

Candoshi Color Terms
Paul Kay, Stanford University
June 2017
To appear in Journal of Linguistic Anthropology

Alexandre Surrallés [S] (2016) claims that the language isolate Candoshi of Amazonian Peru contains no names for colors, contrary to what has been reported for the World Color Survey [WCS] (Kay et al. 1997, Kay et al. 2009, among others, and by Tuggy 2008). S’s arguments are not persuasive. There are flaws in field method, in linguistic analysis, and in logical inference detailed below. Also, there is positive evidence, independent of the WCS, that the Candoshi language does indeed contain color terms.¹ Moreover, we will see that the Candoshi basic color terms [BCTs], when viewed in a comparative and historical perspective, divide up the color space in a way that fits a common historical pattern.

S reports accurately that the WCS sources lists the Candoshi color terms as shown in Table 1.²

¹ This is not to imply that every language has a set of terms that partitions the color space. For example Kay et al. note: “Levinson [(2000)] suggests strongly that for Yélfí Dnye we should think of Bk, W and R as receiving basic color terms... and these only. There are also several languages in the WCS with well-established words for Bk, W and R (not extended), with varying ways of treating lexically the rest of the colors” (Kay et al. 2009: 37).

² S states inaccurately, “According to the WCS report (Kay et al. 1997: 27-9; 2009: 155 -7), following the universalistic approach of Berlin and Kay (1969), the color terminology of the Candoshi language is at a transitional stage between levels III and IV” (p.4). In fact, Kay et al. (1997: 29) state, “Candoshi is transitional between stages IV and V,” and Kay et al. (2009: 155)

Term	WCS Gloss	Users	BCT
<i>kantsiripi</i>	black	11	+
<i>borshi</i>	white	11	+
<i>chobiapi</i>	red	11	+
<i>ptsiyaro(mashi)</i>	yellow	11	+
<i>kamachpa</i>	green	10	+
<i>kavabana</i>	blue/grue	11	+
<i>pozani</i>	gray/non-descript	10	–
<i>tarika</i>	purple	6	–

Table 1. Candoshi Color Terms (Source Kay et al. 2009: 155). The Users column shows the number of the eleven Candoshi participants interviewed who used the term in question. The BCT column reflects the WCS judgment whether, on the basis of the overall pattern of responses, the term in question should be considered a BCT.

S continues, “It is widely known that the survey method used by the WCS, like that of Berlin and Kay (1969)... determines a list of terms of colors beforehand and then asks about the scope of each of the terms on the color palette. *According to that, three facts indicate that these terms do not constitute the Candoshi color terms envisaged in the WCS*” (p. 4. italics added [PK]). It is possible that the proposition that the WCS color-naming methodology was based on a pre-established set of terms is widely believed, but it cannot be known because it is untrue. Both of the WCS sources that S cites are explicit on the point. “A methodological departure of the WCS from the method of B&K was that chip-naming judgments were obtained on individual chip presentations, rather than the full array of stimuli” (Kay et al. 1997:23). The more recent source is more detailed

The WCS methodology coincided with that of the BK study in the use of a standardized set of Munsell color chips... The WCS differed from BK, however, in the technique used to elicit naming responses. In the BK study, the basic color terms of the language were established by

state, “Candoshi is transitional between stages IV_{G/Bu} and V, with an emerging term for green.”

verbal elicitation only, prior to presenting the stimuli for naming... In the WCS procedure, no preliminary interview was administered to establish a set of basic color terms, and in the naming task the 330 individual color stimuli were shown to each cooperating speaker, one by one, according to a fixed random order, and a name was elicited for each (Kay et al. 2009: 13).

Similarly, Cook et al. (2005: 228) write, “The WCS differed from B&K in the technique for eliciting naming responses. In the WCS procedure, no preliminary interview was administered to establish a set of basic color terms, and in the naming task the 330 individual color stimuli were shown to each cooperating speaker, one by one, according to a fixed random order, and a name elicited for each...”

This seemingly minor error calls for correction, because, as indicated in the italicized sentence beginning “*According to that,*” the assumption that the WCS naming responses were elicited on the basis of a pre-established list of terms plays a part in S’s argumentation. We consider each of S’s three, self-described facts in turn.

S’s first ‘fact’:

- (1) Terms that the WCS has identified as Candoshi colors cannot be considered true terms, that is, monolexic [sic] or morphologically simple terms for colors, as Berlin and Kay claim (1969: 6).³ They are more complex syntactic constructions.

³ (Berlin & Kay 1969) does not mention Candoshi. Also it does not specify that BCTs are necessarily monomorphemic. Rather:

Ideally, each basic color term should exhibit the following four characteristics: (i) It is *monolexic*... These criteria (i-iv) suffice in nearly all cases to determine the basic color terms in a given language. The few doubtful case that arise are handled by the

For example, *ptsiyalomashi*, the term for ‘yellow’, is constructed by using two morphemes, *ptsiyaro/mashi*, which means Milvago/like, according to the Candoshi dictionary (Tuggy 1966: 64). The translation would be ‘like or similar to the feathers of a Milvago bird’. Another example, *kantsirpi*, was the term chosen to name the color ‘black’ and is composed of three parts, *kansi/ar/pi*, that mean tar/have/towards, something like ‘is similar to tar’, according to the dictionary (Tuggy 1966: 26). (Surallés 2016: 5).

The original, 1966, edition of the Tuggy dictionary of Candoshi appears to no longer be available. However, there is a second, 2008, edition available on line (See References. The dictionary’s physical form is that of a scanned typescript. The title page contains both dates: “Segunda edición, 2008” and “Primera edición, 1966.”). The 2008 edition does not contain an entry for *ptsiyaro*, nor in the Spanish-Candoshi section does it contain an entry for *milvago* (a genus of the Falconidae family), or for *chimachima* or *caracara*, other possibly relevant names. There is, however, an entry for a suffix *máashi* glossed as ‘cualidad’, assigned nominal, prepositional, and, relevantly, adjectival function. So it is reasonable – Tuggy (2008) notwithstanding – to accept S’s assertion that *ptsiyaro* denotes a species of milvago and that the word *ptsiyalomashi* is derived from the morphemes *ptsiyaro* and a suffix such as *-máashi* or *-mashi*. However, the Tuggy (2008) dictionary also contains an entry “*ptsiyáromaashi* – adj. amarillo”, i.e., yellow (Tuggy 2008: 65). A reasonable assessment of these facts, duly attentive to S’s observations, is that *ptsiyalomashi* is a derived adjective with a structure like that of English *fishy*, *horsey*, or *sheepish*, notionally motivated but not compositional. *Sheepish*

following *subsidiary* criteria: (v)... (vi)... (vii)... (viii) *In cases where lexemic status is difficult to assess [see criterion (i)], morphological complexity is given some weight as a secondary criterion* (Berlin & Kay 1969: 6, italics added, PK).

might have meant ‘easily led’, or ‘curly/wavy’ like French *moutonneux* < mouton ‘sheep’ + *-eux* (adjective-forming suffix). Assuming Candoshi does indeed contain a word *ptsiyáro* or *ptsiyaro* denoting a milvago species, the word *ptsiyaromashi* might have been coined to denote a property of this bird other than the color of some of its plumage, just as the word *catfish* is motivated by a cat’s whiskers, *catbird* by its meow sound, and French *chatoyer* ‘glisten, glimmer’ by its eyes.

Ptsiyáromaashi might have meant ‘voracious’, ‘aerobatic’, ‘tick-eating’, etc. The expression *ptsiyaromashi* is not a syntactically structured phrase; it is a word, a derived adjective meaning ‘yellow’, as attested both by the WCS naming responses and by Tuggy’s gloss, the *ptsiyaro* part presumably being motivated by the fact that the bird of that name saliently displays some yellow plumage.

Although none of the Candoshi color terms appear to be syntactically analyzable, if they were that fact would still not prove them to be other than words. Words may have internal syntactic structure. Familiar examples include English *jack-in-the-pulpit*, *forget-me-not*, *burnt sienna*, *burnt umber*, *old rose*, *old gold*, French *sang-de-boeuf*, ‘ox-blood red’, lit. ‘ox-blood’, *caca d’oie* ‘brownish or yellowish green’, lit. ‘goose poop’, *cuisse de nymphe*, ‘pale pink/hot pink’, lit. ‘nymph’s thigh’.⁴ The first two are plant terms with internal sentential structure; the last six are (non-basic) color terms with internal noun phrase structure and external function as either adjective or noun. A recent personal

⁴ According to the Wikipedia entry for *Cuisse de Nymphe*, the etymology of the term involves a sexual play on words. The article cites variants *cuisse de nymphe émue* ‘aroused’ and *cuisse de nymphe à peine émue* ‘barely aroused’, “où il est permis de soupçonner une certaine ironie” ‘in which one is entitled to suspect a certain irony’. These are lexical items with complex internal syntactic structure.

communication from John C. Tuggy casts some doubt on the status of *ptsiyaro(mashi)* as a BCT (See the last paragraph of the Appendix). Nevertheless, all eleven of the Candoshi speakers interviewed for the WCS in 1979 applied the term *ptsiyaro(mashi)* to the ten chips enclosed within the dashed lines of Figure 1. The solid lines in Figure 1 enclose the thirty-five chips that were given the name *ptsiyaro(mashi)* by any of the WCS Candoshi participants (Kay et al. 2009: 155-6). A term focused in yellow and extending into orange is common in languages with a relatively small number of BCTs. Extension into light yellowish greens is also common.

INSERT FIGURE 1 HERE

S's morphological parse of *kantsirpi* is acceptable according to Tuggy (2008), at least as far as the *kansi* and *-pi* parts can be checked. However, the same source lists the word *kantsirpi* with the unique gloss 'negro', i.e., black and no mention of *brea* (Sp. 'tar'), which is Tuggy's (2008) gloss for *kansi*, or anything else. Again we have a word – independently attested by the fact that Tuggy treats it as such – which appears to be a derived adjective with a color meaning, in this case 'black', part of which is motivated by the fact that *kansi* (tar) is saliently black. Fairly close English analogues, though not basic color terms, are the words *inky*, *sable*, *raven*, and *ebony*. Morphological derivation is frequently not semantically compositional. S has given us no reason to believe that the forms *ptsiyaromashi* and *kantsirpi* are any different in these respects from the words *inky* or *sheepish*. In neither case does S present any reason to suppose that semantically compositional syntax, rather than non-compositional, derivational morphology, is involved.

Granted that these two Candoshi color terms are polymorphemic (though neither syntactically analyzable nor semantically compositional) it does not follow, as implied by S, that the remaining Candoshi color terms are similarly morphologically complex. In the following paragraph S writes,

“*kavabana* (green/blue) refers to the supra-generic category of parrots and in particular to the blue and yellow macaw (*Ara araurana*); *chobiapi* (red) refers to ‘ripe fruit’; *kamachpa* (green) means ‘unripe fruit’⁵; *pozani* (an unusual supposed color term used to refer to desaturation of color) is said to mean ‘dry’, synonymous with lifeless” (Surrallés 2016: 5). S gives no indication that any of these terms is morphologically complex, let alone semantically compositional, and each is accorded a unique and unanalyzed color-term gloss in Tuggy’s (2008) dictionary of Candoshi, except for the WCS non-basic term *tarika*, for which the dictionary has only a non-color-term gloss. S writes, “*tarika* ... refers to a vine” (Surrallés 2016: 5). Tuggy (2008: 78) glosses *tarika* as ‘bujurqui amarillo (pez)’, which would be a yellow(ish) cichlid fish.

S’s second ‘fact’:

(2) The supposed Candoshi color terms are words or phrases that mean other things, but which have been regarded as terms only because of bias introduced by the linguist. This can be verified by means of a simple experiment: if a Candoshi-speaker is asked what *ptsiyaromashi* or *kantsirpi* means, he or she will never answer ‘yellow’ or ‘black’, but make reference, for instance, to a bird and a resin (tar) used to coat peashooters and as fuel for torches. (Surrallés 2016: 5)

⁵ Identity or similarity of an expression meaning ‘green (or grue) in color’ and one meaning ‘unripe’ (often also ‘immature’) is characteristic of English, French, Spanish, all Celtic languages, Yéli Dnye (a language isolate, spoken on Rossel Island, in the Western Pacific; Levinson 2000: 11), and very many others. One would not want to argue from such facts that none of these languages contain a color term for ‘green’ or ‘grue’.

It is hard to know what to make of the statement, “if a Candoshi-speaker is asked what *ptsiyaromashi* or *kantsirpi* means, he or she will never answer ‘yellow’ or ‘black’...” According to S, there are no Candoshi words (or conceptual categories) for yellow, black, or any other color category. (I assume that if S had in mind not receiving responses of ‘amarillo’ or ‘negro’ from those Candoshi participants who knew the Spanish terms, he would have said so.) Suppose on the other hand that the WCS and Tuggy (2008) are right in saying that these *are* the Candoshi words for yellow and black. The question posed to the Candoshi speaker then resolves to something on the order of “What does yellow (black) mean?” or perhaps “What is yellow (black) like?” In that case, since the Candoshi words for yellow and black contain roots that refer to milvagos and tar, one would expect many responses making reference to milvagos and tar, which is what S reports.

In this connection, S writes (p.7), “Some respondents went so far as to repeat what the people of the Bellona Solomon Islands [sic] had already told anthropologists: ‘We don’t talk much about color here’ (Kuschel & Monberg 1974).” S makes a point of the fact that Candoshi lacks a word for color: “A first important observation is that in the Candoshi language, there is no general term to name color itself. The fact that the word ‘color’ does not appear in the only existing Candoshi dictionary (Tuggy 1966) is not a mistake or omission. Similarly, Candoshi terms equivalent to such notions as ‘colored’, ‘multicolored’, or ‘colorful’ do not appear either. In addition, there is no attributive conceptual reference to the perception of a color, as in ‘this clay pot is red’ ” (Surrallés 2016: 6). Without any word for color one wonders how the Candoshi manage to put the matter so succinctly. In any case, if the point of observing that the Candoshi language lacks a word for color is to invite the frequent – albeit unjustifiable – inference that speakers of such a language must *ipso facto* lack a concept of color and hence lack color terms, it’s hard to see how S’s Candoshi

participants could even *think* the conceptual content of the quoted phrase, let alone express it concisely. Doesn't one have to have a concept X before one can form the thought that one doesn't much talk about X, let alone express that thought pithily? (If, on the other hand, the point of the observation that Candoshi has no word for 'color' is *not* that Candoshi speakers *ipso facto* lack all color concepts, what is it?)

Writers who suppose that lack of a word for color in a language entails that the language must not have words (and conceptual categories) for colors seem to either ignore (e.g., Lucy 1997), or willingly decline to consider (e.g., Wierzbicka 2008), the existence of languages with, for example, words for 'big' and 'small' but no word meaning 'size', words for 'hot' and 'cold' but no word meaning 'temperature', etc. According to Tuggy (2008) the latter is the case for Candoshi: *ksani*, 'caliente', (hot/warm); *kachízá*, 'frio' (cold/cool), no Spanish entry for 'temperatura'. Also Tuggy (2008) lists Candoshi *ivarri* 'arriba' (up) and *tsapoosho*, 'abajo' (down) with no gloss indicating 'vertical direction'. These are not exotic facts: English, French, and many other familiar languages display the same pattern. Many languages have words for 'big' and 'small' but no word for 'size', for 'hot' and 'cold' but now word for 'temperature', for 'good' and 'bad' but no word single word for... whatever good and bad are kinds of, and so on. It is common for a language to have a set of words that partitions a semantic domain with no general word encompassing the domain. It is not clear on what basis writers such as Surrallés, Wierzbicka, and Lucy, among others, take the domain of color to be special in this regard.

To be sure *borshi*, *chobiapi*, *kamachpa*, and *kavabana* are all notionally motivated, as are English *orange*, *pink*, *violet*; French *marron*, *rose*, *violet*, *lilas*; Spanish *rosado*, *café*, *marrón*, *celeste*. S says

he will show later why the notional motivation of the Candoshi color words is different from that of European color words:

In the next section, we will look at the exact nature of these references and show that the phenomenon at work is not the same as the use of sources such as ‘*orange*’ in English or ‘*marron*’ in French (Surrallés 2016: 5).

But we find that that promise is not kept. As we have seen, S’s claim that the terms in question are syntactically analyzable is unsupported by the fact that some are derived words, rather than unanalyzable roots. S does recognize here that the mere fact that a color expression also denotes something other than a color, like French *marron* ‘brown, chestnut’ or English (or French) *orange*, does not preclude its being a color term. However, the section S refers to does not address the question whether *kantsiripi*, etc. are or are not terms like *orange* and *marron*, genuine color terms with other senses that denote objects which saliently display that color. Instead, S’s third ‘fact’, describes a procedure S used in the field involving a version of the WCS stimuli.

S’s third ‘fact’:

(3) The list of Candoshi terms proposed by Kay, Berlin, et al. has been arbitrarily put together, and other expressions and terms emerge when Candoshi-speakers are asked to name colors. In this respect, we interviewed a group of speakers, showing each of them the chips composing the Munsell chart used by Berlin and Kay, separately and randomly, and asked them to describe them to us in any way that came to mind (Surrallés 2016: 5).

The Candoshi terms listed in the WCS materials were not arbitrarily put together. They arose from

the procedure described three times above, which involved individual chip presentations in a fixed random order. The individual responses to each chip by each participant, as well as the instructions to the field linguists and many other particulars of the WCS methods are available at <http://www1.icsi.berkeley.edu/wcs/data.html>. Both of the WCS publications to which S refers give detailed numerical summaries of how Candoshi participants responded to those presentations. On the other hand, S reports no data and provides no quantitative summaries. We are given no information on the responses of individual Candoshi speakers to individual chips. The entirety of S's report of the results of this procedure is the following: "Throughout all the fragments of recorded discourse, the terms that are considered as Candoshi color terms by the WCS certainly appear; however, other terms also appear with similar rates of frequency" (Surrallés 2016: 6). There is no further information on the distribution of responses and no criterion of "similar rates of frequency" is offered.

S warns that precise methods are to be distrusted and quantitative reporting avoided. "It should be noted that we do not see the use of decontextualized tools such as the Munsell chart to be an appropriate procedure for investigating color ethnography. On the contrary, the sole reason for using this chart was to provide an *ad absurdum* demonstration of the extent to which a survey method of this nature can completely skew the findings" (Surrallés 2016: 5). However, if approached with appropriate skepticism, "... formal tasks ... including questions about Munsell chips, may also provide worthwhile data and avenues of investigation if they are apprehended critically and as sources of qualitative information" (Surrallés 2016: 15, note).

Leaving aside the imprecision of S's report, consider the nature of the task. Imagine showing a series of color chips to some English speakers and asking them "to describe them ... in any way that [comes]

to mind” (Surrallés 2016: 5). One might expect to get some color-term responses, but surely many non-color-term responses, such as charcoal, snow, blood, apples, grass, leaves, lemons, etc. To repeat, all we know about S’s results is that “the terms that are considered as Candoshi color terms by the WCS certainly appear; however, other terms also appear with similar rates of frequency.”

Rather than, as promised, presenting evidence that those apparent color terms that also have non-color referents are not legitimate color terms like English *orange* or French *marron*, S proceeds as follows. “For the sake of brevity and clarity, we have selected the ten terms that appear most often, *excluding the nine terms proposed by the WCS*⁶, all frequently cited during the interviews” (Surrallés 2016: 6, italics added, PK). These ten expressions are then mapped impressionistically on the WCS color palette, each term represented by an ellipse that does not respect chip boundaries. No information regarding the distribution of responses beyond the impressionistic ellipses is reported, nor is any manner of calculating the ellipses from the responses described. Not surprisingly, the resulting ellipses do not correspond well to the regions that are usually assigned to basic color categories in natural languages, perhaps in part because, with one marginal exception, they cover much smaller areas than BCTs do even in languages with many BCTs. For example there are four such ellipses that fall in the red area, one extending into orange. S says that these are expressions denoting substances or entities that saliently display the range of colors impressionistically indicated on the color palette, which we have no reason to doubt. What this procedure demonstrates, if anything, is that one can show a speaker of Candoshi a color chip and ask that person “to describe [it] ... in any way that comes to mind” (Surrallés 2016: 16 note) and elicit thereby some responses that are not color terms but entities or parts thereof that display the corresponding color. This observation

⁶ As shown in Figure 1, the WCS lists eight, not nine, color terms for Candoshi.

does not touch upon the question whether the Candoshi basic color terms that also denote non-color referents are like or unlike English *orange* and French *marron*, *rose*, and *violet*, legitimate (basic) color terms that also have non-color senses. It says nothing at all about whether the expressions the WCS materials characterize as Candoshi BCTs are indeed Candoshi BCTs.

Unlike all of the WCS BCTs of Candoshi, seven of the ten expressions impressionistically mapped by S do not appear in Tuggy (2008). Table 2 lists S’s ten most frequent responses (aside from the WCS basic color terms), with the Tuggy (2008) glosses for the three terms for which it has entries.

	Surrallés’s Expression	Gloss If Term is Present in Tuggy (2008)
1	kchopshi	*
2	koorashi	*
3	ktsachi	palometa huayo (fruta) (<i>Mauritia flexuosa</i>)
4	kachiva	*
5	goochi	*
6	katama	*
7	tsarona	*
8	yobsa	achiota (<i>Bixa orellana</i>)
9	txobi	*
10	aroovi	pino pishco (pájaro) (<i>Dacnis lineata</i>)

Table 2. Expressions Investigated by Surrallés

For comparison, Table 3 displays the BCTs of Candoshi along with the WCS glosses and the gloss of each term in Tuggy (2008) for which there is a corresponding entry. There is in fact a corresponding entry in Tuggy (2008) for every WCS-identified basic color term, and in every case Tuggy’s gloss contains the Spanish equivalent of the WCS English gloss. In the case of *blanco* ‘white’, the Tuggy gloss adds ‘kapok’ and in the case of *colorado* ‘red’, the Tuggy gloss adds ‘ripe fruit’. Notably, the Tuggy gloss ‘asul, verde’ [blue, green] for *kavabana* corresponds rather well to the WCS gloss ‘blue/grue’; Tuggy (2008) also contains an entry for *kamachpa* ‘verde’ matching WCS’s *kamachpa*

‘green’. The WCS materials do not characterize either *pozani* or *tarika* as basic color terms. Tuggy (2008: 64) lists *pozaani* with the gloss ‘color mate, gris’, which agrees rather nicely with the WCS gloss of ‘gray/nondescript’. I take the absence of a color gloss for *tarika* in Tuggy (2008) to cast doubt on its color-term status, agreeing on this point with Surrallés.⁷

Term	WCS Gloss	Users	BC	Tuggy (2008)
<i>kantsiripi</i>	black	11	+	negro
<i>borshi</i>	white	11	+	huimba (kapok); adj. blanco
<i>chobiapi</i>	red	11	+	colorado; fruta madura
<i>ptsiyaro(mashi)</i>	yellow	11	+	amarillo [Tuggy entry lacks parentheses]
<i>kamachpa</i>	green	10	+	verde
<i>kavabana</i>	blue/grue	11	+	asul, verde
<i>pozani</i>	gray/non-descript	10	–	color mate, gris
<i>tarika</i>	purple	6	–	no entry in Tuggy (2008)

Table 3, Candoshi Color Terms with (Tuggy 2008) Glosses where present

Summing up so far, S’s paper has a much to say about ineffability, contrastive perception, and other lofty matters to which I have nothing either to add nor from which to subtract. My sole concern is with Candoshi color terms. I hope to have shown S’s claim that Candoshi lacks color terms to be in error. He presents three arguments.

Argument 1: the expressions that the WCS and the Tuggy (2008) dictionary list as BCTs are in fact syntactically complex expressions. We have seen above that there is no evidence in the two cases S

⁷ As noted above, Tuggy (2008: 78) has an entry *tarikamashi* ‘bujurqui amarillo (pez)’, which may or may not be relevant.

discusses, *ptsiyaromashi* and *kantsiripi*, to suppose that these expressions are anything other than derived words. The fact that they are each accorded a dictionary entry by Tuggy provides independent evidence of their lexical character, as well as the fact that *-mashi* and *-pi* appear in (Tuggy 2008) to be derivational suffixes. (We noted in passing that in any case words sometimes have internal syntactic structure.)

Argument 2: This argument was based on the observation that several of the WCS basic color terms have non-color meanings. As Table 3 demonstrates, in four of the six BCTs no gloss other than that of a basic color term is given by Tuggy. Nevertheless I have accepted on face value S's claims that these terms do also have the non-color denotations he claims, in addition to the BCT meanings assigned both by the WCS and by Tuggy (2008), and I have not counted the absence of these non-color meanings in Tuggy's entries as in itself an argument against S. However, the demonstration that S offers in favor of the exclusivity of the non-color meanings of the WCS-alleged BCTs, is that if one asks a Candoshi speaker "What is X like?, where X is a WCS-alleged BCT, one does not get a *color term* as the answer. Common sense suggests that even in a language with a full set of color terms one would expect most responses to such a query to be expressions that refer to objects or substances bearing the color in question rather than color words, especially when the words, like English/French *orange* and French *marron* have obvious non-color referents.

In addition, something like the WCS naming task was run with five Candoshi speakers (Surrallés 2016: 15-16, note). No data are reported beyond the statement: "Throughout all the fragments of recorded discourse, the terms that are considered as Candoshi color terms by the WCS certainly appear; however, other terms also appear with similar rates of frequency." The fact that some, maybe

most, of the responses were not color words but objects or substances displaying a color similar to that of the chip is interpreted by S as showing that the WCS-alleged color terms are not really color terms. Given that this seems just the sort of result one would expect if an English or French speaker were shown a sequence of colored chips and asked “What is it/this like?” the relevance of this imprecisely reported result to the question whether the alleged color terms of Candoshi really are color terms remains obscure.

Argument 3: S’s third argument is based on an impressionistic mapping with ellipses on the WCS palette of the naming areas corresponding to the ten most frequent responses to the naming task *other than the WCS color terms*. These ellipses do not correspond well to the regions usually associated with color terms. That the responses in question are doubtless not color terms does not bear on the question whether the expressions claimed to be basic color terms by the WCS, and independently by Tuggy, are basic color terms.

On a more positive note, it may be instructive to view the WCS results for Candoshi color naming in a comparative and historical context. We noted above that the WCS classifies Candoshi as transitional between stages IV_{G/Bu} and V, with an emerging term for green (Kay et al. 2009: 155). Figure 2 shows the mode maps (records of the most frequent naming responses for each chip) for two stage IV_{G/Bu} languages (Cavineña and Berik, top row), for Candoshi and a transitional language similar to Candoshi, Guaymî/Ngäbere, middle row), and for two stage V languages (Guambiano and Kalam, bottom row). The three rows of the figure present three virtual snapshots of a common historical process.

INSERT FIGURE 2 HERE

Viewed in a comparative and implicitly historical perspective such as that represented in Figure 2, we see that Candoshi color terminology fits a temporal pattern in which a term encompassing both green and blue gradually breaks up into distinct green and blue terms, as a new term for either green or blue emerges (in this case green), illustrating the transition from an initial state in which four of the six Hering primaries (black, white, red, yellow) have (often extended) individual names with two (green and blue) grouped together under a single term to a state in which all six Hering primaries receive separate (often extended) names. Judging from the WCS and other data, this must have happened many times in history, often, but not always, under the influence of another language or languages. Candoshi color terminology exemplifies a documented transitional point in a common historical pattern.

Acknowledgments: Helpful discussion with John C. Tuggy is gratefully acknowledged.

This paper contains an Appendix by John Tuggy and Paul Kay, consisting of email conversation between Tuggy and the author regarding Candoshi color terms. The suggestion of Terry Regier to compare Candoshi color terminology to that of some other WCS languages is also gratefully acknowledged, as are the comments of Brent Berlin on an earlier draft. All errors are the responsibility of the author.

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Appendix: Tuggy-Kay Correspondence

John C. Tuggy and Paul Kay

The remainder of this appendix consists of the email correspondence between John C. Tuggy and Paul Kay, Oct 28 – 30, 2016. Only information that is redundant or personal (including publication plans) has been elided. Nothing pertaining to Candoshi or to color language has been removed, added, or changed.

From: "Paul Kay" <pauldeykay@gmail.com>

To: "John C Tuggy" <tuggyjc@gmail.com>

Sent: 10/28/2016 1:07:42 PM

Subject: Re: [Linguistics] Hoping to contact one of your linguists

Dear Mr. Tuggy,

Thank you so much for responding to my inquiry. I am also happy to hear that you continue to have an interest in Candoshi. As you may or may not know, a French Anthropologist named Alexandre Surrallés has published a paper in the *Journal of the Royal Anthropological Institute* claiming to show that the Candoshi language contains no color words. I have drafted a brief rebuttal to that paper, which I attach a copy of. I also attach a copy of Surrallés's original paper in case you are interested in going that far into the matter.

Since my Spanish is imperfect at best, I fear I may have misinterpreted your work in places, and I would very much appreciate any corrections or comments you would be willing to make on that score, or any other.

Very best regards,

Paul

[...]

from: **John C Tuggy** <tuggyjc@gmail.com>

to: pauldeykay@gmail.com

date: Fri, Oct 28, 2016 at 3:17 PM

[...]

That dictionary had two audiences in mind: I wanted the Candoshi themselves to have a window into the dominant language around them, and I also wanted the dominant language speakers to understand that Candoshi is not a bunch of glorified monkey sounds.

Therefore, my reference to specific Spanish color terms was given as a broad target. When it comes to Candoshi color terms, they cover a part of a *large* color spectrum. Now, I would put it more like this:

- 'kantsirpi' = dark
- 'chobiapi' = redish
- 'pozani' = pale
- 'kawabana' = blue-ish (including greenish)
- 'borshi' = light (which would include yellowish)

Whether these terms are morphologically complex or not makes no difference (italics added, PK).

These five terms are the most commonly used.

Just like English or any other language, they are very color conscious, but have no lexeme that corresponds to the concept. When I would be asked to get blue trousers for one of them, he would show me the shade of blue, and my name was 'mud' if I came back with a different shade.

Of course, when shown a specific one of 330 chips they would come up with a 'descriptive' term, just as English speaking men do, whereas English speaking women are more astute about color terms.

from: Paul Kay <pauldeykay@gmail.com>
to: John C Tuggy <tuggyjc@gmail.com>
date: Sat, Oct 29, 2016 at 11:33 AM

[Text deleted because it is repeated in the following reply.]

from: John C Tuggy <tuggyjc@gmail.com>
to: pauldeykay@gmail.com
date: Sat, Oct 29, 2016 at 12:22 PM

I will answer directly in your message using <JT...> [Red added later for ease of reading. PK] in order to preserve the context.

----- Original Message -----

from: Paul Kay pauldeykay@gmail.com

1. When you say "reddish", for example, do you mean to include or exclude colors that one would call simply "red"? I'm pretty sure you meant to include clear examples of red and also colors similar to clear reds, but I would like to be fully sure. The same for "blueish" and "yellowish". <JT: These Eng. -ish terms certainly include the typical colors we think of as 'red', 'blue', and 'yellow'. [...] These terms cover an entire spectrum. My furniture in my room are in Candoshi a 'chobiapi' mahogany table, 'pozani' (light brown and light green suede cloth) couch, a 'kantsiripi' (dark gray) book case, a 'borshi' (marble-like) tile kitchen floor.>

2. In a similar vein, am I correct in assuming *kantsiripi* includes true black, as well as dark shades with some chromaticity? Similar question about *borshi*? <JT: It is as you say. The illustrations above demonstrate that.>

3. I understand that the five words you cite, represent the most frequently used color terms of Candoshi. Does the fact that you don't mention *ptsiy aromashi* or *kamachpa* in your letter indicate that you agree with what it says in your *Vocabulario*: that they are color terms meaning approximately "yellow" and "green", respectively? <JT: In English we also when pushed, cave in by using such terms as 'sky blue', 'grass green', 'spring leaf green', etc. I have a vague recollection that I collected those terms by elicitation and not by natural text or everyday conversation.>

On a personal note, I would be curious to learn how long you lived among the Candoshi; if that's too personal please ignore it. <JT: My wife and I first went to live among the Candoshi and Shapra in 1959. We were both in contact with them until 2009. I would estimate that we lived among them in their own communities during the first 25 years a total of 10 to 11 years. We had to learn the language as children learn, since there were no adequate Spanish speaking people. I am a native Spanish speaker, my second language was English, and Candoshi is not far behind. Whenever we have phone conversation with any of them, we speak only in their language. For laughs: The young people say that we talk like their ancestors do. We have observed linguistic shift over the decades.>

from: John C Tuggy <tuggyjc@gmail.com>
to: pauldeykay@gmail.com
date: Sun, Oct 30, 2016 at 7:00 PM

Second thoughts about 'yellow': the whole yellow spectrum is very scarce in the jungle. The men very carefully remove two yellow feathers from each toucan to weave into their feather head dresses. But there are only descriptive terms to talk about that. 'borshi' would only cover 'ivory' shades of yellow, but not the deep patent yellows we think of in our American culture.

Figures

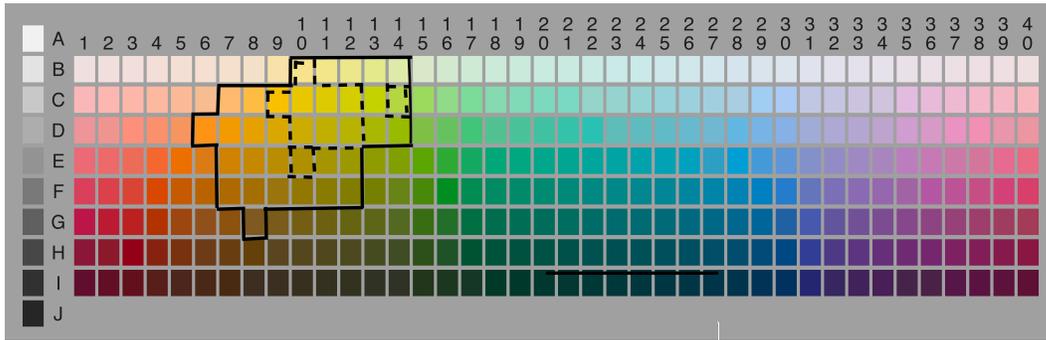


Figure 1. WCS naming responses for *ptsiyaro(mashi)*. Dashed lines enclose the chips that were named *ptsiyaro(mashi)* by every Candoshi participant. Solid lines enclose the chips that were named *ptsiyaro(mashi)* by any Candoshi participant. Source: Kay et al. (2009: 155-6)

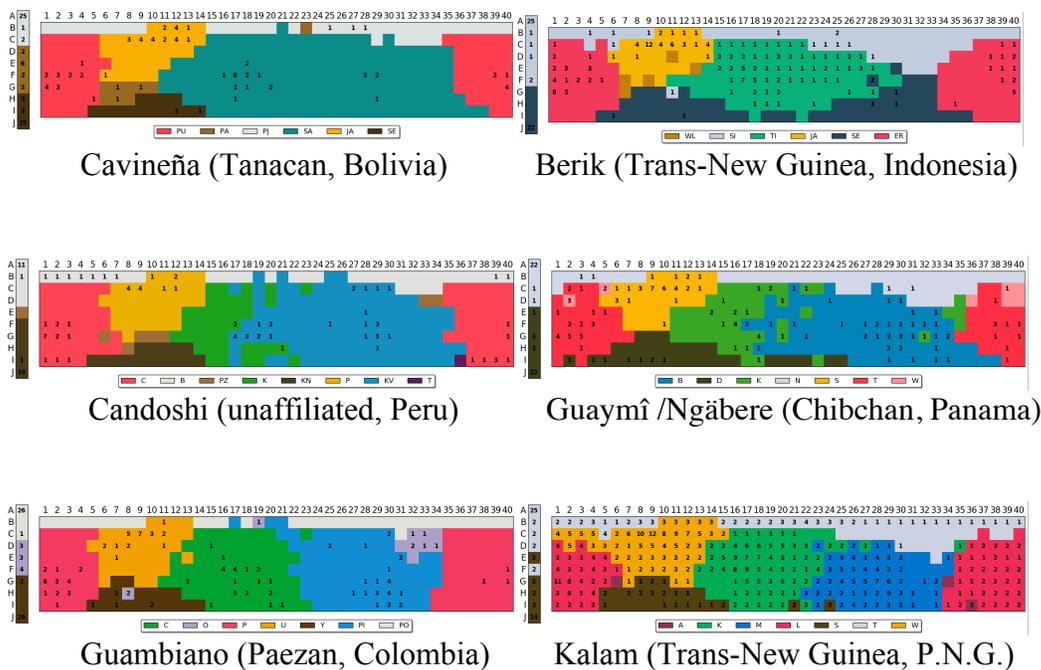


Figure 2. Candoshi Color Lexicon in Comparative and Historical Perspective.

Each false-colored area encompasses the chips receiving the most popular response for a particular color term. Numerals represent the number of focal choices received by the chips on which they occur. Individual lower panels show color key to terms in WCS online data. (<http://www1.icsi.berkeley.edu/wcs/data/20041016/txt/dict.txt>).

Source: Abbott, Griffiths, & Regier (2016: Supporting Information)