Modern Standard Mandarin Lacks a Basic Colour Term for ORANGE: Formal and Experimental Evidence¹

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The term for $ORANGE^2$ is one of the latest basic colour terms (BCT) in the chronological order of the lexical encoding of basic colour categories in each language; it belongs to the so-called *derived* colour category, located at the intersection of two primaries, RED and YELLOW. The orange portion of the spectrum had been thoroughly differentiated in Chinese cultural tradition. In Old and Classical Chinese orange shades were expressed by the contextually restricted \cancel{F} $x\bar{n}ng$ and \cancel{E} $t\bar{t}$, applied to mammal hair and silk fabric respectively. Despite the fact that China is a homeland of various citrus species that were known in China in the 5th century BCE, and that sweet orange *Citrus sinensis* in many languages is referred to as the 'apple from China', the present paper deploys different kinds of evidence to demonstrate that there is no monomorphemic monosyllabic colour term for encoding ORANGE in Modern Standard Mandarin (MSM), and the possible candidates do not possess the entire set of the criteria for basicness, established by Berlin and Kay and enriched by other scholars.

1. Colour and basic colour terms

The exact nature of colours we see is the result of a complicated interaction between the physics of light, the physiology of the human eye, environmental conditions at the time of viewing, the physical properties of the object being viewed and the way in which our brains receive and interpret all this information (Biggam 2012: 2).

Although colour vocabularies of different languages vary considerably in their details, they often make use of one of more of three principal dimensions: *hue*, *brightness*, and *saturation*. *Hue* is what is called *colour* in non-technical English, is the chromatic element to colours, such as red, green or blue. *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, but the nature and sources of such light are varied. An object may be bright because it is pale and well-lit, or because the surface is

¹ I am very grateful to Dr. Rüdiger Breuer (Ruhr-University Bochum) for helpful comments on Chinese poetry.

² SMALL CAPITALS indicate a semantic feature, a colour category (as opposed to a word-form).

made of a reflective material (cfr. Biggam 2012: 3-5).

How many basic colour categories does a linguistic society have at any one time? The hypothesis postulated by Berlin and Kay (1999 [1969]) suggests that a language may encode between two and eleven basic colour categories, developed in a precise chronological order (Berlin and Kay 1999 [1969]: 2-5). According to that theory, for a colour term to be basic (BCT), it should correspond to the following criteria³:

- i. It is *monolexemic*; that is, its meaning is not predictable from the meaning of its parts. This criterion eliminates examples like *lemon-coloured* (檸檬色的 níngméngsède), reddish (帶紅色的 dàihóngsède).
- ii. Its signification is not included in that of any other colour term. This criterion eliminates examples like *crimson* (艷紅 yànhóng) and scarlet (絳 jiàng), which are both hyponyms of red.
- iii. Its application must not be restricted to a narrow class of objects. This criterion eliminates examples like $\frac{11}{10}$ black, used only for description of the horse hair (see Bogushevskaya 2016: 46 48).

An interesting viewpoint on contextual freedom is described by Rakhilina and Paramei (2011), and called *combinability*, and refers to the ability (or inability) of a colour term to combine with terms for natural phenomena and artefacts.

iv. 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:

- v. 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*.
- vi. 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 (i-iv).
- vii. Recent foreign loanwords may be suspect.
- viii. In cases where lexemic status is difficult to assess, morphological complexity is given some weight as a secondary criterion. The English term *blue-green* might be eliminated by this criterion.

The present paper deploys different kinds of evidence to demonstrate that there is no monomorphemic/monosyllabic colour term for encoding ORANGE in Modern Standard Mandarin (MSM), and the possible candidates do not possess the entire set of the criteria

³ I am quoting the definitions suggested by Berlin and Kay (1999 [1969]: 6-7) with my remarks for Chinese.

for "basicness".

2. Lexemes expressing ORANGE in Old and Classical Chinese⁴

In colour science brown is defined as "orange of low brightness" (Frumkina 1984: 23). In other words, in contrast, orange can be described as "brown of high brightness". I would also add, as "highly saturated brown", due to the absence of grey.

The BCT for ORANGE — together with those for PINK, PURPLE, and GREY — is one of the latest; it appears on the highest evolutionary stage of basic colour lexicon development, and belongs to the so-called *derived* colour category, located at the intersection of two primaries, RED and YELLOW (Kay and McDaniel 1978: 631-636).

In Old and Classical Chinese orange shades were included in the RED category, and were expressed by the contextually restricted lexemes $\not = x \bar{t} n g$ and $\not = t t$, applied to mammal hair or silk fabric respectively.

Reddish animals were preferred in the Western Zhōu 西周 (ca. 1046–771 BCE) rituals:

皇皇后帝、皇祖后稷。享以騂犧、是饗是宜。

To the great and sovereign God,

And to his great ancestor Hou-ji,

He offers the victims, red and pure.

Then enjoy, they approve (Shījīng 詩經, Ode 300.3, translated by Legge)

秋而載嘗、夏而楅衡。 白牡騂剛、犧尊將將。

In autumn comes the sacrifice of the season,

But in summer the bulls for it have had their horns capped.

They are the white bull and the red one;

[There are] the bull-figured goblet in its dignity (Ode 300.4, translated by Legge).

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⁴ There is no general consensus on the periodization of Chinese language with respect not only to the number of major periods and the terminology used, but also to the demarcation points and to the major linguistic changes that took place in each period. In the present paper, the term "Old Chinese" (OC) is used in a broad sense to refer to varieties of Chinese used before the unification of China under the Qín 秦 dynasty in 221 BCE. "Classical Chinese": the language of the texts from 3rd century BCE till the end of the 2nd century CE. "Middle Chinese" refers to the language of the so-called rhyme books, especially the *Qièyùn* 《切韻》 of 601 CE and the *Guǎngyùn* 《廣韻》 of 1008 CE. "Old Mandarin": 12th–20th centuries, "Modern Standard Mandarin" refers to contemporary Chinese, i.e. from the 20th century onwards. The scheme sketched here should be considered no more than a working outline.

Máo's 毛 commentary says: "red-yellow (赤黃) is called *xīng* (騂)" (OC form *sen, see Schuessler 2007: 426). Kŏng Yĭngdá 孔穎達 (a scholar of the Táng 唐 Dynasty, 618–907 CE) explains: "*Xīng* (騂) is a pure red colour (純赤色), but slightly yellowish, this colour is also called reddish-yellow (赤黃); this colour is bright and clear". These explanations suggest that *xīng* refers to the highly saturated yellow-red —therefore, to orange — colour.

緹 tí (no OC reconstruction available)⁵ emerges relatively late. Originally a textile term, glossed by Xǔ Shèn 許慎 in the *Shuōwén jiězì* 說文解字 (100 CE) as "the colour that [undyed silk] cloth acquires after being immersed into scarlet (丹) and yellow (黄) dyes" (*Shuōwén* 25, 系部, 1859), in the Hàn 漢 texts it is often applied to fabrics:

為治齋宮河上,張緹絳帷,女居其中 (*Shǐjì* 史記, "Huájī lièzhuàn" 滑稽列傳, 23.1).

For that [purpose, they] made a dwelling for fasting, stretched orange and scarlet curtains, and lodged the woman in there.

Other examples include 緹橐 tí tuó 'orange sack' (Yántiělùn 鹽鐵論, Section "Sǎnbùzú" 散不足), 緹油 tí yóu 'orange oilcloth' (used under the frontal horizontal bar of a chariot to protect it from dirt) (Hànshū 漢書, Section "Xúnlìzhuàn" 循吏傳), 緹騎 tí qí 'orange cavalry' (officials wearing orange robes, who were sent out to arrest a lawbreaker) (Dōngguān Hànjì 東觀漢記, Chapter "Féng Fáng" 馮魴).

騂 $x\bar{\imath}ng$ and 緹 ti can be therefore regarded to as the earliest terms for ORANGE, albeit both contextually restricted. In contemporary Chinese, they are archaisms.

3. Designations of the citrus fruits in Chinese

Colour terms are *not* the new linguistic formations purposefully formed to label new concepts; they already existed in a language, but labelled something different. *Meaning*, however, often 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 influence colour terms' *combinability*.

The classic example is the term 'purple'. In Old English, it derived from Latin *purpura* 'purple', from Greek *porphura*, denoting molluscs that yielded a crimson dye, also — by semantic extension — cloth dyed with this dyestuff (OED 1989: 1442).

The oldest known reference to citrus appears in the Sanskrit literature, in the *Vajasaneyi Samhita*, a collection of devotional texts dated prior to 800 BCE and which is

⁵ I am using the Baxter-Sagart (2014) phonological reconstruction of Old Chinese (OC) and Middle Chinese (MC) of October 13, 2015, available online at http://ocbaxtersagart.lsait.lsa.umich.edu/ (last accessed on November 30, 2017).

part of the Brahmin sacred book called the White Yahir-veda (Scora 1975: 369).

The earliest Chinese references to citrus fruits are contained in the pre-Qín 先秦 texts, such as the "Kǎogōng jì" 考工記 Section⁶ of the *Zhōulǐ* 周禮 and the "Yǔ gong" 禹贡 Section of the *Shūjīng* 書經⁷:

橘逾淮而北為枳 (Zhōulǐ 周禮, "Kǎogōng jì" 考工記).

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 (translated by Wenren 2013: 4).

厥篚織貝,厥包橘柚,錫貢 (Shūjīng 書經, "Yǔ gong" 禹贡).

Their bundles contained small oranges and pummeloes, rendered when specially required (translated by Legge).

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 (Huang 2000: 54). In another archaeological site assigned to the same historical period and discovered in the same area, have been found the residues of *Citrus sinensis* orange-peel (Krjukov et al. 1983: 147). *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' (for more, see Bogushevskaya 2017).

In 1179, Hán Yànzhí 韓彥直 in his Jú Lù 橘錄 Record of Orange named and described some 27 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 *et al.* 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

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⁶ Compiled presumably not later than the 5th century BCE (Wenren 2013: xxiv)

⁷ The Classic of Documents is 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" 禹贡 (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 (Yee 1994: 76).

Chinese literary references. It is also betrayed by the considerable number of single written characters denoting particular species – not only 橘 $j\acute{u}$ for orange and 柚 $y\acute{o}u$ for pummelo, but also 柑 $g\bar{a}n$ for certain kinds of oranges, 橙/根 $ch\acute{e}ng$ for sweet oranges, 欒 $lu\acute{a}n$ for the sour orange and 橼 $yu\acute{a}n$ for the citron – always a sign of ancientness in the nomenclature" (Needham et al. 1986: 363).

4. Semantic extension of orange-the fruit and mandarin-the-fruit

The contemporary term for the orange fruit, 橙 *chéng* (OC *[d] rəŋ > MC *dreang*), is glossed in the *Shuōwén* as 'a variety of 橘 $j\acute{u}$ ' (OC *[s.k] i[t] > MC *kjwit*) (*Shuōwén* 11, 木部: 741). The latter, glossed as 'a fruit from Jiāngnán 江南' (*Shuōwén* 11, 木部: 741), was a generic name applicable to all oranges in general (Needham *et al.* 1986: 104).

Mandarin is a native Chinese fruit, which has an extremely broad genetic base (Scora 1975: 372). In 2010, Chinese scientists received the very concrete molecular evidence that both sweet orange ($Cintrus\ sinensis$) and the sour orange ($Citrus\ aurantium$) were the hybrids of mandarin and pummelo, the former being morphologically closer to the mandarin (Li $et\ al.\ 2010:\ 346,\ 348$). This close morphological relationship can probably be a reason why in the $Shu\bar{o}w\acute{e}n$ the term for orange ($ch\acute{e}ng$) is described via the term for mandarin ($j\acute{u}$).

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 (NC) 橙黄 *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 (quoted from Liú 1990: 44).

When additively mixed together, [they] result in white [light]; when split, [they] result in red, orangey-yellow, pure yellow, green, [light] blue, deep

⁸ One winter day a man on a sidewalk of a Beijing street got irritated by my question on how much were the *júzi* (橘子) he was selling from his tricycle and exclaimed: "These are not *júzi*, these are *lúgān* (蘆柑)!" The term *lúgān* is absent in Chinese-English dictionaries. BKRS translates it as "yellow citrus, type of oranges grown in Fújiàn". *Lúgān* remained totally obscure to me for years, until recently I have found its translation simply as 'Lo tangerine' (*Citrus tangerine*, *Lugan*) in Zhao *et al.* (2014: 2646).

⁹ 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, indicating attributes of particular-object-like-colour (see Xu 2007: 41–43).

blue, and 'blue-lotus'.

5. 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 are sometimes 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 (N-SE) (Xu 2007: 42) 橙色 *chéngsè* 'orange fruit + colour' and 橘色 *júsè* 'mandarin fruit + colour'.

Lin (1972) glosses jú as 'orange and tangerine; a fruit of either *chénghuáng* 'orangey-yellow' (Lin 1972: 122), or júhóng 'tangerine-red' colour' (Lin 1972: 130).

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. Cfr: 橙紅 *chénghóng* (lit. 'orange fruit + RED') 'orangey-red' (XDHYCD 2005: 178) and 橙黄 *chénghuáng* (lit. 'orange fruit + YELLOW') 'orangey-yellow' (XDHYCD 2995: 178), 橘紅 *júhóng* (lit. 'mandarin fruit + RED') (*Cihǎi* 1994: 1559; GJHYCD 2004: 764; XDHYCD 2005: 737) 'mandarin-red' and 橘黃 *júhuáng* (lit. 'mandarin fruit + YELLOW') 'mandarin-yellow' (GJHYCD 2004: 764; XDHYCD 2005: 737).

There is no consensus on naming ORANGE among Chinese linguists either: some are in favour of the monosyllabic term *chéng* (see Lü 1997; Shí 1990; Yáo 1988; Yè 2001), while others deny the possibility of its independent usage and instead prefer the compounds *júhuáng* 'mandarin fruit + YELLOW' (see Lǐ 2007; Wǔ 1999) or *júhóng* 'mandarin fruit + RED' (Xú 2003).

6. Psycholinguistic and cultural evidence

As it was already mentions 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*).

The results of the psycholinguistic data collected by Xu (2007), suggest that, since a part of $j\acute{u}h\acute{o}ng$'s ('mandarin fruit + RED') foci overlaps the cluster of foci for ORANGE in Berlin and Kay's universal system, $j\acute{u}h\acute{o}ng$ might be interpreted as 'reddish orange' (Xu 2007: 82 – 83).

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, $j\acute{u}$ 'mandarin' appears to be preferred over *chéng* 'orange' as initial nominal in the NCs designating intermediary hues between YELLOW and RED. The term $j\acute{u}h\acute{o}ng$ ('mandarin fruit + RED') was unknown to 1% of the

participants¹⁰ of the comprehension test of the psycholinguistic experiment (Xu 2007: 83), whereas the term *chénghuáng* ('orange fruit + YELLOW') revealed to be unknown to 4% of the informants (Xu 2007: 89).

Chéngsè 'orange fruit + colour' appears to be an off-shade of YELLOW, because approximately half of it overlaps with the peripheral YELLOWs, while the other half fills the no-man's land between the extent of YELLOW and RED (Xu 2007: 105 - 106).

Júsè 'mandarin fruit + colour' overlaps heavily with YELLOW, and thus could be considered an off-shade of YELLOW. Despite that júsè is distributed similarly to chéngsè in outcome Xu's data (Xu 2007: 107 - 108), it should be noted that júsè is the N-SE compound that occurred only in the Naming Test (i.e., was elicited from the informants by showing them colour chips in randomly arranged order), whereas chéngsè appeared to be unknown to 1% of the participants.

According to Xu (2007: 88), since nowadays mandarin is one of the most common fruits in fruit stores all over China, whereas while oranges are relatively rare and more expensive, this difference seems to be reflected in people's use of colour vocabulary.

Instead, I am convinced that the preference of the mandarin-object-like-colour term is preferred over the orange-object-like colour term is conditioned by the cultural tradition, mnemonic imposed, and the education level of a speaker.

Chéng is often named among the seven rainbow colours by educated native speakers (or, at least, by those from the mainland). The mnemonic "赤橙黃綠青籃紫" chì chéng huáng lǜ qīng lán zǐ "Red, orange, yellow, green, blue," indigo, violet" — a loose analogue of the English "Richard-of-York-gave-battle-in-vain" that elicits the Newtonian rainbow sequence, — is taught at school, and 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? (Máo Zédōng 毛澤東"Dàbódì" 大柏地, quoted from

¹⁰ 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 (Xu 2007: 28).

 $^{^{11}}$ 青 $q\bar{n}g$ 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 denotes MACRO-BLACK. It is not a BCT in MSM, there are separate psychologically salient terms for GREEN, BLUE and BLACK. $Q\bar{n}g$, however, has not faded away, but still remains in use (more on this, see Bogushevskaya 2015).

¹² Or the Russian mnemonic *každyj* ('red'), *oxotnik* ('orange'), *želaet* ('yellow'), *znat*' ('green'), *gde* (*goluboj*, 'light blue'), *sidit* (*sinij*, 'blue'), *fazan* ('purple') "Each hunter wants to know where is a pheasant".

GJHYCD 2004: 170-171).

Red, orange, yellow, green, blue, 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 (see note 10 of this paper), and it is noteworthy that even to some of them the terms *chéngsè* and *chénghuáng* are unknown. According to my observations during my over a decade-long residing in Beijing, people with a relatively low education level, as, e.g., clothes' vendors on a street market, would rather use the NCs that contain *jú* as the modifier, and would therefore name ORANGE either as *júhóng* or as *júhuáng*, depending on whether the hue in question tends more towards RED or more towards YELLOW. From the point of cultural tradition, *jú* is more familiar than *chéng* to an ordinary Chinese speaker.

7. The degree of basicness of the term for orange in MSM

The *semantic* word can be understood as the smallest meaningful unit in language, that is, the semantic word can be equated with "morpheme". Since Chinese morphemes *tend to* correspond to one syllable, Chinese is essentially a *monosyllabic* language (Vermaas 2017: 434).

This leads to the following necessary modification of Berlin and Kay's first (i) criterion regarding the assessment of a potential basic colour term (BCT): applied to Chinese, a term must be *monomorphemic* and moreover *monosyllabic* – rather than just *monolexemic* – since almost every syllable is a morpheme in Chinese. Therefore, *chéngsè* and *júsè*, both containing a semi-suffix *sè* 'colour', do not comply with this criterion.

Regarding the significations of *chéng* and $j\acute{u}$, they are both included into the YELLOW colour category (Lǐ 2007: 140 – 141).

As for the distributional potential of these lexemes, *chéng* and *jú*:

- a) do not form resultatives with the semi-auxiliary verbs that convey visual colour-related effects, such as 發 fā 'to show, to become visible' or 變 biàn 'change into, become' (cfr. 發白 fā bái 'turn (become; grow) white'; 'turn pale (whitish)' (BKRS); 變黃 biàn huáng 'to become yellow' (BKRS));
- b) do not combine with the qualitative adverb *very*¹³ and its synonyms (e.g., 很 *hěn* 'very, quite, much', 非常 *fēicháng* 'very, extremely');
- c) do not demonstrate reduplication *par excellence* (cfr. 皚皚 ái 'ái 'pure white, white as snow' (BKRS)), but *chéng* can be doubled in the final position in the trysyllabics 紅橙 *hóngchéngchéng* 'reddish orange' and 黄橙 *huángchéngchéng* 'yellowish orange' (Liú 1990: 243 244);
- d) can not be modified by the 的 de marker, do not accept the 了-le particle (cfr.

¹³ Chromatic adjectives, when combined with the adverb *very*, vary in their degree of gradation (saturated or not), and therefore their quality, not quantity (more on this, see Bernez 2016).

紅的 *hóngde* 'red', 黑了 *hēile* 'became dark/black') or the (diminutive) non-syllabic retroflex suffix 兒 -r (e.g., 黑兒 *hēir* 'darkness', 'dusk', 'dirt' (BKRS)).

The orange colour has not yet evolved from the fruit; the colour sense has not become abstract, but is still inseparable from a concrete object in the mind of a native speaker. It is nevertheless *psychologically salient*, because it can be expressed through the denotation of the citrus fruit (either orange or mandarin). The possible candidate lexemes have not become adjectives and/or verbs and always require the constituent *sè* 'colour'.

8. Conclusion

The orange portion of the spectrum had been thoroughly differentiated in Chinese cultural tradition. In Old and Classical Chinese orange shades were expressed by the contextually restricted terms $x\bar{\imath}ng$ and ti.

Despite the fact that China is a homeland of various citrus species, and that sweet orange *Citrus sinensis* in many languages is referred to as the 'apple from China', in MSM there is no BCT for ORANGE. The orange colour sense is still inseparable from a concrete object in the mind of a contemporary native Chinese speaker. There is also no consensus among Chinese linguists on naming ORANGE in MSM. Modern explanatory dictionaries gloss ORANGE as Nominal-BCT Compounds (NC). When used for object description, *chéng* and $j\acute{u}$ always require the constitutent $s\grave{e}$ 'colour', forming Nominal- $s\grave{e}$ Compounds (N-SE).

Thus, the orange colour sense has not become abstract in MSM yet, but is *psychologically salient* and can therefore be defined as starting to become a BCT, though it still does not possess the entire set of the criteria for basicness.

REFERENCES

- BAXTER, WILLIAM H., and LAURENT SAGART. 2014. *Old Chinese: A new reconstruction*. Oxford University Press.
- BERLIN, BRENT, and PAUL KAY. 1999 [1969]. *Basic Color Terms: Their Universality and Evolution*. Berkeley and Los Angeles: University of California Press. Second edition.
- BERNEZ, CÉLIA. 2016. "A new model for the conceptualization of color". *Lingvisticæ Investigationes* 39: 1, 116 142.
- BKRS = *Bol'šoj kitajsko-russkij slovar'* [*The Big Chinese-Russian Dictionary*]. 1983. Ed. by Ošanin, I.M., 4 vols, Moscow: Nauka. Online version: http://bkrs.info/ [Access date: 30 November, 2017].
- BOGUSHEVSKAYA, VICTORIA. 2015. "Chinese GRUE: On the original meaning and evolution of qīng (青)". L'Analisi linguistica e letteraria XXIII, 61-76.

- BOGUSHEVSKAYA, VICTORIA. 2016. "Of oxen and horses: Semantic shifts in early Chinese colour lexicon". In *Papers of the 12th International Conference on Languages of Far East, Southeast Asia and West Africa (LESEWA), Lomonosov Moscow State University, 16-17 November 2016*: 42-51. Ed. Kasevič, B.V., Vixrova, A.Ju., Rumjanceva, I.M. Moscow: Jazyki Narodov Mira.
- BOGUSHEVSKAYA, VICTORIA. 2017. "The journey of the "apple from China": A cross-linguistic study on the psychological salience of the colour term for orange". *Colour Studies: Vision, Cognition and Language*, ed. by Lindsay MacDonald, Carole P. Biggam, and Galina Paramei. Amsterdam: John Benjamins (in press).
- Cíhǎi 辞海 ["Sea of Words" Encyclopaedic Dictionary]. 1994. Ed. by Shū Xīnchéng 舒 新城. 2 Vols. Běijīng: Zhōnghuá shūjū.
- FRUMKINA, REVEKKA M. 1984. Cvet, smysl, sxodstvo: Aspekty psixolingvističeskogo analiza [Colour, meaning, and similarity: Aspects of a psycholinguistic analysis]. Moscow: Nauka.
- GJHYCD = Gǔ Jīn Hànyǔ Cídiǎn 古今汉语词典 [Dictionary of Ancient and Modern Chinese]. 商务印书馆辞书研究中心 ed. Běijīng 北京: Shāngwù yìnshūguǎn 商务印书馆, 2004.
- HUANG, H.T. 2000. Science and civilisation in China. Vol.6: Biology and biological technology. Pt. V: Fermentations and food science. Cambridge: Cambridge University Press.
- KAY, PAUL, and CHAD K. McDANIEL. 1978. "The Linguistic Significance of the Meanings of Basic Color Terms". *Language* 54.3: 610–646.
- Krjukov, Mixail V., Perelomov, Leonard S., Sofronov, Mixail V., and Nikolaj N. Čeboksarov. 1983. *Drevnie kitajcy v èpoxu centralizovannyx imperij [Ancient Chinese during the Time of the Centralized Empires*]. Moscow: Nauka.
- Lǐ, HÓNGYÌN 李红印. 2007. Xiàndài hànyǔ yánsècí yǔyì fēnxī 现代汉语颜色词语义分析 [Semantic Analysis of Contemporary Chinese Colour Terms]. Běijīng: Shāngwù.
- LI, XIAOMENG, RANGJIN XIE, ZHENHUA LU, and ZHIQIN ZHOU. 2010. "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 (4): 341-350.
- LIN, YUTANG. 1972. *Chinese-English Dictionary of Modern Usage*. Hong Kong: The Chinese University of Hong Kong.
- LIÚ, YÚNQUÁN 刘云泉. 1990. Yǔyánde sècăi měi 语言的色彩美 [The beauty of colours in a language]. Héféi: Ānhuī jiàoyù chūbănshè.
- Lü, CHING-Fu. 1997. "Basic Mandarin Color Terms". *COLOR research and application* 22.1: 4–10.
- NEEDHAM, JOSEPH, LU, GWEI-DJEN, and HUANG HSING-TSUNG. 1986. Science and civilisation in China. Vol.6: Biology and biological technology. Part. I: Botany. Cambridge: Cambridge University Press.

- OED = Oxford English Dictionary. 1989. Ed. by John Simpson, and Edmund Weiner. Second edition. Oxford: Oxford University Press.
- RAKHILINA, EKATERINA V. and GALINA V. PARAMEI. 2011. "Colour terms: evolution via expansion of taxonomic contraints". *New directions in colour studies*, Biggam, C.P., Carole Hough, Christian J. Kay and David R. Simmons (eds.), Amsterdam and Philadelphia: John Benjamins, 121-131.
- SCHUESSLER, AXEL. 2007. ABC etymological dictionary of Old Chinese. Honolulu: University of Hawai'i Press.
- SCORA, RAINER W. 1975. "On the History and Origin of Citrus". *Bulletin of the Torrey Botanical Club* 102.6: 369–375.
- SHÍ, YÙZHÌ 石毓智. 1990. "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: 18–22.
- Shuōwén = Shuōwén jiězì jīn shì 说文解字今释 [Modern Explanation of the Shuōwén jiězì]. 2001. Comp. by Tāng Kějìng 汤可敬. 2 Vols. Chángshā: Yuèlù shūshè.
- VERMAAS, EMMELOT. 2017. "Chinese as a Monosyllabic Language". In *Encyclopedia of Chinese Language and Linguistics*, ed. by Rint Sybesma, Wolfgang Behr, Yueguo Gu, Zev Handel, C.-T. James Huang, and James Myers, Vol.1, 432–435. Leiden: Brill.
- Wenren, Jun. 2013. Ancient Chinese Encyclopaedia of Technology: Translation and Annotation of the Kaogong ji (The Artificers' Record). NY: Routledge.
- Wǔ, Tiěpíng 伍铁平. 1999. *Móhu yǔyánxué* 模糊语言学 [Fuzzy Linguistics]. Shànghǎi: Shànghǎi wàiyǔ jiāoxué.
- Xú, Cháohuá 徐朝华. 2003. Shànggǔ hànyǔ cíhuì shǐ 上古汉语词汇史 [History of Old Chinese Lexicon]. Běijīng: Shāngwù.
- XDHYCD = Xiàndài Hànyǔ Cídiǎn 现代汉语词典 [The Contemporary Chinese Dictionary], Zhōngguó shèhuì kēxuéyuàn yǔyán yánjiūsuǒ cídiǎn 中国社会科学院语言研究所词典 [Chinese Academy of Social Sciences, Research Institute of Language Department of Dictionary]. 2005. 5th edition, Běijīng: Shāngwù yìnshūguǎn 商务印书馆.
- Xu, Weiyuan. 2007. A Study of Chinese Colour Terminology. Muenchen: LINCOM.
- YÁO, XIĂOPÍNG 姚小平. 1988. "Jīběn yánsècí lǐlùn 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: 19–28.
- YÈ, JŪN 叶军. 2001. Xiàndài hànyǔ sècǎicí yánjiū 现代汉语色彩词研究 [A Study on Contemporary Chinese Colour Names]. Hūhéhàotè: Nèiménggǔ rénmín.
- YEE, CORDELL D.K. 1994. "Chinese maps in political culture". In *The History of Cartography*, Vol. 2, Book 2: *Cartography in the Traditional East and Southeast Asian Societies*, ed. by John B. Harley, and David Woodward, 71–95. Chicago:

University of Chicago Press.

ZHAO, JIN-YAO, LI LI, FEI-PENG JIAO, and FENG-LIAN REN. 2014. "Human plasma protein binding of water soluble flavonoids extracted from citrus peels". *Journal of Central South University* 21 (7): 2645-2651.