were rarely mentioned. The sample of YP per location (average 3.27) is too small to infer any geographical distribution. Moreover, as noted before, this age group was instructed in Standard Galician and exposed to literature with dialecticisms at school which could also distort the data.

Still, a couple of YP, one from Vilar de Santos and another from Laxe, used *encarnado* which aligns with the forms used by the EP of these regions. One YP from Antas de Ulla mentioned *rubio* also in agreement with their elders.

All YP from Guitiriz 6/6 used the term *vermello* in line with the local EP. Nevertheless, this term was widely spread across all YP so it is difficult to know if this is a term maintained locally in the young speakers or if they learnt it from the Standard Galician.

In conclusion, the presence of the Spanish loan *rojo* is dominant among EP and their strongest Galician red term is *encarnado*. If we consider *rojo* as codeswitching or just the report of a word in another language and we exclude it from the saliency calculations, *encarnado* stands out even more from the other red terms. *Encarnado* is also attested strongly in wide regions of Galicia, whilst the other terms (*roxo*, *vermello* and *rubio*/*roibo*) were attested less frequently and in limited areas.

Among YP, however, the dominant red term is Standard Galician *vermello*. Although this term is used by almost all YP it rarely appears on its own but in combination with the Spanish loan *rojo* and/or Galician *roxo*. The other red terms are rarely mentioned by YP. Thus, the two main generational contrasts are that *encarnado*, the main Galician red term in EP, is very poorly attested in YP and that the main red term across in YP, Standard Galician *vermello,* is found only in a small fraction of EP and in a delimited region.

5.4.2. Orange notebook

Stimulus n.3 was a picture of an orange notebook (see Figure 3.4.2). Once again, no correlation was observed between the colour vision test result and responses. Nevertheless, since the responses provided involve different categorisations, only data from EP that passed the test will be analysed (N:44) to ensure these divergent categorisations are conceptual and not caused by anomalous perception.

Most EP with normal colour vision categorised this hue as YELLOW (18/44). This response was evenly distributed among males and females (7/19 EM; 11/25 EF). Their labelling was *amarelo* or cognates, of which 18/20 were the Spanish loan *amarillo* and 2/20 the traditional Galician term *marelo*.

Another frequent categorisation was BROWN (9/44). Six of those tokens were the term *marrón* and three the traditional term *castaño*. A few more EP used expressions such as *Colour in between* mentioning YELLOW and BROWN (3/44): ‘dark yellow or light brown’, ‘between yellow and brown’ and ‘brown similar to yellow’. A couple more mentioned *ocre* alone or in combination with Sp *amarillo* (2/44).

Thus, a total 32/44 EP did not categorise this hue as ORANGE. Instead, they classified it as YELLOW, BROWN, OCHRE or an expression *Colour in between* those categories. This kind of categorisations could be found across all locations. However, certain regions stand out for these categorisations being dominant. All EP from Cangas (6/6) and Guitiriz (5/5) and most of Entrimo (4/6), Becerreá (3/4) and Cerdedo (2/3) classified this hue as either YELLOW, BROWN or OCHRE. Most EP from Antas de Ulla (4/6), Laxe (2/2) and Allariz/Vilar de Santos (3/5) classified it as YELLOW.

Only just over a quarter of EP used a specific word to denote ORANGE (12/44). The most frequent label was the Spanish loan *naranja* (7/12) which always appeared on its own. The hybrid form *naranxa* had two tokens (2/12), as did *laranxa* (2/12), and other terms appeared only once. All YP categorised this hue as ORANGE (34/34). All responses were *laranxa* or cognates and very often several of those were provided at once. The Standard Galician term *laranxa* had 22 tokens, of which 15/22 were on its own and 7/22 appeared alongside other terms. The hybrid form *naranxa* had 12 tokens, 7/12 on its own. The Spanish loan *naranja* had seven tokens and only a few appeared on its own (4/7).

In conclusion, there is a strong contrast in categorisation between the two age groups. Most EP classify this hue as YELLOW or BROWN. Only about a quarter agree with the young group in having ORANGE as a separate category. Most EP who present ORANGE use the Spanish loan term *naranja* whilst YP prefer the Standard Galician *laranxa*.

5.4.3. Purple robe

Stimulus n.2 was a picture of a pope in a purple robe (see Figure 3.4.2). Since tritan defects are reported to distort this region of the colour space (Lillo et al. 2012: 466), I will be referring only to EP who tested to have normal colour vision (N:44).
EP with normal colour vision presented two distinct categorisations for this item: BLUE and PURPLE. Some EP (6/44) labelled this object *azul*. This response was more frequent among males than females (4/19 EM; 2/25 EF). In addition, one EF provided no response (1/44). This adds up to seven EP that did not use a purple term to describe this item (7/44).

Some geographical distribution was identified. 3/7 of these responses were collected in Guitiriz and 2/7 in Becerreá. In these regions other archaic features were also attested, such as using the red terms *vermello* and *rubio* respectively.

The rest of EP categorised this colour as PURPLE. The expression *color viño,* considered more traditional, gathered just a few tokens 3/44, all used alone. The most popular label was *morado* which collected a total of 20/44 tokens: 13/20 used this term exclusively and 7/18 used it along other terms. *Lila* gathered 9/44 tokens: 7/9 used it alone, and 2/9 used it with other terms. *Malva* had 5/44 tokens, 4/5 on its own, and v*ioleta* gathered 3/44 tokens, 2/3 on its own.

All YP categorised this hue as PURPLE but used a wide range of labels. Two terms had a similar popularity: *violeta* and *morado*. *Violeta* had a total of 16/34 tokens: 7/16 used it alone and 9/16 along other terms. *Morado* followed closely with 14/34 tokens: 8/14 were used alone and 6/14 along other terms. The next candidates*, lila* and *púrpura,* had the same tokens. *Lila* had 6/34 tokens, 4/6 used it alone and 2/34 with other terms. *Púrpura* also had 6/34 tokens: 2/6 used it alone and 4/6 along with other terms. The

term *púrpura* gathered more tokens here than in any of the TN task purple chips. The use of this term might be context driven as one of the participants used the expression *púrpura papal* 'papal purple'. Another YP used also a religious reference, *color nazareno,* to describe this hue. Thus, no preference for any particular purple term was spread across the map. In locations where there was a higher sample of YP, four or even six YP, at least three different purple terms were always attested.

In conclusion, there were differences in categorisation and labelling across the two generations. A fraction of EP, mostly males, classified this hue as BLUE, whilst most of EP and all YP categorised it as PURPLE. When it comes to labelling, EP preferred *morado*, followed distantly by *lila*, *malva* and a range of other terms whereas YP have a less clear preference, *violeta* and *morado* being the most popular terms followed by *lila*, *púrpura* and others. There was no geographical distribution other than the categorisation as BLUE being found inland of county Lugo.

5.5. Task 5 analysis

This task sought to gather the participants' own definitions of terms and their reported contexts of usage. Thus, the data provided by all participants will be considered regardless of their colour vision test result. This task was the last in interview and many EP were tired or lost interest. For this reason, not all of them took part or finished this section, so the sample varies greatly from question to question. The first questions about red terms were the priority and the EP sample for these questions (roughly N:50) always surpasses the YP sample (N:34). This task collected interesting data about Traditional terms for red, black, brown and grey and it will need in-depth analysis in the future. This section will focus on the data for red and brown terms only as it will be very informative for the discussion of basicness in Chapter 6.2.

5.5.1. Terms for red

The term *rubio* was reported to mean red, yellow, brown or a continuum comprising all. The red meaning was much stronger in EP than in their young counterparts (EP:31; YP:17). Conversely, the meaning yellow was reported by most of the young group (EP:24, YP:31). Roughly half of the elderly group would use it with red objects but only very few YP would do so (pen: EP:22; YP:4; skirt EP:19; YP:5). Those EP tended to be from inland county Lugo (Antas de Ulla: 6; Becerreá/Cervantes: 4; Guitiriz: 3), although it was found on the coast of Lugo (Burela/Xove: 2), inland county Pontevedra (Cerdedo: 3) and south county Ourense (Entrimo: 2). Both generations strongly agreed in its use mostly for hair colour (EP:33; YP:28) and for cattle (EP:14; YP:10).

Roxo was reported by both groups to have the meaning of red (EP:32/34, YP:22/34) and orange (EP:8/34, YP:20/34). Yellow, however, was reported in a greater proportion

among EP (EP:11/34, YP:3/34). In addition, several EP mentioned the derived verb *roxear,* literally 'to turn red' but in the sense of 'to lose colour' for instance when dark clothes are exposed to sunlight for too long (EP:5/34). *Roxo* was used for red objects as much in both age groups (EP:20/34; YP:15/34). They also strongly agreed in using it for hair but with different meanings. Ginger hair was the dominant context for the young group and (YP:24/34) but, although this was also a common meaning for their elderly counterparts (EP:11/52), blond hair was even more frequent (EP:16/34; YP:3/34). The meaning of *roxo* as blond hair in EP was attested mostly in coastal areas (Cangas: 7; Muxía/Laxe: 3; Burela/Xove: 2).

The only meaning reported for *vermello* is red (EP:37/54, YP:27/34). This is the Standard Galician term for red and all kinds of participants recognised it as such: not only YP that studied it at school but also EP who identified it as Galician from television or the one spoken by their younger relatives (EP:10/54; YP:7/34). However, participants had strong opinions about it. Some felt the need to explain, even before being asked, that the term was never used in their area (EP:6/54, YP:5/34). In contrast, several EP (9/54) from various locations (e.g. Entrimo (3) and Laxe (2)) reported using it and/or hearing it being used by their elders. Many participants had used *vermello* through the interview and did not elaborate about its context of usage at this stage. Some participants confirmed they use it in all contexts (EP:5/54, YP:7/34) whilst other EP mentioned exclusively cattle (4/54).

Encarnado gathered a big consensus; for most it means red (EP:57/59; YP 27/32). Only three YP reported it to mean 'skin colour'. Most EP reported to use it for red objects, but fewer YP (pen: EP:45/52; YP:13/31; skirt: EP:47/54; YP:15/31; car: EP:45/49; YP:13/31).

In conclusion, *rubio* and *roxo* tend to be a MACRORED category in EP. They mostly use it to refer to fair hair as in a continuum of shades, but some oppose *rubio* as ´ginger hair' to *roxo* as 'blond'. Some EP used them as contextually unrestricted terms for red: EP from inland county Lugo use *rubio* and EP from all the territory use *roxo*. For YP these terms have a narrower denotation and a narrower context of usage; they use *rubio* for blond hair and *roxo* for ginger hair. Notice that YP have reverse meanings from their elderly counterparts. This is likely to be a conceptual transfer from contemporary Spanish in which *rubio* means 'blond' and *pelirrojo* (from *rojo*) means 'ginger haired'. Some YP also reported *roxo* but not *rubio* to be acceptable as contextually unrestricted red term. This might be also caused by the Spanish correlation *rojo*-red but *rubio*-yellow.
In contrast, the only meaning reported for *vermello* and *encarnado* is unitary RED. EP reported they are both suitable for all contexts but use *encarnado* much more. YP, however, consider only *vermello*, the Standard Galician term, suitable for all contexts.

5.5.2. Terms for brown

We have seen across the previous tasks that *marrón* and *castaño* are terms for BROWN and that the former seems to be dominant today. So, during Task 5, I enquired about the meaning and contexts of usage of *castaño*. Both age groups had the same opinions about meaning: some said it means 'brown' (EP:17/46; YP:13/26), but for others *castaño* was specific for light shades (EP:9/46; YP:9/26) and for a few, dark ones (EP: 5/46; YP:4/26).

Nevertheless, there was a generational contrast about contexts of usage. Most EP reported to use *castaño* for a range of contexts. When directly asked about describing clothes, most EP said *castaño* is an appropriate term (EP:14/18) but only very few young counterparts agreed (4/19). Both age groups, though, reported to use it for hair (EP: 9/10; YP:27/30) and eye colour (EP:11/12; YP:15/30).

This chapter has thoroughly reviewed the results of the five tasks undertaken by the participants. Chapter 6 will discuss which terms qualify as BCTs in Galician by contrasting the fieldwork data with the lexicographical and historical sources.

CHAPTER 6. DISCUSSION

6.1. Introduction

This Chapter will be organised by regions of the colour space. These will be discussed on three levels: patterns of categorisation, labelling strategies and basicness discussion. Firstly, I will discuss how these colour regions were divided up into a range of categorisation patterns attested across the different age and gender groups. Then I will comment on how these align (or otherwise) with the literature on Colour Semantics. Then I will review some of the labelling strategies for these categories and propose some explanations. Finally, I will discuss the most frequent labels and assess their basicness.

6.1.1. Basicness in Galician Colour Terms

Basicness is a status defined by a series of criteria (Section 2.4, also see (Biggam 2012: 21–23). Determining which are the basic colour categories and terms in Galician is not straightforward.

As seen in section 6.2, Galician speakers show a range of colour categorisation patterns. We could perhaps agree on the basic colour categories for each age group. However, the existence of several candidate terms for certain categories and the low consensus rates makes it particularly challenging to establish a single list of BCTs, even for individual age groups.

In the endeavour of pointing out which terms are the strongest candidates for basicness I selected a series of criteria that I believe are relevant in Galician: five primary criteria and four secondary ones. For the primary criteria, based on the fieldwork data, I will consider them fulfilled if the age subgroup has a 40.00% agreement rate. This might seem a low threshold. Nevertheless, my fieldwork collected extremely heterogeneous data and, moreover, many gave double responses which I decided not to process as tokens of either term through the formal tasks. All this resulted in a large range of answers with very low consensus rates. Therefore, a 40.00% agreement on a given term is highly significant in this context.[56]

[56] Galicians agree more about categories than about the labels given to them. The most obvious example is that RED (which for some includes also ORANGE) is clearly a BCC in Galician, however, speakers wouldn't agree on a single term but use up to five labels (*vermello*, *encarnado*, *roxo*, *rubio*, Sp *rojo*). A similar case is PURPLE which receives at least three main labels (*violeta*, *morado*, *lila*). This lack settletment on a label, caused by the sociolinguistic context of the language, made assesing the basicness of terms a challenge. Ideally, basic criteira such as frequency and idiolectal evidence should be at 100% but in Galician this would be only remotely met by *negro*, *azul* and *verde* which makes no sense in representing the Galician colour categorisation patterns and labelling strategies. Thus, I decided to set the threshold as high as possible before there was a significant drop in agreement rates. This was observed to be 40%.

Hyponymy. The first primary criterion is that a colour term should not be a hyponym (BK ii). I will assess this through the EL Mean Position (BK iv 1) as it is believed basic terms will occur at the beginning of such lists.

I will also explore hyponymy in the participants' responses during the BE task. As explained in Chapter 3. Methodology, before being asked for a BE, participants were shown all the tiles they had named with the same term during the TN task and were allowed to make changes and even merge categories together. Many did so. Thus, if at this stage participants created a new separate category labelled with a given term, this will be considered as extra evidence that that term is not a hyponym.

Another frequent criterion for exploring hyponymy is dictionary definitions. However, the resources available for Galician are not helpful for this purpose. The *Dicionario da Real Academia Galega* (DRAG)'s definitions rarely reflect hyponymy[57]. Instead, they tend to describe colours as a mix of hues or a hue in between another two. For instance, the term *lila* is defined as a "cor entre azul e rosa, como as flores da lila" (a colour in-between blue and pink, like the flowers of lilac) and does not make any reference to its hierarchal relation to purple[58]. Moreover, Standard Galician and the DRAG were based on a massive ethnographic work conducted in 1974 but this project did not collect any colour vocabulary data. Thus, the terms and definitions for colour notions contained in the DRAG are not based on evidence from Traditional Galician.

The Estraviz dictionary seems to be more helpful when it comes to pointing out hierarchical relations. It defines *lila* or *lilás* as a "cor morada clara" (pale purple)[59]. However, this source is not based on systematic ethnographic data either. Most importantly, this dictionary does not make any distinction between Galician and Portuguese words and meanings and this is problematic for our purposes. An example of this is the word *roxo*. Estraviz describes it exclusively as 'purple', its Portuguese meaning, and makes no reference to its meaning in Galician which is 'reddish'[60]. For these reasons, I will not use Estraviz either as a lexicographic resource to identify hyponymy or denotation.

The *Dicionario de dicionarios* (DdD) is a database containing several historical dictionaries and although it is a very valuable resource to pinpoint the appearance of certain words, their definitions are not necessarily helpful to establish hyponymy either.

[57] Exceptions include, for instance, *escarlata* defined as a type of red.
[58] The same happens with their definiton for *caqui* 'khaki' which is described as a mix of hues: "cor entre ocre amarelada e verde agrisada" (Colour in between yellowish ochre and greyish green) and does not mention any hierarchical relation to green or brown.
[59] It also describes *caqui* as a 'yellowish brown'.
[60] The Estraviz definition of *roxo* is "cor resultante da mistura do azul com o vermelho: violeta, púrpura; da cor da ametista, da violeta, da uva que não é verde, do vinho tinto, etc." (colour resulting from a mixture of blue and red; violet, purple, the colour of amethys, of violets, of grapes other than green ones, of red wine, etc).

Stability of reference. The second primary criterion is stability of reference across informants (BK iv 2) or Consensus (Biggam 2012: 27). I will look at the TN and calculate the agreement rate when naming a series of tiles. I will also look at the agreement about the BE[61].

A joint average of these two values will be the final value for stability of reference. This criterion will be fulfilled if a threshold of 40.00% is met.

Idiolectal evidence. The third primary criterion is idiolectal evidence (BK iv 3). To be considered basic the candidate term would have to be mentioned by an average of at least 40.00% of participants across EL, TN and BE tasks. It will be calculated by averaging the Freq in EL, the average of most named tiles in TN and the sum of all BEs within the most named tiles in TN**.** The Task 2 data will also be considered for the terms for RED, ORANGE and PURPLE.

Elicited lists. The fourth primary criterion will be the data in ELs (BK iv 1). I will look at the Frequency and the CSI rank position (which combines the Mean Position and the Frequency). CSI Rank positions 13 and up will be considered to indicate basicness. In regular cases, this rank position should be 12 and up but one more position was allowed to compensate for the anomaly of Galician having two red terms in the top positions resulting from language contact and dialectal variation. When a term is in position 13 its CSI value will be reviewed to see whether there is a dramatic drop in salience.

Contextual restriction. The fifth primary criterion will be being contextually unrestricted (BK iii, see natural vs artefact (Rakhilina & Paramei 2011). I will be looking at the terms used for the TN task. The stimuli for the TN, a series of colour chips, was meant to evoke colour terms as abstract notions applied to coloured paper or paint samples. That seems to be how participants understood it as there was no significant presence of contextually restricted terms during this task. For instance, the term *tinto,* a contextually restricted term to describe red wine, and the term *rubio* 'blond' are virtually absent from this task[62]. Thus, only terms that are used widely (+40.00%) across the TN will be considered to be contextually unrestricted. Additionally, for RED and BROWN terms I will be looking into the Task 5 data which enquired about contexts of usage. When in need of extra support for a term being contextually restricted or not, I will use the examples contained in the DRAG's entries.

[61] The number of tiles considered for the assessment of stability across TN and BE will change from category to category. In most categories I will be looking at three tiles. However, others (PINK, BROWN and BEIGE) had lower consensus rates and a larger number of tiles received a given label during the TN and were chosen as BEs. Conversely, other categories such as WHITE and BLACK will be based on one tile only. In every case, the base for the calculation will be specified.

[62] There is one single token of *tinto* in all the TN data and it was a variant by one EP who used the expression *color viño* for PURPLE. Similarly, there are only two tokens of the term *rubio/roibo* and these were used to refer to RED or ORANGE by participants who reported it to be an unrestricted red term in Task 5, while any participant who used *rubio* as a contextually restricted term as in 'blond' did not use it during the TN.

If a term does not pass all the previous criteria I will turn to secondary criteria. The first secondary criterion is frequency in texts. This is one of the criteria to assess saliency (Biggam 2012a: 34; Hays et al. 1972: 1111). However, frequency in databases should be only a secondary criterion, particularly when it comes to Traditional Galician. Illiteracy was very high among Galicians until the decade of the 1960s and until 1981 when education was available in Spanish alone. Therefore, the texts available from earlier periods come from a very limited part of society and they are not necessarily representative of Traditional Galician. Nevertheless, this resource helps us to look at, at least, the most educated part of society. I will use the TILG database which contains a sample of nearly 31 million words in texts from 1612 to 2013. I will pay attention to the total number of tokens of a given term.[63]

The threshold for frequency in texts is to have a total of at least 100 tokens in TILG.

The second secondary criterion for basicness is not to be a recent loan word. I will use the TILG database taking as a cut-off point the creation of Standard Galician (1982). Any word with a minimal presence (less than 50 tokens) in the database up to 1982 will be considered a recent loan word or a neologism.

The third secondary criterion will be the existence of embedded expressions containing the candidate term such as *branco coma a neve* 'white as snow' and *negro coma o carbón* 'black as coal'. I will use the TILG database to identify these expressions and their popularity.

The fourth and final secondary criterion is the ability to receive morphemes to create derived adjectives and verbs such as *amarelar* 'to yellow'.

Criteria discarded:

- Not also being the name for an object. A polysemic word naming an object and a colour is usually reckoned not to be a BCT. This is only a secondary criterion in BK (iv). Applying this criterion would leave us without any candidate term for PINK (*rosa* 'rose') or the main candidates for ORANGE (*laranxa* and cognates 'orange') or most candidates for PURPLE (*violeta* 'violet', *lila* 'lilac').

- Monolexemicness (non-predictability) and expression length. This has been generally discarded for various reasons such as not being applicable to reduplicative languages (see Biggam, 2012, pp. 23–24). Moreover, this criterion is not useful for clarifying any dubious cases in Galician. The most common cases with two lexemes are structures containing *cor/color* + term such as *color tella* 'terracotta roof tile colour'. The *cor/color* element is used on and off by the same participants so it would be problematic to implement this criterion to some tokens and not to others.

[63] Other aspects of the sample should also be addressed. Considering the general gender bias in colour vocabulary it should be stressed that this database is composed almost exclusively of male writings. Out of the 2444 documents with an identified author, only 100 (4.09%) were written by females.

- Morphological complexity. Morphological derivation is a very common mechanism in Romance languages, including in BCTs. Examples of these are *encarnado* which is one of the main red terms in Portuguese (Correia 2006:120-123) and *morado* which is one of the two BCTs for PURPLE in Spanish (Lillo et al 2018:7).

6.2. White

6.2.1. Categorisation

Unitary WHITE was a category for all participants. However, for a quarter of EP the denotation expanded into light GREY and light YELLOW. Actually, tile GRAY 1 was still considered WHITE by a fraction of YP (EP:25.00%; YP:17.65%).

WHITE and BLACK as achromatic colours tend to appear quite low in EL (see for instance Corbett and Davies 1995:33).

6.2.2. Labelling

The dominant labelling strategy was to use *branco* or the Spanish cognate *blanco* which will be discussed below. Other labels used for white tiles such as *beis*, *crema*, *claro*, *pálido*, were terms for other categories and descriptive words rather than terms for unitary WHITE.

6.2.3. Candidates for basicness

Branco and cognates

Branco comes from Old German *blank* 'shiny' (Corominas Vol 1 p 598) in turn from Proto-Germanic **blanka*- 'faintly shining', in German 'schwach glänzend' (Heidermanns 1993). *Branco* is the Traditional Galician form presenting a very characteristic change L>R, e.g. Medieval Lat. *sclavus* > Gal. *escravo* 'slave', Lat. *plicare*, Gal. *pregar* 'to beg'. It is the only form accepted in Standard Galician.

The form *blanco* is only attested from the mid nineteenth century onwards (TILG) most likely because of the influence of the Spanish cognate *blanco*. However, *blanco* seems to be the most popular form today among EP.

Hyponymy. *Branco* and cognates are not hyponyms for any of the two age groups. The MP in their ELs (EP:5.4; YP:6.5) meets the threshold and it was the label for WHITE during the BE task for most participants (EP: 84.21%; YP:94.12%).

Stability of reference across informants. The denotation of the category is wider in EP but both age groups agreed on CAC tile WHITE receiving the label *branco* and cognates during the TN (EP:83.72%; YP:85.29%) and being chosen as the category focus during the BE task (EP: 84.21%; YP:94.12%). Thus, the stability of reference, and the average of these two results (EP:83.97%; YP:89.71%) meet the threshold. Looking into particular terms, *branco* is totally absent from the EP's TN and although it is higher in YP it does not meet the threshold in that group either(23.53%). The Spanish loan *blanco* meets the threshold in both age groups (EP:83.97%; YP:64.71%).

Idiolectal evidence. This criterion is fulfilled by both groups for *branco* and cognates. The average number of tokens for this term during the EL, TN and BE is 87.79% in EP and 92.16% in YP. Individually, *branco* does not meet the threshold (EP:1.52%; YP:32:35%) but Spanish *blanco* does (EP:86.28%: YP:58.82%).

Elicited lists*. Branco* and cognates behave as BCTs in both groups' ELs. The frequency (EP: 95.45%; YP:97.06%) and CSI rank (EP: 4; YP:5) meet the threshold. *Branco* on its own has a low frequency in EP (4.55%) but it is much more frequent in YP (50.00%). Spanish *blanco* is dominant in EP and mentioned by half of YP (EP:90.91%; YP:47.06%).

Contextual restriction*.* This term does not seem to have any contextual restriction as it was used by most participants during the TN task to name tile WHITE *(*EP:83.72%; YP:85.29%).

A quick review of the secondary criteria reveals interesting historical perspectives. *Branco* and cognates behave as a BCT in TILG as it is the colour term with most tokens in TILG (13,106). The Standard form *branco* is not a neologism since it is attested in TILG from 1697. Actually, this form accounts for most of the tokens (12,045). In contrast, *blanco* is a Spanish loan with a comparatively minimal presence (1061) which only appears from 1837 onwards.

Branco and cognates is contained in several of the embedded expressions: *branco coma a neve* 'white as snow'(168 tokens) and *branco coma unha pomba* 'white as a dove'(23)[64].

Branco and cognates are variable in gender (*gravat**a** branc**a***, *pan**o** branc**o***). They can become verbs such as *branquear* and *embranquecer* 'to whiten'. They accept derivative morphemes as -*iño*, *branquiño,* but can also form the base for more complex terms such as *esbrancuxado* 'colourless, whitish'.

In conclusion, *branco* and cognates is a BCT for both age groups. *Branco* is the Traditional form and overwhelmingly dominant in texts. However, it was mentioned by no EP and just a quarter of YP. YM used it almost twice as much as their female counterparts which

[64] There are many other expressions containing *branco* but many are contextually restricted to skin: *branco coma o leite* 'white as milk' (26), *branco coma a cera* 'white as wax' (23) and *branco coma un papel* 'white as paper' (5) and they all mean 'to be or to turn pale' rather than 'white'.

aligns with the gender bias observed for other Standard forms and which will be discussed in Section 6.14 below.

Although the Spanish loan *blanco* has a minority presence in texts which only started in the early nineteenth century, it is the only form used by EP. This abrupt change of trend highlights the increasing exposure to Spanish during the twentieth century. Standard Galician seems to have succeeded in reintroducing the form *branco* to a lesser extent.

6.3. Black

6.3.1. Categorisation

Unitary BLACK is a category for all participants. For EM the denotation expands into dark brown: tiles O S3 (47.37%) and R S3 (26.32%).

6.3.2. Labelling

Preto and *mouro* are two of the historical terms for BLACK but they did not appear even once in the TN. Task 5 enquired about both. *Preto* was either not recognised as a colour term or was identified with Portuguese. *Mouro* was found to be restricted contextually and to have other denotations other than BLACK. All this surpasses the scope of the present study and will be addressed in future projects.

6.3.3. Candidates for basicness

Negro

Negro comes from Latin *niger* 'black' (Corominas Vol IV pp 221) but also 'discoloured', 'sombre', 'ill-omened' (2012)

Hyponymy. *Negro* is not a hyponym for either of the two age groups. The MP in their ELs (EP:6.3; YP:6.3) meets the threshold and it was the label for BLACK during the BE task for most participants (EP: 94.74%; YP:100%).

Stability of reference across informants. Both age groups have great stability of reference when naming tile BLACK during the TN (EP:88.37%; YP:100%) and choosing it as BE (EP:94.74%; YP:100%). The joint average meets the threshold in both groups (EP:91.56%; YP:100%).

Idiolectal evidence. This criterion is fulfilled by both groups. The average number of tokens for this term during the EL, TN and BE is 92.10% in EP and 100% in YP.

Elicited lists. *Negro* behaves as a BCT in both groups' ELs. The frequency (EP: 93.18%; YP:100%) and CSI rank (EP:6; YP:4) meet the threshold.

Contextual restriction. This term does not seem to have any contextual restriction as it was used by most participants during the TN for tile BLACK (EP: 88.37%; YP: 100%).

A quick review of the secondary criteria shows that *negro* is very frequent in texts (8167 tokens). It is not a neologism as it has been uninterruptedly present in the language (3547 tokens in TILG before 1982).

TILG contains several embedded expressions with this term: *negro coma o acibeche* 'black as jet' (18 tokens), *negro coma a noite* 'black as night' (15) and other comparisons with *carbon* 'coal', *chamizo* 'burnt stick' and *amoras* 'blackberries'.

Negro is variable in gender (*gravat**a** negr**a***, *pan**o** negr**o***) and can become a verb such as *negrexar* and *ennegrecer* 'to blacken'. It accepts derivative morphemes as *-iño*, *negriño.*

With the decline of *mouro* and *preto* by the turn of the twentieth century (TILG), *negro* acquired more contexts of usage and occupies a central position as the BCT for BLACK.

6.4. Red

6.4.1. Categorisation

It is indisputable that there is a colour category in Galician around red. Nevertheless, its extension varies greatly across participants and it was problematic around the boundary with ORANGE and PINK.

Unitary RED was rather infrequent among EP. The majority of EP used some type of extended RED. RED+ORANGE was very common among EP and a few more EF were very inconsistent about the border between RED and ORANGE. Furthermore, RED+ORANGE+PINK and RED+PINK were also found in some EM. Some EP even included hues with a purple component.

The existence of several alternative red terms for an extended RED category made some participants assign narrower extensions to some of them but with no observable regularities. The only exception would be *roxo* which will be discussed below.

In contrast, all YP operated with a clear unitary RED category.

6.4.2. Labelling

The labelling of RED in Galician is even more complex than its denotation. There are at least five available terms: *vermello*, *encarnado*, *roxo*, *rubio* (or *roibo*) and the Spanish loan *rojo*. Only the first three will be considered in the discussion of basicness. *Rubio* played a marginal role across the dataset and Spanish *rojo* is an unnecessary loan word, perceived as such by participants, that occurs in a codeswitching setting and is absent from any written text in Galician.

Some red labels

Rubio

The Latin term *rubeus,* according to Swearingen, was a MACRORED term including PINK, PURPLE, ORANGE and part of BROWN (2014, p. 80), and this gave rise to Galician *rubio*. This word seems to have several meanings today. For some it is some sort of MACRORED or extended RED. The DRAG defines it as a 'reddish brown and reddish yellow'. This continuum was also attested across Task 5. However, participants tended to mention one colour in particular. Red was the most common meaning among EP, but was much less frequent among YP, who most frequently used this term with the sense of yellow, the meaning in contemporary Spanish (See Chapter 5. Section 5).

Moreover, the examples in the DRAG definitions suggest that in Modern Galician *rubio* is mostly a context-restricted word, used mainly to describe cattle, hair and face blushing. Task 5 confirmed that these are the main contexts of use and that half EP and YP used it mostly for hair. Only half of EP used *rubio* as a non-contextually restricted red term and they tended to be from inland county Lugo.

This lack of stability of reference, contextual restriction and low presence across the formal tasks excludes *rubio* as a proper candidate for the basicness discussion.

6.4.3. Candidates for basicness

Vermello

Vermello comes from the Latin word *vermiculus* meaning 'little worm'. The term has its origin in the flourishing dye industry in the Iberian Peninsula during Roman rule when the larvae of the insect *Kermes vermilio* were used to produce a vivid red dye.

According to Swearingen, the social relevance of this industry made the early Galician-Portuguese term *vermello/vermelho* become the preferred BCT for focal RED instead of *roxo,* which in Portuguese was eventually pushed to the boundaries of the macrocategory and repurposed as a unitary BCT for PURPLE (2014: 86–88). In Galician, *vermello* assumed the centrality of the macrocategory becoming a BCT for unitary RED, whilst *roxo* was maintained as a MACRORED with foci both in red and yellow.

Modern Galician *vermello* is described as 'blood coloured' by the DRAG and it is the preferred term for RED in Standard Galician.

Hyponymy. *Vermello* is not a hyponym for either EP or YP. Their MP in ELs is very high in both age groups (EP:4.0 and YP: 4.3). Moreover, *vermello* was also the term for RED in the BE task for nearly a half of YP (47.06%) but very few EP (2.63%).

Stability of reference across informants is only fulfilled by YP. Focal red tiles HUE R, HUE RO and HUE ROR were labelled *vermello* by very few EP (3.86%) but it was dominant in

YP (48.04%). The stability of reference across the TN and BE is met only by the younger group (EP:3.24%, YP:47.55%).

Idiolectal evidence. The criterion of idiolectal evidence is nowhere close to being met in EP (average of 4.44% in the EL, TN and BE and 15.15% in T2) but it is fulfilled by YP (average of 51.31% in the EL, TN and BE and 91.18% in T2).

Elicited lists. *Vermello* does not behave as a BCT in EP's ELs. It does not have the Frequency (alone 6.82%, with *roxo* 4.55%, with *rojo* 2.27%.) or the CSI Rank (26). In contrast, it does behave as a BCT in YP with 58.82% of Frequency and a CSI Rank of 5.

Contextal restriction. *Vermello* is generally accepted as non-contextually restricted by all groups (see Chapter 5.5.2.)

Since EP do not fulfil all primary criteria I will briefly review the secondary criteria. *Vermello* is widely registered in TILG in astonishingly high numbers (2.940 tokens).[65] This is not a neologism as it has a strong presence before 1982 (873 tokens). There is also the embedded expression *vermello coma unha cereixa/guinda* 'red as a cherry' attested 9 times before Standard Galician. Moreover, *vermello* accepts derivative morphemes as in *avermellado* 'reddish'. *Vermelliño* and variants appear 33 times in TILG.

Roxo

The Latin *russeus* meaning 'reddish' (Buck 1949: 1056) was coined later (Swearingen 2014) and *roxo* derives from it. Unlike Portuguese in which *roxo* evolved semantically into a BCT for PURPLE, in Galician the original denotative space, a MACRORED, comprising YELLOW, RED and some shades of BROWN, was maintained. Judging by the two separate senses in the DRAG —'golden in colour or darker' and 'reddish brown and reddish yellow, *rubio'*— *roxo* seems to have two foci, one at YELLOW and another around RED. Historical usages in TILG agree with this duality (see section on frequency in texts below) and Task 5 data attested it also in contemporary speakers. For some *roxo* refers to either RED or ORANGE but for others, mostly EP, it applies to YELLOW (see Chapter 5.5.2).

Hyponymy. According to the MP of EL's, *roxo* is not a hyponym for either group (EP: 2.0; YP 6.8). However, this term was the label for the RED category during the BE in only a few EP (10.53%) and even fewer YP (5.88%).

Stability of reference across informants is not fulfilled by any age group. Focal red tiles HUE R, HUE RO and HUE ROR received the label *roxo* by a few EP and even fewer YP. The rates for stability of reference are very low in both groups (EP: 9.49%; YP: 5.88%). *Roxo* might still retain some denotation from the macrocategory; some people seemed to use it more for fairer hues. Evidence of this is a quotation from the *Nós* magazine (1930) "Roxo debe querer indicar eiquí o castaño craro. Sabido é que roso, en o falar de a xente,

[65] These are all tokens included under the lemma *vermello* regardless of being considered a noun or an adjective.

non é o vermello" '*roxo* might mean here 'light brown'. It is known that among the people's speech, *roxo* is not red'.

Idiolectal evidence. As regards idiolectal evidence, *roxo* is not basic here either. It had a low presence across the EL, TN and BE tasks in both age groups (EP: average of 9.36%; YP: average of 7.84%). Although during Task 2 *roxo* had a higher occurrence in both groups (EP: 22.73%; YP: 26.47%) it is not enough to fulfil this criterion.

Elicited lists. Data from ELs indicate that *roxo* is not basic for EP nor YP. Frequency in groups is very low (EP:9.09; YP:11.76%). Since *roxo* is the red term for some EP it has overall a high CSI Rank position (10) but it is very low for YP (24).

Contextual restriction. The DRAG definition explicitly states that *roxo* is used for cattle and hair which suggests that this is a context-restricted term.[66] However, data from Task 5 points in a different direction as this term meets the threshold for being contextually unrestricted by the two age groups. *Roxo* was reported to be appropriate for a red pen by half of the two groups (EP: 57.14%; YP: 50.00%). Nevertheless, the rest used it only for hair and with different denotations.

The usage of *roxo* in TILG, backs up the usage with hair and cattle. However, it also contains numerous examples of *roxo* as a non-restricted red term describing clothes, lips, apples and cherries.

Overall, today r*oxo* is used by most people to refer to hair and cattle. For half of them this is the only context. However, the other half who consider it a non-restricted red term seems to have a geographic distribution. Among EP it was strongly attested in inland county Lugo (Guitiriz, Becerreá), but also in other locations such as Allariz and Laxe.

It is clear now that *roxo* is not a BCT for either of the two age groups. However, the secondary criteria reveal that it used to have a very high frequency in texts. TILG contains 2249 tokens of this term. However, not all of those are usages as a BCT for RED but rather a term for various shades of hair colour. Moreover, there are cases in which the focus of the category is clearly yellow since gold is used as prototype.

a) *roxiña cal sol dourado* '*roxiña* like golden sun' (de Castro, 1863, 1872)
b) *roxiño com'un ouro* '*roxiño* like gold' (de Castro, 1864)
c) *roxos coma as estrigas douradas* '*roxos* like golden cereal ears' (Lago González, 1883)

It is confirmed that it is not a loan word or neologism, as it is richly attested before 1982 (1635 tokens); however, the term seems to have reduced its presence by more than half

[66] DRAG also contains a homonym term *roxo* with the meaning *moi quente* 'very hot'.

from this date onwards.[67] Surprisingly, *roxo* is the most prolific red term when it comes to embedded expressions such as *roxo coma unha cereixa/guinda* 'red as a cherry' with 23 tokens. It can accept derivational morphemes to create the verb *roxar* and the variant *arroxar* which mean `to redden' but also ´to lose colour´.[68] *Roxiño* is a diminutive derivative form that appears 113 times in TILG.

Encarnado

Unlike the other three terms, *encarnado* has a transparent meaning. It is the past participle of the verb *encarnar* 'to incarnate' and it can be literally translated as 'flesh coloured'. Although *encarnado* as a colour term has been recorded in Portuguese since the mid-seventeenth century (Machado 1977, contained in Correia 2006), in Galician the first token of this term contained in TILG dates from 1836.

This term is described by the DRAG as 'blood or poppy coloured'. Even if not used regularly, the term is transparent to all speakers who know its meaning from expressions like *poñer(se) encarnado* or *virarse encarnado* 'to blush'(see Chapter 5.5.2.).

Hyponymy*. Encarnado* is not a hyponym for either group. Its MP in ELs is high (EP:6.2; YP.5.0). However, it was the label for the RED category in the BE tests for only a couple of participants (EP:2.63%; YP 2.94%).

Stability of reference across informants is not fulfilled by any age group. Focal red tiles HUE R, HUE RO and HUE ROR were labelled by an average of 10.02% of EP and by zero per cent of YP. The average rate across TN and BE is very low in both age groups (EP:6.33%; YP:1.47%).

Idiolectal evidence is not fulfilled either. There was a low presence of *encarnado* across the EL, TN and BE tasks in both age groups (EP: average of 8.01%; YP: average of 5.88%). Although, during T2 this term was used first by only 4.54% of EP, 30.30% of them used it at some point in their response for this item. See Table 6.1 below. These differences of *encarnado* across tasks could be caused by diaphasic variation. Participants would have used one of the available terms according to the perceived formality of the task (pictures and objects being more concrete and therefore more informal, while colour chips are more abstract and therefore more formal). Nevertheless, *rojo,* a term considered formal in this context, was not used less in T2 than in TN. The whole interview was probably read as a formal setting and only as time passed did participants get more comfortable and use their everyday terms. This is a complex sociolinguistic situation in which there are too many available terms to identify a sole explanation.

[67] The amount of data contained in TILG for the periods prior to the establishment of Standard Galician (dated 1612—1981) and after (dated 1982—2013) are comparable: nearly 14 million words (13,866,737) and a little over 17 million (17,057,345) respectively.

[68] This last meaning was also attested for the variant verb *roxear* in EP during Task 5 (Section 5.5.1).

	EP 1st term Task 2 pen	**EP Average 1st term TN 49, 57, 65**
Sp rojo	33 alone or first	19.3 tokens average
encarnado	2 alone or first	4.3 tokens average
roxo	5 alone or first	3.6 tokens average
vermello	1 alone or first	1.6 tokens average
rubio	0 alone or first	0.3 tokens average

Table 6.1 Comparison of frequency of red terms in Task 2 and TN (44 EP with normal vision)

Elicited lists. ELs show that *encarnado* is not a BCT for either group. Its low frequency (EP:11.36%; YP: 14.71%) was also matched by its low position in the CSI ranks (EP: 25; YP:17).

Contextual restriction*. Encarnado* is not contextually restricted for the majority of both age groups. During Task 5 most EP reported it to be appropriate for a red pen (86.53%) and so did YP (72.22%).

At this point *encarnado* is discarded as a BCT for both age groups, however, a quick review of the secondary criteria shows an interesting historical perspective. This term has 626[69] tokens in TILG. It is not a recent loan or neologism as it has 221 tokens before the Standard. The embedded expression *encarnado coma unha cereixa/guinda* (red as a cherry) has 5 tokens before 1981. However, *encarnado*, a derived adjective from *carne* 'flesh', does not seem to accept further derivative morphemes. The exception is *-iño*: *encarnadiño* and variants which appear 13 times in TILG.

Conclusion

The data contained in TILG shows that *vermello* is an older term than *encarnado*. The first attestation of *vermello* in this corpus dates from the end of the seventeenth century whilst the first token of *encarnado* is from the first half of the nineteenth century. This seems to coincide with the cognate Portuguese words as *encarnado* appears later than *vermelho* (Swearingen 2014: 81–82). The frequency of these words in the written sources is also unbalanced. The texts contained in TILG for the period prior to the Galician Standard (1612—1981) have up to four times more tokens for the word

[69] TILG is a partially annotated corpus. There are 603 tokens under the lemma *encarnado*. Nevertheless, 22 extra tokens were found under the lemma *encarnar* 'to incarnate'. These tokens referred explicitly to red and redness not as 'incarnated' or 'covered in flesh'.

vermello than for *encarnado*. It seems understandable then that the term for RED chosen for Standard Galician was *vermello* and not *encarnado*.

Swearingen explains that in Portuguese the status of *vermelho* as the predominant BCT for RED is unquestionable as it is older, more frequently used in texts and its meaning is opaque (2014, pp. 81–82). However, Galician *encarnado* seems to be more alive in the oral language than *vermello*. The different degrees of usage of this pair of words in these two linguistic communities might be a matter for sociolinguistics. Portuguese was and is the language of a state, where *vermelho*, the older and opaque term, used in all registers, continued to be the BCT after the appearance of *encarnado*. However, Galician is a language in a diglossic context that was relegated to orality for centuries. Among ordinary people the meaning transparency of *encarnado* as opposed to *vermello* might have helped to better resist the pressure of competing Spanish loans.

Thus, *vermello* is clearly a BCT for YP but not for EP. Regardless of reporting it to be used or not in their region, most EP at least recognise it as the Standard term for RED.

The weak attestation in EP (born between the decades of 1920—1940) throughout the formal tasks along with those who reported that it was *never* used in their region shows that today *vermello* exhibits low vitality among the older group. Nevertheless, the uninterrupted and strong presence of *vermello* in texts along with the witnesses of its usage scattered across the map suggests that the decline in use among ordinary people must be very recent, starting perhaps only 100 years ago.

Nevertheless, *vermello* having been chosen as the Standard term seems to have reversed this tendency as it is now the dominant form among YP, who use the other red terms much less than their elderly counterparts. Moreover, the tokens of *vermello* in TILG multiplied by 2.3 since 1981 (from 873 to 2093) while those of *encarnado* multiplied by only 1.8 (from 221 to 404) and *roxo* even reduced its presence by 2.5 (from 1634 to 614).

Although the term *encarnado* is not a BCT for YP, it is the strongest candidate for EP as it is the Galician red term with the best performance across tasks.

Finally, Sp *rojo*, was clearly the dominant red term in EP with an EL, TN and BE agreement rate of 49,71%. Although in YP Sp *rojo* was only the second candidate (29,08%), when looking into the joint values for all participants, this Spanish loan reaches the 40% threshold (40,38%) (See Appendix 3).

6.5. Orange

6.5.1. Categorisation

This area of the colour space was categorised in different ways in EP: RED+ORANGE, ORANGE+YELLOW, ORANGE+PINK, and unitary ORANGE.

Many EP operated with either a RED+ORANGE or a YELLOW+ORANGE category. This agrees with the data contained in Villanueva Gesteira who also reports that some EP labelled the orange tile with red terms such as *rubia* or *roxa* (2009b: 80) even saying "iso é roxo como unha naranxa" 'that is as red as an orange'[70]. Some of her EP used the Spanish terms for RED and YELLOW when naming orange tiles applying a conceptual transfer from Galician. This seems to be analogous with my EP, who were not necessarily fluent bilinguals and so labelled what Spanish speakers would consider orange tiles as *rojo* or *amarillo*. An analogous case was registered by Ervin (1961) for Navajo speakers with limited competence in English.[71]

This fieldwork attested some EPs who do not have partitioned ORANGE but operate with a YELLOW+ORANGE category instead of RED+ORANGE. Although the development of ORANGE is not part of the UE model or trajectories, this region of the colour space is assumed to either remain attached to RED (RED+ORANGE) when unitary YELLOW is partitioned or split between RED and YELLOW. My data points out towards the possibility of partitioning specifically YELLOW+ORANGE instead of unitary YELLOW.

Moreover, according to Lindsey and Brown (2006, 2009) the WCS database accounts for no universal ORANGE but a YELLOW+ORANGE. Furthermore, Zuni vocabulary also has YELLOW+ORANGE (Lenneberg & Roberts 1956). This was found in a small sample (four monolingual Zuni speakers, plus another eight Zuni-English bilinguals who showed a transition stage). Those participants with a YELLOW+ORANGE located its focus in the orange area, not yellow. This is remarkable evidence against an universal partition of unitary YELLOW, or at least an extended YELLOW with yellow as BE**.**

My database also attested a novel alternative category: PINK+ORANGE. In this case, ORANGE is partitioned from RED not to become a separate category but to be added to an existing one: PINK. PINK+ORANGE is a category that groups together tiles that are not 'proper' red and merges the concepts of hue and lightness. Thus, orange tiles being 'less than red' (as in being yellower) are equated with pink tiles being 'less than red' as in being whiter). Moreover, an ORANGE+PINK category which comprises hues that are not contiguous challenges the principle of conjunctivity (see Witkowski and Brown 1978: 441).

[70] Nevertheless, *roxo* might be used here with a reduced denotation as in ORANGE, while keeping another red term for unitary RED.

[71] Ervin studied Navajo monolinguals and bilinguals and English speakers and found that L1 influenced the denotation of the L2 terms in Navajo-English speakers. Bilingual Navajo-English speakers used the term *yellow* beyond the BROWN and GREEN boundaries in a similar extension to their term *łitso*. Similarly, they used the term *grey* to refer to some blue and purple tiles, corresponding to the extension of their term *liba*. They report the effect to be stronger in speakers with little competence in English.

It is unclear whether EP with YELLOW+ORANGE and PINK+ORANGE are representative of two stages of the same trajectory or two parallel trajectories. If they were stages of the same trajectory, as in MACRORED > YELLOW+ORANGE> PINK+ORANGE, this pattern of evolution would be against the Partition Principle since ORANGE would not detach from YELLOW+ORANGE to become an independent category but would join PINK which instead of refining its denotation would be expanding it into PINK+ORANGE. The other possibility is that they are two alternative trajectories being developed at the same time.

The WCS found many instances of different categorisation patterns across speakers of the same language but it remains unclear whether those were different stages of the same trajectory or if some of them were alternative paths of development. In any case, these two categorisation patterns of ORANGE, appear along with many other possibilities (RED+ORANGE, ORANGE with no label, ORANGE named after different objects) which seem to be simply reflecting a period of instability before the partition of ORANGE into a separate category.

Some EP did not have a fully developed ORANGE category but used *butano* to name only highly saturated hues. Naming only some hues around a prototype (gas bottles) suggests an Emergence Hypothesis mechanism rather than Partition.

EF are the ones mostly accounting for the tokens of ORANGE, a finding which agrees with Labov's second principle that females lead innovation (1990: 206). EF are also the ones with the most labels assimilated from Spanish (e.g. the loan *naranja*).

Although in different proportions, the data of all the tasks suggests that ORANGE is not a category for many EP. The difference across tasks indicates its instability.

ORANGE being one of the last categories to be developed and the next candidate for basicness in EP agrees with the BK's 1969 sequence. However, further developments of the UE model do not predict how derived BCCs would arise. Moreover, the work of Lindsey and Brown (2006, 2009) reveals that unitary ORANGE is not frequent, on the contrary, most of the WCS languages categorise YELLOW+ORANGE. Nevertheless, when participants in this fieldwork categorised unitary ORANGE this tended to coincide with the denotations in Uusküla and Bimler for Spanish and English (2016).

6.5.2. Labelling

In cases in which it was categorised as an unitary colour, ORANGE received a range of labels. This fieldwork attested: *laranxa*, *naranxa*, the Spanish loan *naranja*, but also *color butano*, *color tella*, *color ladrillo*, *color caldeiro*. This section will first review some less frequent labels. The rest will be disregarded, even *color butano*, as none of them reached significant numbers in this database.

Some labels

Color butano

The term *color butano* 'butane coloured' is relatively recent. Butane gas bottles started to be sold across Spain in 1957. These were painted in a very vivid (nearly fluorescent) orange colour and they continued to be like this until very recently. The founder of the company, José Álvarez Sánchez, reported in the press (https://www.laverdad.es/murcia/20090406/cartagena/espana-pais-naranjas-decidio-20090406.html) that this colour choice was intentional as a reference to oranges as a national symbol as opposed to the bottles found in other countries which were painted blue, grey and green. He reported the expression *color butano* reaching the Spanish fashion industry which might have helped its diffusion at the time.

There are only three tokens of this term with the meaning of colour in the *Tesouro Informatizado da Lingua Galega* database (TILG) and all date from 1999 onwards.

a. *unha simpática pinta de cor butano no rabo* 'a funny *butane colour* spot on the tail' (Iglesias, 1999)

b. *en traxes de unha peza, con escarpíns e todo, de goma cor butano e con de fitas reflectantes* 'overalls with shoes included, made of *butane colour* rubber with reflective strips' (Paz, 2005)

c. *pantalóns estrafalarios, como eses que levaba hoxe de campá, cor butano e moitas cremalleiras de petos inexistentes* 'extravagant trousers, like those bell-bottoms they were wearing today: *butane colour* with many zippers for nonexistent pockets' (Rivas, 2006).

The absence from literature of this term might be because it is not considered an appropriate expression. *Color butano* seems not to be a fashionable term today and YP do not use it as much as EP. As we will see below, some vocabulary used as BCTs in the elderly generation (*color viño*, *color tella*) became fashionable, specifically as secondary terms in young females, but this did not happen with *color butano* and they use *laranxa fosforito* instead. Perhaps this is because *color viño* and *color tella* coincide with Spanish trends and *color butano* does not.

There might also be some aesthetic motivation as gas bottles are not necessarily an elegant reference but part of the utilities of the house, generally hidden or stored in garages as opposed to roof tiles which are meant to be displayed.

Despite being so recent perhaps this term succeeded in Galician because it was filling a lexical gap that was already filled in Spanish.

The presence of *butano* in T2 and EL is anecdotal which contrasts with the results in Villanueva Gesteira (2009). She reports that the most common reply among elderly and middle-aged adults is *butano*. Her youngest participants use mostly *naranxa* and a few alternate this with *laranxa* (2009:180). She believes that, before the introduction of the Spanish loan, the main orange term used to be *butano*.

Even if that was so, the term would have flourished for a very short period of time, starting at some point from 1957 onwards and fading away up to today as its presence in this fieldwork was minimal. Moreover, the extremely weak presence in TILG shows it never settled in written texts either.

Color tella

Color tella 'terracotta roof tile colour' is another transparent expression. Data from ELs suggest that *color tella* is slightly more salient than *color butano* (five versus zero tokens) which aligns with the findings in Teixeira Moláns (2014, 2019). Nevertheless, *color tella* was not used for pure orange tiles across the TN. It does not seem to be a candidate for the ORANGE BCT but a hyponym of RED or BROWN for EP and of ORANGE for YP. Moreover, *color tella* has its prototype in terracotta roof tiles and actually during the BE task its focus was always tile SIENNA BROWN for a few EP and YP (total 5).

The expression *color ladrillo* 'building brick red' was a much less frequent label but it is definitely connected with *color tella* as both are made of the same material. *Color ladrillo* might refer to a brighter hue than *color tella*, as building bricks, unlike roof tiles, are rarely exposed to the elements and they are not seen in as many shades. In any case, neither of these terms is frequent enough to be part of the basicness discussion.

TILG contains ten colour expressions containing *tella*. Only two of these predate Standard Galician:

a. *De raxo color de tella co seu pimentón* 'pork loin roof tile-coloured with paprika' (Pintos, 1858)
b. *Hai azúes e coores tella* 'there are blue and roof tile colours' (Risco, 1934).

Other terms

Color caldeiro/caldeira referring to copper heating systems and *color pemento ´*paprika powder colour' were recurrent but improvised labels for ORANGE. They were mentioned only a few times each across the formal tasks.

6.5.3. Candidates for basicness

Laranxa and cognates

According to Digalego, the Galician term *laranxa* comes from Arabic *naranjâ* in turn from Persian *narang,* which is known to come from Sanskrit *nāraṅga* 'orange'. This word was imported simply as the name of the fruit. The DRAG defines the entry *laranxa* first as the name of a fruit and then as a colour 'between yellow and red'.

The word *laranja* as a colour term has been documented in Portuguese since the sixteenth century (Dębowiak and Stala, 2016). However, the Galician word *laranxa* as a colour term seems to be very recent as most of the tokens attested in TILG come from the decade of the 1920s onwards. Moreover, this attestation is very weak as there are only 23 tokens before 1982.

The first attestation contained in TILG of the usage of oranges as a reference for colour dates from 1895. Nevertheless, this is not a proper colour term but an explicit comparison with the fruit:

a. *un pano de o cor de a laranxa* 'an orange-coloured scarf' (Rodríguez López, 1895)

No abstract colour expression with *laranxa* can be found in this corpus until the first third of the twentieth century: Dieste (1927) uses the syntagm *cor laranxa* 'orange colour' to describe clothes:

b. *camisetas de baeta roxa e cor laranxa* 'red and orange colour shirts' (Dieste, 1927)

A few examples start appearing across the next decades. These show up in various wordings such as *cor de laranxa '*colour of oranges', *cor laranxa* 'orange colour' and *laranxa '*orange*'.* All these are representative of different stages before becoming being an actual colour term (see Rakhilina and Paramei 2011:129*).* Carro et al. in 1933 listed colours and includes *laranxa*:

c. coores: negro terroso, gris pizarrento de o negro anterior, roxo carminoso, rosado de o mesmo, laranxa, marelo cromo, e carne, sucio 'colours: earthy black, slate grey from the previous black, carmine red, pink from the same, orange, chrome yellow, and flesh, dirty'.

Nevertheless, alongside these first expressions, there were recurrent descriptions of oranges as yellow, especially describing them as golden. Otero Pedrayo, one of the most respected writers at the time, in 1928 and 1932 still describes oranges becoming *golden*. An anonymous author in Nós 1934 again connects oranges with gold.

a. olla como douran as laranxas 'look how oranges turn golden' (Otero Pedrayo 1928)

b. as petulantes laranxas, tan xentiles e douradas 'arrogant oranges, so gentle and golden' (Otero Pedrayo 1932)

c. hai en o inverno ouro de laranxas 'during winter there is gold of oranges' (Nós, 1934)

However, Otero Pedrayo by 1935 starts using *laranxa* as a colour term to describe the moon and moonlight *un luar coor laranxa* and *luar laranxa* but perhaps still as a yellow term.

d. *un luar coor laranxa* 'an orange colour moonlight' (Otero Pedrayo, 1935)
e. *luar laranxa* 'orange moonlight' (Otero Pedrayo, 1935)

Cunqueiro in 1957 still compares the colour with the fruit *color de donda laranxa* (soft orange coloured), but also starts using it as a colour term *a nao de o mar laranxa* (the boat of the orange sea). Nevertheless, also in 1957 he uses *laranxas de ouro* 'golden oranges'. A few more authors in the decades of the 1960s and 1970s continue describing oranges as golden:

f. *naranxa de ouro* 'golden orange' (Iglesia Alvariño, 1961)
g. *no soalleiro louro de laranxas* 'in the sunny blond of oranges' (Delgado, 1963)
h. *laranxas de ouro leven os carballos* 'golden oranges carry oak trees' (Gómez Ledo, 1973)

Authors describing plants and fish species in the decades of the 1980s and 1990s refer to this region of the colour space with awkward combinations of terms such as *amarelo laranxa* 'orange yellow' and by presenting two terms alongside each other such as *castaña ou laranxa* 'brown or orange'. It is not clear whether these species can have some variation in colour or if the authors were unsure how to name a specific hue. This apparent uncertainty about colour descriptions might be related to the tendency of zoological and botanical colour descriptions to retain older colour terms (Vejdemo, 2016; Biggam, 2012)

All these tokens in which the fruit is described as golden as well as colour expressions such as *amarelo laranxa* 'orange yellow' seem to reflect the categorisation YELLOW+ORANGE still attested nowadays in EP.

Moreover, the Galician cognate BCT *laranxa* is rarely found in TILG and seems to have mostly spread since Standard Galician times.

The form *naranxa* is a hybrid, a galicianisation of the Spanish word and it appears very rarely in TILG, a total of 3 times, two of them before 1982. *Naranja* is a foreign word from Spanish not adapted to Galician phonology. Moreover, it is a luxury loan as it is totally unnecessary as Galician has its own word for the fruit. TILG shows it is clearly a recent loan word. It appears only 4 times in this database and all examples refer to the fruit.

ORANGE tends to be categorised by more EF than EM, and they tend to use the Spanish label *naranja* or the hybrid form *naranxa*. YF have the same tendency in preferring these labels while most YM and some EM use *laranxa*. This is parallel to what was observed for the red terms and it will be addressed in Section 6.14.

Basicness

The three forms *laranxa*, *naranxa* and *naranja* were the dominant labelling strategy for unitary ORANGE. However, there was no general preference for any of them; participants seemed to know several of these and use them interchangeably. Thus, I look at these together and also separately as some of these forms prevailed over others across the different subgroups.

Hyponymy. Although only 36.36% of EP used one of the cognates of *orange* in their EL's, most of their young counterparts did so (91.18%). Their average MP suggests that any of these are hyponyms for either group (EP: 8.6; YP: 8.2). Among EP the variants show quite different MP (*naranja*: 7.4; *naranxa* 8.9; *laranxa*; 15.0) while among YP the MP are similar (*naranxa*: 7.5; *laranxa*: 7.7; *naranja:* 8.0).

BE data also suggests these terms are not hyponyms. Although fewer EP than YP separated ORANGE as a category during the BE task, if we consider all variants together both groups reach the 40.00% threshold (EP:42.11%; YP:100%). However, if terms are taken individually none of them reaches the threshold among EP. Even the term they used the most, the Spanish loan *naranja*, was used by less than a quarter of EP (23.68%). Among YP, only the dominant term, *laranxa,* meets the threshold (47.06%).

Stability of reference across informants. When it comes to agreement in naming focal orange tiles (HUE O, HUE OYO and HUE ORO) with cognates of *orange*, YP meet the requirement but EP do not as they remain under the 40.00% threshold (EP: 39.01%; YP: 97.06%). The stability of reference rate, the result of combining the TN agreement and the BE selection, for *laranxa* and cognates does just meet the threshold in EP (40.56%). Nevertheless, there is an important gender bias as this rate is much lower among EM (22.81%). Moreover, considering terms individually, EP values drop even further. The EP's most popular term, the Spanish loan *naranja*, is used by less than a quarter of the group (23.70%). YPs' favourite variant, *laranxa*, does meet the threshold (48.96%).

Idiolectal evidence. The average of the formal tasks (EL, TN and BE) alongside the data from T2 suggest that idiolectal evidence is only met by YP. Cognates of *orange* were used by an average of 39.16% of EP during the formal tasks and only by 25.00% during T2. Individually, the Spanish loan *naranja*, despite being the favourite, is well below the threshold (formal tasks: 21.10%; T2: 15.91%).

However, YP have strong agreement rates in using cognates of *orange* across the formal tasks (96.08%) and during T2 (100%). Specifically, *laranxa* also meets the threshold (formal tasks: 45.10%; T2: 64.71%).

Elicited lists. Data in ELs show that cognates of *orange* are basic among YP but most likely not in EP. The total frequency in EP is below the threshold (36.36%) and their CSI rank is 14 which suggests it is not basic yet. Looking into specific variants, none of them is basic either. The one that performs best is the Spanish loan *naranja* which is mentioned by only 15.91% and has a CSI rank of 24.

The data for YP presents a very different picture. All variants add up to 91.18% frequency and a CSI rank of 7. The term *laranxa*, in particular, also meets both thresholds with 44.12% for frequency and a CSI rank of 9.

Contextual restriction. All participants who used cognates of *orange* did so in a non-contextually restricted way. Their usage for colour chips during the TN task and to name an object during the T2 (a notebook) proves they can all be used to describe regular manufactured objects (EP: 39.01% for TN and 25.00% for T2; YP: 97.06% TN and 100% T2). Moreover, looking into dictionary definitions, it can be inferred from the DRAG's entry for *laranxa* that it is not contextually restricted as it is used in examples to describe fabric and paint. The Spanish loan *naranja* does not appear in the dictionary and neither does the hybrid form *naranxa*.

So far we can see that if we consider all cognates of *orange* together, they are basic for YP but not for EP yet as they are below the threshold of 40.00%. Looking into specific terms or variants, none of them individually meets the criteria except Standard Galician *laranxa* which, however, is basic for YP only. Thus, I will review the secondary criteria to clear up any doubts about EP.

Secondary criteria. *Naranja* is a loan word from Spanish which is not even adapted to Galician phonology. The form *naranxa* is a hybrid with almost no attestation in TILG (only 4 tokens). Moreover, the word *laranxa* as a colour term has only 23 tokens prior to the Standard. Furthermore, this weak attestation is also very recent as, except for an ambiguous first attestation, all of these tokens come from the decade of the 1920s onwards.[72]

Secondary evidence shows that there are no embedded expressions with any cognate of *orange*.

An indication that *laranxa* and cognates have not existed very long as colour terms is that they cannot inflect gender as adjectives (*gravat**a** laranx**a*** but also *pan**o** laranx**a***).

[72]The TILG registers the expression *cor da laranxa* 'orange coloured' in 1895. However, this is more a comparative structure rather than a colour term *per se*. Similarly, the next tokens, in 1927 and many more across the twentieth century are the syntagm *cor laranxa* 'orange colour' which is not a proper colour term but represents an intermediate stage.

There are no verbs derived from *laranxa*. Although these terms can receive the suffix -*iñ-*, there are no tokens of *laranxiña* in TILG as a colour term.

These terms can receive morphemes as in *alaranxado/anaranxado/anarnajado* but they can have two roots and two meanings. *Anaranjado* from *naranja* the fruit term as in 'resembling oranges' used to be the Spanish term for ORANGE and is still an alternative to *naranja.*[73,74]. However, *anaranjado* is also a derived form from *naranja* as a colour term meaning 'orangish colour'.

Conclusion

Even if we consider all three forms together, EP are still below the 40% average agreement through the EL, TN and BE tasks (39.16%). This is even lower for EM data as only a quarter of them used any of these terms across the formal tasks (25.16%). However, given the higher presence in YP with an average agreement through the EL, TN and BE tasks of 96,08%, the joint values for all participants the agreement surpass the 40% threshold (64,56%) (See Appendix 3).

Although none of the three terms for ORANGE meets the threshold for basicness among EP, the Spanish loan *naranja* is the variant that performs best, namely among EF. In turn, *laranxa* does qualify as a BCT among YP.

Although Portuguese *cor de laranja* has been a stable colour term for ORANGE since the sixteenth century, this has not been the case in Galician. The data in TILG shows that *laranxa* has had a recent and a weak presence in Galician texts until the appearance of the Standard. Thus, this alongside the Spanish loan *naranja* being the dominant label among EP suggests that *laranxa* as a colour term in Galician is a neologism, a semantic and labelling calque of Spanish *naranja*.

6.6. Yellow

6.6.1. Categorisation

As noticed above, some EP operated with a YELLOW+ORANGE category.

One of the most common embedded expressions found in TILG was *(a)marelo coma a xema do ovo* 'yellow as egg yolk' as it had six tokens (four before 1982). Egg yolk as a prototype seems to support a YELLOW+ORANGE category. Yolks can have different colours, ranging from yellow to orange. However, Galicia has been (and to a great extent still is) fundamentally rural and reliant on produce from subsistence farming. Thus, it is likely

[73] Actually, *anaranjado* was the preferred term for orange in Spanish by the *Diccionario de la Real Academia Española* until 2014 and in some Latin-American countries such as Argentina, Uruguay, Colombia, Venezuela and Peru, *anaranjado* is still the main term, rather than *naranja*.
[74] In fact one EP used *anaranjado* as their BCT for ORANGE.

that it is orange rather than yellow that prompts a mental image of an egg yolk for an average Galician.[75]

There are other examples of egg yolk providing the prototype of YELLOW. In the Komi-Zyrian language (Northeast Russia) the term for YELLOW is *kolkviž.* This term is etymologically related to egg yolk and participants actually chose as its BE a redder hue than other languages (HUE YOY) (Uusküla and Bimler 2016: 24).

Nevertheless, most EP operated with an unitary YELLOW category. But even so, YELLOW had a wider denotation in EP as it included pale orange YO T3 while this was true for far fewer YP.

In addition, the YELLOW+ORANGE in EP also extends into brownish and greenish desaturated mixes. Similarly, data from Somali and the WCS show that the term for yellow is often used for light colours of all hues not only those containing "yellowness" (Lindsey and Brown, 2021).

6.6.2. Labelling

amarelo and cognates

YELLOW received less variety of labels than other regions of the colour space, with *amarelo* and cognates being the dominant response.

Both Galician *amarelo* and Spanish *amarillo* come from medieval Hispanic Latin *amārellus* 'yellowish, pale' a diminutive of Latin *amārus '*bitter'. Corominas believes the term was originally applied to those who suffered from jaundice, a sickness caused by bile, then known as *humor amargo,* that makes the skin look yellow (1984: 233). This also connects with the most frequent embedded expression for YELLOW found in TILG: *amarelo coma a cera* 'yellow as wax' applied to pale skin (12 tokens).[76]

The two prototypes contained in the most popular embedded expressions, wax and egg yolk, are not necessarily representative of focal YELLOW, but encompass a wider denotation. Nevertheless, the foci chosen during the BE task were always tile HUE Y and HUE YOY, focal YELLOW.

The first attestation of *amarelo* in TILG dates from 1746. However, the variant *marelo* has its first record in the early nineteenth century (1813). Actually, since its appearance,

[75]Even to this day many Galician village households have at least a small vegetable garden and chickens. Often they provide eggs for their relatives in the city or even sell them weekly in local farmers' markets. Galicians often comment on the difference between homegrown and factory farm eggs. The latter are disregarded for having yellower yolks and being less healthy. I heard elderly speakers describe factory farm eggs as *máis brancos* 'more white-looking' for having paler yolks.

[76] Similarly, the English word *jaundice* comes from Middle English *jaunes*, from Old French *jaunice* 'yellowness', from *jaune* 'yellow'. The Lithuanian yellow term *geltà* also means 'jaundice'.

marelo became much more popular than *amarelo* (between 1813—1981: *marelo*: 703 vs *amarelo* 455).

However, since the Standard promoted the form *amarelo*, the proportions reversed and *amarelo* became twice as frequent (1982—2013: *marelo*: 664, *amarelo* 1.394). The decline of *marelo* in recent times also shows up in the database, as *marelo* appears rarely and mostly among males.

Similarly to what was observed for RED and ORANGE, YM tended to use the traditional form *marelo* and the Standard *amarelo* more than their female counterparts. YF used *amarelo* as often as the Spanish loan *amarillo*. This matter will be discussed in detail in Section 6.14.

6.6.3. Candidates for basicness

Hyponymy. *Amarelo* and cognates considered together do not perform as hyponyms in ELs for any of the two groups as their MPs are very high (EP:4.4; YP: 4.0). The different forms taken independently do not behave as hyponyms either: *amarelo* and the variant *marelo* (EP: 4.2; YP: 4.3) and Sp *amarillo* (EP:4.5; YP: 5.2).

Amarelo and cognates also meet the threshold for being the label for a separate category during the BE task (EP: 94.74%; YP:97.06%). Nevertheless, if we look at the different forms separately, *amarelo* and variants met the threshold of agreement only among YP (EP: 10.53%; YP:52.94%) while Sp *amarillo* met the threshold among both groups (EP:84.21%, YP:44.12%).

Stability of reference. *Amarelo* and cognates meet the threshold of agreement for focal yellow tiles (HUE Y and HUE YOY) in TN and BE by the two groups (average EP: 97.70%, YP:99.26%). If we consider individual terms, *amarelo* and variants met the threshold only among YP (average EP: 12.73%; YP: 54.41%) and that of Sp *amarillo* is met by both (average: EP:81.77%; YP: 42.65%).

Idiolectal evidence. *Amarelo* and cognates fulfil this criterion in both age groups. The average of the EL, TN and BE tasks meet the threshold (EP:96.19%; YP: 99.51%). Individual terms present the same pattern as the other criteria: *amarelo* and variants meet the threshold only among YP (average EP:12.27%; YP:58.82%) and the threshold for Sp *amarillo* is met by EP and almost by YP (average EP:79.51%; YP: 39.22%).

Contextual restriction. The percentage of usage of these terms across the TN task indicates *amarelo* and cognates are not restricted contextually by any age group (average EP:86.33%; YP:77.45%). *Amarelo* and variants once again met the threshold among YP (average EP: 13.74%; YP:45.10%) and Sp *amarillo* among EP (EP: 71.83%; YP:30.39%).

The examples contained in the DRAG's definition of *amarelo* also suggest that it is not contextually restricted as it is used to describe clothes, skin, paint and as an abstract

colour term. Moreover, *marelo* is explicitly said to be a full synomym of *amarelo*. Nevertheless, some participants, especially EP who used Sp *amarillo* as their non-restricted yellow term, used *marelo* as a term for cattle. During Task 5, some participants provided a list of cow colours that contained the form *marela* (*rubia/roxa* 'reddish', *marela* 'pale yellow', *pinta* 'spotted', *vermella* 'dark brown', *parda/castaña* 'dark or black').

Thus, it becomes apparent that the BCT for YELLOW is Sp *amarillo* for EP and *amarelo* for YP.

The secondary criteria reveal interesting historical perspectives of (*a)marelo*. These forms are extremely well attested in TILG (a total of 3231 tokens). Moreover, these are not neologisms or recent loans as 1173 tokens predate the Standard. This contrasts with *amarillo* being a clear recent loan from Spanish with a total of 40 tokens in TILG, of which only 13 are from before 1982.

Moreover*, (a)marelo* registers a number of embedded expressions. One of them, *amarelo coma a xema do ovo*, was explained above. The most frequent embedded expression was *amarelo coma cera* 'yellow like wax' (12 tokens). Nevertheless, this expression is not context free but used to describe pale or sick skin. There are other related expressions such as *máis amarela ca morte* 'yellower than death'.

Furthermore, *amarelo* can receive several derivative morphemes such as *-ento* and *-ado*: *amarelento*, *amarelado* 'yellowish' and -iño: *amareliño (*45 tokens in TILG*)*. In addition, it also has a verbal form, *amarelar* 'to yellow'.

Thus, historically, (*a)marelo* seems to have been the BCT for YELLOW. However, the pressure of Spanish made participants born in the first half of the twentieth century progressively adopt the loan word *amarillo*. Nevertheless, the traditional labelling seems to have been partially restored as participants born in the 1980s and schooled in Standard Galician use mostly *amarelo* as their BCT for YELLOW.

6.7. Brown

6.7.1. Categorisation

Some EP had a GREY+BROWN category. However, most EP and YP used an unitary BROWN. Some participants made further divisions: light versus dark BROWN. However, this seemed to be an effect of having two competing brown terms and the need to differentiate between them, rather than a clear underlying categorical division. Finally, some participants used a red BROWN category with its BE around tiles SIENNA BROWN and O S1. Nevertheless, there is some overlapping as O S1 was the BE of BROWN for some YP.

6.7.2. Labelling

Several terms were attested for BROWN: *castaño*, *marrón*, *pardo*, *caqui*, *tostado*, *color chocolate*, *color madeira*, *color tabaco*, etc. However, only *castaño* and *marrón* were mentioned consistently and constitute proper candidates for basicness.

Other labels

pardo

The colour term *pardo* comes from Latin *pardus* 'panther or leopard' (Latdic). The DRAG shows only the meaning 'brown' and Digalego 'brown or dark'. This contrasts with 'grey' being a widespread meaning across the EP along with those few for whom it means 'grey and brown'.

This term is described by the DRAG with a unique sense: the colour of 'soil or dried leaves, between yellow and black, with a red component'. However, Estraviz contains several senses, the first being 'dark colour, between white and black' and only the second 'between yellow and brown'. Other specific uses, such as to describe a cloudy sky and the saying *de noite todos os gatos son pardos* (at night all cats look *pardo*), insist on the idea of darkness and particularly greyness.

The Portuguese word *pardo* is defined in a very similar way to that of Estraviz. The first sense is a non-defined colour 'between yellow, brown, and grey' and the second 'between black and greyish white' (Priberam). The following senses are also 'dark skinned, mulatto' and a figurative meaning of 'lesser dimension, intensity or visibility'.

In contrast, in Spanish the word *pardo* means 'the colour of soil, a bear skin, similar to brown or reddish', a certain type of voice and 'mulatto' (DRAE). All these definitions emphasise the idea of brown while a grey component is never directly stated but only vaguely suggested when saying that *pardo* can be used to describe clouds or the sky.

During Task 5, the dominant denotation in EP was GREY while for YP it was BROWN. Some members of both groups agreed on GREY+BROWN. Also *pardo* meant exclusively GREY for some EM. However, *pardo* was barely attested in the formal tasks.

Moreover, this is a term with a restricted context of usage. Participants of both groups reported using it mostly for animals (especially mammals but also birds). A parallel would be *hasu* in Old English. This term referred to a GREY+BROWN and was used mostly to describe birds (Biggam, 1998 314). Less frequently, *pardo* was reported to describe other natural elements such as fruit, leaves, etc. In contrast, it was rarely reported to be used for manufactured items such as clothes.

Russian *buryj* has a similar denotation '(dust/greyish) brown' and even the expression *buryj ladved* (Rakhilina & Paramei 2011: 127) is parallel to *oso pardo* 'brown bear'.

6.7.3. Candidates for basicness

Castaño and *marrón*

The traditional term for BROWN is *castaño.* This term and the variant *acastañado* (from *castaña* 'resembling the colour of chestnuts') come from Latin *castanea* 'chestnut-tree, chestnut fruit' (*Oxford Latin Dictionary* 2012). *Castaño* is defined by the DRAG as 'dark *pardo*, similar to the colour of chestnuts' and it is said to be a synonym of *marrón*.

Marrón, from French *marron* 'edible chestnut'*,* is defined as a colour 'between red, yellow and black, such as the one in chestnuts, chocolate etc.' by the DRAG and as '*cor castaña*, in between red and black, found in chocolate, coffee and tree-trunks' by Estraviz. As we have seen, in the different Galician dictionaries, there are recurrent references to chestnuts to describe all colour terms for BROWN. The word for this fruit in Galician is *castaña* and therefore, the term *castaño* is transparent, in contrast with *pardo* and *marrón* which are opaque.

Therefore, according to the DRAG *castaño* and *marrón* are complete synonyms while *pardo* is a lighter colour with a lesser content of red.

Castaño is registered in the DdD from the mid-eighteenth century but the colour sense did not appear until the early twentieth century (when *acastañado* also appears as a synonym).

The term *marrón* is absent from the Galician historical dictionaries (DdD) until the late twentieth century and even then the colour sense is not registered. The first token in TILG dates from 1985 *presentando tonalidades rubias, rosas, marrón, laranxa, marelas, púrpura e gran variedade de debuxos* (presenting red, pink, *marrón*, orange, yellow and purple hues and a variety of designs)(Ramonell). This recent arrival of *marrón* is also reported by participants in Villanueva's study, who said they had always used *castaño* (2009: 179).

Castaño seemed to be one of the first candidates for basicness in the EM ELs. Nevertheless, knowing that it is the traditional term for BROWN and that it was mostly absent from the young group lists, this position is assumed not to reflect its rise in significance but its relapse and progressive substitution by *marrón*.

The term *castaño* appears in the elderly group almost exclusively. Only they used it to describe some colour chips while young participants reported in Task 5 that they used it in restricted contexts such as to describe hair and eyes. This confirms how a term that is still a BCT for some EP became a more restricted term for other EP and a specialised term in most YP.

The boundary of the category seems to be different depending on gender in EP. EF used *marrón* for darker hues than EM, who consider them BLACK; this tendency was also observed at times with dark greens.

Hyponymy. Most participants used either *castaño* or *marrón*, others considered them equivalents and some believed one to be a hyponym of the other. Actually during T5 about a third of EP and half of YP supported this last idea: some reported that *castaño* meant 'light brown' (EP:19.57%; YP: 36.62%) and others 'dark brown' (EP:10.87%; YP:15.38%).

MP in ELs shows that *castaño* tends to appear later; thus it would be today a hyponym of *marrón* (EP: *marrón*: 8.5, *castaño*: 9.7; YP: *marrón* 10.00; *castaño* 12.0). Moreover, during the BE task data, *marrón* was used as the label of a separate category by most participants (EP: 86.84%; YP: 94.12%) while *castaño* was used only by some EP (EP: 26.07%%; YP:2.94%).

Stability of reference across informants. Denotation is wide as up to six tiles (Y S2, YO S3, O S1, O S3, RO S3 and R S3) consistently received brown terms (*castaño*: average EP:7.65%; YP:1.96%; *marrón*: average EP: 64.44%; YP:87.25%). Nevertheless, there was low agreement about which of them was the BE, but tiles R S3 and RO S3 were the most popular across both ages. The resulting agreement rates for *marrón* meet the threshold in both age groups (EP. 57.22%; YP: 73.04%) but the ones for *castaño* do not (EP:6.45%; YP:2.45%).

Idiolectal evidence. The resulting average of presence in EL, TN and BE meets the threshold for *marrón* in both groups (70.88%; YP:92.81%) but not for *castaño* (EP:20.33%; YP:2.61%).

Elicited lists. Similarly, although *castaño* is much more popular among EP, it does not behave as a BCT in either of the two groups' ELs. Its frequency among EP was 27.27% and its CSI rank position was 16 while it was mentioned by one single YP (2.94%) with a CSI rank position of 67.

Marrón, however, meets the threshold for both groups. EP had a frequency of 61.36% and a CSI rank position of 8 while their young counterparts had a frequency of 97.06% and a CSI rank position of 9.

Contextual restriction. *Marrón* does not seem to have any contextual restriction as it was used extensively to name colour chips in the TN task. *Castaño*, however, is heavily restricted for some EP and most YP. During Task 5, most EP but only very few YP considered it appropriate for clothes (EP: 77.78%; YP: 21.05%.). In contrast, *castaño* was much more popular among both generations as a context restricted term for hair and eyes (EP: 90.00% and 91.67%; YP: 90.00% and 50.00% respectively). This specific contextual restriction in YP was also attested by Villanueva (2009:179).

Similar cases are French *brun* and *marron* (Forbes, 1979, 2006) and contemporary Russian *buryj* and *koričnevyj (*Rakhilina 2000, Rakhilina and Paramei 2011) which although being synonyms vary in attributive meaning. Rakhilina and Paramei (2011) suggest that these pairs of terms operate with a taxonomic boundary that opposes natural objects to artefacts. Actually, these authors propose that being able to apply to natural and manufactured objects should be a supplementary criterion to determine basicness. Thus, although Galician *marrón* covers most contexts, it has some restriction to its basicness as, despite quickly gaining contexts of usage, it is still not suitable for some natural artifacts (**pelo marrón*).

There are two functions to justify the existence of this opposition. First, the colour of skin, hair or eyes is semantically loaded or *affectively marked* and, secondly, natural objects and artifacts have different colour characteristics (Rakhilina and Paramei 2011:124). The newer term refers normally to highly saturated colours achieved with dyes while the older term refers to quite "diffuse" coloration with blended and or desaturated areas (2011:124). These authors believe that this difference in denotation is the reason why modern terms tend to become basic (2011: 130).

Rakhlina and Paramei (2011) report a very quick shift. Their dramatic drop in the ranking for morphological derivations in Russian is parallel to the drop in the Galician ELs in the space of two generations (EP: 27.27%; YP: 2.94%).

Thus, only *marrón* is a BCT for both age groups. Nevertheless, a quick review of the second criteria reveals that this is a recent process. *Castaño* is attested twice as much as *marrón* in TILG (536 vs 272 tokens) and the proportion is much higher before the Standard (86 vs 9 tokens). Moreover, *marrón* is a recent loan from Spanish (in turn from French) as the first token in TILG does not appear until 1934. Moreover, *marrón* is absent from the database of historical dictionaries of Galician (DdD) (Villanueva Gesteira 2009, Teixeira Moláns 2014). There are no embedded expressions with either of the terms but there is an idiom with *castaño*: *pasar de castaño escuro* 'going too far', attested once in TILG.[77]

When it comes to the ability to develop morphemes, the form *acastañado* is attested profusely in TILG (183 tokens) but it is not clear if it is simply an alternative form of *castaño* as in 'brown' or a derived term as in 'brownish'. *Castaño* can receive the suffix *-iño* but there are only two tokens of this in TILG and both date after the Standard.

Marrón, however*,* can produce the derived form *amarronado* which does mean 'resembling brown'. The form *marronciño* is also possible but has only one token in TILG and it dates from after the Standard. Nevertheless, unlike other adjectives with the same ending which take a feminine inflection (*brollón*, *brollona*), *marrón* is invariable in

[77] This idiom means literally '(this situation) goes beyond dark brown' implying 'it is already black, it is becoming serious'. This idiom also exists in Spanish.

gender. In contrast, *castaño* is variable in gender (*castaño*, *castaña)* which confirms that it has been longer in the language.

Conclusion

Both *castaño* and *pardo* used to be the only terms for BROWN, although *pardo* also denoted BROWN+GREY. They seem to have been progressively losing contexts of use due to the recent appearance of *marrón*.

In conclusion, *marrón* is today the BCT for BROWN for both generations. However, the lexicographical data in TILG clearly indicate that *castaño* has been the traditional BCT for BROWN while *marrón* is a French loan word introduced through Spanish with less than 100 years in the historical record.

6.8. Green

6.8.1. Categorisation and labelling

All participants had a unitary GREEN category which they labelled *verde.*

6.8.2. Labelling

Across the tasks, *verde* is the only term used for GREEN.

6.8.3. Candidates for basicness

Verde

Verde comes from Latin *virĭdis* 'green' but also 'vigorous',' young' (Corominas Vol V p 781). Besides the colour sense, Galician keeps the sense 'unripe'[78].

Hyponymy. *Verde* is not a hyponym for either EP or YP. Their MP in ELs is very high in both age groups (EP: 4.0 and YP: 4.8). Moreover, it was also the term for GREEN in the BE task for all participants (EP:100% ; YP:100%)

Stability of reference across informants is very strong among all groups. *Verde* was used by most participants consistently for focal green tiles HUE G, HUE GYG and HUE GY (average EP:90.18%; YP:100%).

Idiolectal evidence. It is very high in both groups (average of 88.15% EP in the EL, TN and BE and 100% of YP).

Elicited lists. *Verde* behaves as a BCT in all ELs. It has a high Frequency (EP:84.09%; YP:100%) and meets the threshold of the CSI Rank (EP:3; YP:3).

[78] This sense seems much stronger in the elderly generation. In Teixeira Moláns (2014:37), EP used a type modification expression, *uvas blancas,* literally 'white grapes' whilst some YP used *uvas verdes*, 'green grapes' an expression rejected by EP since for them that meant something totally different: 'unripe grapes'.

Contextual restriction. *Verde* is not restricted contextually as it was widely used during the TN. DRAG uses the colour term to describe animals, eyes and clothes.

TILG contains several structures with *verde* but they seem more like comparisons rather than settled embedded expressions: *verde coma o mar*/ *a auga do mar* (13) 'green as the sea/ as seawater', *verde coma as esmeraldas* 'green as emeralds' and it mentions several plant species. The one that shows less syntactic variation and seemed a fixed expression is *verde coma a ouca/alga* (6) 'green as algae'.

Verde, as most adjectives ending in -e, is invariable in gender: *gravat**a** verd**e***, *pan**o** verd**e***. However, this term accepts many derivative suffixes: *verdiño*, *verdello* (also *verdoso*, *averdado, verdeal*) 'greenish'. It is also the base for verbs such as *verdear* 'to turn green', and nouns *verdor* 'greenness'.

Thus, *verde* is certainly the BCT for GREEN.

6.9. Blue

6.9.1. Categorisation

All participants had a category of BLUE. Denotation, though, was wider for EP. Over a half considered the colour of tile BV S2 to be part of BLUE (EP: 53.49%; YP:29.41%) and nearly a third also included HUE BV (EP: 32.56%; YP: 17.65%). Only a few EM operated with a wider category comprising all or part of PURPLE (See Tables 5.18 and 5.20). This also showed in their choice of BE. Half of EP (50.00%) chose tile BVB, slightly more purple, as the BE of BLUE while this was true for just one YP counterpart (2.94%), Most YP preferred HUE B and B T1 (76.47%).

6.9.2. Labelling

Unitary BLUE was mostly labelled with *azul*. Sporadically, some participants used some hyponyms such as *celeste* or *azulón* but this was incidental.

6.9.3. Candidates for basicness

Azul

Azul comes from Arabic *lāzūrd* 'lapis lazuli' in turn from Persian *lağvard* or *lažvard* (Corominas Vol I p 437). *Azul* is first attested in TILG in 1697. *Azur,* an archaism from Provençal *azur* (Estraviz, RAG's O Portal das Palabras), however, has no record in TILG until 1857. Several historical dictionaries contained in DdD, including Francisco Porto Rey (1900), state that *azur* is a synonym of *azul*. Although *azur* does not appear in DRAG, it did in previous versions (Real Academia Galega 1913—1928) pointing to heraldic usages which are still reported today by Estraviz.

Hyponymy. *Azul* is not a hyponym for either EP or YP. Their MP in ELs is very high in both age groups (EP: 3.6 and YP: 4.5). Moreover, it was also the term for AZUL in the BE task for all participants (EP:97.37%; YP: 100%)

Stability of reference across informants is very strong among all groups. *Azul* was used by most participants consistently for focal blue tiles BVB, HUE B, B T1 and HUE BGB (average EP: 91.36%; YP:93.38%). As noted above, BEs were different for the two age groups: EP chose tiles BVB, B or B T1 (94.74%) whilst most YP agreed on B, B T1 or BGB (97.06%).

Overall, the resulting stability rates meet the threshold (EP:93.05%; YP:95.22%).

Idiolectal evidence. It is very high in both groups (average of 93.09% EP in the EL, TN and BE and 96.81% of YP).

Elicited lists*. Azul* behaves as a BCT in all ELs. It has a very high Frequency (EP:93.18%; YP:100%) and holds the first positions of the CSI Rank (EP:1; YP:2).

Contextual restriction*. Azul* is not restricted contextually. It was widely used during the TN. DRAG uses the colour term to describe animals, eyes, clothes and gems.

Frequency in texts is met. *Azul* and *azur* combined have 3706 tokens in TILG. This is not a neologism since it is documented across all the centuries and has a total of 1667 tokens before 1982.[79]

TILG contains some examples of embedded expressions with transparent meaning such as *azul coma o ceo* 'like the sky' (11)[80] or *coma o mar* 'like the sea' (5). However, it is remarkable that there are other recurrent expressions such as *azul coma a flor do liño* (7) 'blue as the flax flower' and *azul como as violetas* (1) 'blue as violets'. Crucially, flax flowers vary in colour ranging from pale blue to purplish blue. This choice of prototype aligns with the data collected from EP who showed a preference for a more purple focus and a wider denotation that expands into the purple region.

Azul, in its simple form is invariable in gender (*gravat**a** azul*, *pan**o** azul*), but it can receive numerous derivative suffixes: *azuliño*, *azulón* 'intense blue', *azulado* 'bluish' etc. and even create verbs *azular* 'to turn blue'.

Thus, there is no doubt that *azul* is the BCT for BLUE.

6.10. Grey

6.10.1. Categorisation

Biggam (1998) reports that in Old English the idea of greyness did not just refer to purely achromatic colours but also to desaturated hues. She points out that this *saturation*

[79]Perhaps there would be even more tokens of *verde* and *azul,* if eye colour, one of the most recurrent pieces of information when describing people's appearance, was not frequently conveyed with other expressions. *Ollos gacios* 'blue-green'(DRAG) and *ollos garzos* 'bluish' (DRAG) are not rare in TILG (28 and 22 tokens respectively). The variant *gaxos* was registered in Costa da Morte (Teixeira Moláns 2019: 311-312).

[80] See section 5.2.29 for *color cielo* 'sky colour'.

function could be virtually applied to any hue (1998: 312). This connects with some of my findings as most EP and YP agreed in including tile BVB S3 a very desaturated light blue not only as part of GREY (EP: 61.36%, YP:85.29%) but even choosing it as the BE of the category (EP: 10.53%; YP: 8.82%). Moreover, some EP included in *gris* some lilac tiles, some of which were desaturated, VRV S3 (29.55%), and others were not, VBV T4 (6.82%). Similar categorisation can be found in the analysis of LB (2021): many languages in the WCS categorised lilac as grey.

Furthermore, some EP labelled desaturated light brown tiles as *gris* (ORO S3 6.98%). Some of these included light yellow tiles with no desaturation at all (YOY T4 9.09%). All this is evidence for a GREY+BEIGE category in some EP.

A connection between BROWN and GREY is found in LB (2021). Many WCS languages included brown tiles in GREY (not just any brown but the very BE of BROWN in BK (LB 2021, Figure 1). This BROWN+GREY could be found in Old English *hasu* (Biggam, 1998) and Modern English *dun*. This seems to be also one of the meanings of Galician *pardo*. During Task 5 the denotation BROWN+GREY was attested in six participants (EP 3; YP:3) plus another six EP who described it as 'several colours'. In addition to this, *pardo* meaning 'grey' was strongly attested in EP (21 times) and across the map, particularly in Allariz, Entrimo, Costa da Morte and Ancares. In contrast, no YP mentioned 'grey' to describe *pardo*.

Nevertheless, unitary GREY could be found in many EP, particularly EF, and in all YP.

6.10.2. Labelling

The main label for GREY was *gris*. Unlike *gris*, *aborrallado* and *cincento* have a transparent meaning 'covered in or resembling ashes'. *Cincento* and the variant *cinsento* have in total 420 tokens in TILG. However, they were not used at all across the formal tasks. When asked during Task 5, participants reported these were mostly contextually restricted terms used mainly for the sky and animals. Some EP also used the term *beis* for GREY.

During TN *color cielo* 'sky colour' was used by a few EP for either the light grey tile GRAY 1 or the light desaturated lilac VRV S3 but not for light blue, which is the meaning of the Spanish expressions *azul cielo* 'sky blue' or *celeste* 'celestial'.

6.10.3. Candidates for basicness

Gris

Gris comes from Occitan (southern France) *gris* in turn from Frankish *gris* 'grey' (Corominas Vol II p 218). It is attested since the thirteenth century (*Cantigas de Santa María*, 1221—1284).

Hyponymy. *Gris* is not a hyponym for either EP or YP. The MP in their ELs meets the threshold in both age groups (EP: 9.6 and YP: 10.9). Moreover, during BE most participants had a separate category named *gris* (EP:89.47%; YP:100%).

Stability of reference across informants meets the threshold in both groups. *Gris* was used by most participants consistently for central achromatic tiles GRAY 4, GRAY 6, and tile BVB S3 (average EP:70.84%; YP: 95.10%). As noted above, BEs were similar for the two age groups: participants agreed on either GRAY 4, GRAY 6 or BVB S3 (EP: 84.21%; YP:100%). Overall, the resulting stability rates meet the threshold (EP:77.53%; YP: 97.55%).

Idiolectal evidence. Both groups meet the threshold for idiolectal evidence (average of 67.59% EP in the EL, TN and BE and 97.39% of YP).

Elicited lists. *Gris* behaves as a BCT in all ELs. Although it meets the threshold for Frequency in both, the value is dramatically lower in EP when compared with their young counterparts (EP: 47.73%; YP: 97.06%). Both also meet the threshold for the CSI Rank (EP:9; YP:10).

Contextual restriction. *Gris* is not restricted contextually. It was widely used during the TN. DRAG uses the colour term to describe clothes, the sky and fur.

Frequency in texts is met. *Gris* has 1258 tokens in TILG. It is not a neologism since there are 283 tokens before 1982. The increase of 3.4-fold in the period 1982–2013 seems to parallel the decline of *aborrallado*, *cinsento* and *pardo*.

There are no embedded expressions with *gris* in TILG. There seem not to be embedded expressions for GREY in Spanish or English either. This must be because of the low conspicuousness of this colour. *Gris* is invariable in gender (*gravat**a** gris*, *pan**o** gris)*, but it can receive several derivative suffixes: *grisiño* and *agrisado* 'greyish'.

Thus, *gris* is the BCT for GREY in YP and, to a lesser extent, in EP.

6.11. Pink

6.11.1. Categorisation

This region of the colour space was categorised in several ways: PINK+ORANGE, extended PINK, unitary PINK. Some even made further partitions such as SALMON and FUCHSIA.

The denotation is wide and has low consensus rates. For some, PINK overlaps with focal RED. Others include desaturated light brown 48 ORO S3. Actually, both groups tolerate a certain amount of orangeness in PINK (ROR T4 EP: 69.77%; YP:79.41%). RO T3, however, is no longer included for most YP (EP: 56.82% YP: 26.47%) who consider these tiles part of ORANGE or a category on the boundary between them: SALMON (YF: 22.22%)

PINK has low *stability of focus* (Lenneberg and Roberts 1956). YP have higher agreement rates and mostly choose pale red (R T4 EP: 34.21%; YP:67.65%). Nevertheless, three YP complained there was no actual pink in the sample. EP have much less defined BE: they chose pale red but also pinkish orange, pure orange and very dark pink.

It is possible that YP, mostly born in the decades of the 1980s and 1990s, developed a clearer prototype of pink through artefacts such as toys. During the last decades of the twentieth century toys were strongly gendered and colour was one of the key features: toys marketed for girls were pink (cf. Paoletti 2012). Moreover, these toys had a series of pink hues with some blue component, as in Barbie pinks[81], which might have helped redefine the prototype of PINK from pale red to cooler mixes.

This a dramatic gender bias which also shows in regard to *rosa* in EP. This 34% difference in EL frequency and 8 positions in the CSI Rank could be related to the preference of females for warm colours, especially pink (Bonnardel et al. 2017). Nevertheless, this preference does not seem enough to cause its absence in more than half of EM lists (47.37%). This could indicate a general tendency in males to make fewer partitions than females in the warm area as Griber, Paramei and Mylonas (2017) observed for Russian.

Rosa is the dominant label for these categories.

6.11.2. Labelling

Across the tasks, *rosa* (or the variant *rosado)* was the only term for PINK.

6.11.3. Candidate for basicness

Rosa comes from Latin *rosa.* It is defined by DRAG as *cor vermella moi clara* 'very light red colour', by Estraviz as *cor semelhante à da rosa comum, isto é, vermelho-pálido* 'colour similar to the common rose, that is, pale red' and by the dictionary of Eladio Rodríguez González *color encarnado poco subido* 'low intensity red colour'.

During the TN *rosa* was the dominant form (492 tokens) whilst the variant *rosado* was residual (22) and mostly used by EP (18). *Rosado* is attested in early texts alongside the forms *cor de rosa* and *cor rosa*. However, with the appearance of *rosa* as a colour term, for some *rosado* seems to have settled its meaning as 'pinkish'. The DRAG defines it as *de cor semellante á da rosa, que tira a rosa* 'a colour similar to roses, that resembles pink' and Eladio Rodríguez González's dictionary defines it as *del color de la rosa o parecido a él* 'colour of roses or similar to it'.

Thus, all dictionaries seem to agree on the meaning of *rosa* being 'pale red' and two of them point to roses as its prototype. Nevertheless, roses can be found in a range of colours, a fact that some EP stressed during the interview. Moreover, the word *rosa* in Galician has many meanings including 'any flower' (DRAG). Thus, the referent of *rosa* being less precise probably makes the denotation of the colour term more ambiguous and less salient when compared with, arguably, more opaque terms such as *pink* in English.

[24] The colour scheme of Barbie dolls is Barbie Pink (Pantone #e94196), Raspberry Pink (#ED5C9B), Pastel Magenta (#F18DBC), Small Girl Pink (#F7B9D7) and Classic Rose (#FACDE5), all of which contain blue to some extent.

Basicness

Hyponymy. Although dictionaries define *rosa* as a pale red, ELs data points out that this term is not a hyponym for either of the two age groups. Frequency and MP are fulfilled by both (EP: 68.18%; YP: 94.12% and EP: 7.1; YP: 9.0). Moreover, *rosa* is the term with a most dramatic gender bias in EP's ELs. Frequency in males and females varied by 36.63% (EM:47.37% vs EF:84.00% and the MP by 4.1 points (EM:10.00 vs EF:5.9).

Data from the BE task also suggests that *rosa* is not a hyponym. It was used as the label for a separate category by 81.58% EP and 97.06% YP, although for very different tiles especially in EP.

Stability of reference across informants. Although both age groups strongly agree about tile R T4 in both TN (EP: 79.07%; YP: 91.18%) and in the BE task (EP:34.21%; YP:67.65%), *rosa* has low stability of reference regarding its denotation. During the TN up to six tiles received *rosa* as the main label but with relatively low agreement rates (average EP:50.07%; EP: 66.18%). Most importantly, its BEs ranged from very light red (R T4), to light red-orange (RO T3), and darker hues with a violet component (RV T2, RVR and ROSE RED). Despite all this, the agreement rate across tasks meets the threshold in both cases (EP: 42.14%; YP: 66.91%)

Idiolectal evidence is fulfilled by the two groups. The average presence of *rosa* across the EL, TN and BE task is 64.86% in EP and 85.78% in YP.

Elicited lists. The threshold is met in frequency (EP: 68.18%; YP: 94.12%) and CSI Rank (EP: 7; YP: 8) by both age groups.

Contextual restriction. No contextual restriction seems to apply to *rosa* as it was used extensively to name colour chips in the TN task (average EP: 50.07%, EP:66.18%). Furthermore, examples in DRAG definitions use *rosa* for clothes. However, DRAG uses r*osado* for cheeks and wine as a term for a type-modification.

Secondary criteria

Rosa and *rosado* meet the frequency threshold in texts as they add up to 727 tokens in TILG (536 and 272 respectively). *Rosado* and *rosa* as colour adjectives are registered in TILG around the same time (1863 and 1862 respectively) nevertheless, *rosado* is slightly more popular than *rosa* (408 vs 319 tokens) even after 1982 (269 vs 211).

However, there are no embedded expressions with *rosa*/*rosado*. The only one found in TILG stresses the vagueness of the notion of PINK. The case is *labres frescos e rosados coma cereixas* 'lips fresh and pink as cherries' (1888). This example of cherries as a prototype for PINK coexists with a very common embedded expression with cherries as protypes for RED which would support the idea of RED+PINK as a category attested in a few EP.

Rosa cannot inflect gender as an adjective (*gravat**a*** *ros**a*** but also *pan**o*** *ros**a***) which stresses that it has not been in the language for very long. There is no equivalent in Galician to Spanish *sonrosar(se)* 'to turn pink'. The only verb related to *rosa* is *rosear* '(any plant) to bloom'. Nevertheless, both *rosa* and *rosado* accept the suffix *-iñ*: *rosiña*, *rosadiño.*

Conclusion

Rosa is a BCT for both age groups but dramatically less salient for EM. *Rosa,* as opposed to earlier forms *cor de rosa* and *cor rosa* 'rose coloured', has probably been a BCT for a short time as it was consolidated in texts only in the twentieth century.

The presence of *rosado* across the tasks was minimal. Thus, being more frequent in texts is probably due to its sense of 'pinkish' or even of literal uses like 'from roses' for poetic effect rather than as evidence of being an alternative term for PINK.

6.12. Purple

6.12.1. Categorisation

There is a range of categorisations from BLUE+PURPLE, to unitary PURPLE, and further divisions such as LILAC, RED PURPLE and BLUE PURPLE.

PURPLE did not seem a very salient category for EP. This became evident in EL data. 38.64% of EP did not mention any term for PURPLE, and this percentage was even higher for EM: 47.37%.

During TN some EP showed that they had indeed not fully partitioned PURPLE (9/44 20.93%) and this was more so among EM (7/19 36.84%). This region of the colour space was divided by some EP between BLUE and PINK or RED. Some EM (4/19 21.05%) used the blue term to name most or some focal purple tiles (HUE RVR, HUE V, HUE VBV) and only started to name some of these inconsistently with references to wine. This suggests that purple was still attached to blue in a sort of BLUE+PURPLE category. Data from TILG seems to support the existence of BLUE+PURPLE: *tan azul como as violetas* 'as blue as violets' (1913).

In any case, the PURPLE/BLUE border is different for the two age groups. YP tended to have a wider PURPLE category that extends into what is still BLUE for many of their elderly counterparts. For instance, tiles BV S2 and HUE BV were frequently categorised as BLUE by EP (53.49% and 37.21% respectively) while this was true for YP less often (29.41% and 20.59% respectively).

In Teixeira Moláns (2014, 2019) by using one single bluish-purple stimulus, I obtained a purple term from all young speakers and the term for blue from half of their elderly counterparts (including the three oldest, born in 1923—1934). This led me to conclude that Traditional Galician used not to have a PURPLE category and that it was only

appearing recently among elderly speakers because of contact with Spanish (2019: 230). These EP could have been indeed operating with a BLUE+PURPLE category similar to the one attested in this study. The higher number of subjects who gave this answer in the 2014 study (50.00% EP) versus the present study (21.05% EM) could be explained by these sets of data having been collected seven years apart (2014 vs 2021).[82] Moreover, the 2014 data was collected in a village in Costa da Morte, a region known for being predominantly Galician-speaking which, arguably, would also retain a more archaic categorisation less influenced by Spanish. Thus, it is perfectly plausible that these EP operated with a BLUE+PURPLE category.

Nevertheless, this labelling could also be explained by the usage of a bluish-purple stimulus and the difference in semantic extensions of BLUE and PURPLE attested in the present study.[83]

In any case, the present study has thoroughly explored the denotation of these categories. Some EM had not fully partitioned PURPLE from BLUE and many more EP than their younger counterparts had a BLUE category that expanded into PURPLE.

Some of these EP did not have a unitary PURPLE category but started partitioning RED+PURPLE for tiles RVR S1 and HUE VRV under the label *color viño*. A fraction of EP had a unitary PURPLE with various labelling strategies which were used without much consistency.

A common further division in YP is PALE PURPLE or LILAC with the focus mostly in tile BVB T4 (less frequently HUE BV and BV S2). A few EP included in LILAC some desaturated hues (GRAY 2, GRAY 4), and others used purple terms for ORO S3, a desaturated brown hue. This happened in the other direction too; lilac tiles were labelled with a grey term (see section 6. 10.1 above).

According to TN data contained in BU, Spanish also seems to be partitioning this region within PURPLE. Many of their Spanish participants used a separate label, *lila* or *malva*, for pale purple tiles (VRV S3 (21/38) and VBV T4 (14/38)). According to MacDonald and Mylonas (2017) *lila* in Spanish is darker and more extensive than English *lilac*. *Lilac* is also one of the candidates for basicness in British English (Sturges and Whitfield 1997) and so is *lavender* in American English (LB, 2014).

Moreover, some YF seem to be starting to oppose RED PURPLE to BLUE PURPLE. This categorical refinement of the purple area in females agrees with the findings by Mylonas, Paramei and MacDonald (2014). Griber, Paramei and Mylonas (2017) attested the same tendency in the orange-pink region of the colour space. This emphasis in refining the purple area with *lila* being the first candidate for basicness among YF seems

[82] Despite the apparent-time construct, speakers keep learning throughout their lives and some EP in the present study have reportedly learned some new colour categories in recent years.

[83] Moreover, the 2014 study did not test for colour blindness or aged vision so we cannot know if this played a role in these answers.

to correlate with Spanish but not so much in the other languages contained in Uusküla and Bimler (2016b).

The BEs chosen for all the categories tended to align with the universal foci identified in the UE model. Nevertheless, requesting BEs and allowing participants to reassess their responses confirmed important relations of hypernymy and hyponymy within a given category. This was particularly relevant for purple for which there were half a dozen candidate terms some of which were considered synonyms and other hyponyms.

6.12.2. Labelling

Labelling of this region of the colour space is even more complicated as there are several labels available and low agreement rates. Unitary PURPLE received the labels *violeta*, *morado*, *lila*, *color viño* and *púrpur*a. RED PURPLE tended to receive *morado* or *color viño* and BLUE PURPLE *violeta*. LILAC is almost always labelled *lila* or *malva*.

Color viño

Cor viño or *color viño* 'wine coloured' is a labelling strategy for PURPLE attested in EP especially during TN (EP: 9.09%) and with more presence in EM (17.54%). TILG contains 13 tokens of *cor viño* or *cor do viño*, six of them earlier than Standard Galician. Some EP used the variant *viñado* or *aviñado* 'wine looking', also found in TILG from 1969 onwards[84].

C*or viño* appeared less often in EP ELs (6.82%) than in YP ELs (17.65%), but in a higher MP (EP: 12.3 vs YP:18.2). Moreover, during TN *cor viño* was used by some YF but referring to RED PURPLE only (especially tile RVR S1).

As we have seen, the partition of PURPLE in Galician is very recent and not complete in many EP. The higher presence of *cor viño* among EP, and EM in particular, suggests it was probably becoming the Traditional Galician labelling strategy. However, competition from Spanish loans *violeta* and *morado* made it decline quickly and turned it into a hyponym for 'red purple', the meaning in that language. In any case, today it is not popular enough among any group to be a candidate for basicness.

6.12.3. Candidates for basicness

Violeta

Violeta comes from French *violette*, a diminutive of Old French *viole* in turn from Latin *viola* (Corominas vol 5 p 823) 'plants of the genus *viola*' such as *viola odorata.*

[84] The tokens of a*viñado* before 1982 have a very different meaning: '(fruit) edible but not fully ripe'(see Estraviz). The motivation for the comparison with wine is probably not colour but flavour.

The colour sense is not explained by DRAG or Estraviz; they just point to the colour of the flowers. These flowers are not focal PURPLE but a hue with a higher proportion of blue than red. This denotation is maintained when used to describe the seventh colour of sunlight and other phenomena such as ultraviolet light, senses contained in DRAG.

Although some YF would use this term for BLUE PURPLE alone, most participants use it as a term for unitary PURPLE.

Hyponymy: The MP threshold is met for both age groups (EP:8.4; YP:8.1). Among EP the CSI value (0.0352) is quite close to that of the previous item (only a difference of 0.0070 from *laranxa* and cognates 0.0422). The CSI of YP (0.0731), however, is very much apart (a difference of 0.0159) from the previous element (*gris* 0.0890).

Almost no EP used *violeta* when selecting the BE for unitary PURPLE (tiles HUE V, HUE VRV). Although it was much more popular among YP it does not meet the threshold in either group (EP:5.26%; YP:32.35%).

Violeta does not seem to be a hyponym.

Stability of reference across informants is particularly low for EP (6.80%) but it is close to qualifying among YP (38.24%).

Idiolectal evidence. Similarly, it is quite low for EP (14.38%) but this qualification is met in YP (45.10%).

Elicited lists. Although *violeta* is the most popular purple term in EL, it does not meet the frequency threshold in EP (29.55%) although it does in YP (58.82%). *Violeta* meets the threshold of CSI rank in both groups (EP: 12, 0.0352; YP: 11, 0.0731).

Contextual restriction. There is no contextual restriction in either age group. The DRAG's entry for *violeta* uses it for makeup and clothes.

Secondary criteria. The requirement for Frequency in texts is met: there are 158 tokens of *violeta* as a colour term in TILG. However, if not a neologism, this is a relatively new term in Galician. Even as a flower name, there are no tokens of *violeta* in TILG until 1858. Prior to Galician Standard there are only 34 tokens with some colour sense and some of them are very ambiguous. The very first four tokens with a colour sense (dated 1881—1886) and another four later tokens are expressions referring to eyes generally not as adjectives but with the fixed expression *ollo(s) de violeta* 'eyes of violet'. These probably describe the circles under the eyes.

a. A señora ama de casa ten o ollo(s) de violeta; cando vén o seu galán, non sabe dónde o meta 'the lady has violet eyes, when her gentleman arrives, she does not know where to hide him' (1881—1886 four tokens)

b. Alumeaban ll'os ollos, entr ' as violetas de as olleiras 'his eyes lighted in the violets of his circles under his eyes' (A Nosa Terra, 1917)

c. *nas saudosas violetas de os ollos monxiles* 'in the melancholic violets of her nun-like eyes' (Amado Carballo, 1925)
d. *morrera ben nova queimádo- los ollos de violeta* 'she had died very young burning the violet eyes' *(*Otero Pedrayo, 1932)

and further references:

e. *a violeta situárase no basamento de os seus ollos* 'violet had placed itself on the base of her eyes' (Ferrín, 1980)
f. *Chamamos lle Violeta, pola cunca dos ollos* 'we call her Violeta because of her eye sockets' (Ledo, 1985)
g. *o señor capelán tiña violeta por embaixo de os ollos* 'the chaplain had violet under his eyes' (Ferrín, 1987)

Other early mentions of the term are actually used with a blue sense:

h. *dous círcolos de azuadas violetas* 'two circles of bluish violets' (Pérez Placer, 1891)
i. *tan azul com'as violetas* 'as blue as violets' (O Tío Pepe da Portela, 1913)
j. *I a coor de aquilas cumes violetas, azúes* 'the colour of those violet summits, blue' (Nós, 1927)

In addition, none of the dictionaries contained in DdD has any colour sense for the word *violeta* which supports the thesis that this colour term is indeed very recent.

In times before the officialization of Galician any technical texts describing the light spectrum and terminology such as ultraviolet light would be generally written in Spanish. There are very few examples of this genre contained in TILG. EM mentioned *violeta* in their ELs more often than their female counterparts (EM: 42.11%, EF: 20.00%). This is perhaps because males of this generation attended school more than females and learned about these matters through Spanish vocabulary. Moreover, this literacy gave them a lifetime access to technical texts and literature through which to acquire the term.

These two main terms for purple exist already in Spanish. Both terms appear hand in hand in several studies. Contrary to Lillo (2018), participants in BU (2016) used *morado* more often than *violeta* (2.6 times) (74 vs 28 tokens)[85].

[85] The flag of the Spanish Second Republic (1931—1939) was described at the time as *La bandera de la República española es roja, amarilla y morada* (Spanish Constitution of 1931). The tension between the two terms still lives today with new expressions being coined constantly with both: *gafas violetas* 'purple glasses', *marea morada* 'purple wave'.

There are no embedded expressions with *violeta*. This term accepts derivational suffixes such as *violáceo* 'purplish' and *violetiña* and it is invariable in gender (*gravat**a** violet**a*** but also *pan**o** violet**a***).

Morado

Morado could be a Galician word derived *mora* in turn from Latin *mora* 'blackberry'. Nevertheless, the Standard Galician and Portuguese term for the fruit is *amora* so a derived form *morado* seems unlikely. Thus, *morado* might be a loan word from Spanish.[86] The variant *mourado* is an *hiperenxebrismo,* a sort of hypercorrection, found only in TILG.

Hyponymy, *Morado* does not seem to be a hyponym. Its MP meets the threshold for both groups (EP:9.1; YP:8.8). During the BE *morado* was used as the label for unitary PURPLE with tiles HUE V, HUE VRV and HUE VBV as a focus by a similar percentage of the two age groups but neither meets the threshold (EP: 23.68%; YP:26.47%).

Stability of reference across informants. For EP *morado* has a higher stability than *violeta* but it still does not meet the threshold (22.83%). Conversely, among YP *morado* has a lower stability (29.41%) than *violeta* and it does not meet the threshold either.

Idiolectal evidence. *Morado* does not meet the threshold in EP (23.55%) but it nearly does in YP (37.25%).

Elicited lists. EP do not meet the threshold for frequency (25.00%) but YP do (52.94%). The CSI rank does not meet the threshold in EP (17, 0.0275) but it does in YP (12, 0.0599).

Contextual restriction. There seems to be no contextual restriction in either age group since this term was used profusely for colour tiles during the TN. DRAG uses *morado* for clothes and makeup.

Secondary criteria

The qualification for Frequency in texts is met with 176 tokens. It is not a recent neologism. Besides the first token of *morado* in TILG dating 1857, more than two decades earlier than its competitor (*violeta,* 1881), these two terms show a different vitality. Apart from the first token of *morado* which refers to skin, there are 25 examples of this word describing all sorts of things including clothes and flowers before the turn of the century. In contrast, there are only two cases of these other usages with *violeta*.

[86] The Spanish term for blackberry is *mora*. Furthermore, *morado* as a colour term in Spanish is attested from the fifteenth century (Dębowiak & Stala 2016: 62). *Morado* was probably loaned to Galician much later since it is attested in TILGA only from the mid-ninetheenth century (See the next page discussion on frequency in texts).

Unlike *violeta*, *morado* is variable in gender: *gravat**a** morad**a,** pan**o** morad**o***. This term accepts appreciative suffixes such as *-iño* (*moradiño*). Nevertheless, since it already derives from *mora*, *morado* cannot accept further derivative suffixes.

Lila

Portuguese *lilás* and Spanish *lila* come from French *lilas*, initially *lilac,* 'bush of purple flowers'. French got this from Arabic *līlâk* but this is originally a Persian word: *līlac* (also *nīilak*) a diminutive of *nīl* 'indigo' (Corominas Vol III pp 212). Galician *lila* was probably introduced through Spanish.

Lilac and its cognates are first and foremost the name for the plant *Syringa vulgaris*. This species has pale purple flowers from which the colour sense is derived. The paleness of this hue is crucial to its meaning. However, the DRAG does not specify it, referring to these flowers but describing them simply as *entre azul e rosa* 'between blue and pink'. Estraviz, though, does describe the colour: *cor morada clara* 'light purple colour'.

Hyponymy: BE data shows that for most EP *lila* is an alternative term for PURPLE (26.32%), rather than a hyponym for a paler hue (7.89%). The fact that the DRAG does not emphasise the etymological meaning 'pale purple' seems to agree with the denotation reported by EP.

In BU (2016) data there are no examples of speakers of Spanish, either elderly or young, using the label *lila* for focal PURPLE, only for LILAC, so this is a Galician development. The EP MP meets the threshold (9.2). Nevertheless, their CSI rank is too low (18) for it to be the main purple term.

Among YP, *lila* meets the threshold of MP (11.8) but it does not reach the CSI Rank position (14). Despite this, *lila* is the first candidate, and a strong one, for basicness in YP, especially YF. Its lower rank position is not due to the presence of better candidates but to the existence of two alternative terms for RED (*vermello* and *rojo*) and also two alternative terms for unitary PURPLE in YP (*violeta* and *morado*) at the top rank.

During BE testing, tile VBV T4 was chosen to be the focus of a PALE PURPLE category by 61.11% YF. However, this was true for a much lower percentage for YM:18.75%. Actually, a similar percentage of YM (12.50%) agreed with EP 29.07% in using *lila* as their term for PURPLE.

Stability of reference across informants. *lila* as an alternative term for unitary PURPLE does not meet the threshold for stability of reference among EP (29.07%), but EF nearly reach it (38.22%). In contrast, among YP this denotation is much rarer. Only 10.78% YP used it to name focal PURPLE during the TN and only 5.88% used it during the BE (5.88%), resulting in a 8.33% stability rate.

Lila as a narrower category, PALE PURPLE, is much more frequent among YP. During TN an average of 56.25% labelled tile VBV T4 *lila*, resulting in a stability rate that meets the threshold (54.41%). Among YF the stability is even higher (69.44%) as tile VBV T4 was

labelled this way by 77.78% YF and 61.11% of them selected it as the focus of a separate category by BE.

Idiolectal evidence. As PURPLE this term does not qualify in any group (EP:26.95%, YP:24.18%). As LILAC, it is does not qualify in EP (19.30%) but it does qualify in YP (54.90%) and much more so in YF (70.37%).

Elicited lists. Frequency is not fulfilled in EP (22.73%) but it is in YP (55.88%) and even more so in YF (72.22%). The CSI Rank threshold is not met by either group. The EP CSI rank (18, 0.0247) is relatively close (0.0028) to the previous term (*morado* 0.0275).

In YP, *lila* is the first candidate for basicness with a CSI rank of 14 (0.0472). There is a relatively high difference (0.0067) from the previous term *rojo* (0.0539) which is understandable as this is a loan term for red which has very strong values such as MP 6.0. In lists *lila* is an even stronger candidate for basicness. It has a CSI rank of 14 (0.0556) with only a difference of 0.0023 from the previous item (*morado*, 0.0579).

Contextual restriction. No contextual restriction seems to apply to *lila* as it was used extensively to name colour chips in the TN task (up to 31.82% in EP and 67.65% in YP for certain tiles). Furthermore, examples in DRAG definitions use *lila* for clothes.

Secondary criteria

The threshold for Frequency in texts is not met: 29 tokens in TILG. Moreover, this term is clearly a neologism as there are only 3 tokens in TILG before 1982.

There are no embedded expressions with *lila*. This term accepts derivational suffixes such in *alilado* 'lilacky' and *liliña* and it is invariable in gender: *gravat**a** lil**a*** but also *pan**o** lil**a.***

Conclusion

PURPLE in Galician is a special case as it has several strong candidates for basicness.

Morado is an older term than *violeta* and shows a stronger use from the second half of the nineteenth century with 2.4 times more tokens until 1982. However, after that date *violeta* surpasses it (124 vs 96 tokens). This recent shift seems to align with the mild dominance of *violeta* among YP across tasks.

Nevertheless, their values are really close and both *morado* and *violeta* meet the criteria for basicness. The existence of two terms for PURPLE makes some YF assign them two different regions within the category, which coincide with the original denotation of both terms: *violeta* for BLUE PURPLE and *morado* for RED PURPLE. Nevertheless, for most people these are coextensive terms for unitary PURPLE.

Lila as the term for a LILAC or PALE PURPLE category is very salient among YF; actually, it gathers much higher agreement rates than any of the candidates for unitary PURPLE.

EM have no preference for any term for PURPLE, they are almost evenly divided among four options (*color viño*, *morado*, *lila* and *violeta*). Although also divided, EF show a clear

preference for *lila.* Since there are only three tokens of *lila* as a colour term in TILG before 1982, EP must have acquired it from contact with younger generations and the media.

Thus, for YP *violeta* and *morado* are both alternative BCTs for PURPLE. EP do not have any established BCT for PURPLE, although EF has a preference for *lila*. YP, especially YF, are developing a new BCC LILAC and BCT *lila*.

The complex landscape of labelling strategies and categorisation patterns shows different stages of the partition process of a given region of the colour space (see MacLaury 1991). We found examples of coextension in YP using both *violeta* and *morado* for PURPLE and in EP doing so with *lila* and *morado*. Inclusion was found in some YP who used *lila* as a hyponym of PURPLE. Finally, complementation was attested in YF who used *lila* as a separate category from PURPLE, and in those who opposed *violeta* as BLUE PURPLE to *morado* as RED PURPLE.

Thus, the low consensus about the partition and terms for PURPLE is manifest. While in YP the agreement rates for *violeta* were close to the 40% threshold and were well surpassed for *lila* as LILAC, if we looked at the joint data of all participants the values would drop even further, and no purple term would nearly reach the 40% threshold (See Appendix 3).

6.13. Developing categories

The data collected in this fieldwork suggests that there are several regions of the colour space in which Galician might partition new basic categories in the near future. Some of the categories at the borders of other categories such as *salmón* or *cor carne* (between PINK and ORANGE) and *turquesa* (between GREEN and BLUE) might develop. Others could also solidify as partitions within one single category. We just discussed how *lila* as a PALE PURPLE is on its way to becoming basic and, in time, so could: *fucsia* (from PINK), *azul mariño* (from BLUE*), dourado* (from YELLOW) and *prateado* (from GREY). *Beis* is an especially complex category and given its predominance across all tasks it will be discussed below as a case study.

6.13.1. Beige

6.13.1.1. Categorisation

Most participants had to some extent a PALE WARM or BEIGE category. Desaturated reddish-orange and orangish-red tiles ORO S3 and ROR S3 and pale orangish-yellow tile YOY T4 were recurrently categorised as BEIGE in both age groups. Tile ORO S3 was categorised as such by a considerable number of EP and YP. According to the data in Eessalu and Uusküla (2013) this tile was the dominant one for BEIGE in Estonian but not included in this category as frequently as in other languages.

They also report that Hungarian has two beige terms with similar denotation (*drapp* and *bézs*) in which ORO S3 was crucial. Some females both in the elderly and young groups contrasted two terms in this region. One of those tended to be ORO S3 and the other YOY T3.

A low consensus about BE was found across the groups but popular tiles were again ORO S3, YOY T4 and also YOY S2.

The high saliency of the term for BEIGE in the EL alongside a lack of referential stability across tasks and a lack of consensus regarding its BE was also found by Eessalu and Uusküla's cross-linguistic study (2013). They attribute this discordance to a restriction in the context of usage as BEIGE was applied mostly to clothing and leather products.

Furthermore, a few EP had a single category comprising BEIGE+GREY. During TN 23.26% of EP labelled the light grey tile GRAY 2 and 9.30% the central grey tile GRAY 4 with their beige term. Although some EP changed their minds during the BE, 15.79% of EP chose achromatic tiles GRAY 2 and 4 and cool desaturated (BVB S3) as the BE of BEIGE.

Contrary to this inclusive tendency, English has created a new category at the boundary between GREY and BEIGE: *greige* (OED, *Cambridge Dictionary*, *Merriam-Webster*, *Collins*, *New Oxford American Dictionar*y).

6.13.1.2. Labelling

Although *color crema* 'custard coloured' (see Chapter 5. Footnote 54) is the most popular beige term in TILG (76 tokens) it was used only residually across the TN (EP:3.67%; YP:3.53%) and it will be discarded from the basicness discussion. Warm pale tiles were also named *color carne* 'flesh coloured' as in 'skin coloured'. However, it was more frequent with the more pinkish shades and it will be discussed below alongside *salmón*.

6.13.1.3. Candidates for basicness

The term *beis* (or *beixe*) comes from French *beige* in turn from Old French *bege* 'the natural color of wool and cotton; raw, not dyed'.[87] The *Oxford English Dictionary* (OED) definition of *beige*: "a shade of colour like that of undyed and unbleached wool;

[87]The DRAG proposes the spelling *beixe* to adapt it to Galician phonology (ˈbejʃẹ). French *beige* is pronounced [bɛʒ]. Beige is a widely used loan word in Spanish where two pronunciations coexist, one replicating the original sound (bejʃ] and the other adapting it [bejs]. This word entered Galician most probably through Spanish. The term has been spelled here as beis representing the informants' most common pronunciation. However, the Galician Standard for this word is spelled beixe and pronounced [ˈbejʃẹ]. Exceptionally, the pronunciation of some of these participants is closer to the Galician Standard when they add a paragogic e, which is very common in traditional Galician, and/or when they use a palatalised s, which used to be a characteristic phonetic feature of the village of Cangas but which is today is in clear decline.

yellowish-grey" and the *Dicionario da Real Academia Galega* (DRAG) defines *beixe* as *de cor marrón moi clara, coma a da la natural* 'very light brown color, like natural wool'. Both definitions point to the colour of natural wool, a pale colour. When it comes to hue, the OED mentions yellow and grey and the DRAG brown. Therefore, I work here with a definition of BEIGE as a *pale warm* category.

Hyponymy. The dictionary definitions above suggest *beis* might be a hyponym of BROWN or YELLOW. However, both age groups meet the threshold for basicness in ELs MP (EP:8.2; YP: 13.8). Moreover, during the BE a total of 52.63% of EP named *beis* a separate category[88] and so did 41.18% of YP.

Stability of reference. During TN *beis* was the most or one of the most common labels for tiles YOY T4, ORO S3, ROR S3 and YOY S2 but consensus in the TN is still low in both groups (EP: 18.45%, YP: 17.65%). The stability of reference across TN and BE does not meet the threshold in either group (EP:27.64%, YP:19.41%).

For a fraction of EP, tile GRAY 2 was also part of *beis (*23.26%). Others also included GRAY 4 (9.30%) and BVB S3 (9.09%). The stability of reference of this wider denotation across the TN and BE is slightly higher but does not meet the threshold (32.13%).

Idiolectal evidence of *beis* as a PALE WARM category is fulfilled by YP only (EP:27.52%; YP: 40.20%). *Beis* as a category comprising PALE WARM+GREY has higher idiolectal evidence in EP and slightly lower in YP but both remain below the threshold (EP: 32.21%, YP: 37.82%).

Elicited lists. EP do not meet the threshold for Frequency (27.27%) but YP do (61.76%). Conversely, EP meet the CSI rank: (13) their CSI value of *beis* (0.0334) is extremely close to the term above (*violeta* CSI 0.0352). YP do not meet the threshold (15), but YM do (13).

High CSI rank positions for terms for BEIGE were also found by Eessalu and Uusküla (2013) in a sample of six Indo-European and Uralic languages: Spanish (13), Italian (16), Czech (12), Estonian (12), Finnish (14) and Hungarian (19). In addition, *beige* has also been found to be a candidate for basicness in French (Morgan 1993).

Contextual restriction. *Beis* was used extensively across the TN for a range of pale warm tiles (EP:18.45%, YP:17.65%). Moreover, DRAG gives examples of usage of *beixe* with clothes and paint. Thus, *beis* does not seem to be a contextually restricted term.

Secondary criteria

Beis has a relatively low frequency in texts (29 tokens in TILG). It is a recent loan word from French most likely introduced through Spanish. It has only two tokens prior to 1982. There are no embedded expressions with *beis* and it does not accept any suffixes.

Conclusion

[88] These categories had either a pale warm (36.84%) or a pale grey focus (15.79%).

Beis is a recent loan word. It is salient for both age groups, but it is not a BCT. Although it partially meets the idiolectal qualification, it has low stability of reference. EP tend to agree a bit more that it denotes PALE WARM+GREY and YP PALE WARM.

If denotation stabilises, *beis* could easily become basic. ELs data suggest this term is the second candidate for basicness in YP (CSI 0.0449), only just below and closely following *lila* (CSI 0.0472).

6.14. Sociolinguistic considerations

Kerttula has stressed that, even if there are universal trends in colour naming, cultural intervention might shape the ordering and development of these categories (2007: 157). This cultural intervention is clearly observable in Galician. Language contact has led to the introduction of Spanish loans in all categories in EP and most likely helped settling categories such as unitary ORANGE and unitary PURPLE. Moreover, the creation of Standard Galician and its usage in education has brought the revival of traditional terms in YP.

It is also obvious that there is a gender bias when it comes to categorisation: females tended to have more categories than their male counterparts. This was observed in both age groups but more intensely in EP. This might be due to the impact of gender roles and gendered activities involving colours: fashion, sewing and knitting, and make-up. Moreover, colour blindness affecting males much more often than females[89] might also play a role in male subculture in which there is, in general, less interest in colour.

Another gender bias was also observed in the use of red, orange, yellow and white terms. YM tended to use the Standard Galician terms *vermello, laranxa, amarelo and branco* more than their female counterparts, who used these just as much as the Spanish loans *rojo, naranja, amarillo and blanco.* Similarly, *roxo,* a traditional term, was found more often among males' ELs than in their female counterparts.

A similar case was attested in the For language from Sudán which has two BCTs for YELLOW which were attested in different degrees among genders. Females made more use of *asfar*, a loan word from Arabic, whilst *sonang koro*, the traditional term from For, was more common among males (Jernudd & White 1983: 79).

These differences can be interpreted in three dimensions: prestige and formality; correctness; and authenticity.

In these examples we see that females tend to use more foreign words. This could be interpreted as following the first principle of Labov (1990: 213) regarding gender variation which states that females tend to use more prestigious variants than males. Nevertheless, Galician speakers belong to a complex sociolinguistic context in which identifying the prestigious variant is not straightforward. Historically, Galicia presented

[89] According to the Color Blindness Awareness Association, colour blindness affects approximately 1 in 12 men (8%) whilst only 1 in 200 women (0.5%) (colorblindnessawareness.org).

a dramatic diglossic setting in which Spanish was the prestigious language. Nevertheless, this situation became nuanced in the last four decades as Galician became a co-official language and it developed its own Standard.

Thus, the Spanish loan *rojo* being used more often by females than males can be taken as both agreeing and disagreeing with Labov's principle. Since Spanish is the prestigious language in this context, females using the Spanish loans more than males seems to be in line with Labov's findings. Nevertheless, this behaviour can also be interpreted the other way around. Galician has a Standard and mixing codes is considered vulgar and frowned upon, even more so in a formal context. Therefore, Spanish loans are also non-prestigious forms when speaking Galician.

The second dimension, correctness, applies mostly to YP as they were schooled in both languages and have notions of correctness in Galician. Their elderly counterparts were schooled in Spanish only and, in general, do not know Standard Galician.[90] Thus, having received the same instruction at school, it is surprising that YM used Standard forms in a much higher proportion than their female counterparts and this would indeed contradict the first principle of Labov (1991).

Another way of explaining YF using more Spanish loan words and YM more traditional or Standard terms relates to different ways of understanding authenticity. Although Standard Galician is generally more prestigious than traditional Galician, new speakers seem to be more concerned with authenticity than correctness (O'Rourke 2018: 89; O'Rourke & Ramallo 2013).

YP definitely had opinions on which terms were correct and authentic and which were not. *Roxo* was rejected by some of them during Task 5 since they interpreted it not as a legitimate Galician term but as a bad translation of Spanish *rojo.*

An analogous case can be found in Ukrainian. Starko reports a preference for the blue term *blakytnyj,* considered to be "fully Ukrainian" rather than *holubyj,* thought to be a Russianism (2013: 61). Moreover, *holubyj* is a common designation of homosexual men and is often avoided for fear of unwanted associations.

Similarly, the higher CSI and frequency of *encarnado* in YP's ELs could be explained by this notion of authenticity and a deliberate effort to use traditional terms.

Perhaps YP that use more loan words are seeking to connect with the language spoken in their immediate context and to be considered *real* speakers. In the words of O'Rourke*:* "while an older generation of Galicians often explicitly downplayed the value of vernacular Galician (…) a younger generation of native speakers often seemed to allocate value to vernacular speech and in doing so position themselves as authoritative speakers" (O'Rourke 2018: 93). Moreover, there seems to be some resistance to

[90] Exceptions exist such as those with higher education, such as retired teachers, or simply those who noticed this register on the media and frequently mentioned *vermello* along with other terms for RED.

Standard Galician as the stigmatisation of traditional Galician is “protested, appropriated and transformed by a younger generation of native speaker and new speakers" (O’Rourke 2018: 98)

Moreover, Standard Galician today has a series of connotations which “differ across contexts, generation and interactional situation. As the Galician linguistic and social order has been reconstructed by revitalisation and political autonomy, usages of vernacular show us that a new communicative economy has emerged in relation to a progressively institutionalised Galician political culture” (O’Rourke 2018: 98).

These attitudes were also attested during my fieldwork. The term *vermello* turned out to still have some vitality as a traditional term in certain areas such as inland county Lugo. However, Task 5 data showed that it is strongly associated with Standard Galician and that some speakers reject it as illegitimate as they believe it was never used in their region (see Chapter 5.5.2). This rejection of the Standard is what O’Rourke describes as a resistance to “a progressively institutionalised Galician political culture*”;* she stresses how younger speakers prefer a *vernacular Galician* as a way “to signal a kind of identification with ‘realness’, authenticity, and populism” (2018: 98).

Nevertheless, it is important to note that the considerations by O’Rourke and Ramallo apply mostly to new speakers (*neofalantes*) and my participants were mostly native speakers (*paleofalantes*). Moreover, this rejection of the Standard and the commitment to authenticity and populism might explain the usage of dialectal forms (*encarnado*, *rubio*) but not necessarily the presence of Spanish loans as they are clearly barbarisms, and many consider them a threat to the survival of the language.

In conclusion, this is a complex sociolinguistic setting. In it coexist at least three linguistic varieties: Traditional Galician, Standard Galician and Spanish; different linguistic profiles: native and new speakers; and a range of attitudes towards Standard Galician and Spanish loans as well as different takes on what authenticity and correction mean. All this makes it extremely difficult to interpret the data as a given phenomenon might relate simultaneously to different reasons. What remains clear is that YM are keener to use Galician forms – either traditional ones or traditional turned into standard –while YF, although they do use them, are much more prone to use Spanish loans.

6.15. Conclusion

This chapter has discussed in detail the candidate BCTs for 12 categories. This answers the research questions as set in Chapter 7.

CHAPTER 7. CONCLUSIONS

7.1. Introduction

The goal of this thesis was to study the categorisation and labelling of colour space in Galician. For that I selected participants from two age groups: the oldest speakers I could find (average age 88) and young adults (average age 33).

The rationale for comparing these two generations was multiple. One motivation was the general interest in observing diachronic change in languages. Other motivations were specific to this case study. This investigation wanted to

> a) register the language of the oldest native speakers available which, in this context of increasing language contact, equates in some aspects to a more untouched version of the language;
>
> b) register the language of young adults who have been under a stronger exposure to Spanish but who are, at the same time, the first generation being schooled also in Standard Galician;
>
> c) observe the differences among them and interpret them;
>
> d) discuss the Galician colour categorisation and labelling in the context of colour semantics.

The applications of the data collected are diverse. This study reports the vitality of certain Galician terms across the territory, how those correspond or otherwise with Standard Galician and how widespread Spanish loans are. Thus, this study can contribute to fields such as dialectology, sociolinguistics and language planning. Moreover, the forms and meanings registered can inform lexicography and style books. Dictionaries and manuals have a greater relevance in the context of Galician being a minority language with official status.

7.2. Research questions

7.2.1. What are the Basic Colour Terms of the Galician language?

7.2.1.1 How many Basic Colour Categories is the colour space divided into?

The extreme variability of the data does not allow a single answer.

Low agreement across age groups:

> EP have fewer categories (9-11) with a wider denotation (RED+ORANGE, PINK+ORANGE, BLUE+BLUE PURPLE) (6.5.1 and 6.12.1).
>
> YP have more categories (11-12) with a narrower denotation (unitary ORANGE, unitary PINK, unitary PURPLE) (6.5.1, 6.11.1 and 6.12.1).

The two age groups have very different sociolinguistic contexts (Sections 1.1 and 3.2.4). EP are predominantly monolingual in Galician and had, generally, less access to education, which was in Spanish only. This shows in a wider usage of Spanish labels but less Spanish categorisation (Sections 5.2.4, 5.2.10, 6.5.1.1). YP were schooled in both languages and have notions of correctness. They use more Galician Standard words but a categorisation that fully coincides with Spanish (6.14).

Low agreement within groups: Some new categories were in the process of developing which created a wide range of categorisations around orange, pink and purple (Sections 6.4.1, 6.11.1, 6.12.1).

There was also gender variation within the same age group: males tend to have fewer categories than females:

EM: 9-10 vs EF: 10-11 categories. EM categorise unitary PURPLE and ORANGE less than EF (PURPLE: sections 5.3.8. and 6.12.1.; ORANGE: 5.3.4 and 6.5.1).

YM 11 vs YF 12 categories. YM categorise LILAC less than YF (Sections 5.3.8. and 6.12.1). Women having a bigger colour vocabulary could be explained by the impact of gender roles and gendered activities involving colours. Furthermore, biological factors such as colour blindness more frequently affecting males could have caused or accentuated male subculture having a lower interest in colour (6.14).

7.2.1.2. How are these categories labelled, how do the labels vary and which realities do they refer to?

The labelling agreement rate depends on the category. There are three degrees:

Extreme low consensus:

- RED: (*vermello*, *encarnado*, *roxo*, *rubio*, Sp *rojo*). EP prefer Sp *rojo* and *encarnado*, YP *vermello* or Sp *rojo* (Sections 6.4.2 and 6.4.3)
- PURPLE (*violeta*, *morado*, *lila*, *co(lo)r viño*, *malva*, *púrpura*) EM divide up between multiple options: *morado*, *lila*, *co(lo)r viño*, *violeta* and some use the term for BLUE (*azul*). EF prefer *lila* and *morado*; YP *violeta* or *morado* (Section 6.12.2.3)
- ORANGE (*laranxa*, *naranxa*, Sp *naranja*, *co(lo)r butano*, *co(lo)r tella*). EP tend to use the Spanish word for RED, YELLOW or PINK (*rojo*, *amarillo*, *rosa*) or Sp *naranja*; YP *laranxa*, *naranxa* or Sp *naranja* (Sections 6.5.2 and 6.5.3).

Tension:

- BROWN, *marrón* vs *castaño*. Most EP and all YP use *marrón*. Some EP still use *castaño* for all contexts but for most this term is restricted to natural objects. *Marrón*, which used to be applied to artifacts only, is spreading to all contexts (Section 6.7.2)
- GREY, *gris* vs *beis*. Some EP label light grey and beige tiles with either the term *beis* or *gris*. Most EP and all YP label unitary GREY *gris*. (Sections 5.3.9 and 6.10.2)

General agreement:

- WHITE (*branco* or Sp *blanco*) (Section 6.2).
- BLACK (*negro*) disappearance of old terms *mouro*, *preto* (Section 6.3.2).
- YELLOW ((*a)marelo* or Sp *amarillo*) (Section 6.6).
- GREEN (*verde*) (Section 6.8).
- BLUE (*azul*) (Section 6.9).

7.2.2. How have the categories and labels changed over time?

Categories

Participants' data show that different stages coexist at this period. These stages are indicative of what used to be, what it is the most common scenario today and how things might be in the near future. On one end of this spectrum there are simpler categorisation patterns with more comprehensive categories, found only in a fraction of EP and which are now disappearing. These EP use macrocategories (RED+ORANGE, YELLOW+ORANGE, PINK+ORANGE, less frequently BLUE+PURPLE).

Data from TILG supports the idea that these macrocategories were the common situation. This data base shows that the first attempts to label unitary PURPLE and ORANGE did not happen until the very late nineteenth and early twentieth centuries respectively. Moreover, TILGA contains some examples of these macrocategories during the twentieth century: *máis azul cas violetas* 'bluer than violets' (1913) (6.12.1) and *laranxiña como te pós amarela* 'orange, how you turn yellow' (1979) (6.5.1).

Some EP and all YP were in the middle stage and operated with unitary colours (RED, PINK and ORANGE (6.5.1), and BLUE and PURPLE (6.12.1).

On the other end of the spectrum there were more complex categorisation patterns with narrower categories. Some of those YP started partitioning PALE PURPLE or LILAC which might announce a new BCC settling in the next few decades (6.12.1).

Labels

The DRAG and Estraviz have been useful to explore contemporary information, but the DdD provides a wide historical perspective of the terms in the lexicographical record. More importantly TILG has been an invaluable source to explore the meaning, context of usage, popularity of the terms during the last four centuries.

Marrón is dominant now but it is absent from the lexicographical record until the end of the twentieth century.

Vermello has a long and well documented history as a red term, it dominates in TILG across the centuries. However, it was rarely attested in EP, only in certain regions, which suggests its decline is very recent. Becoming the Standard Galician term made an impact since it was the dominant term in YP (6.4.3).

Both *roxo* and *rubio* used to be MACRORED comprising red, orange and yellow hues. They have a strong presence in TILG with various meanings. As red terms they are in clear decline. In certain areas *roxo* ended up exclusively meaning 'blond', and so did *rubio* for most YP, most likely as an influence of the meaning of the Spanish cognate (5.5.1). *Rubio* (or *roibo*) and *roxo* as terms for RED are disappearing and so are *pardo* and *castaño* for BROWN.

In recent times, the creation of Galician Standard and its usage in education made an impact: YP, especially YM, use more Standard Galician words (*vermello, amarelo, branco*) than their elderly counterparts. EP use more Spanish loans (*rojo*, *amarillo, blanco*) but also dialectal terms or variants not contained in Standard Galician (*encarnado, rubio, roxo, marelo*) (Sections 6.4.3. and 6.14).

Quite common terms in the data collection such as *marrón* for BROWN, *laranxa* and cognates for ORANGE and *lila* for PURPLE or LILAC are poorly attested in TILG before 1982 (6.7.3, 6.5.3 and 6.12.3). Thus, these are very recent additions to the Galician vocabulary.

7.2.3. How are they being affected by contact with global languages?

- EP have a tendency to use more foreign labels but not as much foreign categorisation (adoption of Spanish loan *rojo*, but still using it for RED+ORANGE (Section 6.4)).
- YP often use Standard Galician terms as labels (*vermello*, *amarelo*, *laranxa*) but they use them matching the denotation of other languages they know (Spanish and English) as in unitary RED, YELLOW and ORANGE (Section 6.5.1).
- My data highlights that language contact does not impact just lexicon but also semantics, which is often overlooked. The creation of Standard Galician has to some extent restrained the usage of Spanish loans as labels but not the conceptual transfer.

- Females use more loan words; males use more traditional/standard terms. This applies both in EP and YP (Section 6.14).

7.3. Final remarks

7.3.1. Limitations

- Although all participants in the present study were selected for speaking predominantly Galician, the increasing language contact with Spanish created a big contrast in the linguistic background of the two generations. Elderly participants can be considered monolingual to a similar standard to participants in most colour semantics research, but young participants were functionally bilingual.[91] These varying levels of exposure to Spanish can be considered an inconsistency across this database. Nevertheless, the coincidence, or otherwise, with Spanish in patterns of categorisation and/or labelling is highlighted pertinently throughout the study.

- The methodology was carefully designed following established tasks in colour semantics research: elicited lists, tile naming and best example alongside using the stimuli set by Davies (1992, 1994) and UB (2016). The aim was to allow cross-linguistic comparison. However, the extremely low consensus rates in the present data, resulting from language contact and recent standardisation, impeded such a comparison.

7.3.2. General contributions to Colour Semantics

- Well established BCCs such as RED can lack a clear BCT in contexts of unstandardised (or recently standardised) languages in a language contact setting (Section 6.4.3).

- The categorisation of unitary ORANGE does not have to be a direct partition from MACRORED but can happen through an intermediate stage: a PINK+ORANGE category (Section 6.5.1).

7.3.3. Methodological recommendations

- My data suggests there might be much more variation within languages than most colour semantics research accounts for.[92] This apparent uniformity might be a result of collecting data from one social group only (e.g. university students) and region (capitals) which might not be representative of the situation across the total population (Section 3.3).

[91] The average speaker of most languages in the sample of the colour studies mentioned here probably had varying levels of competence in one or more languages other than the language they were considered native in.
[92] A similar conclusion was reached by Lindsey and Brown (2009).

- Adapting methodologies to the target participants by collecting data in-person and applying personal mediation (Section 3.2.1) allows reaching a range of participant profiles and thus gathering more comprehensive data.
- Sociolinguistic factors play a massive role in data collection, especially for minority languages and language contact. In these settings, participants' interpretation of the interview and their own linguistic journey are decisive in which answers they choose to provide among their linguistic repertoire (Sections 3.2.1. and 3.2.4).
- Data analysis of terms should be multi-layered and measure motivations for labelling, cognates and variants (Section 4.1.2.1).
- Data analysis must account for double and triple responses and acknowledge second responses or terms given as equivalents to capture participants' full competence and usage, especially in a context of language contact (see a proposal to measure this in Section 5.4.1).
- Different tasks produce different results. TN, consisting in naming in a random order one tile at a time, produced much more inconsistent responses than the BE when participants could see all tiles at once and group similar tiles together (see in Section 5.3.4 Table 5.3.4.2 comparing the results of these two tasks for RED, ORANGE and PINK categories).

7.3.4. Future research

Some of the data collected during the fieldwork exceed the core goals of this research and will need further attention in the future. Topics to be developed are:

- vocabulary for surface properties other than hue such as shine, fluorescence, sparkle, transparency and multicolour (EL, T2),
- the partition of new categories already attested by some YP: SALMON *salmón* or *coral*, TURQUOISE or TEAL (*turquesa* or Sp *aguamarina*), FUCHSIA (*fucsia*), SKIN COLOUR (*co(lo)r carne*) (EL, TN, BE),
- in-depth documentation of disappearing colour terms (*pardo*, *cinsento*, *aborrallado*, *mouro*) and their contexts of usage (T5),
- comparison of data from participants with non-normal colour vision and data from normal colour vision individuals.

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APPENDIXES

APPENDIX 1. TILE NAMING RESPONSES ACROSS SUBGROUPS

Labels	EM	EF	EP	YM	YF	YP	All part
1 HUE Y	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All YELLOW candidates	18	24	42	16	18	34	76
amarelo and cognates	**18**	**24**	**42**	**16**	**18**	**34**	**76**
amarelo and variants	5	2	7	11	8	19	26
amarelo	4	2	6	11	7	18	24
marelo	1		1		1	1	2
amarillo and variants	13	21	34	5	10	15	49
amarillo	13	21	34	5	10	15	49
amarillo/marelo		1	1				1
amarillo/marelo		1	1				1
All ORANGE candidates	1	1	2				2
laranxa and cognates	**1**	**1**	**2**				**2**
naranja and variants	1	1	2				2
color naranja	1		1				1
naranja		1	1				1
7 Y S2	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	1		1				1
roxo and cognates	**1**		**1**				**1**
roxo	1		1				1
roxo	1		1				1
All YELLOW candidates		1	1		1	1	2
dourado and cognates					**1**	**1**	**1**
dorado					1	1	1
dorado					1	1	1
ocre		**1**	**1**				**1**
ocre		1	1				1
ocre		1	1				1
All GREEN candidates		2	2	2	2	4	6
caqui and variants		**1**	**1**	**2**	**1**	**3**	**4**
caqui and variants		1	1	2	1	3	4
caqui		1	1	2	1	3	4
verde and variants		**1**	**1**		**1**	**1**	**2**
verde and variants		1	1		1	1	2
verde		1	1		1	1	2
All BROWN candidates	13	17	30	13	15	28	58
castaño	**1**	**3**	**4**		**1**	**1**	**5**
castaño	1	3	4		1	1	5
castaño	1	3	4		1	1	5
marrón and variants	**11**	**14**	**25**	**13**	**14**	**27**	**52**
marrón and variants	11	14	25	13	14	27	52

marrón	11	14	25	13	14	27	52
chocolate and variants	**1**		**1**				**1**
chocolate and variants	1		1				1
chocolate	1		1				1
All GREY candidates	2		2				2
color fume	**1**		**1**				**1**
color fume	1		1				1
color fume	1		1				1
gris and variants	**1**		**1**				**1**
gris and variants	1		1				1
gris	1		1				1
All PALE candidates	3	4	7				7
beis and variants	**2**	**2**	**4**				**4**
beis and variants	2	2	4				4
beis	2	2	4				4
color carne and variants		**1**	**1**				**1**
color carne and variants		1	1				1
color carne		1	1				1
tostado	**1**	**1**	**2**				**2**
tostado	1	1	2				2
tostado	1	1	2				2
Colour in between				1		1	1
No Response		1	1				1
9 HUE YOY	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All YELLOW candidates	18	23	41	15	18	33	74
amarelo and cognates	**18**	**23**	**41**	**15**	**18**	**33**	**74**
amarelo and variants	5	1	6	10	9	19	25
amarelo	4	1	5	10	7	17	22
marelo	1		1		2	2	3
amarillo and variants	13	22	35	5	8	13	48
amarillo	13	22	35	5	8	13	48
amarillo/amarelo					1	1	1
amarillo/amarelo					1	1	1
All ORANGE candidates	1	1	2				2
laranxa and cognates	**1**	**1**	**2**				**2**
naranja and variants	1	1	2				2
naranja	1	1	2				2
Colour in between				1		1	1
Not Undertaken		1	1				1
13 YOY T4	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All WHITE candidates	3		3				3
branco and cognates	**3**		**3**				**3**
blanco	3		3				3
blanco	3		3				3

All YELLOW candidates	9	11	20	7	13	20	40
amarelo and cognates	**8**	**11**	**19**	**5**	**12**	**17**	**36**
amarelo and variants	2	1	3	2	5	7	10
amarelo	2	1	3	2	4	6	9
marelo					1	1	1
amarillo and variants	6	10	16	3	7	10	26
amarillo	6	10	16	3	7	10	26
ocre	**1**		**1**	**2**	**1**	**3**	**4**
ocre	1		1	2	1	3	4
ocre	1		1	2	1	3	4
All BROWN candidates	1	1	2				2
castaño		**1**	**1**				**1**
castaño		1	1				1
castaño		1	1				1
marrón and variants	**1**		**1**				**1**
marrón and variants	1		1				1
marrón	1		1				1
All GREY candidates	2	2	4				4
gris and variants	**2**	**2**	**4**				**4**
gris and variants	2	2	4				4
gris	2	2	4				4
All PALE candidates	3	10	13	9	5	14	27
area and cognates					**1**	**1**	**1**
area					1	1	1
area					1	1	1
beis and variants	**2**	**5**	**7**	**5**	**3**	**8**	**15**
beis and variants	2	5	7	5	3	8	15
beis	2	5	7	5	3	8	15
café con leite		**1**	**1**				**1**
café con leite		1	1				1
café con leite		1	1				1
claro and variants	**1**		**1**				**1**
claro and variants	1		1				1
claro	1		1				1
color carne and variants					**1**	**1**	**1**
color carne and variants					1	1	1
color carne					1	1	1
color crema and variants		**3**	**3**	**2**		**2**	**5**
color crema and variants		3	3	2		2	5
color crema		1	1				1
crema		2	2	2		2	4
color pastel and variants				**1**		**1**	**1**
color pastel and variants				1		1	1
pastel				1		1	1
cor merengue				**1**		**1**	**1**
cor merengue				1		1	1

cor merengue				1		1	1
crú and cognates		**1**	**1**				**1**
crudo and variants		1	1				1
crudo		1	1				1
No Response	1	1	2				2
15 YOY S2	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All YELLOW candidates	6	8	14	3	4	7	21
amarelo and cognates	**6**	**8**	**14**		**1**	**1**	**15**
amarelo and variants	1	1	2				2
amarelo	1	1	2				2
amarillo and variants	5	7	12		1	1	13
amarillento		1	1				1
amarillo	5	6	11		1	1	12
dourado and cognates				**2**	**1**	**3**	**3**
dorado					1	1	1
dorado					1	1	1
dourado				2		2	2
dourado				2		2	2
ocre				**1**	**2**	**3**	**3**
ocre				1	2	3	3
ocre				1	2	3	3
All GREEN candidates	4	4	8	5	5	10	18
aceituna	**1**		**1**				**1**
aceituna	1		1				1
aceituna	1		1				1
caqui and variants	**2**	**1**	**3**	**1**	**1**	**2**	**5**
caqui and variants	2	1	3	1	1	2	5
caqui	1	1	2	1	1	2	4
color caqui	1		1				1
verde and variants	**1**	**3**	**4**	**4**	**4**	**8**	**12**
verde and variants	1	3	4	4	4	8	12
verde	1	3	4	3	4	7	11
verdoso				1		1	1
All BROWN candidates	2	5	7	3	3	6	13
castaño		**2**	**2**				**2**
castaño		2	2				2
castaño		2	2				2
marrón and variants	**2**	**3**	**5**	**3**	**3**	**6**	**11**
marrón and variants	2	3	5	3	3	6	11
marrón	2	3	5	3	3	6	11
All GREY candidates	2		2				2
gris and variants	**1**		**1**				**1**
gris and variants	1		1				1
gris	1		1				1
perla	**1**		**1**				**1**

perla	1		1				1
perla	1		1				1
All PALE candidates	4	5	9	4	6	10	19
area and cognates					**1**	**1**	**1**
area					1	1	1
area					1	1	1
beis and variants	**3**	**2**	**5**	**2**	**4**	**6**	**11**
beis and variants	3	2	5	2	4	6	11
beis	3	2	5	2	4	6	11
claro and variants	**1**		**1**				**1**
claro and variants	1		1				1
claro	1		1				1
color crema and variants		**1**	**1**	**2**		**2**	**3**
color crema and variants		1	1	2		2	3
color crema				1		1	1
crema		1	1	1		1	2
crú and cognates		**1**	**1**				**1**
crudo and variants		1	1				1
crudo		1	1				1
pálido and variants		**1**	**1**				**1**
pálido and variants		1	1				1
pálido		1	1				1
tostado					**1**	**1**	**1**
tostado					1	1	1
tostado					1	1	1
Colour in between				1		1	1
No Response	1	3	4				4
17 HUE YO	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All YELLOW candidates	16	21	37	7	1	8	45
amarelo and cognates	**16**	**21**	**37**	**6**	**1**	**7**	**44**
amarelo and variants	4	1	5	6		6	11
amarelo	3	1	4	6		6	10
marelo	1		1				1
amarillo and variants	12	20	32		1	1	33
amarillo	12	20	32		1	1	33
mostaza				**1**		**1**	**1**
mostaza				1		1	1
mostaza				1		1	1
All PINK candidates	1		1				1
rosa and variants	**1**		**1**				**1**
rosa and variants	1		1				1
rosa	1		1				1
All ORANGE candidates	2	2	4	8	17	25	29
color ovo and cognates					**1**	**1**	**1**
color huevo					1	1	1

color huevo					1	1	1
laranxa and cognates	**2**	**2**	**4**	**8**	**16**	**24**	**28**
laranxa and variants	1		1	3	8	11	12
laranxa	1		1	3	8	11	12
naranxa and variants				3	1	4	4
naranxa				3	1	4	4
naranja and variants	1	2	3	2	7	9	12
anaranjado					1	1	1
color naranja	1		1				1
naranja		2	2	2	6	8	10
Colour in between				1		1	1
No Response		1	1				1
Not Undertaken		1	1				1
20 YO T3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All YELLOW candidates	12	19	31	8	8	16	47
amarelo and cognates	**11**	**19**	**30**	**7**	**5**	**12**	**42**
amarelo and variants	4	1	5	5	3	8	13
amarelento				1		1	1
amarelo	3	1	4	4	2	6	10
marelo	1		1		1	1	2
amarillo and variants	7	18	25	2	1	3	28
amarillo	7	18	25	2	1	3	28
amarillo/amarelo					1	1	1
amarillo/amarelo					1	1	1
ocre	**1**		**1**	**1**	**3**	**4**	**5**
ocre	1		1	1	3	4	5
ocre	1		1	1	3	4	5
All BROWN candidates	1		1				1
pardo	**1**		**1**				**1**
pardo	1		1				1
pardo	1		1				1
All PINK candidates		1	1				1
rosa and variants		**1**	**1**				**1**
rosa and variants		1	1				1
rosa		1	1				1
All ORANGE candidates	1	1	2	4	6	10	12
color ovo and cognates				**1**		**1**	**1**
color ovo and variants				1		1	1
color ovo				1		1	1
color terra					**1**	**1**	**1**
color terra					1	1	1
color terra					1	1	1
laranxa and cognates	**1**	**1**	**2**	**3**	**5**	**8**	**10**
laranxa and variants				2	3	5	5
laranxa				2	3	5	5

naranxa and variants				1		1	1
naranxa				1		1	1
naranja and variants	1	1	2		2	2	4
naranja	1	1	2		2	2	4
All PALE candidates	4	2	6	4	3	7	13
beis and variants	**3**		**3**	**2**		**2**	**5**
beis and variants	3		3	2		2	5
beis	3		3	2		2	5
color carne and variants					**3**	**3**	**3**
color carne and variants					3	3	3
carne					1	1	1
color carne					2	2	2
color crema and variants		**1**	**1**	**2**		**2**	**3**
color crema and variants		1	1	2		2	3
color crema		1	1	2		2	3
color palla	**1**		**1**				**1**
color palla	1		1				1
color palla	1		1				1
crú and cognates		**1**	**1**				**1**
crudo and variants		1	1				1
color crudo		1	1				1
All PINK-ORANGE border candidates					1	1	1
salmón					**1**	**1**	**1**
salmón					1	1	1
salmón					1	1	1
No Response	1	2	3				3
24 YO S3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All GREEN candidates	1		1				1
verde and variants	**1**		**1**				**1**
verde and variants	1		1				1
verde	1		1				1
All BROWN candidates	16	25	41	16	18	34	75
castaño	**2**	**2**	**4**				**4**
castaño	2	2	4				4
castaño	2	2	4				4
marrón and variants	**11**	**22**	**33**	**16**	**18**	**34**	**67**
marrón and variants	11	22	33	16	18	34	67
marrón	11	22	33	16	18	34	67
marrón/castaño		**1**	**1**				**1**
marrón/castaño		1	1				1
marrón/castaño		1	1				1
pardo	**1**		**1**				**1**
pardo	1		1				1
pardo	1		1				1
chocolate and variants	**2**		**2**				**2**

chocolate and variants	2		2				2
chocolate	1		1				1
color do chocolate	1		1				1
All PALE candidates	1		1				1
tostado	**1**		**1**				**1**
tostado	1		1				1
tostado	1		1				1
No Response	1		1				1
25 HUE OYO	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	2	2	4				4
roxo and cognates	**1**	**2**	**3**				**3**
rojo	1	2	3				3
rojo	1	2	3				3
rubio and variants	**1**		**1**				**1**
rubio and variants	1		1				1
roibo	1		1				1
All YELLOW candidates	4	1	5				5
amarelo and cognates	**4**	**1**	**5**				**5**
amarillo and variants	4	1	5				5
amarillo	4	1	5				5
All PINK candidates	2	3	5				5
rosa and variants	**2**	**3**	**5**				**5**
rosa and variants	2	3	5				5
color rosa		1	1				1
rosa	2	2	4				4
All ORANGE candidates	10	15	25	16	18	34	59
caldeiro and variants	**1**		**1**				**1**
caldeiro and variants	1		1				1
caldeiro	1		1				1
color tella and cognates	**1**		**1**				**1**
color tella and variants	1		1				1
tella	1		1				1
color butano and variants	**1**	**1**	**2**				**2**
color butano and variants	1	1	2				2
butano	1	1	2				2
laranxa and cognates	**7**	**14**	**21**	**16**	**18**	**34**	**55**
laranxa and variants	2		2	8	7	15	17
laranxa	2		2	8	7	15	17
naranxa and variants		6	6	7	3	10	16
anaranxado		2	2				2
naranxa		4	4	7	3	10	14
naranja and variants	5	8	13	1	7	8	21
color naranja	1		1				1
naranja	4	7	11	1	7	8	19
naranjo		1	1				1

naranxa/laranxa					1	1	1
naranxa/laranxa					1	1	1
All PALE candidates	1		1				1
color carne and variants	**1**		**1**				**1**
color carne and variants	1		1				1
carne	1		1				1
Colour in between		2	2				2
No Response		1	1				1
Not Undertaken		1	1				1
33 HUE O	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	5	5	10	1	1	2	12
encarnado	**1**		**1**				**1**
encarnado	1		1				1
encarnado	1		1				1
roxo and cognates	**3**	**3**	**6**		**1**	**1**	**7**
rojo	3	3	6		1	1	7
rojo	3	3	6		1	1	7
vermello		**1**	**1**	**1**		**1**	**2**
vermello		1	1	1		1	2
vermello		1	1	1		1	2
granate	**1**	**1**	**2**				**2**
granate	1	1	2				2
granate	1	1	2				2
All YELLOW candidates	3		3				3
amarelo and cognates	**3**		**3**				**3**
amarelo and variants	1		1				1
marelo	1		1				1
amarillo and variants	2		2				2
amarillo	2		2				2
All PINK candidates	3	4	7				7
rosa and variants	**3**	**4**	**7**				**7**
rosa and variants	3	4	7				7
rosa	3	4	7				7
All ORANGE candidates	8	15	23	15	17	32	55
caldeiro and variants	**1**		**1**				**1**
caldeiro and variants	1		1				1
caldeiro	1		1				1
color butano and variants	**3**	**2**	**5**				**5**
color butano and variants	3	2	5				5
butano	2		2				2
color butano	1	2	3				3
color naranxa/butano		**1**	**1**				**1**
color naranxa/butano		1	1				1
color naranxa/butano		1	1				1
laranxa and cognates	**4**	**12**	**16**	**15**	**17**	**32**	**48**

laranxa and variants	1		1	7	7	14	15
laranxa	1		1	7	7	14	15
naranxa and variants		6	6	5	2	7	13
color naranxa		1	1				1
naranxa		4	4	5	2	7	11
naranxado		1	1				1
naranja and variants	3	6	9	3	7	10	19
anaranjado	1		1				1
color naranja	1		1				1
naranja	1	6	7	3	7	10	17
naranxa/laranxa					1	1	1
naranxa/laranxa					1	1	1
Colour in between		1	1				1
38 O S1	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	1	1	2				2
vermello		**1**	**1**				**1**
vermello		1	1				1
vermello		1	1				1
colorado	**1**		**1**				**1**
colorado	1		1				1
colorado	1		1				1
All YELLOW candidates	1		1				1
amarelo and cognates	**1**		**1**				**1**
amarelo and variants	1		1				1
marelo	1		1				1
All BROWN candidates	15	18	33	12	14	26	59
castaño	**2**	**2**	**4**				**4**
castaño	2	2	4				4
castaño	2	2	4				4
castaño/marrón		**1**	**1**				**1**
castaño/marrón		1	1				1
castaño/marrón		1	1				1
marrón and variants	**10**	**14**	**24**	**12**	**14**	**26**	**50**
marrón and variants	10	14	24	12	14	26	50
amarronzado		1	1				1
marrón	10	13	23	12	14	26	49
pardo	**1**		**1**				**1**
pardo	1		1				1
pardo	1		1				1
madeira and cognates		**1**	**1**				**1**
color madera		1	1				1
color madera		1	1				1
chocolate and variants	**2**		**2**				**2**
chocolate and variants	2		2				2
color chocolate	1		1				1

color do chocolate	1		1				1
All ORANGE candidates	1	4	5	4	4	8	13
color tella and cognates	**1**	**2**	**3**	**1**	**3**	**4**	**7**
color tella and variants	1	2	3	1	3	4	7
color tella	1	2	3	1	2	3	6
tella					1	1	1
color butano and variants		**1**	**1**				**1**
color butano and variants		1	1				1
color butano		1	1				1
laranxa and cognates		**1**	**1**	**3**	**1**	**4**	**5**
laranxa and variants				1		1	1
laranxa				1		1	1
naranxa and variants				1		1	1
naranxa				1		1	1
naranja and variants		1	1	1		1	2
naranja		1	1	1		1	2
naranxa/laranxa					1	1	1
naranxa/laranxa					1	1	1
All PALE candidates	1	1	2				2
tostado	**1**	**1**	**2**				**2**
tostado	1	1	2				2
tostado	1	1	2				2
Not Undertaken		1	1				1
40 O S3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLACK candidates	9	2	11	1	1	2	13
negro	**9**	**2**	**11**	**1**	**1**	**2**	**13**
negro	9	2	11	1	1	2	13
negro	9	2	11	1	1	2	13
All BROWN candidates	8	21	29	14	15	29	58
castaño	**1**	**3**	**4**	**1**		**1**	**5**
castaño	1	3	4	1		1	5
castaño	1	3	4	1		1	5
marrón and variants	**6**	**18**	**24**	**13**	**15**	**28**	**52**
marrón and variants	6	18	24	13	15	28	52
marrón	6	18	24	13	15	28	52
pardo	**1**		**1**				**1**
pardo	1		1				1
pardo	1		1				1
All GREY candidates	2	1	3	1	2	3	6
gris and variants	**1**	**1**	**2**	**1**	**2**	**3**	**5**
gris and variants	1	1	2	1	2	3	5
gris	1	1	2	1	2	3	5
oscuro and variants	**1**		**1**				**1**
oscuro and variants	1		1				1
oscuro	1		1				1

Not Undertaken		1	1				1
41 HUE ORO	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	10	5	15		1	1	16
encarnado	**2**		**2**				**2**
encarnado	2		2				2
encarnado	2		2				2
roxo and cognates	**8**	**3**	**11**		**1**	**1**	**12**
roxo	1		1				1
roxo	1		1				1
rojo	7	3	10		1	1	11
rojo	7	3	10		1	1	11
roxo/encarnado		**1**	**1**				**1**
roxo/encarnado		1	1				1
roxo/encarnado		1	1				1
granate		**1**	**1**				**1**
granate		1	1				1
granate		1	1				1
All YELLOW candidates	1		1				1
amarelo and cognates	**1**		**1**				**1**
amarillo and variants	1		1				1
amarillo	1		1				1
All PINK candidates	2	4	6				6
rosa and variants	**2**	**4**	**6**				**6**
rosa and variants	2	4	6				6
rosa	1	4	5				5
rosado	1		1				1
All ORANGE candidates	6	15	21	16	17	33	54
caldeiro and variants	**1**		**1**				**1**
caldeiro and variants	1		1				1
caldeiro	1		1				1
color ladrillo and variants	**1**		**1**				**1**
color ladrillo and variants	1		1				1
ladrillo	1		1				1
color pemento and variants		**1**	**1**				**1**
color pemento and variants		1	1				1
color pemento molido		1	1				1
color butano and variants	**1**	**2**	**3**	**1**		**1**	**4**
color butano and variants	1	2	3	1		1	4
butano				1		1	1
color butano	1	2	3				3
color naranxa/butano		**1**	**1**				**1**
color naranxa/butano		1	1				1
color naranxa/butano		1	1				1
laranxa and cognates	**3**	**11**	**14**	**15**	**17**	**32**	**46**
laranxa and variants	2	1	3	8	8	16	19

alaranxado				1		1	1
laranxa	2	1	3	7	8	15	18
naranxa and variants		2	2	6	2	8	10
naranxa		2	2	6	2	8	10
naranja and variants	1	8	9	1	6	7	16
anaranjado		1	1				1
color naranja	1	1	2				2
naranja		6	6	1	6	7	13
naranxa/laranxa					1	1	1
naranxa/laranxa					1	1	1
Colour in between		1	1				1
44 ORO T3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates				1		1	1
roxo and cognates				**1**		**1**	**1**
roxo				1		1	1
roxo				1		1	1
All YELLOW candidates	5	5	10	1		1	11
amarelo and cognates	**4**	**5**	**9**	**1**		**1**	**10**
amarelo and variants	1		1	1		1	2
amarelo	1		1	1		1	2
amarillo and variants	3	5	8				8
amarillo	3	5	8				8
ocre	**1**		**1**				**1**
ocre	1		1				1
ocre	1		1				1
All BROWN candidates	1		1				1
marrón and variants	**1**		**1**				**1**
marrón and variants	1		1				1
marrón	1		1				1
All PINK candidates	3	7	10				10
rosa and variants	**3**	**7**	**10**				**10**
rosa and variants	3	7	10				10
rosa	3	7	10				10
All ORANGE candidates	8	9	17	12	13	25	42
caldeiro and variants	**1**		**1**				**1**
caldeiro and variants	1		1				1
caldeiro	1		1				1
canela				**1**		**1**	**1**
canela				1		1	1
canela				1		1	1
color tella and cognates	**3**	**1**	**4**				**4**
color tella and variants	3	1	4				4
color tella	1	1	2				2
tella	2		2				2
color butano and variants	**1**		**1**				**1**

color butano and variants	1		1				1
butano	1		1				1
laranxa and cognates	**3**	**8**	**11**	**11**	**13**	**24**	**35**
laranxa and variants				6	6	12	12
laranxa				6	6	12	12
naranxa and variants		3	3	4	3	7	10
naranxa		3	3	4	3	7	10
naranja and variants	3	5	8	1	4	5	13
naranja	3	5	8	1	4	5	13
All PALE candidates		2	2		1	1	3
beis and variants					**1**	**1**	**1**
beis and variants					1	1	1
beis					1	1	1
claro and variants		**1**	**1**				**1**
claro and variants		1	1				1
claro		1	1				1
crú and cognates		**1**	**1**				**1**
crudo and variants		1	1				1
color crudo		1	1				1
All PINK-ORANGE border candidates				2	4	6	6
salmón				**2**	**4**	**6**	**6**
salmón				2	4	6	6
salmón				2	4	6	6
No Response	2	1	3				3
Not Undertaken		1	1				1
48 ORO S3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All WHITE candidates	1		1				1
branco and cognates	**1**		**1**				**1**
blanco	1		1				1
blanco	1		1				1
All YELLOW candidates	1		1				1
ocre	**1**		**1**				**1**
ocre	1		1				1
ocre	1		1				1
All BLUE candidates	1		1				1
color cielo and variants	**1**		**1**				**1**
color cielo and variants	1		1				1
cielo	1		1				1
All BROWN candidates	2	4	6	5	2	7	13
castaño		**2**	**2**				**2**
castaño		2	2				2
castaño		2	2				2
color topo and variants				**1**		**1**	**1**
color topo and variants				1		1	1
color topo				1		1	1

marrón and variants	**2**	**1**	**3**	**4**	**2**	**6**	**9**
marrón and variants	2	1	3	4	2	6	9
marrón	2	1	3	4	2	6	9
chocolate and variants		**1**	**1**				**1**
chocolate and variants		1	1				1
color chocolate		1	1				1
All GREY candidates	2	2	4				4
ceniza		**1**	**1**				**1**
ceniza		1	1				1
ceniza		1	1				1
gris and variants	**2**	**1**	**3**				**3**
gris and variants	2	1	3				3
gris	2	1	3				3
All PINK candidates		6	6	3	5	8	14
rosa and variants		**6**	**6**	**3**	**5**	**8**	**14**
rosa and variants		6	6	3	5	8	14
rosa		5	5	3	5	8	13
rosado		1	1				1
All ORANGE candidates	1		1	1		1	2
color tella and cognates	**1**		**1**				**1**
color tella and variants	1		1				1
tella	1		1				1
color ovo and cognates				**1**		**1**	**1**
color ovo and variants				1		1	1
color ovo				1		1	1
All PALE candidates	7	10	17	5	10	15	32
beis and variants	**4**	**6**	**10**	**2**	**3**	**5**	**15**
beis and variants	4	6	10	2	3	5	15
beis	4	6	10	2	3	5	15
café con leite		**1**	**1**				**1**
café con leite		1	1				1
café con leite		1	1				1
color carne and variants				**2**	**7**	**9**	**9**
color carne and variants				2	7	9	9
carne					1	1	1
color carne				2	5	7	7
cor carne					1	1	1
color crema and variants	**1**		**1**				**1**
color crema and variants	1		1				1
crema	1		1				1
color pastel and variants				**1**		**1**	**1**
color pastel and variants				1		1	1
color pastel				1		1	1
crú and cognates		**2**	**2**				**2**
crudo and variants		2	2				2
crudo		2	2				2

descafeinado	**1**		**1**				**1**
descafeinado	1		1				1
descafeinado	1		1				1
pálido and variants	**1**	**1**	**2**				**2**
pálido and variants	1	1	2				2
pálido	1	1	2				2
All PINK-ORANGE border candidates				1	1	2	2
salmón				**1**	**1**	**2**	**2**
salmón				1	1	2	2
salmón				1	1	2	2
All PURPLE candidates	2	1	3				3
malva	**1**	**1**	**2**				**2**
malva	1	1	2				2
malva	1	1	2				2
violeta	**1**		**1**				**1**
violeta	1		1				1
violeta	1		1				1
Colour in between				1		1	1
No Response	2	1	3				3
Not Undertaken		1	1				1
49 HUE RO	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	13	17	30	16	18	34	64
encarnado	**3**	**2**	**5**		**2**	**2**	**7**
encarnado	3	2	5		2	2	7
encarnado	3	2	5		2	2	7
roxo and cognates	**9**	**12**	**21**	**3**	**9**	**12**	**33**
roxo	2	1	3	2		2	5
roxo	2	1	3	2		2	5
rojo	7	10	17	1	9	10	27
rojo	7	10	17	1	9	10	27
roxo/rojo		1	1				1
roxo/rojo		1	1				1
rojo/vermello					**1**	**1**	**1**
rojo/vermello					1	1	1
rojo/vermello					1	1	1
roxo/vermello				**1**		**1**	**1**
roxo/vermello				1		1	1
roxo/vermello				1		1	1
vermello	**1**	**1**	**2**	**12**	**6**	**18**	**20**
vermello	1	1	2	12	6	18	20
vermello	1	1	2	12	6	18	20
granate		**2**	**2**				**2**
granate		2	2				2
granate		2	2				2
All PINK candidates	4		4				4

rosa and variants	**4**		**4**				**4**
rosa and variants	4		4				4
rosa	4		4				4
All ORANGE candidates	2	6	8				8
color butano and variants		**4**	**4**				**4**
color butano and variants		4	4				4
butano		2	2				2
color butano		2	2				2
laranxa and cognates	**2**	**2**	**4**				**4**
laranxa and variants	1		1				1
laranxa	1		1				1
naranxa and variants		1	1				1
naranxa		1	1				1
naranja and variants	1	1	2				2
anaranjado	1		1				1
naranja		1	1				1
Colour in between		1	1				1
Not Undertaken		1	1				1
52 RO T3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	2		2				2
granate	**2**		**2**				**2**
granate	2		2				2
granate	2		2				2
All YELLOW candidates	2		2				2
amarelo and cognates	**2**		**2**				**2**
amarillo and variants	2		2				2
amarillo	2		2				2
All PINK candidates	6	19	25	4	5	9	34
rosa and variants	**6**	**19**	**25**	**4**	**5**	**9**	**34**
rosa and variants	6	19	25	4	5	9	34
rosa	6	17	23	4	5	9	32
rosado		2	2				2
All ORANGE candidates	3	4	7	6	4	10	17
color tella and cognates	**2**		**2**		**1**	**1**	**3**
color tella and variants	1		1		1	1	2
color tella					1	1	1
tellas	1		1				1
teja	1		1				1
teja	1		1				1
laranxa and cognates	**1**	**4**	**5**	**6**	**3**	**9**	**14**
laranxa and variants				2	1	3	3
laranxa				2	1	3	3
naranxa and variants		2	2	3	1	4	6
anaranxado		1	1				1
color naranxa		1	1				1

naranxa				3	1	4	4
naranja and variants	1	2	3	1	1	2	5
naranja	1	2	3	1	1	2	5
All PALE candidates	1		1	1		1	2
color carne and variants	**1**		**1**	**1**		**1**	**2**
color carne and variants	1		1	1		1	2
color carne	1		1				1
cor carne				1		1	1
All PINK-ORANGE border candidates				3	9	12	12
coral					**1**	**1**	**1**
coral					1	1	1
coral					1	1	1
salmón				**3**	**8**	**11**	**11**
salmón				3	8	11	11
salmón				3	8	11	11
All PURPLE candidates	2	1	3				3
color viño and cognates	**1**		**1**				**1**
color viño and variants	1		1				1
color viño	1		1				1
lila and variants		**1**	**1**				**1**
lila and variants		1	1				1
lila		1	1				1
morado	**1**		**1**				**1**
morado	1		1				1
morado	1		1				1
Colour in between	2		2	2		2	4
No Response	1	1	2				2
56 RO S3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLACK candidates	1		1				1
negro	**1**		**1**				**1**
negro	1		1				1
negro	1		1				1
All BROWN candidates	15	23	38	16	17	33	71
castaño	**2**		**2**		**1**	**1**	**3**
castaño	2		2		1	1	3
castaño	2		2		1	1	3
marrón and variants	**13**	**21**	**34**	**16**	**16**	**32**	**66**
marrón and variants	13	21	34	16	16	32	66
marrón	13	21	34	16	16	32	66
marrón/castaño		**1**	**1**				**1**
marrón/castaño		1	1				1
marrón/castaño		1	1				1
chocolate and variants		**1**	**1**				**1**
chocolate and variants		1	1				1
color chocolate		1	1				1

All GREY candidates		1	1				1
gris and variants		**1**	**1**				**1**
gris and variants		1	1				1
gris		1	1				1
All ORANGE candidates	1		1				1
color barro	**1**		**1**				**1**
color barro	1		1				1
color barro	1		1				1
All PALE candidates	1		1				1
tostado	**1**		**1**				**1**
tostado	1		1				1
tostado	1		1				1
All PURPLE candidates		1	1		1	1	2
berenxena and cognates					**1**	**1**	**1**
berenxena					1	1	1
berenxena					1	1	1
lila and variants		**1**	**1**				**1**
lila and variants		1	1				1
lila		1	1				1
No Response	1		1				1
57 HUE ROR	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	17	19	36	16	18	34	70
encarnado	**3**		**3**		**1**	**1**	**4**
encarnado	3		3		1	1	4
encarnado	3		3		1	1	4
fresa		**1**	**1**				**1**
fresa		1	1				1
fresa		1	1				1
roxo and cognates	**11**	**15**	**26**	**5**	**10**	**15**	**41**
roxo	3	1	4	3		3	7
roxo	3	1	4	3		3	7
rojo	8	13	21	2	10	12	33
rojo	8	13	21	2	10	12	33
rojo/roxo		1	1				1
rojo/roxo		1	1				1
rojo/encarnado	**1**		**1**				**1**
rojo/encarnado	1		1				1
rojo/encarnado	1		1				1
rojo/vermello	**1**		**1**		**1**	**1**	**2**
rojo/vermello	1		1		1	1	2
rojo/vermello	1		1		1	1	2
rubio and variants		**1**	**1**				**1**
rubio and variants		1	1				1
rubio		1	1				1
vermello		**1**	**1**	**11**	**6**	**17**	**18**

vermello		1	1	11	6	17	18
vermello		1	1	11	6	17	18
granate	**1**	**1**	**2**				**2**
granate	1	1	2				2
granate	1	1	2				2
All PINK candidates	1	4	5				5
rosa and variants	**1**	**4**	**5**				**5**
rosa and variants	1	4	5				5
rosa	1	4	5				5
All ORANGE candidates		2	2				2
laranxa and cognates		**2**	**2**				**2**
naranxa and variants		1	1				1
anaranxado		1	1				1
naranja and variants		1	1				1
naranja		1	1				1
No Response	1		1				1
60 ROR T3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	3		3				3
roxo and cognates	**2**		**2**				**2**
rojo	2		2				2
rojo	2		2				2
granate	**1**		**1**				**1**
granate	1		1				1
granate	1		1				1
All YELLOW candidates	1		1				1
amarelo and cognates	**1**		**1**				**1**
amarelo and variants	1		1				1
marelo	1		1				1
All PINK candidates	9	22	31	13	14	27	58
fuscia	**1**		**1**				**1**
fuscia	1		1				1
fuscia	1		1				1
rosa and variants	**8**	**22**	**30**	**13**	**14**	**27**	**57**
rosa and variants	8	22	30	13	14	27	57
arrosado				1		1	1
rosa	8	21	29	12	13	25	54
rosado					1	1	1
rosado/rosa		1	1				1
All ORANGE candidates	1	1	2				2
laranxa and cognates	**1**	**1**	**2**				**2**
naranja and variants	1	1	2				2
anaranjado	1		1				1
naranja		1	1				1
All PALE candidates	1		1				1
color crema and variants	**1**		**1**				**1**

color crema and variants	1		1				1
color crema	1		1				1
All PINK-ORANGE border candidates				3	4	7	7
salmón				**3**	**4**	**7**	**7**
salmón				3	4	7	7
salmón				3	4	7	7
All PURPLE candidates	1	1	2				2
color viño and cognates	**1**		**1**				**1**
color viño and variants	1		1				1
viño	1		1				1
morado		**1**	**1**				**1**
morado		1	1				1
morado		1	1				1
No Response	3		3				3
Not Undertaken		1	1				1
64 ROR S3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All WHITE candidates	4		4	1	1	2	6
branco and cognates	**4**		**4**	**1**	**1**	**2**	**6**
blanco	4		4		1	1	5
blanco	4		4		1	1	5
branco				1		1	1
branco				1		1	1
All YELLOW candidates				1		1	1
ocre				**1**		**1**	**1**
ocre				1		1	1
ocre				1		1	1
All BROWN candidates	3	1	4	1	1	2	6
marrón and variants	**1**	**1**	**2**	**1**	**1**	**2**	**4**
marrón and variants	1	1	2	1	1	2	4
marrón	1	1	2	1	1	2	4
pardo	**1**		**1**				**1**
pardo	1		1				1
pardo	1		1				1
madeira and cognates	**1**		**1**				**1**
madeira	1		1				1
madeira	1		1				1
All GREY candidates	4	2	6				6
gris and variants	**4**	**2**	**6**				**6**
gris and variants	4	2	6				6
gris	4	2	6				6
All PINK candidates	2	7	9	7	9	16	25
rosa and variants	**2**	**7**	**9**	**7**	**9**	**16**	**25**
rosa and variants	2	7	9	7	9	16	25
rosa	2	7	9	7	9	16	25
All PALE candidates	4	14	18	5	6	11	29

area and cognates		**1**	**1**		**1**	**1**	**2**
area					1	1	1
area					1	1	1
color arena		1	1				1
color arena		1	1				1
beis and variants	**3**	**7**	**10**	**3**	**2**	**5**	**15**
beis and variants	3	7	10	3	2	5	15
beis	3	7	10	3	2	5	15
claro and variants	**1**	**2**	**3**				**3**
claro and variants	1	2	3				3
claro	1	2	3				3
color carne and variants				**1**	**1**	**2**	**2**
color carne and variants				1	1	2	2
carne					1	1	1
color carne				1		1	1
color crema and variants		**2**	**2**				**2**
color crema and variants		2	2				2
crema		2	2				2
color pastel and variants				**1**	**1**	**2**	**2**
color pastel and variants				1	1	2	2
color pastel					1	1	1
pastel				1		1	1
crú and cognates		**1**	**1**		**1**	**1**	**2**
crudo and variants		1	1		1	1	2
crudo		1	1		1	1	2
descolorido		**1**	**1**				**1**
descolorido		1	1				1
descolorido		1	1				1
All PINK-ORANGE border candidates					1	1	11
salmón					**1**	**1**	**1**
salmón					1	1	1
salmón					1	1	1
All PURPLE candidates				1		1	1
violeta				**1**		**1**	**1**
violeta				1		1	1
violeta				1		1	1
No Response	2		2				2
Not Undertaken		1	1				1
65 HUE R	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	14	20	34	14	15	29	63
carmín					**1**	**1**	**1**
carmín					1	1	1
carmín					1	1	1
encarnado	**3**	**2**	**5**		**1**	**1**	**6**
encarnado	3	2	5		1	1	6

encarnado	3	2	5		1	1	6
roxo and cognates	**10**	**15**	**25**	**2**	**9**	**11**	**36**
roxo	3	1	4	1		1	5
roxo	3	1	4	1		1	5
rojo	7	13	20	1	9	10	30
rojo	7	13	20	1	9	10	30
rojo/roxo		1	1				1
rojo/roxo		1	1				1
rojo/vermello					**1**	**1**	**1**
rojo/vermello					1	1	1
rojo/vermello					1	1	1
roxo/vermello				**1**		**1**	**1**
roxo/vermello				1		1	1
roxo/vermello				1		1	1
vermello	**1**	**1**	**2**	**11**	**3**	**14**	**16**
vermello	1	1	2	11	3	14	16
vermello	1	1	2	11	3	14	16
granate		**2**	**2**				**2**
granate		2	2				2
granate		2	2				2
All PINK candidates	3	2	5	2	3	5	10
rosa and variants	**3**	**2**	**5**	**2**	**3**	**5**	**10**
rosa and variants	3	2	5	2	3	5	10
rosa	3	2	5	2	3	5	10
All ORANGE candidates	2	1	3				3
laranxa and cognates	**2**	**1**	**3**				**3**
laranxa and variants	1		1				1
laranxa	1		1				1
naranxa and variants		1	1				1
naranxo		1	1				1
naranja and variants	1		1				1
anaranjado	1		1				1
Colour in between		1	1				1
Not Undertaken		1	1				1
69 R T4	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	1		1		1	1	2
carmín					**1**	**1**	**1**
carmín					1	1	1
carmín					1	1	1
roxo and cognates	**1**		**1**				**1**
rojo	1		1				1
rojo	1		1				1
All YELLOW candidates	1		1				1
amarelo and cognates	**1**		**1**				**1**
amarelo and variants	1		1				1

marelo	1		1				1
All PINK candidates	10	24	34	15	16	31	65
rosa and variants	**10**	**24**	**34**	**15**	**16**	**31**	**65**
rosa and variants	10	24	34	15	16	31	65
arrosado		1	1				1
color rosa	1	2	3				3
rosa	9	18	27	15	15	30	57
rosado		2	2		1	1	3
rosado/rosa		1	1				1
All ORANGE candidates	1		1				1
color tella and cognates	**1**		**1**				**1**
color tella and variants	1		1				1
tella	1		1				1
All PALE candidates	2		2				2
claro and variants	**1**		**1**				**1**
claro and variants	1		1				1
claro	1		1				1
color carne and variants	**1**		**1**				**1**
color carne and variants	1		1				1
carne	1		1				1
All PINK-ORANGE border candidates				1	1	2	2
salmón				**1**	**1**	**2**	**2**
salmón				1	1	2	2
salmón				1	1	2	2
No Response	4		4				4
Not Undertaken		1	1				1
72 R S3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLACK candidates	5		5				5
negro	**5**		**5**				**5**
negro	5		5				5
negro	5		5				5
All BROWN candidates	14	22	36	15	17	32	68
castaño	**2**		**2**	**1**		**1**	**3**
castaño	2		2	1		1	3
castaño	2		2	1		1	3
marrón and variants	**10**	**19**	**29**	**14**	**17**	**31**	**60**
marrón and variants	10	19	29	14	17	31	60
marrón	10	19	29	14	17	31	60
marrón/castaño		**1**	**1**				**1**
marrón/castaño		1	1				1
marrón/castaño		1	1				1
pardo	**1**		**1**				**1**
pardo	1		1				1
pardo	1		1				1
chocolate and variants	**1**	**2**	**3**				**3**

chocolate and variants	1	2	3				3
chocolate	1	1	2				2
color chocolate		1	1				1
All GREY candidates		2	2				2
gris and variants		**2**	**2**				**2**
gris and variants		2	2				2
gris		2	2				2
All PURPLE candidates					1	1	1
morado					**1**	**1**	**1**
morado					1	1	1
morado					1	1	1
No Response				1		1	1
Not Undertaken		1	1				1
73 HUE RVR	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	14	12	26	7		7	33
encarnado	**2**		**2**	**1**		**1**	**3**
encarnado	2		2	1		1	3
encarnado	2		2	1		1	3
roxo and cognates	**10**	**10**	**20**	**1**		**1**	**21**
roxo	1		1				1
roxo	1		1				1
rojo	9	9	18				18
rojo	9	9	18				18
rojo/roxo		1	1				1
rojo/roxo		1	1				1
roxo/rojo				1		1	1
roxo/rojo				1		1	1
rojo/encarnado	**1**		**1**				**1**
rojo/encarnado	1		1				1
rojo/encarnado	1		1				1
vermello	**1**	**1**	**2**	**4**		**4**	**6**
vermello	1	1	2	4		4	6
vermello	1	1	2	4		4	6
granate		**1**	**1**	**1**		**1**	**2**
granate		1	1	1		1	2
granate		1	1	1		1	2
All PINK candidates	4	9	13	8	18	26	39
fuscia		**1**	**1**		**1**	**1**	**2**
fuscia		1	1		1	1	2
fuscia		1	1		1	1	2
magenta					**1**	**1**	**1**
magenta					1	1	1
magenta					1	1	1
rosa and variants	**4**	**8**	**12**	**8**	**16**	**24**	**36**
rosa and variants	4	8	12	8	16	24	36

rosa	4	8	12	8	16	24	36
All ORANGE candidates	1		1				1
laranxa and cognates	**1**		**1**				**1**
laranxa and variants	1		1				1
laranxa	1		1				1
Colour in between		3	3	1		1	4
Not Undertaken		1	1				1
78 RVR S1	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	1		1				1
añil	**1**		**1**				**1**
añil	1		1				1
añil	1		1				1
All BROWN candidates	4	6	10				10
castaño	**1**		**1**				**1**
castaño	1		1				1
castaño	1		1				1
marrón and variants	**3**	**6**	**9**				**9**
marrón and variants	3	6	9				9
marrón	3	6	9				9
All GREY candidates	1	1	2				2
gris and variants	**1**	**1**	**2**				**2**
gris and variants	1	1	2				2
gris	1	1	2				2
All PINK candidates		4	4	1	1	2	6
rosa and variants		**4**	**4**	**1**	**1**	**2**	**6**
rosa and variants		4	4	1	1	2	6
arrosado		1	1		1	1	2
rosa		3	3	1		1	4
All PURPLE candidates	9	10	19	14	17	31	50
berenxena and cognates					**1**	**1**	**1**
berenjena					1	1	1
berenjena					1	1	1
color do obispo	**1**		**1**				**1**
color do obispo	1		1				1
color do obispo	1		1				1
color viño and cognates	**2**	**2**	**4**	**3**	**4**	**7**	**11**
borgoña/viño tinto					1	1	1
borgoña/viño tinto					1	1	1
color uva					1	1	1
color uva					1	1	1
color vino and variants		1	1				1
vino		1	1				1
color viño and variants	2	1	3	3	2	5	8
color viño	1		1	2	1	3	4
tinto					1	1	1

viño	1	1	2	1		1	3
lila and variants	**1**	**4**	**5**	**3**	**2**	**5**	**10**
lila and variants	1	4	5	3	2	5	10
color lila		1	1				1
lila	1	3	4	3	2	5	9
malva		**1**	**1**	**1**	**1**	**2**	**3**
malva		1	1	1	1	2	3
malva		1	1	1	1	2	3
morado	**3**	**3**	**6**	**4**	**7**	**11**	**17**
morado	3	3	6	4	7	11	17
morado	3	3	6	4	7	11	17
púrpura				**1**		**1**	**1**
púrpura				1		1	1
púrpura				1		1	1
violeta	**2**		**2**	**2**	**2**	**4**	**6**
violeta	2		2	2	2	4	6
violeta	2		2	2	2	4	6
Colour in between	1		1				1
No Response	3	3	6	1		1	7
Not Undertaken		1	1				1
80 RVR S3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All WHITE candidates	1		1				1
branco and cognates	**1**		**1**				**1**
blanco	1		1				1
blanco	1		1				1
All BROWN candidates	3	1	4				4
castaño		**1**	**1**				**1**
castaño		1	1				1
castaño		1	1				1
marrón and variants	**3**		**3**				**3**
marrón and variants	3		3				3
marrón	3		3				3
All GREY candidates	4	3	7		1	1	8
gris and variants	**4**	**3**	**7**		**1**	**1**	**8**
gris and variants	4	3	7		1	1	8
gris	4	3	7		1	1	8
All PINK candidates	4	17	21	13	14	27	48
rosa and variants	**4**	**17**	**21**	**13**	**14**	**27**	**48**
rosa and variants	4	17	21	13	14	27	48
rosa	4	17	21	13	14	27	48
All PALE candidates	3	1	4				4
area and cognates		**1**	**1**				**1**
color arena		1	1				1
color arena		1	1				1
beis and variants	**3**		**3**				**3**

beis and variants	3		3				3
beis	3		3				3
All PURPLE candidates	2		2	2	3	5	7
color viño and cognates	**1**		**1**				**1**
color viño and variants	1		1				1
viño	1		1				1
lila and variants					**3**	**3**	**3**
lila and variants					3	3	3
lila					3	3	3
morado				**2**		**2**	**2**
morado				2		2	2
morado				2		2	2
púrpura	**1**		**1**				**1**
púrpura	1		1				1
púrpura	1		1				1
Colour in between		1	1				1
No Response	2	1	3	1		1	4
Not Undertaken		1	1				1
81 HUE RV	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	4	1	5				5
roxo and cognates	**4**		**4**				**4**
rojo	4		4				4
rojo	4		4				4
granate		**1**	**1**				**1**
granate		1	1				1
granate		1	1				1
All PINK candidates	3	8	11	4	12	16	27
fuscia		**1**	**1**		**2**	**2**	**3**
fuscia		1	1		2	2	3
fuscia		1	1		2	2	3
rosa and variants	**3**	**7**	**10**	**4**	**10**	**14**	**24**
rosa and variants	3	7	10	4	10	14	24
rosa	3	6	9	4	10	14	23
rosado		1	1				1
All PURPLE candidates	11	14	25	12	6	18	43
color viño and cognates	**2**	**1**	**3**				**3**
color vino and variants		1	1				1
color vino		1	1				1
color viño and variants	2		2				2
color do viño	1		1				1
color viño	1		1				1
lila and variants	**2**	**3**	**5**	**4**	**1**	**5**	**10**
lila and variants	2	3	5	4	1	5	10
color lila	1		1				1
lila	1	3	4	4	1	5	9

malva	**1**	**2**	**3**				**3**
malva	1	2	3				3
malva	1	2	3				3
morado	**4**	**4**	**8**	**2**	**2**	**4**	**12**
morado	4	4	8	2	2	4	12
morado	4	4	8	2	2	4	12
púrpura	**1**	**1**	**2**	**1**		**1**	**3**
púrpura	1	1	2	1		1	3
púrpura	1	1	2	1		1	3
violeta	**1**	**3**	**4**	**5**	**2**	**7**	**11**
violeta	1	3	4	5	2	7	11
violeta	1	3	4	5	2	7	11
violeta/morado					**1**	**1**	**1**
violeta/morado					1	1	1
violeta/morado					1	1	1
No Response	1	2	3				3
83 RV T2	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	3		3				3
roxo and cognates	**2**		**2**				**2**
rojo	2		2				2
rojo	2		2				2
granate	**1**		**1**				**1**
granate	1		1				1
granate	1		1				1
All BLUE candidates	2		2				2
añil	**1**		**1**				**1**
añil	1		1				1
añil	1		1				1
azul and cognates	**1**		**1**				**1**
azul and variants	1		1				1
azul	1		1				1
All PINK candidates	7	13	20	6	15	21	41
fuscia					**1**	**1**	**1**
fuscia					1	1	1
fuscia					1	1	1
rosa and variants	**7**	**13**	**20**	**6**	**14**	**20**	**40**
rosa and variants	7	13	20	6	14	20	40
rosa	6	12	18	6	14	20	38
rosado	1	1	2				2
All PALE candidates	1		1				1
beis and variants	**1**		**1**				**1**
beis and variants	1		1				1
beis	1		1				1
All PURPLE candidates	5	11	16	10	3	13	29
color viño and cognates	**1**		**1**				**1**

color viño and variants	1		1				1
viño	1		1				1
lila and variants	**2**	**7**	**9**	**1**	**2**	**3**	**12**
lila and variants	2	7	9	1	2	3	12
color lila		1	1				1
lila	2	6	8	1	2	3	11
malva		**1**	**1**				**1**
malva		1	1				1
malva		1	1				1
morado	**1**	**3**	**4**	**3**		**3**	**7**
morado	1	3	4	3		3	7
morado	1	3	4	3		3	7
púrpura				**2**		**2**	**2**
púrpura				2		2	2
púrpura				2		2	2
violeta	**1**		**1**	**4**		**4**	**5**
violeta	1		1	4		4	5
violeta	1		1	4		4	5
violeta/morado					**1**	**1**	**1**
violeta/morado					1	1	1
violeta/morado					1	1	1
Colour in between	1		1				1
No Response		1	1				1
89 HUE VRV	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	1	1	2				2
roxo and cognates	**1**		**1**				**1**
rojo	1		1				1
rojo	1		1				1
granate		**1**	**1**				**1**
granate		1	1				1
granate		1	1				1
All BLUE candidates	1		1		1	1	2
añil					**1**	**1**	**1**
añil					1	1	1
añil					1	1	1
azul and cognates	**1**		**1**				**1**
azul and variants	1		1				1
azul	1		1				1
All PINK candidates		3	3				3
rosa and variants		**3**	**3**				**3**
rosa and variants		3	3				3
rosa		2	2				2
rosado		1	1				1
All PURPLE candidates	16	19	35	16	17	33	68
color viño and cognates	**4**		**4**				**4**

color viño and variants	4		4				4
color do viño tinto	1		1				1
color viño	2		2				2
viño	1		1				1
lila and variants	**5**	**8**	**13**	**2**	**1**	**3**	**16**
lila and variants	5	8	13	2	1	3	16
color lila		1	1				1
lila	5	7	12	2	1	3	15
malva	**1**	**3**	**4**		**2**	**2**	**6**
malva	1	3	4		2	2	6
malva	1	3	4		2	2	6
morado	**5**	**5**	**10**	**5**	**8**	**13**	**23**
morado	5	5	10	5	8	13	23
morado	5	5	10	5	8	13	23
púrpura		**1**	**1**	**3**		**3**	**4**
púrpura		1	1	3		3	4
púrpura		1	1	3		3	4
violeta	**1**	**2**	**3**	**6**	**6**	**12**	**15**
violeta	1	2	3	6	6	12	15
violeta	1	2	3	6	6	12	15
No Response	1	1	2				2
Not Undertaken		1	1				1
96 VRV S3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All WHITE candidates	2		2				2
branco and cognates	**2**		**2**				**2**
blanco	2		2				2
blanco	2		2				2
All BLUE candidates	2		2	1		1	3
azul and cognates				**1**		**1**	**1**
azul and variants				1		1	1
azul				1		1	1
color cielo and variants	**2**		**2**				**2**
color cielo and variants	2		2				2
color cielo	2		2				2
All BROWN candidates					1	1	1
color topo and variants					**1**	**1**	**1**
color topo and variants					1	1	1
topo					1	1	1
All GREY candidates	3	10	13	1	1	2	15
gris and variants	**3**	**10**	**13**	**1**	**1**	**2**	**15**
gris and variants	3	10	13	1	1	2	15
agrisado		1	1				1
gris	3	9	12	1	1	2	14
All PINK candidates		2	2				2
rosa and variants		**2**	**2**				**2**

rosa and variants		2	2				2
rosa		2	2				2
All PALE candidates	3	1	4				4
beis and variants	**2**		**2**				**2**
beis and variants	2		2				2
beis	2		2				2
claro and variants		**1**	**1**				**1**
claro and variants		1	1				1
claro		1	1				1
color crema and variants	**1**		**1**				**1**
color crema and variants	1		1				1
color crema	1		1				1
All PURPLE candidates	6	10	16	14	16	30	46
lila and variants	**1**	**5**	**6**	**3**	**12**	**15**	**21**
lila and variants	1	5	6	3	12	15	21
lila	1	5	6	3	12	15	21
malva		**3**	**3**	**2**	**3**	**5**	**8**
malva		3	3	2	3	5	8
malva		3	3	2	3	5	8
morado	**2**	**1**	**3**	**2**		**2**	**5**
morado	2	1	3	2		2	5
morado	2	1	3	2		2	5
púrpura				**1**		**1**	**1**
púrpura				1		1	1
púrpura				1		1	1
violeta	**3**	**1**	**4**	**6**	**1**	**7**	**11**
violeta	3	1	4	6	1	7	11
violeta	3	1	4	6	1	7	11
Colour in between	1		1				1
No Response	2	2	4				4
97 HUE V	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates		1	1				1
granate		**1**	**1**				**1**
granate		1	1				1
granate		1	1				1
All BLUE candidates	4		4		1	1	5
añil	**1**		**1**		**1**	**1**	**2**
añil	1		1		1	1	2
añil	1		1		1	1	2
azul and cognates	**3**		**3**				**3**
azul and variants	3		3				3
azul	3		3				3
All PINK candidates		1	1				1
rosa and variants		**1**	**1**				**1**
rosa and variants		1	1				1

rosa		1	1				1
All PURPLE candidates	13	21	34	16	17	33	67
color viño and cognates	**3**	**1**	**4**				**4**
color viño and variants	3	1	4				4
aviñado		1	1				1
color viño	2		2				2
viño	1		1				1
lila and variants	**4**	**12**	**16**	**2**	**2**	**4**	**20**
lila and variants	4	12	16	2	2	4	20
color lila		1	1				1
lila	4	11	15	2	2	4	19
malva	**1**	**1**	**2**		**1**	**1**	**3**
malva	1	1	2		1	1	3
malva	1	1	2		1	1	3
morado	**3**	**6**	**9**	**4**	**5**	**9**	**18**
morado	3	6	9	4	5	9	18
morado	3	6	9	4	5	9	18
morado/violeta				**1**	**1**	**2**	**2**
morado/violeta				1	1	2	2
morado/violeta				1	1	2	2
púrpura	**1**		**1**	**1**		**1**	**2**
púrpura	1		1	1		1	2
púrpura	1		1	1		1	2
violeta	**1**	**1**	**2**	**8**	**8**	**16**	**18**
violeta	1	1	2	8	8	16	18
violeta	1	1	2	8	8	16	18
No Response	2	1	3				3
Not Undertaken		1	1				1
105 HUE VBV	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	5		5		1	1	6
añil	**1**		**1**		**1**	**1**	**2**
añil	1		1		1	1	2
añil	1		1		1	1	2
azul and cognates	**4**		**4**				**4**
azul and variants	3		3				3
azul	2		2				2
azulado	1		1				1
azulón	1		1				1
azulón	1		1				1
All PINK candidates		1	1				1
rosa and variants		**1**	**1**				**1**
rosa and variants		1	1				1
rosa		1	1				1
All PURPLE candidates	14	23	37	16	17	33	70
color viño and cognates	**3**	**1**	**4**				**4**

color viño and variants	3	1	4				4
aviñado		1	1				1
color viño	3		3				3
lila and variants	**3**	**10**	**13**	**2**	**2**	**4**	**17**
lila and variants	3	10	13	2	2	4	17
color lila		2	2				2
lila	3	8	11	2	2	4	15
malva	**1**	**3**	**4**		**1**	**1**	**5**
malva	1	3	4		1	1	5
malva	1	3	4		1	1	5
morado	**5**	**5**	**10**	**6**	**5**	**11**	**21**
morado	5	5	10	6	5	11	21
morado	5	5	10	6	5	11	21
violeta	**2**	**4**	**6**	**8**	**9**	**17**	**23**
violeta	2	4	6	8	9	17	23
violeta	2	4	6	8	9	17	23
Not Undertaken		1	1				1
109 VBV T4	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	4	1	5				5
añil	**1**		**1**				**1**
añil	1		1				1
añil	1		1				1
azul and cognates	**3**	**1**	**4**				**4**
azul and variants	3	1	4				4
azul	2	1	3				3
azulado	1		1				1
All GREY candidates	3	1	4				4
gris and variants	**2**	**1**	**3**				**3**
gris and variants	2	1	3				3
gris	2	1	3				3
perla	**1**		**1**				**1**
perla	1		1				1
perla	1		1				1
All PINK candidates		4	4				4
fuscia		**1**	**1**				**1**
fuscia		1	1				1
fuscia		1	1				1
rosa and variants		**3**	**3**				**3**
rosa and variants		3	3				3
arrosado		1	1				1
rosa		2	2				2
All PALE candidates	1		1				1
beis and variants	**1**		**1**				**1**
beis and variants	1		1				1
beis	1		1				1

All PURPLE candidates	8	18	26	16	18	34	60
color viño and cognates	**1**		**1**				**1**
color viño and variants	1		1				1
color de viño	1		1				1
lila and variants	**4**	**8**	**12**	**9**	**14**	**23**	**35**
lila and variants	4	8	12	9	14	23	35
lila	4	8	12	9	14	23	35
malva	**1**	**3**	**4**		**3**	**3**	**7**
malva	1	3	4		3	3	7
malva	1	3	4		3	3	7
morado	**1**	**3**	**4**	**3**		**3**	**7**
morado	1	3	4	3		3	7
morado	1	3	4	3		3	7
violeta	**1**	**4**	**5**	**4**	**1**	**5**	**10**
violeta	1	4	5	4	1	5	10
violeta	1	4	5	4	1	5	10
No Response	3	1	4				4
113 HUE BV	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	7	9	16	2	5	7	23
añil				**1**		**1**	**1**
añil				1		1	1
añil				1		1	1
azul and cognates	**7**	**9**	**16**	**1**	**5**	**6**	**22**
azul and variants	7	7	14	1	5	6	20
azui	1		1				1
azul	6	7	13	1	5	6	19
azulón		2	2				2
azulón		2	2				2
All PURPLE candidates	10	13	23	13	13	26	49
color lirio		**1**	**1**				**1**
color lirio		1	1				1
color lirio		1	1				1
color viño and cognates	**1**		**1**				**1**
color viño and variants	1		1				1
viño	1		1				1
lila and variants	**3**	**6**	**9**	**5**	**2**	**7**	**16**
lila and variants	3	6	9	5	2	7	16
color lila		1	1				1
lila	3	5	8	5	2	7	15
malva	**1**		**1**		**1**	**1**	**2**
malva	1		1		1	1	2
malva	1		1		1	1	2
morado	**3**	**6**	**9**	**1**	**2**	**3**	**12**
morado	3	6	9	1	2	3	12
morado	3	6	9	1	2	3	12

púrpura	**1**		**1**				**1**
púrpura	1		1				1
púrpura	1		1				1
violeta	**1**		**1**	**7**	**8**	**15**	**16**
violeta	1		1	7	8	15	16
violeta	1		1	7	8	15	16
Colour in between		1	1	1		1	2
No Response	2	1	3				3
Not Undertaken		1	1				1
119 BV S2	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLACK candidates	1		1				1
negro	**1**		**1**				**1**
negro	1		1				1
negro	1		1				1
All BLUE candidates	11	14	25	4	7	11	36
azul and cognates	**11**	**14**	**25**	**4**	**7**	**11**	**36**
azul and variants	10	13	23	3	7	10	33
azul	10	13	23	3	7	10	33
azulón	1	1	2	1		1	3
azulón	1	1	2	1		1	3
All GREEN candidates	1		1				1
verde and variants	**1**		**1**				**1**
verde and variants	1		1				1
verde	1		1				1
All PURPLE candidates	6	10	16	12	11	23	39
lila and variants	**1**	**4**	**5**	**1**	**1**	**2**	**7**
lila and variants	1	4	5	1	1	2	7
lila	1	4	5	1	1	2	7
malva	**2**	**1**	**3**		**1**	**1**	**4**
malva	2	1	3		1	1	4
malva	2	1	3		1	1	4
morado	**1**	**4**	**5**	**5**	**4**	**9**	**14**
morado	1	4	5	5	4	9	14
morado	1	4	5	5	4	9	14
púrpura				**1**	**1**	**2**	**2**
púrpura				1	1	2	2
púrpura				1	1	2	2
violeta	**2**	**1**	**3**	**5**	**4**	**9**	**12**
violeta	2	1	3	5	4	9	12
violeta	2	1	3	5	4	9	12
Not Undertaken		1	1				1
121 HUE BVB	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	19	25	44	16	18	34	78
azul and cognates	**19**	**25**	**44**	**16**	**18**	**34**	**78**

azul and variants	19	21	40	15	15	30	70
azul	19	21	40	15	15	30	70
azulino and variants		2	2				2
azulina		1	1				1
azulino		1	1				1
azulón		2	2	1	3	4	6
azulón		2	2	1	3	4	6
128 BVB S3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All WHITE candidates	2		2				2
branco and cognates	**2**		**2**				**2**
blanco	2		2				2
blanco	2		2				2
All BLUE candidates	1	5	6	2	2	4	10
azul and cognates	**1**	**5**	**6**	**2**	**2**	**4**	**10**
azul and variants	1	5	6	2	2	4	10
azul	1	5	6	2	2	4	10
All GREEN candidates		1	1				1
verde and variants		**1**	**1**				**1**
verde and variants		1	1				1
verde		1	1				1
All GREY candidates	12	17	29	14	15	29	58
color opaco		**1**	**1**				**1**
color opaco		1	1				1
color opaco		1	1				1
gris and variants	**11**	**16**	**27**	**14**	**15**	**29**	**56**
gris and variants	11	16	27	14	15	29	56
gris	11	16	27	14	15	29	56
plateado	**1**		**1**				**1**
plateado	1		1				1
plateado	1		1				1
All PALE candidates	4	2	6		1	1	7
area and cognates					**1**	**1**	**1**
area					1	1	1
area					1	1	1
beis and variants	**2**	**2**	**4**				**4**
beis and variants	2	2	4				4
beis	2	2	4				4
claro and variants	**2**		**2**				**2**
claro and variants	2		2				2
claro	2		2				2
129 HUE B	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	18	24	42	16	18	34	76
azul and cognates	**18**	**24**	**42**	**16**	**18**	**34**	**76**
azul and variants	18	21	39	14	18	32	71

azul	18	21	39	14	18	32	71
azulino and variants		2	2				2
azuliña		1	1				1
azulino		1	1				1
azulón		1	1	2		2	3
azulón		1	1	2		2	3
All GREEN candidates	1		1				1
verde and variants	**1**		**1**				**1**
verde and variants	1		1				1
verde	1		1				1
Not Undertaken		1	1				1
130 B T1	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	19	25	44	16	18	34	78
azul and cognates	**19**	**25**	**44**	**16**	**18**	**34**	**78**
azul and variants	19	23	42	16	15	31	73
azui	1		1				1
azul	18	23	41	16	15	31	72
azulino and variants		1	1				1
azulino		1	1				1
azulón		1	1		3	3	4
azulón		1	1		3	3	4
137 HUE BGB	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	17	23	40	16	18	34	74
azul and cognates	**17**	**23**	**40**	**16**	**18**	**34**	**74**
azul and variants	16	22	38	16	18	34	72
azui	1		1				1
azul	15	22	37	16	18	34	71
azulón	1	1	2				2
azulón	1	1	2				2
All GREEN candidates	2	1	3				3
verde and variants	**2**	**1**	**3**				**3**
verde and variants	2	1	3				3
verde	2	1	3				3
Not Undertaken		1	1				1
140 BGB T3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	18	23	41	16	17	33	74
añil					**1**	**1**	**1**
añil					1	1	1
añil					1	1	1
azul and cognates	**18**	**23**	**41**	**15**	**16**	**31**	**72**
azul and variants	18	22	40	15	16	31	71
azui	1		1				1
azul	17	22	39	15	16	31	70

azulino and variants		1	1				1
azuliño		1	1				1
celeste				**1**		**1**	**1**
celeste				1		1	1
celeste				1		1	1
All GREEN candidates	1	2	3				3
verde and variants	**1**	**2**	**3**				**3**
verde and variants	1	2	3				3
verde	1	2	3				3
All GREEN-BLUE border candidates					1	1	1
aguamarina					**1**	**1**	**1**
aguamarina					1	1	1
aguamarina					1	1	1
145 HUE BG	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	16	17	33	11	13	24	57
azul and cognates	**15**	**17**	**32**	**11**	**13**	**24**	**56**
azul and variants	14	15	29	11	13	24	53
azui	1		1				1
azul	13	15	28	11	13	24	52
azulino and variants	1		1				1
azulina	1		1				1
azulón		2	2				2
azulón		2	2				2
celeste	**1**		**1**				**1**
celeste	1		1				1
celeste	1		1				1
All GREEN candidates	3	8	11	4		4	15
verde and variants	**3**	**8**	**11**	**4**		**4**	**15**
verde and variants	3	8	11	4		4	15
verde	3	7	10	4		4	14
verdoso		1	1				1
All GREEN-BLUE border candidates				1	5	6	6
turquesa				**1**	**5**	**6**	**6**
turquesa				1	5	6	6
turquesa				1	5	6	6
146 BG T1	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	13	17	30	11	12	23	53
azul and cognates	**13**	**17**	**30**	**11**	**12**	**23**	**53**
azul and variants	12	15	27	11	12	23	50
azui	1		1				1
azul	10	15	25	11	12	23	48
azulado	1		1				1
azulino and variants	1	1	2				2
azulina	1		1				1

azulino		1	1				1
azulón		1	1				1
azulón		1	1				1
All GREEN candidates	5	6	11	3	2	5	16
verde and variants	**5**	**6**	**11**	**3**	**2**	**5**	**16**
verde and variants	5	6	11	3	2	5	16
verde	5	6	11	3	2	5	16
All GREEN-BLUE border candidates		1	1	1	4	5	6
turquesa		**1**	**1**	**1**	**4**	**5**	**6**
turquesa		1	1	1	4	5	6
turquesa		1	1	1	4	5	6
Colour in between		1	1	1		1	2
No Response	1		1				1
151 BG S2	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	6	4	10	1	3	4	14
azul and cognates	**6**	**4**	**10**	**1**	**3**	**4**	**14**
azul and variants	6	4	10	1	3	4	14
azui	1		1				1
azul	5	4	9	1	3	4	13
All GREEN candidates	13	17	30	15	14	29	59
verde and variants	**13**	**17**	**30**	**15**	**14**	**29**	**59**
verde and variants	13	17	30	15	14	29	59
verde	13	14	27	15	14	29	56
verdón		1	1				1
verdoso		2	2				2
All GREEN-BLUE border candidates					1	1	1
turquesa					**1**	**1**	**1**
turquesa					1	1	1
turquesa					1	1	1
Colour in between		3	3				3
Not Undertaken		1	1				1
153 HUE GBG	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	8	3	11	1	4	5	16
azul and cognates	**8**	**3**	**11**	**1**	**4**	**5**	**16**
azul and variants	7	3	10	1	4	5	15
azui	1		1				1
azul	6	3	9	1	4	5	14
azulino and variants	1		1				1
azulina	1		1				1
All GREEN candidates	11	18	29	15	13	28	57
verde and variants	**11**	**18**	**29**	**15**	**13**	**28**	**57**
verde and variants	11	18	29	15	13	28	57
verde	10	18	28	15	13	28	56
verdoso	1		1				1

All GREEN-BLUE border candidates					1	1	1
turquesa					**1**	**1**	**1**
turquesa					1	1	1
turquesa					1	1	1
Colour in between		2	2				2
No Response		2	2				2
159 GBG S2	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	12	14	26	10	14	24	50
azul and cognates	**12**	**14**	**26**	**10**	**14**	**24**	**50**
azul and variants	12	14	26	10	14	24	50
azui	1		1				1
azul	10	14	24	10	13	23	47
azulado	1		1		1	1	2
All GREEN candidates	5	10	15	5	1	6	21
verde and variants	**5**	**10**	**15**	**5**	**1**	**6**	**21**
verde and variants	5	10	15	5	1	6	21
verde	5	9	14	5	1	6	20
verdoso		1	1				1
All GREEN-BLUE border candidates	1	1	2		3	3	5
azul-verde	**1**		**1**				**1**
azul-verde	1		1				1
azul-verde	1		1				1
turquesa					**3**	**3**	**3**
turquesa					3	3	3
turquesa					3	3	3
verdeazul		**1**	**1**				**1**
verdeazul		1	1				1
verdeazul		1	1				1
Colour in between	1		1	1		1	2
161 HUE G	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	1		1				1
azul and cognates	**1**		**1**				**1**
azul and variants	1		1				1
azul	1		1				1
All GREEN candidates	18	23	41	16	18	34	75
verde and variants	**18**	**23**	**41**	**16**	**18**	**34**	**75**
verde and variants	18	23	41	16	18	34	75
verde	18	23	41	16	18	34	75
Colour in between		1	1				1
Not Undertaken		1	1				1
168 G S3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLACK candidates	1		1				1
negro	**1**		**1**				**1**

negro	1		1				1
negro	1		1				1
All BLUE candidates	2	1	3				3
azul and cognates	**2**	**1**	**3**				**3**
azul and variants	2	1	3				3
azul	2	1	3				3
All GREEN candidates	15	24	39	16	18	34	73
verde and variants	**15**	**24**	**39**	**16**	**18**	**34**	**73**
verde and variants	15	24	39	16	18	34	73
verde	13	23	36	16	18	34	70
verdoso	2	1	3				3
No Response	1		1				1
169 HUE GYG	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	1		1				1
azul and cognates	**1**		**1**				**1**
azul and variants	1		1				1
azul	1		1				1
All GREEN candidates	18	25	43	16	18	34	77
verde and variants	**18**	**25**	**43**	**16**	**18**	**34**	**77**
verde and variants	18	25	43	16	18	34	77
verde	18	25	43	16	18	34	77
173 GYG T4	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	2		2		1	1	3
azul and cognates	**2**		**2**		**1**	**1**	**3**
azul and variants	2		2		1	1	3
azul	2		2		1	1	3
All GREEN candidates	14	23	37	16	17	33	70
verde and variants	**14**	**23**	**37**	**16**	**17**	**33**	**70**
verde and variants	14	23	37	16	17	33	70
verde	14	23	37	16	17	33	70
All PURPLE candidates	1		1				1
violeta	**1**		**1**				**1**
violeta	1		1				1
violeta	1		1				1
Colour in between	1	1	2				2
No Response	1	1	2				2
174 GYG S1	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	1		1				1
azul and cognates	**1**		**1**				**1**
azul and variants	1		1				1
azul	1		1				1
All GREEN candidates	18	22	40	16	18	34	74
verde and variants	**18**	**22**	**40**	**16**	**18**	**34**	**74**

verde and variants	18	22	40	16	18	34	74
verde	18	22	40	15	18	33	73
verdoso				1		1	1
All GREY candidates		1	1				1
gris and variants		**1**	**1**				**1**
gris and variants		1	1				1
gris		1	1				1
All PURPLE candidates		1	1				1
malva		**1**	**1**				**1**
malva		1	1				1
malva		1	1				1
Not Undertaken		1	1				1
177 HUE YG	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLUE candidates	1		1				1
azul and cognates	**1**		**1**				**1**
azul and variants	1		1				1
azul	1		1				1
All GREEN candidates	18	23	41	16	18	34	75
verde and variants	**18**	**23**	**41**	**16**	**18**	**34**	**75**
verde and variants	18	23	41	16	18	34	75
verde	18	23	41	16	18	34	75
No Response		1	1				1
Not Undertaken		1	1				1
184 YG S3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLACK candidates	1		1				1
negro	**1**		**1**				**1**
negro	1		1				1
negro	1		1				1
All GREEN candidates	15	24	39	16	18	34	73
caqui and variants				**1**		**1**	**1**
caqui and variants				1		1	1
caqui				1		1	1
verde and variants	**15**	**24**	**39**	**15**	**18**	**33**	**72**
verde and variants	15	24	39	15	18	33	72
verde	15	23	38	15	18	33	71
verdoso		1	1				1
All BROWN candidates	1		1				1
marrón and variants	**1**		**1**				**1**
marrón and variants	1		1				1
marrón	1		1				1
All GREY candidates	1	1	2				2
gris and variants	**1**	**1**	**2**				**2**
gris and variants	1	1	2				2
gris	1	1	2				2

No Response	1		1				1
185 HUE YGY	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All YELLOW candidates	7	5	12	2		2	14
amarelo and cognates	**7**	**5**	**12**	**2**		**2**	**14**
amarelo and variants	2		2	2		2	4
amarelo	1		1	2		2	3
marelo	1		1				1
amarillo and variants	5	4	9				9
amarillo	5	4	9				9
amarillo/marelo		1	1				1
amarillo/marelo		1	1				1
All GREEN candidates	11	18	29	13	17	30	59
verde and variants	**11**	**18**	**29**	**13**	**17**	**30**	**59**
verde and variants	11	18	29	13	17	30	59
verde	11	18	29	13	17	30	59
All GREEN-YELLOW border candidates	1		1	1	1	2	3
color lima					**1**	**1**	**1**
color lima					1	1	1
color lima					1	1	1
color limón	**1**		**1**				**1**
color limón	1		1				1
color limón	1		1				1
verde-amarelo				**1**		**1**	**1**
verde-amarelo				1		1	1
verde-amarelo				1		1	1
Colour in between		1	1				1
Not Undertaken		1	1				1
192 YGY S3	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All WHITE candidates	1		1				1
branco and cognates	**1**		**1**				**1**
blanco	1		1				1
blanco	1		1				1
All YELLOW candidates	4	4	8				8
amarelo and cognates	**4**	**4**	**8**				**8**
amarelo and variants	1		1				1
amarelo	1		1				1
amarillo and variants	3	4	7				7
amarillo	3	4	7				7
All GREEN candidates	8	13	21	16	18	34	55
verde and variants	**8**	**13**	**21**	**16**	**18**	**34**	**55**
verde and variants	8	13	21	16	18	34	55
verde	8	13	21	16	18	34	55
All GREY candidates	1	1	2				2
gris and variants	**1**	**1**	**2**				**2**

gris and variants	1	1	2				2
gris	1	1	2				2
All PALE candidates	4	2	6				6
beis and variants	**3**		**3**				**3**
beis and variants	3		3				3
beis	3		3				3
claro and variants	**1**	**1**	**2**				**2**
claro and variants	1	1	2				2
claro	1	1	2				2
crú and cognates		**1**	**1**				**1**
crudo and variants		1	1				1
crudo		1	1				1
No Response	1	4	5				5
Not Undertaken		1	1				1
194 GRAY 1	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All WHITE candidates	3	8	11	2	4	6	17
branco and cognates	**3**	**8**	**11**	**2**	**4**	**6**	**17**
blanco	3	8	11	1	2	3	14
blanco	3	8	11	1	2	3	14
branco				1	2	3	3
branco				1	2	3	3
All BLUE candidates	1	1	2		1	1	3
azul and cognates	**1**		**1**		**1**	**1**	**2**
azul and variants	1		1		1	1	2
azul	1		1		1	1	2
color cielo and variants		**1**	**1**				**1**
color cielo and variants		1	1				1
color cielo		1	1				1
All GREEN candidates	1		1				1
verde and variants	**1**		**1**				**1**
verde and variants	1		1				1
verde	1		1				1
All GREY candidates	9	13	22	13	12	25	47
gris and variants	**9**	**13**	**22**	**13**	**12**	**25**	**47**
gris and variants	9	13	22	13	12	25	47
gris	9	12	21	13	12	25	46
grisáceo		1	1				1
All PALE candidates	4	2	6	1	1	2	8
area and cognates					**1**	**1**	**1**
area					1	1	1
area					1	1	1
beis and variants	**2**	**1**	**3**	**1**		**1**	**4**
beis and variants	2	1	3	1		1	4
beis	2	1	3	1		1	4
claro and variants	**1**	**1**	**2**				**2**

claro and variants	1	1	2				2
claro	1	1	2				2
pálido and variants	**1**		**1**				**1**
pálido and variants	1		1				1
pálido	1		1				1
All PURPLE candidates		1	1				1
lila and variants		**1**	**1**				**1**
lila and variants		1	1				1
lila		1	1				1
Colour in between	1		1				1
196 GRAY 2	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All WHITE candidates	5	6	11	2	3	5	16
branco and cognates	**5**	**6**	**11**	**2**	**3**	**5**	**16**
blanco	5	6	11	1	2	3	14
blanco	5	6	11	1	2	3	14
branco				1	1	2	2
branco				1	1	2	2
All BLUE candidates					1	1	1
azul and cognates					**1**	**1**	**1**
azul and variants					1	1	1
azul					1	1	1
All BROWN candidates		1	1				1
marrón and variants		**1**	**1**				**1**
marrón and variants		1	1				1
marrón		1	1				1
All GREY candidates	10	10	20	13	13	26	46
gris and variants	**10**	**10**	**20**	**13**	**13**	**26**	**46**
gris and variants	10	10	20	13	13	26	46
gris	10	10	20	13	13	26	46
All PALE candidates	4	8	12	1	1	2	14
area and cognates					**1**	**1**	**1**
area					1	1	1
area					1	1	1
beis and variants	**3**	**7**	**10**	**1**		**1**	**11**
beis and variants	3	7	10	1		1	11
beis	3	7	10	1		1	11
claro and variants	**1**		**1**				**1**
claro and variants	1		1				1
claro	1		1				1
descolorido		**1**	**1**				**1**
descolorido		1	1				1
descolorido		1	1				1
200 GRAY 4	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All WHITE candidates	2		2				2

branco and cognates	**2**		**2**				**2**
blanco	2		2				2
blanco	2		2				2
All GREY candidates	14	22	36	16	18	34	70
gris and variants	**13**	**22**	**35**	**16**	**18**	**34**	**69**
gris and variants	13	22	35	16	18	34	69
gris	13	21	34	16	18	34	68
grisáceo		1	1				1
plateado	**1**		**1**				**1**
plateado	1		1				1
plateado	1		1				1
All PALE candidates	3	2	5				5
beis and variants	**2**	**2**	**4**				**4**
beis and variants	2	2	4				4
beis	2	2	4				4
claro and variants	**1**		**1**				**1**
claro and variants	1		1				1
claro	1		1				1
Not Undertaken		1	1				1
204 GRAY 6	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLACK candidates	1		1				1
negro	**1**		**1**				**1**
negro	1		1				1
negro	1		1				1
All GREEN candidates		3	3				3
verde and variants		**3**	**3**				**3**
verde and variants		3	3				3
verde		3	3				3
All BROWN candidates	3		3				3
marrón and variants	**3**		**3**				**3**
marrón and variants	3		3				3
marrón	3		3				3
All GREY candidates	13	19	32	16	18	34	66
color plomo	**1**		**1**				**1**
color plomo	1		1				1
color plomo	1		1				1
gris and variants	**11**	**19**	**30**	**16**	**18**	**34**	**64**
gris and variants	11	19	30	16	18	34	64
gris	11	19	30	16	18	34	64
oscuro and variants	**1**		**1**				**1**
oscuro and variants	1		1				1
oscuro	1		1				1
All PALE candidates	1	1	2				2
beis and variants	**1**	**1**	**2**				**2**
beis and variants	1	1	2				2

beis		1	1				1
color beis	1		1				1
All PURPLE candidates		1	1				1
lila and variants		**1**	**1**				**1**
lila and variants		1	1				1
lila		1	1				1
No Response	1		1				1
Not Undertaken		1	1				1
208 GRAY 8	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLACK candidates	16	19	35	14	12	26	61
negro	**16**	**19**	**35**	**14**	**12**	**26**	**61**
negro	16	19	35	14	12	26	61
negro	16	19	35	14	12	26	61
All GREEN candidates		1	1				1
verde and variants		**1**	**1**				**1**
verde and variants		1	1				1
verde		1	1				1
All BROWN candidates	2		2				2
marrón and variants	**2**		**2**				**2**
marrón and variants	2		2				2
marrón	2		2				2
All GREY candidates	1	5	6	2	6	8	14
color abstracto		**1**	**1**				**1**
color abstracto		1	1				1
color abstracto		1	1				1
gris and variants		**4**	**4**	**2**	**6**	**8**	**12**
gris and variants		4	4	2	6	8	12
gris		4	4	2	6	8	12
oscuro and variants	**1**		**1**				**1**
oscuro and variants	1		1				1
oscuro	1		1				1
209 BLACK	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All BLACK candidates	16	22	38	16	18	34	72
negro	**16**	**22**	**38**	**16**	**18**	**34**	**72**
negro	16	22	38	16	18	34	72
negro	16	22	38	16	18	34	72
All GREEN candidates	1	1	2				2
verde and variants	**1**	**1**	**2**				**2**
verde and variants	1	1	2				2
verde	1	1	2				2
All BROWN candidates	2	1	3				3
castaño		**1**	**1**				**1**
castaño		1	1				1
castaño		1	1				1

marrón and variants	**2**		**2**				**2**
marrón and variants	2		2				2
marrón	2		2				2
Not Undertaken		1	1				1
210 WHITE	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All WHITE candidates	17	19	36	15	14	29	65
branco and cognates	**17**	**19**	**36**	**15**	**14**	**29**	**65**
blanco	17	19	36	10	10	20	56
blanco	17	19	36	10	10	20	56
blanco/branco					1	1	1
blanco/branco					1	1	1
branco				5	3	8	8
branco				5	3	8	8
All GREEN candidates		1	1				1
verde and variants		**1**	**1**				**1**
verde and variants		1	1				1
verde		1	1				1
All GREY candidates	1	1	2		1	1	3
gris and variants	**1**	**1**	**2**		**1**	**1**	**3**
gris and variants	1	1	2		1	1	3
gris	1	1	2		1	1	3
All PALE candidates	1	3	4	1	3	4	8
beis and variants	**1**	**3**	**4**	**1**	**1**	**2**	**6**
beis and variants	1	3	4	1	1	2	6
beis	1	3	4	1	1	2	6
color crema and variants					**1**	**1**	**1**
color crema and variants					1	1	1
crema					1	1	1
crú and cognates					**1**	**1**	**1**
crú					1	1	1
crú					1	1	1
Not Undertaken		1	1				1
213 ROSE RED	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	14	4	18	2		2	20
encarnado	**2**		**2**				**2**
encarnado	2		2				2
encarnado	2		2				2
encarnado/rojo	**1**		**1**				**1**
encarnado/rojo	1		1				1
encarnado/rojo	1		1				1
roxo and cognates	**11**	**2**	**13**	**1**		**1**	**14**
roxo	1		1				1
roxo	1		1				1
rojo	10	1	11	1		1	12

rojo	10	1	11	1		1	12
rojo/roxo		1	1				1
rojo/roxo		1	1				1
rojo/roxo/vermello		**1**	**1**				**1**
rojo/roxo/vermello		1	1				1
rojo/roxo/vermello		1	1				1
vermello				**1**		**1**	**1**
vermello				1		1	1
vermello				1		1	1
granate		**1**	**1**				**1**
granate		1	1				1
granate		1	1				1
All PINK candidates	3	19	22	14	18	32	54
fuscia				**1**	**2**	**3**	**3**
fuscia				1	2	3	3
fuscia				1	2	3	3
magenta					**1**	**1**	**1**
magenta					1	1	1
magenta					1	1	1
rosa and variants	**3**	**19**	**22**	**13**	**15**	**28**	**50**
rosa and variants	3	19	22	13	15	28	50
arrosado	1		1				1
rosa	2	18	20	13	15	28	48
rosado		1	1				1
All ORANGE candidates		1	1				1
laranxa and cognates		**1**	**1**				**1**
naranja and variants		1	1				1
naranja		1	1				1
All PURPLE candidates	2	1	3				3
lila and variants		**1**	**1**				**1**
lila and variants		1	1				1
lila		1	1				1
morado	**1**		**1**				**1**
morado	1		1				1
morado	1		1				1
violeta	**1**		**1**				**1**
violeta	1		1				1
violeta	1		1				1
216 SIENNA BROWN	**19**	**25**	**44**	**16**	**18**	**34**	**78**
All RED candidates	2	2	4	2		2	6
encarnado		**1**	**1**				**1**
encarnado		1	1				1
encarnado		1	1				1
roxo and cognates	**2**		**2**	**1**		**1**	**3**
roxo				1		1	1

roxo				1		1	1
rojo	2		2				2
rojo	2		2				2
vermello		**1**	**1**	**1**		**1**	**2**
vermello		1	1	1		1	2
vermello		1	1	1		1	2
All YELLOW candidates	1		1				1
amarelo and cognates	**1**		**1**				**1**
amarelo and variants	1		1				1
marelo	1		1				1
All BROWN candidates	8	12	20	2	9	11	31
castaño	**1**	**3**	**4**				**4**
castaño	1	3	4				4
castaño	1	3	4				4
marrón and variants	**5**	**8**	**13**	**2**	**9**	**11**	**24**
marrón and variants	5	8	13	2	9	11	24
marrón	5	8	13	2	9	11	24
pardo	**1**		**1**				**1**
pardo	1		1				1
pardo	1		1				1
madeira and cognates		**1**	**1**				**1**
color madera		1	1				1
color madera		1	1				1
chocolate and variants	**1**		**1**				**1**
chocolate and variants	1		1				1
color chocolate	1		1				1
All GREY candidates	1		1				1
oscuro and variants	**1**		**1**				**1**
oscuro and variants	1		1				1
color oscuro	1		1				1
All ORANGE candidates	5	8	13	11	9	20	33
caldeiro and variants	**1**		**1**		**1**	**1**	**2**
caldeiro and variants	1		1		1	1	2
caldeiro	1		1				1
color caldeira					1	1	1
color tella and cognates	**3**	**3**	**6**	**6**	**4**	**10**	**16**
color tella and variants	3	3	6	6	4	10	16
color tella	1	3	4	4	1	5	9
cor tella				1	1	2	2
tella	2		2	1	2	3	5
color ladrillo and variants		**1**	**1**				**1**
color ladrillo and variants		1	1				1
color ladrillo		1	1				1
color butano and variants		**1**	**1**				**1**
color butano and variants		1	1				1
color butano		1	1				1

laranxa and cognates	**1**	**3**	**4**	**5**	**4**	**9**	**13**
laranxa and variants				1	1	2	2
laranxa				1	1	2	2
naranxa and variants		2	2	3	1	4	6
anaranxado		1	1				1
naranxa		1	1	3	1	4	5
naranja and variants	1	1	2	1	1	2	4
naranja	1	1	2	1	1	2	4
naranxa/laranxa					1	1	1
naranxa/laranxa					1	1	1
All PALE candidates	1	1	2				2
tostado	**1**	**1**	**2**				**2**
tostado	1	1	2				2
tostado	1	1	2				2
Colour in between				1		1	1
No Response	1	1	2				2
Not Undertaken		1	1				1
Grand Total	**1235**	**1625**	**2860**	**1040**	**1170**	**2210**	**5070**

APPENDIX 2. BEST EXAMPLE RESPONSES ACROSS SUBGROUPS

	EM	EF	EP	YM	YF	YP	ALL PART
All BLACK candidates	**14**	**22**	**36**	**16**	**18**	**34**	**70**
negro	**14**	**22**	**36**	**16**	**18**	**34**	**70**
209	14	22	36	16	18	34	70
All WHITE candidates	**13**	**19**	**32**	**15**	**17**	**32**	**64**
blanco	**13**	**19**	**32**	**10**	**14**	**24**	**56**
210	13	19	32	10	14	24	56
branco				**5**	**3**	**8**	**8**
210				5	3	8	8
All RED candidates	**14**	**24**	**38**	**18**	**18**	**36**	**74**
rojo	**6**	**16**	**22**	**2**	**6**	**8**	**30**
49	3	5	8	1	3	4	12
57	1	6	7	1	3	4	11
65		4	4				4
73	1	1	2				2
213	1		1				1
vermello		**1**	**1**	**9**	**7**	**16**	**17**
49		1	1	7	5	12	13
65				1	1	2	2
57				1	1	2	2
roxo	**4**		**4**	**2**		**2**	**6**
49	2		2	1		1	3
57	1		1	1		1	2
65	1		1				1
rojo/encarnado or vice versa	**2**	**2**	**4**		**1**	**1**	**5**
49		1	1		1	1	2
65		1	1				1
213	1		1				1
57	1		1				1
granate and variants		**2**	**2**	**2**		**2**	**4**
213		1	1	1		1	2
73				1		1	1
81		1	1				1
(blank)							
rojo/vermello	**1**		**1**		**3**	**3**	**4**
49					3	3	3
57	1		1				1
encarnado		**1**	**1**		**1**	**1**	**2**
65		1	1				1
49					1	1	1
encarnado/vermello				**2**		**2**	**2**
49				2		2	2

butano and variants		**1**	**1**				**1**
49		1	1				1
roxo/vermello				**1**		**1**	**1**
49				1		1	1
roxo/encarnado	**1**		**1**				**1**
57	1		1				1
roxo/rojo		**1**	**1**				**1**
49		1	1				1
All YELLOW candidates	**17**	**23**	**40**	**18**	**19**	**37**	**77**
amarillo	**12**	**23**	**35**	**6**	**10**	**16**	**51**
1	9	18	27	6	9	15	42
9	3	4	7		1	1	8
17		1	1				1
amarelo and variants	**4**		**4**	**10**	**8**	**18**	**22**
1	4		4	10	6	16	20
9					2	2	2
dourado				**2**	**1**	**3**	**3**
15				1	1	2	2
7				1		1	1
Independent	**1**		**1**				**1**
185	1		1				1
All GREEN candidates	**16**	**22**	**38**	**16**	**18**	**34**	**72**
verde	**16**	**22**	**38**	**16**	**18**	**34**	**72**
169	9	16	25	14	16	30	55
161	5	2	7				7
177		3	3	2	1	3	6
184	2	1	3				3
174					1	1	1
All BLUE candidates	**15**	**22**	**37**	**16**	**18**	**34**	**71**
azul and variants	**15**	**22**	**37**	**16**	**18**	**34**	**71**
130	5	3	8	9	7	16	24
121	5	14	19	1		1	20
129	4	5	9	4	6	10	19
137	1		1	2	5	7	8
All BROWN candidates	**20**	**34**	**54**	**20**	**23**	**43**	**97**
marrón	**13**	**22**	**35**	**16**	**17**	**33**	**68**
56	8	9	17	7	11	18	35
24		5	5	4	1	5	10
38	1	1	2	2	5	7	9
40	1	4	5	1		1	6
72	1	1	2	2		2	4
7	2	1	3				3

52		1	1				1
ocre	**2**	**2**	**4**	**4**	**2**	**6**	**10**
15	1		1	2		2	3
20				1	1	2	2
13					1	1	1
64				1		1	1
216		1	1				1
7		1	1				1
17	1		1				1
(blank)							
castaño	**2**	**4**	**6**		**1**	**1**	**7**
72	1		1		1	1	2
7		2	2				2
216	1		1				1
15		1	1				1
40		1	1				1
caqui		**2**	**2**		**1**	**1**	**3**
7		1	1		1	1	2
15		1	1				1
(blank)							
chocolate and variants	**1**	**1**	**2**				**2**
216	1		1				1
48		1	1				1
color madeira		**1**	**1**				**1**
216		1	1				1
marrón/castaño					**1**	**1**	**1**
24					1	1	1
pardo	**1**		**1**				**1**
40	1		1				1
ocre/beis					**1**	**1**	**1**
15					1	1	1
lino		**1**	**1**				**1**
7		1	1				1
castaño claro		**1**	**1**				**1**
48		1	1				1
Independent 2	**1**		**1**				**1**
7	1		1				1
All PINK candidates	**12**	**23**	**35**	**16**	**21**	**37**	**72**
rosa and variants	**8**	**22**	**30**	**16**	**18**	**34**	**64**
69	2	11	13	13	11	24	37
52	2	5	7		1	1	8
83		4	4		3	3	7
73	2	1	3	1	1	2	5
213				1	2	3	3
81	1	1	2				2

80				1		1	1
65	1		1				1
fuscia	**1**		**1**		**2**	**2**	**3**
60	1		1				1
213					1	1	1
81					1	1	1
magenta					**1**	**1**	**1**
73					1	1	1
Independent 1	**1**		**1**				**1**
69	1		1				1
rosa anaranxado		**1**	**1**				**1**
60		1	1				1
Independent 2	**1**		**1**				**1**
52	1		1				1
Independent 3	**1**		**1**				**1**
60	1		1				1
All ORANGE candidates	**13**	**30**	**43**	**20**	**22**	**42**	**85**
laranxa	**2**		**2**	**8**	**8**	**16**	**18**
25	1		1	7	5	12	13
33	1		1	1	2	3	4
41					1	1	1
naranja and variants	**2**	**7**	**9**	**1**	**6**	**7**	**16**
25	2	3	5		5	5	10
41		2	2	1		1	3
33		2	2		1	1	3
naranxa and variants		**5**	**5**	**6**	**3**	**9**	**14**
25		2	2	5	2	7	9
33		3	3	1	1	2	5
color tella and variants	**2**	**3**	**5**	**2**	**1**	**3**	**8**
216		2	2	2	1	3	5
38		1	1				1
44	1		1				1
52	1		1				1
(blank)							
butano and variants	**2**	**5**	**7**				**7**
25	2	1	3				3
41		1	1				1
49		1	1				1
33		1	1				1
38		1	1				1
rosa and variants	**1**	**1**	**2**				**2**
41		1	1				1
33	1		1				1
naranxa/laranxa				**1**	**1**	**2**	**2**
25				1	1	2	2

granate and variants	**1**	**1**	**2**				**2**
52	1		1				1
41		1	1				1
salmón					**2**	**2**	**2**
44					2	2	2
canela				**1**		**1**	**1**
44				1		1	1
Independent 1	**1**		**1**				**1**
25	1		1				1
nin amarillo nin rojo/fusias		**1**	**1**				**1**
33		1	1				1
roxo		**1**	**1**				**1**
41		1	1				1
naranxa/butano		**1**	**1**				**1**
33		1	1				1
color caldeira					**1**	**1**	**1**
216					1	1	1
nin amarillo nin rojo	**1**		**1**				**1**
25	1		1				1
color palla/caldeiro	**1**		**1**				**1**
41	1		1				1
pemento		**1**	**1**				**1**
25		1	1				1
butano/naranja		**1**	**1**				**1**
25		1	1				1
Independent 3		**1**	**1**				**1**
25		1	1				1
Independent				**1**		**1**	**1**
44				1		1	1
Independent 4		**1**	**1**				**1**
33		1	1				1
Independent 5		**1**	**1**				**1**
41		1	1				1
All PURPLE candidates	**19**	**37**	**56**	**31**	**41**	**72**	**128**
lila and variants	**4**	**12**	**16**	**6**	**12**	**18**	**34**
109	1	2	3	3	11	14	17
97	1	5	6	1		1	7
89		2	2	1		1	3
113	1	1	2				2
105	1	1	2				2
81				1		1	1
119					1	1	1
80		1	1				1
morado	**3**	**8**	**11**	**6**	**8**	**14**	**25**
105	1	6	7	2	1	3	10

97	1	1	2	2	1	3	5
119				1	2	3	3
89					3	3	3
73					1	1	1
113		1	1				1
109				1		1	1
81	1		1				1
violeta	**1**	**2**	**3**	**8**	**10**	**18**	**21**
105		1	1	2	4	6	7
97	1		1	3	2	5	6
113				1	1	2	2
81				1	1	2	2
109				1		1	1
119					1	1	1
96		1	1				1
89					1	1	1
morado/violeta or viceversa	**2**	**1**	**3**	**2**	**3**	**5**	**8**
105	2	1	3	1	1	2	5
97				1	2	3	3
color viño and variants	**4**	**2**	**6**		**2**	**2**	**8**
97	2		2				2
89	2		2				2
78					2	2	2
81		2	2				2
malva	**1**	**4**	**5**		**3**	**3**	**8**
109		1	1		2	2	3
89	1	1	2				2
119		1	1				1
97					1	1	1
105		1	1				1
malva/lila or viceversa		**3**	**3**	**1**	**1**	**2**	**5**
109		1	1	1	1	2	3
97		1	1				1
105		1	1				1
púrpura	**1**	**1**	**2**	**2**		**2**	**4**
97	1		1	1		1	2
81		1	1	1		1	2
añil	**1**		**1**		**1**	**1**	**2**
105	1		1		1	1	2
violeta/púrpura				**2**		**2**	**2**
105				1		1	1
97				1		1	1
lila/violeta				**1**		**1**	**1**
105				1		1	1
morado/nazareno		**1**	**1**				**1**
105		1	1				1

lila/granate		**1**	**1**				**1**
105		1	1				1
lila/púrpura				**1**		**1**	**1**
105				1		1	1
Independent 1		**1**	**1**				**1**
109		1	1				1
Independent 2		**1**	**1**				**1**
96		1	1				1
viño blanco	**1**		**1**				**1**
109	1		1				1
Independent				**1**		**1**	**1**
78				1		1	1
morado/lila/violeta				**1**		**1**	**1**
97				1		1	1
granate and variants					**1**	**1**	**1**
78					1	1	1
morado/lila	**1**		**1**				**1**
97	1		1				1
All GREY and BEIGE candidates	**31**	**48**	**79**	**31**	**39**	**70**	**149**
gris	**12**	**22**	**34**	**16**	**18**	**34**	**68**
200	7	12	19	11	16	27	46
204	1	8	9	2	2	4	13
128	2	2	4	3		3	7
40	1		1				1
194	1		1				1
beis and variants	**6**	**15**	**21**	**7**	**8**	**15**	**36**
13		2	2	3	4	7	9
48		4	4	1	2	3	7
15	2	3	5	1	1	2	7
196	1	3	4				4
64	1	1	2	1	1	2	4
200		1	1				1
210				1		1	1
20	1		1				1
128		1	1				1
109	1		1				1
(blank)							
color carne and variants	**1**		**1**	**4**	**8**	**12**	**13**
48				2	6	8	8
20					2	2	2
64				1		1	1
69	1		1				1
60				1		1	1
crema and variants	**1**	**4**	**5**	**3**	**1**	**4**	**9**
13		3	3	2		2	5

20		1	1	1		1	2
210					1	1	1
48	1		1				1
Independent	**2**	**1**	**3**		**1**	**1**	**4**
48	2		2				2
13		1	1				1
15					1	1	1
tostado	**1**	**1**	**2**				**2**
7	1	1	2				2
descafeinado	**1**		**1**				**1**
48	1		1				1
pastel				**1**		**1**	**1**
48				1		1	1
claro		**1**	**1**				**1**
194		1	1				1
color cielo	**1**		**1**				**1**
96	1		1				1
arena		**1**	**1**				**1**
64		1	1				1
plateado	**1**		**1**				**1**
128	1		1				1
color crudo		**1**	**1**				**1**
20		1	1				1
fume, beis	**1**		**1**				**1**
80	1		1				1
color plomo	**1**		**1**				**1**
204	1		1				1
pálido	**1**		**1**				**1**
64	1		1				1
café con leite		**1**	**1**				**1**
48		1	1				1
perla	**1**		**1**				**1**
109	1		1				1
area					**1**	**1**	**1**
48					1	1	1
topo					**1**	**1**	**1**
96					1	1	1
crudo/beis					**1**	**1**	**1**
64					1	1	1
claro	**1**		**1**				**1**
200	1		1				1
crudo/carne		**1**	**1**				**1**
48		1	1				1
All PINK-ORANGE border candidates	**1**		**1**	**2**	**5**	**7**	**8**

salmón	**1**		**1**	**2**	**5**	**7**	**8**
52	1		1	2	3	5	6
60					1	1	1
54					1	1	1
All GREEN-BLUE border candidates	**1**		**1**	**1**	**7**	**8**	**9**
turquesa				**1**	**4**	**5**	**5**
146				1	2	3	3
153					1	1	1
145					1	1	1
verde azulado					**1**	**1**	**1**
145					1	1	1
turquesa/aguamarina					**1**	**1**	**1**
145					1	1	1
azulina	**1**		**1**				**1**
145	1		1				1
añil					**1**	**1**	**1**
146					1	1	1
Grand Total	**186**	**304**	**490**	**220**	**266**	**486**	**976**

APPENDIX 3. PERCENTAGES OF STABILITY OF REFERENCE AND IDIOLECTAL EVIDENCE IN ELDERLY AND YOUNG PARTICIPANTS

		EP		YP		All Participants	
		Stability of ref.	**Idiolectal evid.**	**Stability of ref.**	**Idiolectal evid.**	**Stability of ref.**	**Idiolectal evid.**
branco and cognates		**83,97%**	**87,79%**	**89,71%**	**92,16%**	**86,65%**	**89,82%**
	branco	0,00%	1,52%	**23,53%**	32,35%	11,40%	15,72%
	Sp *blanco*	**83,97%**	**86,28%**	**64,71%**	**58,82%**	**75,25%**	**74,10%**
negro		**91,56%**	**92,10%**	**100,00%**	**100,00%**	**95,36%**	**95,63%**
vermello		3,24%	4,44%	**47,55%**	**51,31%**	23,44%	25,46%
encarnado		6,33%	8,01%	1,47%	5,88%	4,19%	7,07%
roxo		9,49%	9,36%	5,88%	7,84%	7,83%	8,64%
Sp *rojo*		**47,30%**	**49,71%**	27,45%	29,08%	38,14%	**40,38%**
amarelo and cognates		**97,70%**	**96,19%**	**99,26%**	**99,51%**	**98,38%**	**97,64%**
	amarelo, marelo	12,73%	12,27%	**54,41%**	**58,82%**	31,73%	33,12%
	Sp *amarillo*	**81,77%**	**79,51%**	**42,65%**	39,22%	**64,62%**	**61,89%**
verde		**90,18%**	**88,15%**	**100,00%**	**100,00%**	**90,91%**	**90,95%**
azul		**93,05%**	**93,09%**	**86,40%**	**90,93%**	**89,67%**	**91,83%**
gris		**77,53%**	**67,59%**	**97,55%**	**97,39%**	**86,59%**	**80,80%**
rosa/ rosado		**42,14%**	**66,61%**	**66,91%**	**85,78%**	**54,27%**	**62,68%**
castaño/ acastañado		6,45%	20,33%	2,45%	2,61%	4,66%	8,66%
marrón		**57,22%**	**70,88%**	**73,04%**	**92,81%**	**62,78%**	**66,21%**
violeta		6,80%	14,38%	38,24%	**45,10%**	20,30%	27,64%
morado		22,83%	23,55%	29,41%	37,25%	25,75%	29,56%
lila (purple)		29,07%	26,95%	8,33%	24,18%	19,66%	25,50%
lila (lilac)		17,58%	19,30%	**54,41%**	**54,90%**	34,24%	35,22%
laranxa and cognates		**40,56%**	39,16%	**98,53%**	**96,08%**	**66,71%**	**64,56%**
	laranxa	4,92%	4,04%	**45,59%**	**45,10%**	23,44%	22,47%
	naranxa	11,93%	14,02%	25,49%	26,80%	18,10%	19,76%
	Sp *naranja*	23,70%	21,10%	22,55%	19,93%	23,14%	20,55%
beis (light warm)		27,64%	27,52%	29,41%	**40,20%**	28,48%	33,09%
beis (light warm+ light grey)		34,56%	32,13%	25,84%	37,82%	30,53%	34,46%

APPENDIX 4. FREQUENCY IN TEXTS. TOKENS IN TILGA: TOTAL, BEFORE AND AFTER 1982

		Total tokens in TILGA *	Tokens **before 1982 ****	Tokens **after 1982**
branco and cognates		13106	6225	6881
	branco	12045	5621	6424
	Sp *blanco*	1061	604	457
negro		8167	3547	4620
vermello		2940	873	2,067
encarnado		625	221	404
roxo		2249	1635	614
Sp *rojo*		13	1	12
amarelo and cognates		3271	1186	2085
	amarelo, marelo	3231	1173	2058
	Sp *amarillo*	40	13	27
verde		4955	2421	2534
azul/azur		3706	1667	2070
gris		1258	283	975
rosa/ rosado		727	247	480
castaño/ acastañado		536	86	267
marrón		272	9	263
violeta		158	34	124
morado		176	80	96
lila		29	3	26
laranxa and cognates		150	25	125
	laranxa	147	23	124
	naranxa	3	2	1
	Sp *naranja*	0	0	0
beis		29	2	27

* >100, >75, <75; ** >50, >30, <30