

DIFFERENCES IN THE DISTRIBUTION OF COLOUR TERMS IN COLOUR SPACE IN THE RUSSIAN, UDMURT AND KOMI LANGUAGES

Elena Ryabina

Institute of the Estonian Language, Tallinn, and the University of Tartu

Abstract. This article compares data of Russian, Udmurt and Komi on the distribution of colour terms in Ostwald's colour space. Data of Russian derive from an article by Davies and Corbett (1994). Data from Udmurt and Komi were originally collected by using the field method suggested for establishing basic colour terms by Davies and Corbett (1994, 1995). Sixty-five coloured tiles were used as stimuli. It was found that the distribution of colour terms differed even in closely related languages. In addition, there are differences in the distribution of the pink colour in the Southern and Northern dialects of Udmurt. It can be argued that the distribution of colour terms in colour space is language-specific and dependent on culture. The data on unrelated languages showed that colour perception by Northern Udmurt subjects, compared to that by Southern Udmurts, was more influenced by Russian. Udmurt, like Russian, possesses a term for light blue, which in the Northern dialect was located in the same part of colour space as in Russian.

Keywords: focal point, basic colour term, colour space, Udmurt, Komi, Russian

1. Introduction

Views of researchers on how basic colour terms in various languages have been distributed within the colour space differ. Universalists (Kay and Regier 2006, 2007) claim that colour categories are organized around six universal focal colours that correspond to English black, white, red, yellow, green and blue. This point of view derives from the theory of basic colour terms developed by Brent Berlin and Paul Kay (1969) who have shown that languages have a universal structure of lexical symbols for

colours and the number of basic colour terms in a language varies from two to eleven. They have studied colour terms in 20 languages by using experimental methods and have come to the conclusion that the foci of basic colour terms (the best examples) in all the languages have the same locations in colour space. Recently, Regier and colleagues (2009) have found that in some languages the colour naming system deviates from what universal norms would predict.

Followers of the weak relativist view (Davies et al. 1992, Davies and Corbett 1997, 1998, Roberson et al. 2000 and Roberson 2005) have compared colour naming in languages having different systems of colour terms and have found inter-cultural differences in the location of colour samples. My colleague Mari Uusküla (2006) has compared the distribution of colour terms in Estonian, Finnish, Hungarian, Russian and English, and has found that the focal points of colours are placed in different areas in the two Indo-European and in the three Finno-Ugric languages.

The author of this work has made an attempt to discover the focal colour areas in the Permic languages (Udmurt and Komi-Zyryan), which belong to the Finno-Ugric group of languages, in order to compare the distribution of Permic and Russian colour terms in colour space. In the case of Russian, data provided by Ian Davies and Greville Corbett (1994) will be referred to. The Udmurt and Komi subjects were bilingual; they speak Russian, in addition to their mother tongue. It is useful to know to which parts of colour space the basic colour terms of the subjects' native languages and those of Russian correspond. Since the field method of Davies and Corbett has been used in all the three language cases, the results obtained in the interviews can be treated as compatible. A detailed description of the method is given in section 2.

In this study, the distribution of colour terms of the three languages within the colour space will be compared according to the principles used in the article by Uusküla (2006). First, it will be established which colour samples correspond to the best examples of each basic colour term in the languages; further, the distribution of colour names in colour space will be compared. Next, a comparison of the names of colour samples between the languages will be made. It is to be established in the work whether there are similarities in the distribution of colour terms in the related languages. We will use the terms *focal point* (focal colour area) or *prototypical colour* or *best example*, suggested by Berlin and Kay (1969) and Eleanor Rosch Heider (1971, 1972).

Focal colours are the areas of colour space that correspond best to the basic colour terms in each language.

1.1. The basic colour terms in Russian, Udmurt and Komi

In this study the fieldwork method of Ian Davies and Greville Corbett was used (Davies et al. 1992, Davies and Corbett 1994, 1995). The data were originally collected to establish the basic colour terms in the Udmurt and Komi languages. The results of the study have been partly presented in Ryabina (2009b, 2011).

The basic colour terms in the languages under consideration primarily differ in number, as is shown below. In this work, basic colour terms will be distinguished according to the definition given by Berlin and Kay (1969). In the text, a version of the Finno-Ugric transcription (Kel'makov 2002: 53–56) for Udmurt and Komi is used.

Russian has 12 basic colour terms, which is exceptional; this is because there are two terms to denote blue: *sinij* 'blue' and *goluboj* 'light blue'. According to Davies and Corbett (1994), the Russian basic colour terms are *černyj* 'black', *belyj* 'white', *krasnyj* 'red', *zelėnyj* 'green', *žėltyj* 'yellow', *sinij* 'blue', *goluboj* 'light blue', *koričnevyyj* 'brown', *fioletovyyj* 'purple', *rozovyyj* 'pink', *oranževyyj* 'orange' and *seryj* 'grey'.

There are dialectal differences in the colour lexicon of the Udmurt language. The basic colour terms *šėd* 'black', *tėđij* 'white', *gord* 'red', *vož* 'green', *lijz* 'blue' and *čuž* 'yellow' used in all the dialects are terms of the early stages in the development of basic colour terminology, according to Berlin and Kay (1969). The term *purjś* 'grey', which is common to the late stage, is also used in all the dialects. The majority of the subjects speak either a Southern or Northern dialect and some of them speak a peripheral Southern dialect (used by Udmurts living beyond the Kama River). A complete inventory of basic colour terms is used in the Southern dialect of Udmurt, which lacks only a basic colour term for purple. The basic colour terms for brown, pink and orange are *kureń*, *lemlet* and *nap-čuž*. Northern Udmurt does not possess basic terms for orange and brown; speakers of different dialects use various names to express these colours. Speakers in the northern part of the Udmurt Republic use the term *lėl* for pink, which, from the point of view of the present research, cannot be considered a basic

colour term because there was no consensus among the subjects as to what colour tile to use for this name. In the Northern dialect of Udmurt, as in the Russian language, there are also two basic colour terms to denote blue: *lįz* ‘blue’ and *ćagįr* ‘light blue’. Speakers of the Southern Udmurt dialect also know the term *ćagįr*, but it is not salient there as a basic colour term. Udmurts use the Russian colour terms *sirenevųj* ‘mauve, lilac’ and *fioletovųj* ‘purple’ to name the purple zone of colour space, though the language possesses the word *busır* for the identification of this colour. This word occurs both in the Southern and Northern dialects, but the majority of the subjects do not know it.

As to the peripheral Southern dialect spoken in the area beyond the Kama River, only 10 subjects participated in the study. This number was insufficient to generate statistics that would show the basic colour terms used in the dialect. Besides, different terms are used by speakers in different villages for secondary basic colour terms. Speakers from the area beyond the Kama, just like Southern Udmurts, use the term *nap-ćuź* to denote orange.

The Komi language has several dialect variants; as the subjects participating in this research were from closely situated parts of the Komi Republic, we find it possible to analyse their colour terms without accounting for the dialects. The overall data for Komi leads to the following conclusion: the basic colour terms in Komi are *gerd* ‘red’, *leź* ‘blue’, *śed* ‘black’, *jeźįd* ‘white’, *turunviź* ‘green’, *kołkviź* ‘yellow’, and *rud* ‘grey’. We will also study the term *oranźevęj* ‘orange’, because there is consensus among subjects as to which tile this term corresponds to. However, it will not be included on the list of basic colour terms, as the word is a comparatively late Russian borrowing, and in some dialects the majority of respondents did not name it. The basic colour terms for expressing pink, purple and brown are missing in Komi – the respondents used different names to denote them.

It is interesting to note that in the Komi language there are several names for yellow and green. The basic colour terms *kołkviź* and *turunviź*, which respectively mean ‘colour of an egg yolk’ and ‘green grass’, have apparently acquired the meaning of yellow and green recently (Rakin 1990: 119). The earlier names for yellow and green in Komi were *viź* and *veź*, which were not differentiated. According to the scholar of folklore Uljašev (1999: 24–26), in the oral tradition of poetry in Komi, no special significance was attached to green. The semantics of green changed under the influence of colour perception in Russian. He also writes

that the green colour of the middle stripe on the national flag of Komi is not associated with colour perception of Komis. In the Komi-Russian dictionary (Beznosikova et al. 2000), the following meanings of the word *viž* are given: 1) yellow, 2) yolk, 3) bile and 4) green (used in dialects). The word *vež* has the following meanings: 1) green, 2) green, immature, unripe, 3) light, golden and 4) yellow. In the words *kol'kviž* 'yellow' and *turunviž* 'green', which are both compounds, the word *viž* 'yellow' is used as the second part; the Komi subjects also used it in compound words occurring as colour terms denoting green.

2. Case study

Languages. Udmurt and Komi, belonging to the Permian group of Finno-Ugric (Uralic) languages, and Russian, an Eastern Slavic language of the Slavic (Indo-European) group of languages.

Regions where data have been collected with the years of data collection (per language). Udmurt: Izhevsk and other locations in the Republic of Udmurtia (Alnashsky, Uvinsky and Seltinsky Districts), the Agryzsky District of the Republic of Tatarstan, and the Tatyshlinsky District of the Republic of Bashkortostan, 2007–2008; Komi: Syktyvkar, Vizinga, and the Kortkerossky and Koygorodsky Districts of the Republic of Komi, 2008–2009. The data on Russian were collected by Davies and Corbett in Moscow (Russia), 1994.

Subjects. The subjects in the studies were native speakers. The Udmurts and Komis had different dialectal backgrounds. There were 125 (76 female and 49 male) Udmurt subjects, aged 9–80 (average – 43.4 years). The total number of Komi subjects was 51 (37 female and 14 male speakers), aged 11–81 (average – 49.4 years).

The Russian subjects were interviewed by Davies and Corbett (1994); there were 77 participants in the experiment (53 female and 24 male speakers), aged 18–65 (average 34 years). All of the subjects performed task 1 (list task), while task 2 (colour naming task) was performed by 54 subjects. In the present article, only the results on the second task will be analysed.

Colour vision. The colour vision of the subjects was verified by the use of *The City University Color Vision Test* (Fletcher 1980). This is a simple test that does not require much time; it is

used to detect symptoms of abnormal colour vision. The test is carried out in the following way: subjects are shown ten black tiles having a coloured spot in the middle and four other spots of different tones of colour around the central spot. Subjects are asked to say which of the four spots (upper, lower, left or right) is the best match for the colour of the central spot.

2.1. Methods

Data collection in this work was done according to the fieldwork method described by Davies and Corbett (Davies et al. 1992, Davies and Corbett 1994, 1995).

Stimuli. The set of stimuli used in the colour naming task consisted of 65 wooden tiles (5 x 5 cm) covered with paper in colours selected from the Color Aid Corporation range of colours, which is based on Ostwald's colour system. Justification for the selection of the 65 colour samples is given in Davies et al. (1992: 1097–1100).

Ostwald's colour system. In Ostwald's colour system, the main features of colour are colour tone, i.e. *hue*, content of white, i.e. *tint* (T) and content of black or blackness, i.e. *shade* (S). The degree of brightness of the grey colour system is also divided into eight grades according to the white and black content. Color Aid uses a modification of the Ostwald colour system, in which there are 24 chrome colours – six basic colours: Y – yellow, O – orange, R – red, V – violet, B – blue and G – green, and their transition tones, e.g. YO – yellow-orange and YOY – yellow-orange-yellow. Each colour shade is divided into four light variants, T1-T4, in which the amount of white increases proportionally, and three dark variants, S1-S3, where the amount of black increases. In addition, some extra-system colours, such as Sienna and Rose Red are used. Color Aid codes, as well as CIE coordinates (*Commission Internationale de l'Eclairage*) of colour tiles used in the experiment are available in the study by Davies and Corbett (1992: 1098-1099, 1994: 70-71).

Procedure. As mentioned above, the experiment was carried out in two stages. First, the subjects were asked to name as many colour terms as they knew. Second, they were asked to name the colour tiles. For the purposes of this work, only the results obtained on the colour naming task were used. In the colour naming task, 65 coloured tiles in random order were shown to the

subjects, whose task was to name each tile. The tiles were placed on a grey background. The subjects were allowed to omit tiles they found difficult to name. The experiment was carried out indoors in natural daylight, avoiding direct sunlight or shadow. All of the responses of the subjects were recorded. The tile naming task lasted 15–20 minutes, depending on the language or subject.

Data processing. First, in the data for Udmurt and Komi, the occurrences of the colour terms named by the subjects were calculated, and the distribution of the most frequent colour terms was established. In the case of Russian, the data from Davies and Corbett (1994) was referred to. Next, the results were displayed in a table giving an indication of the code of a colour sample in the system of the Color Aid Corporation and the colour term suggested for it in the three languages, together with the frequency of occurrence.

3. Results

The two experiments yielded a total sum of 126 terms named by the Russian subjects (Davies and Corbett 1994: 72). It has been shown (Davies and Corbett 1994: 76-77, table 3) that the majority of Russian subjects use specific terms for denoting particular colour tiles, for example, *malinovyj* ‘crimson, raspberry pink’, *salatovyj* ‘lettuce green’, *bolotnyj* ‘khaki, marsh’, *limonnyj* ‘lemon yellow’, *haki* ‘khaki’, *morskoj volny* ‘aquamarine, sea wave’, not compound ones.

Udmurt and Komi subjects gave, respectively, 1,231 and 514 different names, which is more numerous than in Russian. This can be explained by the use of different morphological means and modifying adjectives for denoting colour shades (hue, shadow, tint, intensity, darkness or lightness) in the Permic languages (see: Tarakanov 1990, Rakin 1990). Sutrop (2002: 72-73) and Uusküla (2006: 167) have also noted that there were not many compound colour names used in the study of Russian and that in the Finno-Ugric languages shades of colour are usually expressed by morphological means and modifying adjectives. As Udmurt and Komi subjects offered different names for a colour sample, the consensus percentage among subjects was low.

It should be mentioned that there were Udmurt and Komi subjects who failed to name the following tiles: ORO S3 (26 Udmurts and 21 Komis), RVR S1 (17 Udmurts and 19 Komis),

ROR S3 (16 Udmurts and 11 Komi), RVR S3 (14 Udmurts and 10 Komi), YOY S2 (12 Udmurts and 13 Komi), ORO T3 (12 Udmurts and 11 Komi), and VRV S3 (11 Komi).

In Udmurt and Komi there are also specific terms but they were named by few subjects. In Komi, there are specific colour names for green and yellow, for example: *pežem jey rema* ‘milk heated in an oven’, which denotes light yellow or beige. The specific term for naming a lighter shade of green is *ñužviž*. A teacher of the Komi language (aged 67) named *emiž rema* ‘colour of raspberry’, saying that in this case it was the colour of the back of the leaves that was meant, not the pink colour. The other subjects who also used this name denoted by this term the tiles that correspond to Russian *malinovyj*. The Komi subjects used the names of flowers and berries for denoting colours, for example, *mırpom rema* ‘colour of cloudberry’ for light orange, *goražul’ Adonis* for orange, *lem rema* ‘the colour of bird cherry’ (some subjects considered it purple, and others brown) etc. Udmurt subjects named specific colour names, such as *koñišir* (literally: ‘squirrel’s gum, i.e. the gum of a spruce’) for gentle violet-pink, and *pullošir* ‘the gum of *Abies*’ for amber-yellow, *kašamer* ‘pink’ (literally ‘cashmere’), *italmas* ‘*Trollius*’.

3.1. Distribution of basic colour terms in colour space

Table 1 shows how the best examples of basic colour terms in the three languages are located in Ostwald’s colour space. For English there are 11 colour categories or prototypes: yellow, orange, brown, red, pink, purple, blue, green, grey, white and black, but for Russian an additional focal point is marked, as there are two basic colour terms for blue (blue and light blue) in the language. Blue and light blue are also differentiated in the Northern dialect of Udmurt. The Udmurt language has no prototypical term for purple, while Komi lacks terms for purple, pink and brown.

Table 1, in addition to colour categories (column 1), shows Color Aid codes of focal points (column 2); the corresponding names of colour categories in the three languages (column 3) and the frequency of naming the colour terms (column 4). If the frequency of naming two tiles with one term was the same, the given term had two focal points (for example, in Udmurt *vož* ‘green’ denotes tiles G and GYG). For the majority of prototypical colours

in the three languages, there are two Color Aid colour codes and for blue there are three colour samples, as in Russian and Northern Udmurt there are two colour terms for blue: Russian *sinij* 'blue' and *goluboj* 'light blue', and Northern Udmurt *lijz* 'blue' and *čagir* 'light blue'. In the colour naming task, there was only one colour sample (WHITE) which was named white and two colour samples which were named black (BLACK and GRAY 8). Thus no comments will be made with reference to the focal colour area for white and black in Udmurt, Komi and Russian. Below follows an analysis of the other prototypical colour examples.

Two colour samples, Y and YOY, were named by subjects as yellow. The Udmurt *čuž* for 'yellow' corresponds to colour tile Y, the Komi *kol'kviž* for 'yellow' denotes colour tile YOY. The Russian subjects gave the colour name *želtij* equally to tiles Y and YOY, so prototypical yellow in Russian covers a broad colour space. The Komi *kol'kviž* 'yellow' literally means 'the colour of an egg yolk' and prototypical yellow in Komi can only be YOY, though colour tile Y was also called *kol'kviž*, as well as the old Komi colour term *viž* 'yellow'.

The prototypical orange in all the languages was colour tile OYO. The majority of Komi subjects named this colour sample with the Russian loan *oranževej*. The Southern Udmurts and the speakers of the dialect from the area beyond the Kama named the same colour tile with the same term, *nap-čuž*, while the Northern Udmurts named this colour differently; this is why in this study we could not find a prototypical example of orange in Northern Udmurt.

A basic colour term for brown was used only in Russian and the Southern dialect of Udmurt; it corresponds to tiles O S3 and RO S3. In the case of colour tiles O S3 and RO S3, the amount of black is the highest for the colour tones O and RO. For Finnish and Hungarian subjects, for example, the prototypical brown lies in colour tile YO S3 (Uusküla 2006), which is lighter than the other samples. Thus, the prototypical brown in Udmurt, on the one hand, and in Finnish and Hungarian, on the other hand, has different locations in colour space.

The prototypical red was, in the case of Russian and Udmurt, in colour tile RO. Komi subjects gave the colour name *gerd* to tile ROR. Actually, both of these colours contain orange, and colour tile R (red) was not found to be a prototype of red in any of the three languages. Instead, the Russian subjects frequently

named this sample *krasnyj* ‘red’ or *malinovyj* ‘crimson, raspberry pink’, while Udmurts denoted it, depending on the dialect, as *lemlet* or *al*, both having the meaning ‘pink’.

For the Russian subjects, the focal point of pink, *rozovyj*, was in colour tile ROR T3, which contains red-orange-red colours, with a degree of white. In the case of the Southern Udmurt subjects, the prototypical pink, *lemlet*, was RV T2. In the Northern dialect of Udmurt, there is a term for pink – *lel*, but in this experiment the colour term did not find a place in colour space.

A basic colour term for purple was found to be used only in Russian – it is the term *fioletovyj*, which corresponds to the tile with Color Aid code V.

As far as the blue zone of colour space is concerned, there are two prototypical examples for Russian and Northern Udmurt, one of them being a lighter shade of blue. The terms *goluboj* in Russian and *čagir* in Udmurt had the same location in colour space; they corresponded to colour sample BGB T3. The speakers of the Southern dialect of Udmurt also named this tile most frequently with the name *čagir*. However, this result did not meet the criterion according to which basic terms are identified – the term was not used by a majority of subjects. It can be argued that this term in Udmurt is generally considered a Bulgarian loan (Tarakanov 1990: 112), while colour perception in the Northern dialect of Udmurt has been influenced by the Russian language more than the Southern dialect. Moreover, Komi speakers also named the same colour as light blue, but they used other names. In the Permic languages, there are some modifying adjectives that denote lighter hues of colour. The best example of Russian *sinij* is sample BGB (blue with a greenish overtone); for Udmurt and Komi it is B, or pure blue.

The colour name green, *vož*, in Udmurt corresponds to two colour tiles, GYG and G; *turunviž* in Komi was most frequently given to the colour tile GYG (green with a yellowish overtone), whereas in Russian, *zelënyj* corresponded to colour tile G.

Russian speakers labelled colour tile GRAY 2 most frequently with the colour name grey, while Udmurt and Komi speakers indicated grey as tile GRAY 4. As mentioned above, there are eight grades of colour brightness distinguished for grey; the content of black increases from 1 to 8 over the grades, where GRAY 1 is the lightest and GRAY 8 the darkest.

Table 1. Focal points for the colour terms of the three languages in Ostwald's colour space

Colour category	Color Aid code of focal colour	The names of colour category	Relative frequency
yellow	Y	Ud. <i>čuž</i>	0.664
		Ru. <i>žěltyj</i>	0.592
	YOY	Ko. <i>koľkviž</i>	0.627
		Ru. <i>žěltyj</i>	0.592
orange	OYO	Ru. <i>oranževyj</i>	0.833
		SUd+UdK. <i>nap-čuž</i>	0.755
		Ko. <i>oranževej</i>	0.529
brown	O S3	Ru. <i>koričnevij</i>	0.962
	RO S3	Ud. <i>kureň</i>	0.595
red	RO	Ud. <i>gord</i>	0.616
		Ru. <i>krasnyj</i>	0.685
	ROR	Ko. <i>gerd</i>	0.765
pink	ROR T3	Ru. <i>rozovyyj</i>	0.703
	RV T2	SUd. <i>lemlet</i>	0.523
purple	V	Ru. <i>fioletovyyj</i>	0.777
blue	B	Ud. <i>lžz</i>	0.520
		Ko. <i>lež</i>	0.666
	BGB	Ru. <i>sinij</i>	0.703
	BGB T3	Ru. <i>goluboj</i>	0.722
		NUd. <i>čagjr</i>	0.483
green	G	Ud. <i>vož</i>	0.552
		Ru. <i>zelěnyj</i>	0.925
	GYG	Ud. <i>vož</i>	0.552
		Ko. <i>turunviž</i>	0.666
grey	GRAY-2	Ru. <i>seryj</i>	0.888
	GRAY-4	Ud. <i>purjš</i>	0.728
		Ko. <i>rud</i>	0.666
white	WHITE	Ud. <i>teđj</i>	0.880
		Ko. <i>ježjd</i>	0.921
		Ru. <i>belyj</i>	1.000
black	BLACK	Ud. <i>šed</i>	0.816
		Ko. <i>šed</i>	0.843
		Ru. <i>čěrnij</i>	0.759

3.2. Comparison of the colour terms in the three languages

Thus, the results presented above show that there is no overlap of certain colour terms in the three languages, as far as their location in the zones of colour space is concerned. In this section, an analysis of the colour samples will be made to find out which names in the three languages were given to some of the tiles. We will consider those colour samples that were named differently in the languages. The results of the analysis for each colour sample are shown in tables 2–13. In the tables, the following data are presented: the most frequent term for each language and the percentage of subjects who used the same colour term, or the consensus percentage, which indicates the degree of agreement among the subjects of a language in giving the same name to a colour sample. If all the subjects gave the same name to a colour sample, the consensus percentage would be 100.

Let us compare the correspondence between colour terms used for a selected set of colour tiles. In the Komi language, there are two colour names for yellow – *kol'kviž* (literally: ‘an egg yolk’) and the old Komi word *viž*. Let us consider the space of yellow. As mentioned above, in contemporary Komi the word *kol'kviž* is used more often than *viž* for naming yellow. From table 1 it is clear that the prototypical example for *kol'kviž* in Komi is tile YOY (yellow-orange-yellow), while the Udmurt *čuž* corresponds to colour sample Y and Russian *žěltyj* corresponds to both tiles. Table 2 presents data on the colour sample YO. It can be seen that for the Komi subjects this was a yellow colour sample, while for the Udmurt and Russian subjects it was orange. In Udmurt, yellow falls into a narrower zone (see table 1). The Komi subjects used the old name *viž*, in addition to *kol'kviž*, for colour tile Y. This indicates that both the Komi *viž* ‘yellow’ and the Udmurt *čuž* ‘yellow’ lie in the same zone of colour space.

Table 2. Names given to colour tile YO HUE across the languages

Language	Term	Gloss	Percentage
Udmurt	<i>nap-čuž</i>	orange	35 %
Komi	<i>kol'kviž</i>	yellow	27 %
Russian	<i>oranževyj</i>	orange	55 %

The next colour sample to be analysed is YO S3, which was named by Russian subjects as *bolotnyj* ‘khaki, marsh’. It was mentioned above that, for Finnish and Hungarian subjects, this is a prototypical example of brown. The Udmurt and Komi subjects, as shown in table 3, also named it as brown; the Komi subjects used the Russian word *koričnevej*, while in Udmurt dialects different words were used for it.

Table 3. Names given to colour tile YO S3 across the languages

Language	Term	Gloss	Percentage
S. Udmurt	<i>kureń</i>	brown	52 %
N. Udmurt	<i>buroj</i>	brown	26 %
	<i>kureń</i>	brown	23 %
	<i>busir</i>	brown	10 %
Udmurt beyond Kama	<i>lõmpog</i>	brown	40 %
Komi	<i>koričnevej</i>	brown	41 %
Russian	<i>bolotnyj</i>	marsh	37 %

It has been mentioned above that in Russian there are specific names that are known and used by many subjects, while in the Finno-Ugric languages there are different morphological means for denoting colour shades. As Udmurt and Komi subjects offered different names for a colour sample, the consensus percentage among subjects was low. For example, as table 4 shows, Russian subjects used *malinovyj* ‘crimson, raspberry pink’ for one colour tile; there was the highest consensus percentage among subjects on this term. Finno-Ugric subjects gave the name pink to this tile. In Komi and Udmurt, there are also specific terms, but they were not known by a majority of subjects. For example, Southern Udmurt subjects gave the specific term *kašamer* ‘pink’ (literally ‘cashmere’) second in frequency; it was used only by older female subjects. The same term was used by Southern Udmurt subjects to name tile ROSE RED; in this case, the term was also second in frequency, after pink.

Table 4. Names given to colour tile RVR HUE across the languages

Language	Term	Gloss	Percentage
S. Udmurt	<i>lemlet</i>	pink	24 %
N. Udmurt	<i>lel</i>	pink	19 %
Komi	<i>alej</i>	pink	18 %
Russian	<i>malinovyj</i>	raspberry pink	44 %

The Udmurt and Russian subjects named this tile pink, while the Komis used the term red, as seen in table 5. It can be assumed that the Komi subjects named the tile red because the basic term for pink is missing in the language.

Table 5. Names given to colour tile ROSE RED across the languages

Language	Term	Gloss	Percentage
S. Udmurt	<i>lemlet</i>	pink	21 %
N. Udmurt	<i>lel</i>	pink	26 %
Komi	<i>gerd</i>	red	20 %
Russian	<i>rozovyj</i>	pink	42 %

The results obtained for colour tile RV T2 differed across the languages. This tile is the prototypical pink for the Southern dialect of Udmurt. The Northern Udmurt dialect speakers had difficulties in naming this colour tile. There is a term *lel* for pink, but there was no agreement among the subjects as to which tile it referred to. The subjects used modifying adjectives (light or dark) or other colour names, compound ones, in which *lel* was either the first or second member. The Russians named tile RV T2 most frequently with the colour name *sirenevyj* ‘mauve, lilac’. According to the results of the research done by Davies and Corbett (1994: 85), the Russian *sirenevyj* is close to pink and, compared to *fioletovyj* ‘purple’, is lighter and more towards red.

Table 6. Names given to colour tile RV T2 across the languages

Language	Term	Gloss	Percentage
S. Udmurt	<i>lémlet</i>	pink	52 %
Komi	<i>rozovej</i>	pink	21 %
Russian	<i>sirenyyj</i>	mauve, lilac	30 %

In all the three languages, there are several terms for purple. However, Udmurts and Komis used the Russian loans *sirenyyj* ‘mauve, lilac’ and *fioletovyj* ‘purple’. The prototypical Russian *fioletovyj* ‘purple’ corresponds to tile V; the data on this term are shown in table 7. The Southern Udmurts named this tile more frequently with the term *sireń*, while the Northern Udmurts and Komis gave the colour names *fioletovoj* and *fioletovej* ‘purple’, respectively. The Udmurts from the area beyond the Kama named this tile *kren* or *küreń*. Davies and Corbett (1994: 85) state that the range for purple in Russian extends further towards blue, not towards red. VB_V, for example, was the second in frequency tile named *fioletovyj*. The Komi *fioletovej* and Northern Udmurt *fioletovoj* were found to correspond to the colour term *fioletovyj* in Russian: the Komi subjects more frequently gave this name to tile VB_V, and the Northern Udmurts to tiles V and VB_V. The Southern Udmurts more often named the same tiles with the term *sireń*, which does not overlap with the meaning of the Russian *sirenyyj* ‘mauve, lilac’. The Russian speakers named tile VB_V T4 more frequently with the term *sirenyyj* ‘mauve, lilac’, while the Southern Udmurts named this tile most frequently *jugit-sireń* ‘light lilac’. Interestingly, the speakers of the Southern and Northern dialects of Udmurt also used the Udmurt word *busir* for denoting sample V, which was second in frequency. But, most frequently, the term *busir* was given for colour tile VR_V.

Table 7. Names given to colour tile V across the languages

Language	Term	Gloss	Percentage
S. Udmurt	<i>sireń</i>	lilac	27 %
N. Udmurt	<i>fioletovoj</i>	purple	35 %
Udmurt b. K	<i>küreń, kren</i>	purple	50 %
Komi	<i>fioletovej</i>	purple	39 %
Russian	<i>fioletovyj</i>	purple	78 %

Uusküla (2006: 163-164) has noted that in the Finno-Ugric languages there are modifying adjectives occurring as the first part of compounds, which are used more frequently than in Russian or English. Tables 8 and 9 demonstrate the use of such modifying adjectives for naming colour samples BV HUE and G S3. The Udmurts and Komis denoted these tiles as dark blue and dark green, while the Russians used the terms blue and green, respectively.

Table 8. Names given to colour tile BV HUE across the languages

Language	Term	Gloss	Percentage
Udmurt	<i>pejmit-liz</i>	dark blue	36 %
Komi	<i>peמידlež</i>	dark blue	53 %
Russian	<i>sinij</i>	blue	63 %

Table 9. Names given to colour tile G S3 across the languages

Language	Term	Gloss	Percentage
Udmurt	<i>pejmit-vož</i>	dark green	49 %
Komi	<i>peמיד turunviž</i>	dark green	45 %
Russian	<i>zelėnyj</i>	green	55 %

The colour sample to pay attention to next is BVB S3 (table 10). For the Udmurts and Komis it was grey, and for the Russians mauve.

Table 10. Names given to colour tile BVB S3 across the languages

Language	Term	Gloss	Percentage
Udmurt	<i>purjš</i>	grey	18 %
Komi	<i>rud</i>	grey	29 %
Russian	<i>sirenevyj</i>	lilac	41 %

The Russian subjects gave a specific name, *salatovyj* ‘lettuce green’, to colour sample YGY S3 (see table 12). The Udmurt and Komi speakers named it light green, but the consensus percentage among the subjects in both languages was low. In Ud-

murt and Komi, there are several modifying adjectives that can be used to denote a lighter colour hue. As mentioned above, in Komi there are two names for green, *turunviž* and *vež*; of which the first name is a basic term. It should be mentioned that *vež* was named only four times in the naming task, but it occurred 57 times in compound words, which were used to name mixed shades of colour.

In this example, the colour names *vež* ‘green’ and *viž* ‘yellow’ were used in the following compound words: *nužviž* ‘light green’, *jugidviž* ‘light green’, *jugidvež* ‘light green’, *ježgovvež* ‘white-green’, *rudovvež* ‘grey-green’, etc.

Table 11. Names given to colour tile YGY S3 across the languages

Language	Term	Gloss	Percentage
Udmurt	<i>kizer-vož</i>	light green	33 %
Komi	<i>kelidturunviž</i>	light green	23 %
Russian	<i>salatovyj</i>	lettuce green	41 %

The colour sample WHITE was named as *belyj* ‘white’ by all the Russian subjects. Though the majority of Udmurt and Komi subjects named this tile white, they also used other words; some subjects noted the purity of white, while others stressed its impurity.

The Udmurt speakers mainly stressed the purity, the brightness, of white by using such words as *teđ-teđ* (a reduplication of white), *jug-jug-teđi* ‘light-light white’, and *lijm kad teđi* ‘as snow, snow white’ (in Komi *lijm ježid*, ‘snow white’). The intensity of black in Udmurt is expressed by other means: *šed-šed* (reduplication of black), *čil-čil-šed* ‘bright-bright black’, and *su kad šed* ‘carbon-black’ (in Komi *sa šed*, ‘carbon-black’).

Table 12. Names given to colour tile WHITE across the languages

Language	Term	Gloss	Percentage
Udmurt	<i>teđi</i>	white	88 %
Komi	<i>ježid</i>	white	92 %
Russian	<i>belyj</i>	white	100 %

Table 13. Names given to colour tile BLACK across the languages

Language	Term	Gloss	Percentage
Udmurt	<i>śęd</i>	black	82 %
Komi	<i>śęd</i>	black	84 %
Russian	<i>čěrnij</i>	black	76 %

4. Discussion

This study has treated the distribution of the basic colour terms of Udmurt and Komi within Ostwald's colour space, in order to discover the best examples for every basic colour term in these languages. The data obtained on Udmurt and Komi were used to compare the distribution of basic colour terms of the Permic and Russian languages in colour space. Subsequently, a comparative analysis of names given for separate colour tiles in Udmurt, Komi and Russian was conducted.

First of all, the basic colour terms that turned out to be different in these languages were listed. For example, in Russian there are 12 basic colours, while in Komi there are seven (as an additional term, *oranževij* 'orange' is treated in this article). In Udmurt, there are differing names among secondary basic colour terms; the inventory of basic colour terms is the most developed in the Southern dialect, where there are 10 colour terms, but a term for purple is missing. In the Northern dialect, there are only eight basic colour terms; for blue, as in Russian, there are two basic colour terms.

The results of this research show that the distribution of colour terms in the three languages differs. In Komi and Udmurt, the overlapping focal point areas were for orange, blue, green and grey; at the same time, almost identical names for red – Udmurt *gord* and Komi *gerd* – corresponded to tiles RO and ROR.

The best example for blue in Russian is tile BGB, and for grey tile GRAY 2; these focal points do not overlap with those in Udmurt and Komi. Russian and Udmurt have the same focal point areas for yellow, orange, red, and green. In addition, the Russian *goluboj* 'light blue' and Udmurt *čagir* 'light blue' correspond to the same colour tile, BGB T3. The prototypical ex-

amples for brown and pink in Udmurt and Russian were located in different areas of colour space. It is amazing that in Komi and Russian only the focal points for yellow and orange overlapped.

There were several colour samples for which the Udmurt and Komi subjects failed to offer any terms. An analysis of the colour terms showed that specific terms were given by the Russian subjects but not by the majority of Udmurt and Komi subjects. As a matter of fact, in the Permic languages there are specific colour names which are generally known only by older women or language professionals and painters (see Ryabina 2009a).

The consensus percentage among the Udmurt and Komi subjects was low because they offered different morphological means for denoting some colour samples. An explanation can be that in the Finno-Ugric languages there are morphological means and modifying adjectives for expressing shades of colour (hue, shadow, tint, intensity, darkness or lightness), whereas there were not many compound colour names used in the study of Russian and English (Sutrop 2002: 72-73, Uusküla 2006: 167). Uusküla (2006: 163-164) has also noted that these differences may have occurred due to the fact that Russian and English speakers were asked to use only simple colour words during the experiment (Davies and Corbett 1994, 1995), and more field work should be done in order to clarify this.

As it has been noted above, in the Komi language there are several names for yellow and green: yellow is denoted by the terms *viž* and *kol'kviž*, green by *vež* and *turunviž*. The earlier names for yellow and green, *viž* and *vež*, were not differentiated (Uljašev 1999: 24-26). The majority of subjects in naming the tiles used the words *kol'kviž* and *turunviž*. In some cases *viž* was also used for yellow, while *vež* was very rarely used for green. It should be underlined that the subjects gave the old Komi term *viž* for yellow and green and *vež* for green in compound names. In Udmurt, unlike Komi, yellow and green are well distinguished.

The analysis of colour terms showed differences not only between languages but also between dialects. For example, there was no consensus among Northern Udmurts with respect to the tile named pink by Southern Udmurts. On the other hand, in the Northern dialect light blue corresponds to the same zone of colour space as the Russian *goluboj* 'light blue', which in the Southern dialect is not salient. Northern Udmurt experienced the influence

of Russian more than Southern Udmurt, which was more influenced by Turkic languages.

The Russian *sirenyj* ‘mauve, lilac’ covered a wide colour space: the subjects gave this name also to the tile that was denoted as pink by Southern Udmurts, as well as to the tile that was named as grey by the subjects of both Permic languages. Different Russian colour names for purple were adopted in the Udmurt dialects; for instance, in Southern Udmurt *sireń* and in Northern Udmurt *fióletovoj* are used.

5. Conclusion

The results of this research show that the focal points of colour terms vary in different languages, including related languages. In addition, analysis revealed inter-dialect differences between Northern and Southern Udmurt, where names for pink differed. There are cultural differences between Northern and Southern Udmurts, which are due to the influence of other cultures: Northern Udmurts became united with Russia a century earlier than Southern Udmurts, who experienced a stronger Tatar influence.

The unrelated languages Russian and Udmurt possess, in addition to blue, a term denoting light blue. In the Southern dialect, this term is not salient. In the Northern dialect, light blue is salient and it corresponds to the same zone of colour space as the Russian *goluboj* ‘light blue’.

It cannot be denied that colour names are generated and develop according to universal rules. However, the present research shows that the distribution of colour names in colour space is language specific, which is in accord with the weak relativist view.

Acknowledgements

The study was supported by the Estonian Ministry of Education and Research grant no. SF0050037s10 and the Estonian Science Foundation grant no. 8168. The author thanks Niina Aasmäe for translating the article into English.

Address

Elena Ryabina
Institute of the Estonian Language
Roosikrantsi 6
10119 Tallinn, Estonia
E-mail: italmas2004@yahoo.de

References

- Berlin, Brent and Paul Kay (1969) *Basic color terms: their universality and evolution*. Berkeley, CA: University of California Press. [Reprinted in 1991.]
- Beznosikova, Ljucija M., Evgenija A. Ajbabina, and Raisa I. Kosnyreva (2000) *Komi-russkij slovar'*. Syktyvkar: Komi knižnoe izdatel'stvo.
- Davies, Ian and Greville Corbett (1994) "The basic color terms of Russian". *Linguistics* 32, 65–89.
- Davies, Ian and Greville Corbett (1995) "A practical field method for identifying basic colour terms". *Languages of the World* 9, 1, 25–36.
- Davies, Ian and Greville Corbett (1997) "A cross-cultural study of colour grouping: evidence for weak linguistic relativity". *British Journal of Psychology* 88, 3, 493–517.
- Davies, Ian and Greville Corbett (1998) "A cross-cultural study of color grouping: tests of the perceptual-physiology account of color universals". *Ethos* 26, 338–360.
- Davies, Ian, Catriona MacDremid, Greville Corbett, Harry McGurk, David Jerrett, Tiny Jerrett, and Paul Sowden (1992) "Color terms in Setswana: a linguistic and perceptual approach". *Linguistics* 30, 6, 1065–1103.
- Fletcher, Robert (1980/1998) *The City University colour vision test*. 3rd ed. London: Keeler.
- Heider, Eleanor Rosch (1971) "'Focal' color areas and the development of color names". *Developmental Psychology* 4, 3, 447–455.
- Heider, Eleanor Rosch (1972) "Universals in color naming and memory". *Journal of Experimental Psychology* 93, 1, 10–20.
- Kay, Paul and Terry Regier (2006) "Language, thought, and color: recent developments". *Trends in Cognitive Sciences* 10, 2, 51–54.
- Kay, Paul and Terry Regier (2007) "Color naming universals: the case of Berlinmo". *Cognition* 102, 2, 289–298.
- Kel'makov, Valentin K. (2002) *Udmurt dialektologija*. Ižkar: Udmurt Universitet.

- Rakin, Anatolij N. (1990) "Leksika cvetooboznačenja v permskix jazykax". *Fenno-Ugristica* (Tartu) 16, 112–121.
- Regier, Terry, Paul Kay, and Naveen Khertapal (2009) "Color naming and the shape of color space". *Language* 85, 4, 884–892.
- Roberson, Debi (2005) "Color categories are culturally diverse in cognition as well as in language". *Cross-Cultural Research* 39, 1, 56–71.
- Roberson, Debi, Ian Davies, and Jules Davidoff (2000) "Color categories are not universal: replications and new evidence from a stone-age culture". *Journal of Experimental Psychology: General* 129, 3, 369–398.
- Ryabina, Elena (2009a) "Sex-related differences in the colour vocabulary of Udmurts". *Wiener elektronische Beiträge des Instituts für Finno-Ugristik (WEBFU)*. Internet journal <<http://webfu.univie.ac.at/texte/12Ryabina.pdf>>. Accessed May 04, 2010.
- Ryabina, Elena (2009b) "Osnovnye cvetonaimenovanija v sovremennom udmurtskom jazyke". *Jazyki i kul'tura finno-ugorskix narodov v uslovijax globalizacii. Materialy IV vsrossijskoj konferencii finno-ugrovedov (17-20 nojabrja 2009 g.)*, 113–115, Hanty-Mansijsk.
- Ryabina, Elena (2011) "Osnovnye cvetonaimenovanija v komi jazyke". *Dinamika struktur finno-ugorskix jazykov*. Syktyvkar, (in print).
- Sutrop, Urmas (2002) *The vocabulary of sense perception in Estonian*. (Opuscula Fenno-Ugrica Gottingensia, 8.) Frankfurt am Main: Peter Lang.
- Tarakanov, Ivan V. (1990) "Terminy cvetooboznačenja v udmurtskom jazyke v sravnenii s komi, marijskim i mordovskimi jazykami". In Bibinur Š. Zaguljaeva, Valej K. Kel'makov, Ivan V. Tarakanov, eds. *Voprosy dialektologii i leksikologii udmurtskogo jazyka*, 103–125, Iževsk.
- Uljašev, Oleg I. (1999) *Cvet v predstavlenijax i fol'klоре komi*. Syktyvkar.
- Uusküla, Mari (2006) "Distribution of colour terms in Ostwald's colour space in Estonian, Finnish, Hungarian, Russian and English". *Trames* 10, 2, 152–168.

Kokkuvõte. Elena Ryabina: Värvinimede jaotumise erinevused värviruumis vene, udmurdi ja komi keeles. Artiklis võrreldakse vene, udmurdi ja komi värvinimede jaotumist Ostwald'i värviruumis. Vene keele andmed on saadud Daviese ja Corbett' artiklist (1994). Udmurdi ja komi keele andmed koguti Daviese ja Corbett' (1994, 1995) välimeetodiga. Uurimuses kasutati 65 standardset värvitahvlit. Tulemused näitavad, et põhivärvinimede fokaalpunktid on erinevad isegi sugulaskeeltes. Pealegi ei vasta udmurdi keele lõunaning põhjamurdes roosa värvinimi ühele ja samale värvitahvlile. Niisiis võib väita, et värvinimede jaotumine värviruumis on igas keeles omapärane ja sõltub kultuurist. Vene ja udmurdi keele andmete võrdlus näitab, et põhja-udmurtide värvitaju on

lõuna-udmurtidega võrreldes venemõjusel. Udmurdi keeles on vene keelega sarnaselt olemas kaks värvinime sinise jaoks, mis põhja-udmurdi murdes vastab samale värvitahvlile nagu vene keeles.

Märksõnad: fokaalpunkt, põhivärvinimi, värviruum, udmurdi keel, komi keel, vene keel