"Edible" colour names: Cross-cultural comparison of Russian and English

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ABSTRACT

We explored differences between Russian and English languages in incidences of colour names related to food and edible substances. Colour names were elicited in a web-based psycholinguistic experiment with native speakers of Russian (N=713; 333 males) and English (N=272, 113 males). Colour samples (N=600) were approximately uniformly distributed in the Munsell Color Solid. An unconstrained colour-naming method was employed. A refined dataset comprised 14,260 responses from Russian and 5,428 responses from English speakers. For each language dataset, we report the inventory of "edible" colour names, their frequency, and derivational productivity. We conclude that, along with the natural environment, the inventory of "edible" terms is language-specific and manifests culture-specific culinary worldview.

Keywords: "edible" colour names, Russian, English, cross-cultural differences

INTRODUCTION

In different languages a substantial number of secondary colour terms are derivatives from names of objects, whereby the colour term metonymically stands for the colour of the object in question. Among such colour terms, common are referents to objects relating to food and edible substances, such as fruits, berries, vegetables, nuts, spices, beverages etc. The choice of the prototypical colour referents apparently depends on their availability in the natural environment but is also influenced by culture, highly scripted and ritualized (e.g. Vasilevich et al. 2002; MacDonald and Mylonas 2010). In the present study we explored differences between Russian and English languages in incidences of colour names related to food and edible substances.

EXPERIMENTAL

Colour names were elicited in a web-based psycholinguistic experiment (Mylonas and MacDonald 2010; http://colournaming.com). Participants were native speakers of Russian (N=713; 333 males) and English (N=272, 113 males), all aged 16 years or older. Colour samples (N=600 in total) were fairly uniformly distributed in the Munsell Color Solid. An unconstrained colour-naming method was employed. Russian speakers input their responses using a keyboard with the Cyrillic alphabet.

Responses of participants with colour vision abnormality, estimated by a colour-vision test, part of the program, were excluded. Also excluded were responses containing Russian basic colour term (BCT) *koričnevyj* 'brown' (originally derived from *korica* 'cinnamon'), as well as English BCT *orange*, since in the two modern languages meanings of both had emancipated from the original object referents. A refined dataset comprised 14,260 responses from Russian speakers and 5,428 responses from English speakers.

For each language dataset, estimated were the following linguistic measures:
(i)   the list of "edible" categories and the inventory of colour names in each category;
(ii) frequency of each colour term's occurrence;
(iii) patterns and number of mono- and polylexemic descriptors derived from each "edible" object name (the term's derivational productivity).

RESULTS AND DISCUSSION

(i)   The list of "edible" categories and the inventory of colour names in each category

Following MacDonald and Mylonas (2010), in both Russian and English data we focused on specific categories, such as "fruits", "vegetables", "berries", "fish" etc. (Table 1).

Category	Number of objects		Number of derivates		Percentage of cases	
	Ru	Eng	Ru	Eng	Ru	Eng
Fruits	12	11	41	57	1.68%	3.96%
Vegetables	9	6	44	12	2.49%	0.39%
Berries	8	8	31	15	1.58%	0.55%
Herbs	6	3	16	11	0.48%	0.63%
Sweets	6	14	14	31	0.32%	0.99%
Alcohol	5	5	29	17	2.23%	1.11%
Hot and soft drinks	5	3	11	7	0.17%	0.15%
Dairy products	4	2	17	2	0.23%	0.04%
Spices	4	3	16	9	0.54%	0.66%
Nuts	3	4	9	17	0.18%	1.16%
Cereals	1	4	1	4	0.01%	0.07%
Fish	1	1	8	11	0.11%	1.12%
Poultry /egg	1	2	1	7	0.01%	0.17%
Total	**65**	**66**	**238**	**200**	**10.03%**	**11.00%**

Table 1: Categories of "edible" objects referred to in Russian (Ru) and English (Eng) colour names

Category	In both languages	Only in Russian	Only in English
Fruits	peach / *persik*, lime / *lajm*, lemon / *limon*, olive / *olivka*, plum / *sliva*, apricot / *abrikos*, apple / *âbloko*, tangerine / *mandarin*	*apel'sin* 'orange', *gruša* 'pear', *banan* 'banana', *granat* 'pomegranate'	melon, damson, citrus
Vegetables	pumpkin / *tykva*, tomato / *pomidor, tomat*, aubergine / *baklažan*	*salat* 'lettuce', *morkov'* 'carrot', *svëkla* 'beetroot', *kapusta* 'cabbage', *redis* 'radish'	pea, spinach
Berries	raspberry / *malina*, cherry, cerise / *višnâ*, blackberry / *eževika*, grape / *vinograd*, strawberry / *klubnika*, berry / *âgoda*	*brusnika* 'cowberry', *černika* 'blueberry'	goji berry
Herbs	mint / *mâta*	*zelen'* 'potherbs', *lipa* 'linden', *raps* 'rapeseed', *tabak* 'tobacco', *cikorij* 'chicory'	sage, lemongrass
Nuts	maroon / *kaštan*, pistachio / *fistaška*	*orekh* 'nut'	chestnut, hazel
Cereals	wheat / *pšenica*		corn, maize, oat
Spices	mustard / *gorčica*, saffron / *šafran*	*kurkuma* 'turmeric', *karri* 'curry'	chili pepper
Fish	salmon / *losos'*		
Poultry	egg shell / *âičnaâ skorlupa*		
Dairy products	yoghurt / *jogurt*, milk /*moloko*	*slivki* 'cream', *smetana* 'sour cream'	
Sweets	chocolate / *šokolad*, caramel / *karamel*, vanilla / *vanil'*, custard / *krem*, bubble gum / *žvačka*	*zefir* 'zephyr'	candy floss, toffee, sugar, biscuit, bisque, sherbet, honey, dough
Alcohol	bordeaux, claret / *bordovyj*, burgundy / *burgundskij* wine / *vino*	*burbon* 'bourbon', *šampan* 'champagne'	chartreuse
Hot and soft drinks	green tea / *zelënyj čaj*, water / *voda*	*kakao* 'cocoa', *kofe* 'coffee', *burda* 'slipslop'	juice

Table 2: Inventory of frequent "edible" referent objects: comparison of English and Russian

Although the number of "edible" colour-term referents in both languages was similar, 65 in Russian and 66 in English (Table 1), the inventories varied substantially between the two sub-samples (Table 2). Notably, 28 referents offered by Russian respondents and 24 by English were "endemic" to either language, with differences being prominent in the "vegetables" and "sweets" categories.

In particular, in their colour naming Russian respondents frequently referred to *salat* 'lettuce', *morkov'* 'carrot', *svëkla* 'beetroot', *kapusta* 'cabbage', and *redis* 'radish', i.e. vegetables traditionally grown in Russia in backyards, are accessible, inexpensive and form the basis of authentic Russian cuisine (Montagné et al. 1961). Conversely, English respondents offered many more names derived from sweets (candy floss, toffee, sugar, biscuit, sherbet, honey). These colour terms denote colour space area between pink, orange, red and yellow, i.e. one of the hard-to-name in English (e.g. Guest and Van Laar 2000). In comparison, the unique Russian referent in this category included *zefir*, a fruit confectionery traditionally coloured white, pink or white-pink and for its airiness named after Zephyrus, the Greek god of the airy west wind (Drey 2017).

Also referent inventories of the "herbs", "nuts", "dairy products", and "beverages" categories considerably differ between the two languages, as prompted by Table 2.

(ii)   Frequency of occurrence of "edible" colour names in Russian and English
Different "edible" colour names varied markedly in elicitation frequency but certain names were offered at least twice – 90% in Russian and 88% in English. Notably, the percentage of these terms was significantly higher in Russian compared to English.

The list of the ten most frequent "edible" colour terms overlapped partly between English and Russian, specifically in: *persikovyj / peach*, *mâtnyj / mint green*, *olivkovyj / olive*, *gorčičnyj / mustard,* and *slivovyj / plum* (Figure 1). In Russian, three names with the highest ranks among non-BCTs (Paramei, Griber and Mylonas 2018) were offered most frequently – *salatovyj* 'lettuce-coloured' and two terms denoting PURPLE shades, *bordovyj* 'claret' and *malinovyj* 'raspberry'. In comparison, in English the list was championed by *maroon* and two frequent non-BCTs denoting PINK shades*, peach* and *salmon*.
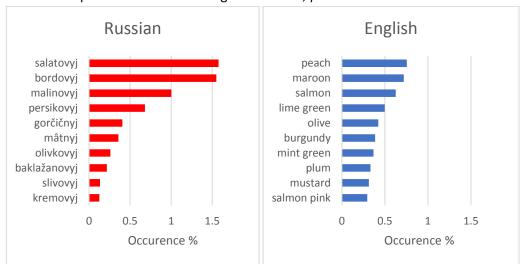

Figure 1: Occurrence (%) of ten most frequent "edible" colour names elicited in Russian and English

(iii) Number of unique monolexemic and polylexemic descriptors derived from each object name (the term's derivational productivity)

In both languages colour terms derived from names of "edible" objects constituted a significant number: 238 terms (17%) among 1,422 Russian unique colour words and 200 terms (16%) among 1,226 English unique colour words. Approximately 28% of these were single words in Russian and 27% in English.

The most frequent colour terms, in both languages, also revealed rich derivational productivity, i.e. the number of unique mono- and polylexemic descriptors derived from the object name. In Russian, the greatest variety of descriptors was obtained for *salatovyj* 'lettuce-coloured' (21), *bordovyj* 'claret' (20), *malinovyj* 'raspberry' (14), *persikovyj* 'peach' (14), and *baklažanovyj* 'aubergine' (14). In English, the richest derivational productivity was found for *peach* (13), *salmon* (11), *lime* (10), *maroon* (10), and *olive* (9).

The colour-name derivatives were produced using the following patterns:
(1) suffixed object name; e.g. *moločnyj* 'milky' (Russian); *peachy* (English);
(2) object name; e.g. *sliva* 'plum' (Russian); *chartreuse* (English);
(3) compound or modified object name; e.g. *rozovyj jogurt* 'pink yoghurt' (Russian); *salmon pink* (English);
(4) modified suffixed object name with a colour name compound; e.g. *moločno-rozovyj* 'milky pink' (Russian); *peachy pink* (English).

The prevalence of these word-formation patterns is strikingly different, though, in English and Russian. In Russian, colour terms take predominantly an adjectival form of the "parent" object name with added suffixes: -ov- (*malinovyj*), -ev- (*gruševyj*), -n- (*černičnyj*), or -sk- (*burgundskij*) [i.e. (1)]. Moreover, Russian speakers use names with multiple compounds and modifiers [(3), (4)] – to convey the perceived colour with high precision (Paramei et al. 2018). It is also worth noting that out of 26 offered Russian colour terms that lexically are equivalent to object names [(2)], 8 apparently have emerged recently (e.g. *lajm* 'lime', *karri* 'curry', *zelënyj_čaj* 'green tee', *cikorij* 'chicory', *tykva* 'pumpkin' etc.), since they had been not attested in the catalogue of Vasilevich et al. (2002).

In English, in comparison, a colour term (adjective) is an equivalent of the "parent" object name [(2)]. To elaborate on the (2), English participants commonly offered pattern (3), i.e. object names accompanied by a BCT (e.g. *salmon pink*), lightness modifiers (e.g. *light olive, dark plum*) or emotionally laden adjectives (e.g. *dusty maroon*).

(iv) Visualizing denotata of the frequent Russian "edible" colour names

To visualize denotata of the most prominent Russian "edible" colour names, we trained a colour-naming model based on Maximum a Posteriori (MAP) program – which favours more frequent colour names over less common and inconsistent – solely by colour names related to food (cf. MacDonald and Mylonas 2010). Figure 2 presents an outcome in projection on the Munsell array, i.e. the surface of most saturated colours. It is apparent that among the 12 most frequent terms, *salatovyj* and *olivkovyj* denote the largest areas, followed by *malinovyj* and *persikovyj*.
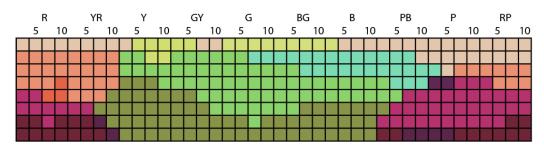
Figure 2: Denotata of 12 Russian most frequent "edible" colour names mapped onto the Munsell array (Mercator projection): ■ *olivkovyj,* ■ *salatovyj,* ■ *mâtnyj,* ■ *limonnyj,* ■ *lajm,* ■ *kremovyj,* ■ *persikovyj,* ■ *morkovnyj,* ■ *malinovyj,* ■ *bordovyj,* ■ *baklažanovyj,* and ■ *slivovyj*. An area paint mimics colour of sRGB centroid of the samples that elicited the colour name in question.

CONCLUSION

In both Russian and English, the choice of "edible" colour-term referents is indicative of availability of objects related to food and edible substances in the natural environment. The inventory of the terms also reflects the social "gastronomic" reality – established cuisine, eating habits and flavour preferences. Despite influences of globalization on the food assortment and the entire nutrition landscape, the inventory of language-specific "edible" colour terms endures as the manifestation of culture-specific culinary worldview.

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