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Indice

Il Comitato Editoriale ricorda con affetto
la collega Nazarena Fazzari,
mancata durante la lavorazione
di questo fascicolo.

Formal theory-driven, psycholinguistic data and corpus-driven study confirms the absence of a basic colour term for ORANGE in Modern Standard Mandarin and elaborates the syntaxico-semantic 'distributional potential' criterion for basicness

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This paper deploys formal, experimental, and corpus-based evidence to demonstrate that, despite being psychologically salient in Modern Standard Mandarin, ORANGE is not yet encoded by a monomorphemic monosyllabic single-character colour term, and the possible candidates do not possess the entire set of the criteria to become 'basic'. It also suggests an additional analysis of the syntaxico-semantic 'distributional potential' criterion, which is a precondition for colour terms' basicness.

Keywords: basic colour term, colour naming, mnemonic, *chì-chéng-huáng-lǜ-qīng-lán-zǐ*

1. *Introduction*[1]

Despite the fact that colour vocabularies of different languages vary considerably in their details, and often (albeit not always, as there are alternative ways of classifying and labelling colour) make use of one or more of three principal dimensions as 'hue', 'brightness', and 'saturation'[2], a language at a certain stage of its colour lexicon development may encode from two to eleven so-called 'basic' colour categories that develop in a precise universal chronological order. This hypothesis, originally postulated by Berlin and Kay and subse-

[1] Certain parts of this paper were presented at the 29th North American Conference on Chinese Linguistics (NACCL) (Rutgers University, June 16-18, 2017) and at the 25th Annual Meeting of the International Association of Chinese Linguistics (IACL) (Hungarian Academy of Sciences, June 25-27, 2017), and I thank the participants for their comments. I am grateful to Wolfgang Behr (Zurich), Rüdiger Breuer (Bochum), and Carole P. Biggam (Glasgow) for their very helpful suggestions, and to two anonymous reviewers for their comments on an earlier version of this paper.

[2] 'Hue' is what is called 'colour' in non-technical English. 'Saturation' refers to the purity of a hue, in relation to the amount of grey it is perceived to contain. 'Brightness' is concerned with the amount of light reaching the eye. An object may be bright because it is pale and well-lit, or because the surface is made of a reflective material (C.P. Biggam, *The semantics of colour: a historical approach*, Cambridge University Press, New York 2012, p. 2).

quently enriched by other scholars, suggests that the term for ORANGE[3] (together with those for PINK, PURPLE, and GREY), belonging to the so-called 'derived' colour category, that is, representing the mixture of two fundamental categories RED + YELLOW[4], appears at the highest stage of basic colour lexicon development, and is therefore one of the latest categories that evolve in a language[5].

In colour science, brown is defined as low-brightness orange[6]; conversely, orange can be described as highly bright brown. I would also add that it can be considered a highly-saturated brown, due to the absence of achromatic grey.

The semantic extension from the denotation of the orange fruit to the denotation of the object-referent colour sense seems to have emerged in English and French in the mid-sixteenth century (mainly applied to fabrics)[7], and subsequently in the seventeenth century, *orange* was adopted as a colour term by a number of languages, including Russian *oranževyj*[8].

For a colour term to be basic (basic colour term, henceforth BCT), it should correspond to the following criteria[9]:

1. It must be *monolexemic*; i.e., its meaning is not predictable from the meaning of its parts. This criterion eliminates examples like *lemon-coloured* (檸檬色的 *níngméngsède*) or *reddish* (帶紅色的 *dàihóngsède*).
2. Its signification is not included in that of any other colour term. This criterion eliminates examples like *crimson* (艷紅 *yànhóng*) or *scarlet* (絳 *jiàng*), which are both hyponyms of *red*.
3. Its application must not be restricted to a narrow class of objects. This criterion eliminates examples like 驪 *lí* black (applicable only to the horse hair)[10]. An interesting viewpoint on contextual freedom, called 'combinability', suggested by Rakhilina and

[3] SMALL CAPITALS henceforth indicate colour concepts or categories, whereas the corresponding terms in a particular language are written in *Italics*. E.g., in Italian, RED is denoted by *rosso*.

[4] P. Kay – Ch.K. McDaniel, *The Linguistic Significance of the Meanings of Basic Colour Terms*, "Language", 54, 1978, 3, pp. 631-636.

[5] B. Berlin – P. Kay, *Basic Color Terms: Their Universality and Evolution*, University of California Press, Berkeley 1999, pp. 2-5.

[6] Р.М. Фрумкина, *Цвет, смысл, сходство: Аспекты психолингвистического анализа*, Наука, Москва 1984, p. 23.

[7] V. Bogushevskaya, *The journey of the "apple from China": A cross-linguistic study on the psychological salience of the colour term for* ORANGE, in *Progress in Colour Studies: Cognition, language and beyond*, L.W. MacDonald – C.P. Biggam – G.V. Paramei ed., John Benjamins, Amsterdam 2018, p. 305.

[8] Н.Б. Бахилина, *История цветообозначений в русском языке*, Наука, Москва 1975, p. 240.

[9] I am quoting the definitions suggested by B. Berlin and P. Kay, *Basic Color Terms: Their Universality and Evolution*, pp. 6-7, with my remarks for Chinese.

[10] See V. Bogushevskaya, *Of oxen and horses: Semantic shifts in early Chinese colour lexicon*, in *Языки Дальнего Востока, Юго-Восточной Азии и Западной Африки: материалы XII Международной конференции*, Б.В. Касевич – А.Ю. Вихрова – И.М. Румянцева ред., Языки Народов Мира, Москва 2016, pp. 42-51.

Paramei[11], refers to the (in)ability of a colour term to combine with terms for natural phenomena as well as those for artefacts.

4. It must be psychologically salient for informants: (1) tendency to occur at the beginning of elicited lists of colour terms, (2) stability of reference across informants and across occasions of use, (3) occurrence in the idiolects of all informants.

The doubtful cases that arise should be handled by the following subsidiary criteria:

5. The doubtful form should have the same distributional potential as the previously established colour terms. E.g., in English, allowing the suffix *–ish*: *reddish*, *greenish*. The distributional potential criterion was recently enriched by Bernez[12], who points out that colours are gradable, and when chromatic adjectives are combined with the adverb *tres* [very], they vary in their quality (saturated or not), not quantity. This syntaxico-semantic model inspired the detailed description of morphologically and syntactically-bounded distributional potential in Chinese (see section 6).
6. Colour terms that are also the name of an object characteristically having that colour are suspect, e.g., *gold*, *silver*, and *ash*. This subsidiary criterion would exclude *orange*, in English, if it were a doubtful case on the basic criteria (1 – 4).
7. Recent foreign loanwords may be suspect.
8. In cases where lexemic status is difficult to assess, morphological complexity is given some weight as a secondary criterion.

This paper deploys formal, experimental, and corpus-based evidence to demonstrate that there is no monomorphemic monosyllabic single-character, and therefore basic colour term, for encoding ORANGE in Modern Standard Mandarin[13] (henceforth MSM), and the possible candidates do not possess the entire set of the criteria for basicness.

2. *Designations of the citrus fruits in Chinese*

Colour terms are not the new linguistic formations purposefully formed to label new concepts; on the contrary, they originally often labelled very concrete objects. Meaning, however, usually changes during a word's evolution, including a colour term's evolution. Furthermore, in certain cases, the contexts of referents need to be added, because they may influence colour terms' combinability. The classic example is the term 'purple'. In Old English, it derived from Latin *purpura* 'purple', from Greek *πορφύρα*, denoting molluscs that yielded a crimson dye, and also – by semantic extension – cloth dyed with this dyestuff[14].

[11] E.V. Rakhilina – G.V. Paramei, *Colour terms: evolution via expansion of taxonomic constraints*, in *New directions in colour studies*, C.P. Biggam – C. Hough – Ch.J. Kay – D.R. Simmons ed., John Benjamins, Amsterdam 2011, pp. 121-131.

[12] C. Bernez, *A new model for the conceptualization of color*, "*Lingvisticæ Investigationes",* 39, 2016, 1, pp. 116-142.

[13] Modern Standard Mandarin refers to contemporary Chinese (from the 20th century onwards).

[14] *Oxford English Dictionary,* J. Simpson – E. Weiner ed., Oxford University Press, Oxford 1989, p. 1442.

The earliest Chinese references to citrus fruits[15] are contained in the pre-Qín 先秦 texts, such as *the Kǎogōngjì* 考工記 Section[16] of the *Zhōulǐ* 周禮 and the *Yǔ gòng* 禹贡 Section of the *Shūjīng* 書經[17]:

> 橘逾淮而北為枳
> *Jú yú Huái ér běi wéi zhǐ*
> Take, for instance, the sweet-fruited orange; when it is transplanted to the north of the Huai River, it turns into the bitter-fruited orange[18].
>
> 厥包橘柚，錫貢
> *Jué bāo jú yòu, xī gòng*
> [Their] bundles contained small oranges and pummeloes, rendered when specially required[19].

The materials in these classic texts were already old by the time they were written down, thus they probably refer to conditions before the beginning of the Eastern Zhōu 東周 (700-221 BCE) period.

Oranges and pummelos were a part of the tribute presented to the court or recommended as the most valued of fruits for the kings' table; records of these citrus species have been identified in the Western Hàn 西漢 (206 BCE - 9 CE) tombs at Mǎwángduī 馬王堆[20]. In another archaeological site assigned to the same historical period and discovered in the same area, residues of *Citrus sinensis* orange-peel have been found[21]. *Citrus sinensis*, literally 'Chinese citrus', is the contemporary scientific name of sweet orange. It is noteworthy that the designations of the orange fruit in Indo-European languages very often literally meant 'apple from China'[22].

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[15] The oldest known reference to citrus appears in the Sanskrit literature, in the *Vājasaneyi Samhita*, a collection of devotional texts dated prior to 800 BCE (R.W. Scora, *On the History and Origin of Citrus*, "Bulletin of the Torrey Botanical Club", 102, 1975, 6, pp. 369-375).

[16] Compiled presumably not later than the fifth century BCE, see J. Wenren, *Ancient Chinese Encyclopaedia of Technology: Translation and Annotation of the Kaogong ji (The Artificers' Record)*, Routledge, New York 2013, p. xxiv.

[17] A collection of speeches made by rulers and important politicians from mythical times to the middle of the Western Zhōu 西周 (1046-771 BCE) period. The *Yǔ gòng* (*Tribute of Yu*) Section, however, is agreed to be composed relatively late, dating from at least the late Warring States 戰國 (475-221 BCE) period, see C.D.K. Yee, *Chinese maps in political culture*, in *The History of Cartography*, J.B. Harley – D. Woodward ed., University of Chicago Press, Chicago 1994 (Cartography in the Traditional East and Southeast Asian Societies, 2.2), pp. 71-95.

[18] J. Wenren, *Ancient Chinese Encyclopaedia of Technology*, p. 4.

[19] *Shūjīng* 書經, "*Yǔ gong*" 禹贡, tr. J. Legge, quoted from *The Chinese Classics, volume III: the Shoo King or the Book of Historical Documents,* Hong Kong University Press, Hong Kong 1960, pp. 111-112.

[20] H.T. Huang, *Science and civilisation in China*, Vol. 6, *Biology and biological technology*, Part V, *Fermentations and food science*, Cambridge University Press, Cambridge 2000, p. 54.

[21] М.В. Крюков – Л.С. Переломов – М.В. Софронов – Н.Н. Чебоксаров, *Древние китайцы в эпоху централизованных империй*, Наука, Москва 1983, p. 147.

[22] V. Bogushevskaya, *The journey of the "apple from China"*, pp. 303-304.

In 1179, Hán Yànzhí 韓彥直 in his *Jú lù* 橘錄 (*Record of Orange*) named and described some twenty-seven varieties of the sweet-sour orange-mandarin group, mainly grown in the Yǒngjiā 永嘉 county (in nowadays Zhèjiāng 浙江). That was the oldest known monograph on citrus in the world.

As Needham and colleagues[23] pointed out,

> there can be no manner of doubt that the original home and habitat of these [citrus] trees was on the eastern and southern slopes of the Himalayan massif; a fact which is reflected in the presence of the maximum number of old-established varieties in the Chinese culture-area, also in the extreme antiquity of the Chinese literary references. It is also betrayed by the considerable number of single written characters denoting particular species – not only 橘 *jú* for orange and 柚 *yóu* for pummelo, but also 柑 *gān* for certain kinds of oranges, 橙/棖 *chéng* for sweet oranges, 欒 *luán* for the sour orange and 櫞 *yuán* for the citron – always a sign of ancientness in the nomenclature[24].

3. *Semantic extension of orange-the-fruit and mandarin-the-fruit*

The contemporary term for the orange fruit, 橙 *chéng* (OC *[d]ˁrəŋ > MC *dreang*)[25], is glossed in the 說文解字 *Shuōwén jiězì*[26] as 'a variety of 橘 *jú*' (OC *[s.k]ʷi[t] > MC *kjwit*)[27]. The latter, glossed as 'a fruit from Jiāngnán 江南'[28], was a generic name applicable to all oranges in general[29].

Mandarin is a native Chinese fruit, which has an extremely broad genetic base[30]. In 2010, Chinese scientists received the very concrete molecular evidence that both sweet

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[23] J. Needham – G.D. Lu – H.T. Huang, *Science and civilisation in China*, Vol. 6, *Biology and biological technology*, Part I, *Botany*, Cambridge University Press, Cambridge 1986, p. 363.

[24] One winter day the author of these lines, having seen a man on a tricycle selling mandarins on the sidewalk of a Beijing street, asked him how much were the *júzi* (橘子) ('mandarins'). The question irritated the vendor: "These are not *júzi*, these are *lúgān* (蘆柑)! *Lú-gān*!", – he repeated by syllables. The term *lúgān* is absent in Chinese-English dictionaries. *The Big Chinese-Russian Dictionary* (*Большой китайско-русский словарь*), by I.M. Ošanin (И.М. Ошанин), Наука, Москва 1983, glosses it as 'a yellow citrus, type of oranges grown in Fújiàn province' https://bkrs.info/slovo.php?ch=%E8%98%86%E6%9F%91 (last accessed January 15, 2019). *Lúgān* remained totally obscure to me for years, and only recently I have found its translation as 'Lo tangerine' (*Citrus tangerine, Lugan*) in J.Y. Zhao – L. Li – F.P. Jiao – F.L. Ren, *Human plasma protein binding of water soluble flavonoids extracted from citrus peels*, "Journal of Central South University", 21, 2014, 7, pp. 2645-2651.

[25] I am using the W. Baxter – L. Sagart phonological reconstruction of Old Chinese (OC) and Middle Chinese (MC) of October 13, 2015, available at: http://ocbaxtersagart.lsait.lsa.umich.edu/ (last accessed February 12, 2019).

[26] Lit. '*Explaining simple and analysing compound [characters]*', a dictionary of graphic etymology, the predecessor of Chinese dictionaries and encyclopaedias, completed by Xǔ Shèn 許慎 in 100 CE.

[27] K. Tāng 汤可, 敬 *Shuōwén jiězì jīn shì* 说文解字今释 [Modern Explanation of the *Shuōwén jiězì*], comp. by K. Tāng 汤可敬. 2 Vols. Yuèlù shūshè, Chángshā 2001, p. 741.

[28] *Ibidem*.

[29] J. Needham – G.D. Lu – H.T. Huang, *Science and civilisation in China*, Vol.6, *Biology and biological technology*, Part I, *Botany*, p. 104.

[30] R.W. Scora, *On the History and Origin of Citrus*, p. 372.

orange (*Cintrus sinensis*) and the sour orange (*Citrus aurantium*) were the hybrids of mandarin and pummelo, the former being morphologically closer to the mandarin[31]. This close morphological relationship can probably be a reason why in the *Shuōwén jiězì* the term for orange (*chéng*) is described via the term for mandarin (*jú*).

Semantic extension from the denotation of the fruit to the denotation of the colour orange took place in relatively recent time. In 1853, Zhāng Fúxī 張福僖 translated Newton's *Opticks*, which was the first translated scientific work on colour dispersion in China. The orange colour was translated as a nominal-BCT compound[32] (henceforth NC) 橙黃 *chénghuáng* (lit. 'orange fruit + YELLOW'), which can be translated as 'orangey-yellow' or 'yellow as the orange fruit'. In other words, *chéng* was still not an abstract colour term:

> 合則為白，分則為紅、為橙黃、為正黃、為綠、為藍、為老藍、為青蓮[33]
> *Hé zé wéi bái, fēn zé wéi hóng, wéi chénghuáng, wéi zhènghuáng, wéi lǜ, wéi lán, wéi lǎolán, wéi qīnglián*
> When [mixed] together, [they] result in white [light]; when split, [they] result in red, orangey-yellow, pure yellow, green, [light] blue, deep blue, and '[the colour of] blue-lotus'.

4. *The ways of encoding orange-the-colour in MSM*

In MSM explanatory dictionaries, the terms for 'orange' *chéng* and 'mandarin' *jú* are glossed, first of all, as fruits, and only in the secondary entries they sometimes are glossed as particular-object-like-colour terms, each of them, however, requiring a semi-suffix 色 *sè* 'colour'. Thus, the orange colour is encoded by the so-called nominal-*sè* compounds (henceforth N-SE)[34] 橙色 *chéngsè* 'orange fruit + colour' and 橘色 *júsè* 'mandarin fruit + colour'.

Lin Yutang glosses *jú* as 'orange and tangerine; a fruit of either *chénghuáng* 'orangey-yellow'[35], or *júhóng* 'tangerine-red' colour'[36].

Both *chéng* and *jú* also form NCs, in which they act as initial nominals/modifiers, followed by one of the two basic constituents, RED or YELLOW[37]. Cfr: 橙紅 *chénghóng* (lit.

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[31] X. Li – R. Xie – Zh. Lu – Zh.Q. Zhou, *The origin of cultivated citrus as inferred from internal transcribed spacer and chloroplast DNA sequence and amplified fragment length polymorphism fingerprints*, "Journal of the American Society for Horticultural Science", 135, 2010, 4, pp. 341-350.

[32] A nominal-BCT compound is a compound consisting of BCT preceded by the name of an object usually with a typical colour as the modifier, which indicates attributes of particular-object-like-colour (see W. Xu, *A Study of Chinese Colour Terminology*, LINCOM, München 2007, p. 41-43).

[33] Quoted from Y. Liú 刘云泉, *Yǔyánde sècǎi měi* 语言的色彩美 [*The beauty of colours in a language*], Ānhuī jiàoyù, Héféi 1990, p. 44.

[34] W. Xu, *A Study of Chinese Colour Terminology*, p. 42.

[35] Y. Lin, *Chinese-English Dictionary of Modern Usage,* The Chinese University of Hong Kong, Hong Kong 1972, p. 122.

[36] *Ibid*., p. 130.

[37] In Old Chinese, orange shades were included in either RED or YELLOW category, depending on the prevalence of one of these two constituents (В.А. Богушевская, *Семантика цветонаименований в китайском*

'orange fruit + RED') 'orangey-red'[38] and 橙黄 *chénghuáng* (lit. 'orange fruit + YELLOW') 'orangey-yellow'[39], 橘紅 *júhóng* (lit. 'mandarin fruit + RED')[40] 'mandarin-red' and 橘黄 *júhuáng* (lit. 'mandarin fruit + YELLOW') 'mandarin-yellow'[41].

There is no consensus on naming ORANGE among Chinese linguists either: some are in favour of the monosyllabic term *chéng*[42], while others deny the possibility of its independent usage and instead prefer the compounds *júhuáng* 'mandarin fruit + YELLOW'[43] or *júhóng* 'mandarin fruit + RED'[44].

5. *Psycholinguistic data-driven and cultural-memory-bound evidence*

As it was mentioned a few lines above, the intermediary area between RED and YELLOW can be encoded by NCs (*chénghóng*, *chénghuáng*, *júhóng*, *júhuáng*) or N-SE compounds (*chéngsè* or *júsè*).

Xu[45] conducted an extended colour naming psycholinguistic data collection that included the Naming Test (where the informants[46] were shown one by one World Colour Survey chips in randomly arranged order and asked to name each colour chip in terms of colour), the Focus Selection Test (designed to find out the focal point of each basic colour term), the Comprehension Test (where each informant was required to pinpoint the

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языке (универсальное и национальное), PhD diss., Lomonosov Moscow State University, Moscow, 2008, pp. 69-70, 120-125).

[38] *Xiàndài Hànyǔ Cídiǎn* 现代汉语词典 [*The Contemporary Chinese Dictionary*], Shāngwù, Běijīng 2005, p. 178.

[39] *Ibidem*.

[40] *Cíhǎi* 辞海 [*"Sea of Words" Encyclopaedic Dictionary*], Zhōnghuá, Běijīng 1994, 2 Vols., p. 1559; *Gǔ Jīn Hànyǔ Cídiǎn* 古今汉语词典 [*Dictionary of Ancient and Modern Chinese*], Shāngwù, Běijīng 2004, p. 764; *Xiàndài Hànyǔ Cídiǎn*, p. 737.

[41] *Gǔ Jīn Hànyǔ Cídiǎn*, p. 764; *Xiàndài Hànyǔ Cídiǎn*, p. 737.

[42] See Ch.F. Lü, *Basic Mandarin Color Terms*, "COLOR research and application", 22, 1997, 1, pp. 4-10; Y. Shí 石毓智, *Xiàndài hànyǔ yánsècí de yòngfǎ* 现代汉语颜色词的用法 [*The Usage of Contemporary Chinese Colour Names*], "Hànyǔ xuéxí", 3, 1990, pp. 18-22; X. Yáo 姚小平, *Jīběn yánsècí lǐ lùn shùpíng – jiān lùn hànyǔ jīběn yánsècí de yǎnbiàn shǐ* 基本颜色词理论述评 — 兼论汉语基本颜色词的演变史 [*On the Theory of Basic Colour Terms and on the Evolution of Chinese Basic Colour Terms*], "Wàiyǔ jiàoxué yǔ yánjiū" 外语教学与研究, 1, 1988, pp. 19-28; J. Yè 叶军, *Xiàndài hànyǔ sècǎicí yánjiū* 现代汉语色彩词研究 [*A Study on Contemporary Chinese Colour Names*], Nèiménggǔ rénmín, Hohhot 2001; V.C. Sun – C.C. Chen, *Basic color categories and Mandarin Chinese color terms*, "PLOS one", 13, 2018, 11. https://doi.org/10.1371/journal.pone.0206699 (last accessed March 16, 2020).

[43] See H. Lǐ 李红印, *Xiàndài hànyǔ yánsècí yǔyì fēnxī* 现代汉语颜色词语义分析 [*Semantic Analysis of Contemporary Chinese Colour Terms*], Shāngwù, Běijīng 2007; T. Wǔ 伍铁平, *Móhu yǔyánxué* 模糊语言学 [*Fuzzy Linguistics*], Shànghǎi wàiyǔ jiāoxué, Shànghǎi 1999.

[44] Ch. Xú 徐朝华, *Shànggǔ hànyǔ cíhuì shǐ* 上古汉语词汇史 [*History of Old Chinese Lexicon*], Shāngwù, Běijīng 2003.

[45] W. Xu, *A Study of Chinese Colour Terminology*.

[46] Seventy-nine adult native Chinese speakers with normal colour vision, the age range ran from 17 to 50, with an average of 33 at the time of investigation. The average schooling year was 16, with the lowest 10 years and highest 21 (W. Xu, *A Study of Chinese Colour Terminology*, p. 28).

most typical example of his/her colour terms from the chart), and the Grouping Test (the informant was instructed to group the chips on the chart in terms of either basic colour categories or the transition areas between basic colours)[47].

The collected data suggests that, since a part of *júhóng's* ('mandarin fruit + RED') foci overlaps the cluster of foci for ORANGE in the World Colour Survey system, *júhóng* might be interpreted as 'reddish orange'[48].

Chénghuáng ('orange fruit + YELLOW') and *júhuáng* ('mandarin fruit + YELLOW') are virtually identical in semantic structure.

Despite the fact that mandarin and orange are very similar in colour appearance, *jú* 'mandarin' appears to be preferred over *chéng* 'orange' as initial nominal in the NCs designating intermediary hues between YELLOW and RED. The terms *júhóng* ('mandarin fruit + RED') and *chénghuáng* ('orange fruit + YELLOW') were unknown to very few (one and four respectively) participants of the Comprehension Test[49].

Chéngsè 'orange fruit + colour' appeared to be an off-shade of YELLOW, because approximately half of it overlapped with the peripheral YELLOWS, while the other half filled the no-man's land between the extent of YELLOW and RED[50].

Júsè 'mandarin fruit + colour' overlapped heavily with YELLOW, and thus was considered an off-shade of YELLOW. Despite the fact that *júsè* is distributed similarly to *chéngsè* in the outcome of Xu's data, it should be noted that *júsè* is the N-SE compound that occurred only in the Naming Test, whereas *chéngsè* appeared to be unknown to one participant[51].

According to the cited author, "mandarin used to be one of the most common fruits in fruit stores all over China, whereas oranges were relatively rare and more expensive, this difference therefore seemed to be reflected in people's use of colour vocabulary"[52].

It seems to me instead that the preference of the mandarin-object-like-colour term over the orange-object-like colour term is more conditioned by the education level of a concrete speaker and by a Chinese cultural tradition in general. The chromatic adjective *chéng* is often mentioned among the seven rainbow colours by educated native speakers, as it recalls the mnemonic "赤橙黃綠青篮紫" *Chì-chéng-huáng-lǜ-qīng-lán-zǐ* "Red, orange, yellow, grue[53], indigo, violet" – a loose analogue of the English "Richard-of-York-gave-battle-in-vain" and the Russian "Каждый (*красный* 'red') охотник (*оранжевый* 'orange') желает (*жёлтый* 'yellow') знать (*зелёный* 'green'), где (*голубой* 'light blue') сидит (*синий* 'blue') фазан (*фиолетовый* 'purple')" [Each hunter wants to know where is a

[47] *Ibid*., pp. 29-30.
[48] *Ibid*., pp. 82-83.
[49] *Ibid*., p. 89.
[50] *Ibid*., p. 105.
[51] *Ibid*., p. 106.
[52] *Ibid*., p. 88.
[53] 青 *qīng* should be translated as *grue* (a construct out of the English terms for GREEN and BLUE), since it denotes the extended green-blue colour category, and in some cases can also denote MACRO-BLACK. It is not a BCT in MSM, there are separate psychologically salient terms for GREEN, BLUE, and BLACK. *Qīng*, however, has not faded away, but still remains in use (on this see, V. Bogushevskaya, *Chinese* GRUE*: On the original meaning and evolution of qīng (*青*)*, "L'Analisi linguistica e letteraria", 23, 2015, pp. 61-76).

pheasant] that elicit the Newtonian rainbow sequence, – taught at school, which derives from the line of *cí* 詞 poem *Dàbódì* 大柏地 by Máo Zédōng 毛澤東, written in the pattern of Púsà mán 菩薩蛮:

> 赤橙黄綠青籃紫,
> 誰持彩練當空舞?[54]
> *Chì chéng huáng lǜ qīng lán zǐ,*
> *Shuí chí cǎiliàn dāngkōng wǔ?*
> Red, orange, yellow, grue, indigo, violet,
> Who is dancing, holding these coloured ribbons high above in the sky?

The informants of Xu's psycholinguistic experiment were well-educated people, with the average schooling year of 16, and it is noteworthy that even to some of them the terms *chéngsè* ('orange fruit + colour') and *chénghuáng* ('orange fruit + YELLOW') were unknown. According to my observations during an over-a-decade-long residing experience in Beijing, people with a relatively low education level would rather use the NCs that contain *jú* as the modifier, and would therefore name ORANGE either as *júhóng* ('mandarin fruit + RED') or as *júhuáng* ('mandarin fruit + YELLOW'), depending on whether the hue in question tends towards RED or towards YELLOW.

6. *The degree of basicness of the term for ORANGE in MSM*

"The *semantic* [emphasis added] word can be understood as the smallest meaningful unit in language, that is, the semantic word can be equated with 'morpheme'"[55]. Since Chinese morphemes tend to correspond to one character, it leads to the following modification of Berlin and Kay's first (1) criterion regarding the assessment of a potential basic colour term (BCT): applied to Chinese, rather than just monolexemic, a term must be monomorphemic monosyllabic single-character, semantically independent from any other colour terms. Therefore, *chéngsè* and *júsè*, both containing a nominalising semi-suffix *sè* 'colour', do not comply with this criterion.

The significations of *chéng* and *jú* are both included into the YELLOW colour category[56], and thus do not fulfil the second (2) criterion for basicness.

Regarding the psychological salience criterion (4), in addition to the psycholinguistic data described in the previous section, another piece of evidence stems from the territorial distribution of the terms for ORANGE. According to the LIVAC (Linguistic Variation in Chinese Speech Communities) Corpus data, the terms *júhóngsè* ('mandarin fruit + RED + colour') and *júhuángsè* ('mandarin fruit + YELLOW + colour') often occur in contemporary media texts in Beijing, Shanghai, and Taiwan; *chénghóngsè* ('orange fruit + RED +

[54] Quoted from *Gǔ Jīn Hànyǔ Cídiǎn*, 古今汉语词典, p. 170-171.
[55] E. Vermaas, *Chinese as a Monosyllabic Language*, in *Encyclopedia of Chinese Language and Linguistics*, R. Sybesma – W. Behr – Y. Gu – Z. Handel – C.-T.J. Huang – J. Myers ed., Brill, Leiden 2017, Vol.1, pp. 432-435.
[56] H. Lǐ, *Xiàndài hànyǔ yánsècí yǔyì fēnxī*, pp. 140-141.

colour') and *júsè* ('mandarin fruit + colour') are notoriously preferred in Hong Kong and Taiwan respectively, whereas the term *chéngsè* ('orange fruit + colour') is the most evenly distributed in the Pan-Chinese region[57]. It is worth noting that on the Chinese internet the term *chénghóngsè* ('orange fruit + RED + colour') occurs translated into English as 'orange-red' or even 'salmon pink'[58].

Regarding Berlin and Kay's fifth (5) criterion (the first of their secondary criteria) which they called 'distributional potential', and which, according to Biggam[59], concerns derivational morphology, I need to say the following. Due to the absence of inflectional morphology and despite "the 'prejudice' often encountered in the literature that isolating languages lack some of the categories postulated for other languages, Chinese is shown to have as rich an inventory as in inflected languages"[60], and the principle of syntaxico-semantic combinability is one of the main criteria for defining words and assigning word classes. Chinese chromatic adjectives can be both descriptive adjectives and adjectives of quality, "An adjective of quality may achieve the status of a descriptive adjective via reduplication, taking an affix to achieve vivid effects, or being accompanied by some intensifier"[61]. As regards *chéng* and *jú*, these lexemes demonstrate the following characteristics:

a. do not combine with the degree adverb *very*[62] and its synonyms (很 *hěn* 'very, quite, much', 非常 *fēicháng* 'very, extremely');
b. do not present reduplicative forms *par excellence* (cfr. 皑皑 *ái'ái* 'pure white, white as snow'[63]), albeit *chéng* can be doubled in the final position in the trisyllabic compounds as 紅橙橙 *hóngchéngchéng* 'reddish orange' and 黃橙橙 *huángchéngchéng* 'yellowish orange'[64];
c. cannot be modified by the 的 *de* marker (a form of the adnominal modification patterns for simple adjectives[65]) (cfr. 紅的 *hóngde* 'red'), do not accept the perfective aspect marker 了 *-le* (cfr. 黑了 *hēile* 'became dark/black'), or the diminutive non-syllabic retroflex suffix 兒-r (e.g., 黑兒 *hēir* 'darkness', 'dusk', 'dirt'[66]);
d. have a limited potential in forming disyllabic resultatives with the semi-auxiliary verbs that convey visual effects:

[57] http://www.livac.org/ (last accessed October 5, 2019).

[58] http://corpus.leeds.ac.uk/cgi-bin/cqp.pl?searchstring=%E6%A9%99%E7%BA%A2%E8%89%B2&corpuslist=INTERNET-ZH&searchtype=conc&contextsize=60c&sort1=word&sort2=right&terminate=100&llstat=on&cleft=0&cright=1&cfilter (last accessed October 5, 2019).

[59] C.P. Biggam, *The semantics of colour: a historical approach,* Cambridge University Press, New York 2012, p. 29.

[60] W. Paul, *New perspectives on Chinese syntax*, De Gruyter Mouton, Berlin 2014. p. 3.

[61] X. Li, *Predicates*, in *Encyclopedia of Chinese Language and Linguistics*, R. Sybesma – W. Behr – Y. Gu – Z. Handel – C.-T.J. Huang – J. Myers ed., Brill, Leiden 2017, Vol. 3, pp. 452-453.

[62] Chromatic adjectives, when combined with the adverb *very*, vary in their degree of gradation (saturated or not), and therefore vary in their quality, not quantity (C. Bernez, *A new model for the conceptualization of color*, pp. 116-120).

[63] https://bkrs.info/slovo.php?ch=%E7%9A%9A%E7%9A%9A (last accessed January 15, 2019).

[64] Y. Liú, *Yǔyánde sècǎi měi*, pp. 243-244.

[65] S.Z. Huang, *Adjectives*, in *Encyclopedia of Chinese Language and Linguistics*, R. Sybesma – W. Behr – Y. Gu – Z. Handel – C.-T.J. Huang – J. Myers ed., Brill, Leiden 2017, Vol. 1, pp. 108-109.

[66] https://bkrs.info/slovo.php?ch=%E9%BB%91%E5%85%92 (last accessed January 15, 2019).

- 發 *fā* 'to show, to become visible' (e.g., 發白 *fābái* 'to turn (become, grow) white'; 'to turn pale (whitish)'[67]):
  (1) 黃得發橙 *huáng de fāchéng* 'yellow with a touch of orange[-fruit-like]';
  (2) <...> 是那種磚紅色, 微微發橘一點點, 挺特別[68]
  <...> shì nàzhǒng zhuānhóngsè, wēiwēi fājú yīdiǎndiǎn, tǐng tèbié
  <...> is that kind of brick-red colour, with a slightly hint of mandarin[-fruit-like], very particular.
- 變 *biàn* 'to change into, to become' (e.g., 變黃 *biànhuáng* 'to become yellow'[69]) forms a resultative only with *chéng*, becoming 變橙 *biànchéng* 'to become orange-fruit-like colour', applied often to clouds and autumn leaves[70].
- neither of them combines with the verb 顯得 *xiǎnde* 'look, seem, appear' (cfr. 顯得紅 *xiǎnde hóng* 'looks (seems, appears) red');

e. do not combine with a 補語 *bǔyǔ*[71] of gradation (cfr. 黑極了 *hēi jí-le*, lit. 'BLACK extreme-PRT', 'extremely black');
f. do not combine with the postverbial structural particle 得 *de* followed by a resultative *bǔyǔ* (e.g., expressed by a metaphor, as in 紅得如火 *hóng de rú huǒ*, lit. 'RED-DE like fire', 'be as red as fire, fiery red').

7. *Conclusion*

Despite the fact that China is the homeland of various citrus species, there is no monomorphemic, monosyllabic, single-character colour term for encoding ORANGE in Modern Standard Mandarin. Contemporary dictionaries encode the orange portion of the spectrum either with the compounds consisting of a basic colour term preceded by the name of an object usually with a typical colour as the modifier (橙紅 *chénghóng* 'orangey-red', 橙黃 *chénghuáng* 'orangey-yellow', 橘紅 *júhóng* 'mandarin-red', and 橘黃 *júhuáng* 'mandarin-yellow'), or with the object-like-colour terms that have not become adjectives, and/or verbs, and always require the constituent 色 *sè* 'colour' (橙色 *chéngsè* 'orange fruit + colour' and 橘色 *júsè* 'mandarin fruit + colour').

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[67] https://bkrs.info/slovo.php?ch=%E7%99%BC%E7%99%BD (last accessed January 15, 2019.

[68] BCC (BLCU Chinese Corpus) http://bcc.blcu.edu.cn/zh/search/3/%E5%8F%91%E6%A9%98 (last accessed October 30, 2019). N.B.: Expressions like 發橘的棕色 *fā jú de zōngsè* 'brown colour with a hint of mandarin-fruit-like', 不發橘色 *bù fā júsè* 'without a hint of mandarin-fruit-like colour', 發橙色 *fā chéngsè* 'with a touch of orange-fruit-like colour', 發橙黃色 *fā chénghuángsè* 'with a touch of orangey-yellow colour' are not the examples of disyllabic compounds.

[69] https://bkrs.info/slovo.php?ch=%E8%AE%8A%E9%BB%83 (last accessed January 15, 2019).

[70] http://bcc.blcu.edu.cn/zh/search/1/%E5%8F%98%E6%A9%99 (last accessed October 30, 2019). N.B. Expressions like 變橘紅色 *biàn júhóngsè* 'to become mandarin-red colour' and 變橘黃色 *biàn júhuángsè* 'to change into mandarin-yellow colour' are not the examples of disyllabic compounds.

[71] A non-nominal constituent (descriptive, resultative, of gradation, etc.) which follows the verb or adjective either directly or linked to it by 得 de (R. Sybesma, *Complement (and Object)*, in *Encyclopedia of Chinese Language and Linguistics*, R. Sybesma – W. Behr – Y. Gu – Z. Handel – C.-T.J. Huang – J. Myers ed., Brill, Leiden 2017, Vol. 1, p. 645).

Albeit ORANGE is psychologically salient for contemporary Chinese speakers, the colour has not evolved from the fruit and has not become abstract. The possible candidate lexemes (橙 *chéng* 'orange fruit' and 橘 *jú* 'mandarin fruit') demonstrate a limited syntaxico-semantic combinability, as they do not combine with the qualitative adverbs, with a *bǔyǔ* of gradation, with the postverbial structural particle *de* followed by a resultative *bǔyǔ*; they cannot be modified by the *de* marker, they do not accept the perfective aspect marker *-le* particle, or the diminutive retroflex suffix -r; and they have a limited potential in forming disyllabic resultatives with the semi-auxiliary verbs that convey visual effects. Therefore, they do not yet possess the entire set of the criteria for basicness.

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