

Decomposing Color Expressions in Malayalam¹

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1. Expression of color

Although adjectival structure and meaning have been widely studied, there have been relatively few formal investigations of color adjectives specifically (Kennedy & McNally 2010, McNally 2011, McNally & de Swart 2011, Alexiadou 2013, Moltmann 2013). An examination of color expressions is warranted because they differ from other adjectives in at least two ways.

First, color adjectives have both gradable and non-gradable meanings (as in (1)-(2)). Gradable adjectives are compatible with overt degree modifiers, without a meaning change to the adjective itself (cf. the two uses of *green* in (1) vs. (2)).

(1) Gradable:

The leaves are green but they aren't green enough.

(2) Non-gradable:

The traffic light is green. # It is greener than the traffic light on that corner.

Other adjectives do not show this pattern. Relative (*tall*, *expensive*) and absolute (*full*, *clean*) adjectives only have gradable meanings (putting aside idiomatic expressions such as *high tea*). Non-gradable adjectives such as *Czech*, *chemical*, *female* need to be coerced to a new meaning in order to be used with degree modifiers, and can do so with varying success (e.g., *Mary is more Czech than Susana* vs. # *Mary is more female than Susana*).

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Second, color adjectives can appear in nominal positions, unlike other adjectives, as seen in (3)-(4) and discussed in McNally and de Swart (2011), Alexiadou (2013), a.o.

- (3) Green suits you
 (4) *{Big/short/expensive/wet} suits you

This paper contributes to our understanding of the grammar of color terms in Malayalam in comparison to other expressions used for predications, attributive modification and comparison in this language. The behavior of color terms prompts a partial revision to the analysis of Menon and Pancheva (2014). In our earlier work, we analyzed the internal structure of two classes of ‘adjective-like’ complex expressions in Malayalam, arguing that both are gradable. Here, however, we note that the properties of color terms require a more nuanced analysis. In particular, some color expressions show mixed properties, behaving like non-color expressions of one class in attributive position but like non-color expressions of the second class in predicative position. We offer a revised analysis that treats some color and non-color expressions in Malayalam as inherently non-gradable; further composition with possessive predicates contributes gradability.

More generally, the paper provides support for a gradable/non-gradable ambiguity in color expressions (Kennedy & McNally 2010, McNally 2011), although we do not analyze the different meanings as a case of a lexical ambiguity but as the result of different representations constructed by syntax below and above the word level. We also show evidence that color terms in Malayalam can behave as nominals, which we attribute to their combination with a null noun COLOR. Thus, Malayalam color expressions show similar behavior with respect to the phenomena illustrated in (1)-(2) and (3)-(4) and the analysis we offer in this paper contributes to the understanding of the cross-linguistic patterns.

2. Previous account of property denoting expressions in Malayalam

In previous work, we have shown that Malayalam lacks an adjectival category and uses syntactically complex expressions for predication, attributive modification, and comparison (Menon 2013, Menon & Pancheva 2014). Specifically, we have argued that such structurally complex ‘adjective-like’ expressions are built on the basis of property-concept denoting roots, i.e., roots with meanings such as *height*, *beauty*, *intelligence* (Chierchia and Turner 1988, Koontz-Garboden and Francez 2010, Francez and Koontz-Garboden 2015). Lexemes formed on the basis of such roots belong to two classes which differ in their syntactic category, and correspondingly, exhibit different syntactic behavior when they build the bigger structures used for predication, attribution and comparison. The ultimate semantics of the complex attributive and predicative expressions belonging to the two classes is, however, the same. We will review here the basic analysis of Malayalam property concept expressions in Menon & Pancheva (2014). We will then offer a revised account, partly in response to data from Malayalam color expressions.

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Some examples of Class 1 and Class 2 property concept expressions are given in (5) and (6). Class 1 expressions are *-a*-ending reduced (participial) relatives (*-a* being the Proto-Dravidian relative marker)² and Class 2 expressions are *-am*-ending nominals (*-am* being a nominal marker). Class 1 expressions are formed on the basis of native roots whereas Class 2 roots are borrowed from Sanskrit.

- (5) *valiya* ‘big’, *čeriya* ‘small’, *puthiya* ‘new’, *pazhaya* ‘old’, *nalla* ‘good’
 (6) *santosham* ‘happiness’, *sankaṭam* ‘sadness’, *prayasam* ‘difficulty’

In Menon & Pancheva (2014) we suggested that both Class 1 and Class 2 property concept expressions start out as roots denoting abstract mass substances (notated by *IT*), which, following Chierchia and Turner (1988), have the type of entities.

- (7) a. $\llbracket \sqrt{nall} \rrbracket$ = the property of goodness (Class 1)
 b. $\llbracket \sqrt{santosh} \rrbracket$ = the property of happiness (Class 2)

² A reviewer points us to an alternate analysis as explicated in Balusu (2014) where the *-a* ending is analyzed as the genitive marker in similar Telugu Class 1 forms.

- (i) a. pillalu ‘children’ ~ pillal-a ‘children’s’
 b. pustakaalu ‘books’ ~ pustakaal-a ‘books’

In Malayalam, however, unlike in Telugu, the only genitive marker is *-inte/-uṭe* and it can suffix to the *-a* ending forms after they are turned into light headed relatives, such as in (ii), shown attaching to a Class 1 property concept expression, and in (iii), the counterpart of the Telugu examples in (i), where there is no *-a* marker.

- (ii) a. nalla-van-te ‘good man’s’
 b. nalla-va|te ‘good woman’s’
 c. nalla-t-inte ‘goodness’s’
- (iii) a. kuṭṭi-ka| ~ kuṭṭi-ka|-uṭe ‘children’s’
 b. pustakaṇ-ṇa| ~ pustakaṇ-ṇa|-uṭe ‘books’

If indeed *-a* is a genitive marker in Malayalam, the *-a* ending forms in (5) should be able to appear predicatively without the help of pronominalization, which does not happen. Note that the counterpart forms of Telugu can appear in the predicative position without being turned into nominals (see Menon, *in prep* for an explanation). The possessive genitive forms can appear as a complement to a copula directly as seen in (iv).

- (iv) itə ka|ṇan-te aaṇə
 this robber-GEN EQ-COP
 ‘This is the robber’s.’

Thus, we maintain our analysis that *-a* in Malayalam is a relativizer and not a genitive marker. A further piece of evidence suggesting this comes from Judeo-Malayalam, the traditional language of the Cochin Jews in Kerala, now spoken primarily in Israel. As shown in Gamliel 2013, in Judeo-Malayalam the participial form is *-e* instead of *-a*, and, as we predict if the two are the same morpheme, so is the suffix on Class 1 roots. Thus, in Judeo-Malayalam, the word for ‘good’ is *nall-e* rather than *nall-a*. (Itamar Francez p.c).

The core idea is that these roots are turned into predicates of individuals through possessive predication, and to have *II* means to have an instance, a certain amount, of *II*, i.e., possessive predicates formed on the basis of property-concept roots are gradable.

2.1 Class 1 property concept expressions

The Class 1 roots are verbalized first, with a null possessive *v*, before the addition of the relative marker *-a*. Support for the presence of the null verbal head comes from the distribution of the relative marker *-a*: *-a* only merges with verbs. Hence, Class 1 roots are turned into nonfinite verbal expressions by the addition of a null *v*, which, as we suggested in Menon and Pancheva (2014), has possessive semantics, as in (8).³

$$(8) \quad \llbracket \emptyset_{v_poss} \rrbracket = \lambda II. \lambda d. \lambda x. \exists y [y \text{ is an instance of } II \text{ and } x \text{ has } y \text{ and } \mu(y) \geq d]$$

The degree argument is bound by the non-overt positive morpheme *POS*. The meaning of forms such as those in (9) is norm-related – they are interpreted as making reference to a standard, as would be expected if *POS* is binding the degree variable word-internally.

$$(9) \quad \llbracket nalla \rrbracket = \lambda x. \exists d \exists y [y \text{ is an instance of goodness \& } x \text{ has } y \text{ \& } \mu(y) \geq d \text{ \& } d > d_s] \\ \approx \lambda x. \exists d [x\text{'s goodness} \geq d \text{ and } d > d_s]$$

Thus, Class 1 expressions are similar in meaning to a positive gradable adjective *good* in English in many semantic accounts. Their syntax of reduced participial relatives and their semantics of predicates of individuals makes them appropriate attributive modifiers (as in (10)).

$$(10) \quad \begin{array}{ll} nalla & kuttj \\ \text{good} & \text{child} \end{array}$$

The equative (EQ) copula completes the predication structure, see (11). The EQ copula is the canonical predication strategy in Malayalam, as illustrated in (12) – it is the structure used with predicate nominals. The example in (12b) is particularly relevant, since it has the same structure as the property concept predicates in (11) – a verb (‘to hear’) is relativized by *-a* and turned into a participle; the pronominal then changes the participle into a light-headed relative – an appropriate nominal to be a complement to the EQ copula. An analysis that treats Class 1 expressions as morphologically simple, or assigns *-a* the status of an adjectival suffix, clearly misses the commonality between the forms in (11) and (12b) (and ex. (17) later, where *-a* relativizes the non-finite possessive copula, resulting in the participial form *ull(a)*⁴). This is an important point in light of

³ Cross-linguistically, possession could be encoded by some other functional head, not necessarily a *v*. In Malayalam the functional head must be verbal due to the restriction imposed by the relativizer. What is crucial for our analysis is not the category of the null element, but the fact that it encodes possession, and that possession plays a key role in encoding gradability in property concept expressions.

⁴ A reviewer finds the null possessive verb objectionable on the grounds that postulating it amounts to suggesting that Malayalam has a null *have* while lacking an overt *have*. But notice that Malayalam does have an overt possessive copula, as seen in (15) and (16). Thus, the null possessive verb is the covert word-

criticism in Francez and Koontz-Garboden (this volume) that positing a null verb in Class 1 is unmotivated. If $-a$ in *nalla* in (11) is the same relative marker as $-a$ in (12b) and (17), then it is attaching to a null verb, since relative $-a$ only ever attaches to verbs.

- (11) a. *ava| nalla-va| aaṇə* (Class 1)
 she having-goodness-F.SG EQ-COP
 ‘She is good.’ (lit. ‘She is one having goodness.’)
- b. *avan nalla-van aaṇə*
 he having-goodness-M.SG EQ-COP
 ‘He is good.’ (lit. ‘He is one having goodness.’)
- (12) a. *avan kolayali aaṇə*
 he murderer EQ-COP
 ‘He is a murderer.’
- b. *ava| ke|kkun-a-va| aaṇə*
 she hear-REL.F.SG EQ-COP
 ‘She is one who can hear.’ (lit. ‘She is one hearing.’)

We see that Class 1 property concept roots participate in canonical predication – with the EQ copula. Thus, the *external* syntax and semantics of Class 1 expressions are compatible with the proposal made in Koontz-Garboden and Francez (2010), Francez and Koontz-Garboden (2015) concerning adjectives cross-linguistically. Our contribution in Menon and Pancheva (2014) is to show that the *internal* syntax and semantics of ‘adjective-like’ expressions also conforms to a generalization Koontz-Garboden and Francez (2010), Francez and Koontz-Garboden (2015) made concerning property-concept nominals cross-linguistically: creating attributive and predicative structures on the basis of nominals requires the use of verbs denoting possessive relations. The Class 1 property-concept denoting expressions of Malayalam are built on the basis of entity-denoting property concept roots, and thus they too use a possessive strategy, but this happens covertly below the word level.

2.2. Class 2 property concept expressions

Class 2 property concept roots end in $-am$, a Proto-Dravidian nominal marker. Thus, we take $-am$ to be the spell out of a nominalizing head. In Menon and Pancheva (2014) we gave this nominalizing head the semantics in (13), suggesting that it turns abstract property concepts into measured instances of the property.

- (13) $[[-am_n]] = \lambda II. \lambda d. \lambda x [x \text{ is an instance of } II \text{ and } \mu(x) \geq d]$

internal counterpart of the overt possessive copula. Also, we posit additional evidence for the null possessive verb from our analysis of Complex color expressions in Section 4. In color terms, we find two versions – the Simple color term and the Complex color term – the latter showing a spell-out of the v_{poss} head.

The degree argument can be bound by an existential degree quantifier, as in (14), a measure phrase, or a comparative quantifier, resulting in structures without norm-related semantics (unlike the case of Class 1 forms, where, before the addition of *-a*, i.e., below the word level, *POS* binds the degree argument). Class 2 nouns denote predicates of individuals that are instances of *II*, in contrast to Class 1 forms, which, as we suggested in Menon and Pancheva (2014), are predicates of individuals that possess instances of *II*. The form in (14) can be the complement to a non-finite (*u||a* in (15)) or finite (*u||ə* in (16)) existential (EX) copula which encodes possession. The individual argument is existentially closed off, as in regular possessive/existential predication.

- (14) a. $[[[\sqrt{\text{pokk}} + am_n]_n + \exists D]$ (Class 2)
 Lit. ‘being an instance of tallness measuring to some degree’
 b. $[[\text{pokkam}]] = \lambda x \exists d [x \text{ is an instance of tallness and } \mu(x) \geq d]$
- (15) pokkam u||a kuttj (Class 2)
 tallness having child
 ‘tall child.’ (lit. ‘tallness-having child.’)
- (16) ava|kkə pokkam u||ə (Class 2)
 she.DAT tallness EX-COP
 ‘She is tall.’ (lit. ‘To her there is tallness.’)

We see that Class 2 property concept roots participate in overt possessive predication, with the existential copula, as is to be expected from nominals on the account of Koontz-Garboden and Francez (2010) and Francez and Koontz-Garboden (2015). But we also see that with the help of the same syntactic mechanisms available to Class 1 forms – relativization with *-a*, and the creation of a light-headed relative with the help of pronouns – Class 2 forms can also participate in canonical predication, with the equative copula. This is illustrated below.

- (17) a. ava| pokkam u||a-val aaŋə (Class 2)
 she tallness having-F.SG EQ-COP
 ‘She is tall.’ (lit. ‘She is one having tallness.’)
- b. avan pokkam u||a-van aaŋə (Class 2)
 he tallness having-M.SG EQ-COP
 ‘He is tall.’ (lit. ‘He is one having tallness.’)

To summarize, the main proposals in our previous account (Menon and Pancheva 2014) are as follows, (i) possession, either covert or overt, is the basis for encoding property concept predication; (ii) property concepts universally lexicalize as category-less roots, and they denote abstract substance-like individuals, requiring possessive predication; (iii) variation in property concept predication is rooted in the morphosyntax and semantics of the functional vocabulary that categorizes property concept roots.

3. Revising the previous account

Our previous analysis posits two different heads which introduce gradability, namely the v_poss head for Class 1 and the n head spelled out as *-am* for Class 2. While for Class 1 expressions gradability is tied to the semantics of property possession, localized to v_poss , this is not so for Class 2 expressions. Uniformity will be theoretically preferable. Moreover, we need to posit two different nominal heads that are spelled out as *-am*, since the nominal *-am* appears also on nouns that do not have gradable semantics (e.g., the nominals in (18)). Then the question arises of why a verbal head could not combine with Class 2 roots, given the freedom of roots like the ones in (18a,b) to combine with both a verbal and a nominal head. The nominal nature of the functional head that combines with Class 2 roots is accidental as the same semantics could correspond to a verb.

- (18) a. *chaat-uka* ‘to jump’ – *chaat-am* ‘a jump’
 b. *oot-uka* ‘to run’ – *oot-am* ‘a run’
 c. *sneh-ikk-uka* ‘to love’ – *sneh-am* ‘love’

Here we revise our analysis, arguing that both Class 1 and Class 2 roots compose first with verbal heads, but not the same verbal head. We retain our previous analysis for Class 1. We now suggest that Class 2 roots compose with a covert v head without possessive semantics. There are several implications to this new analysis. Since the covert v head doesn’t have possessive semantics, it does not introduce a degree argument. Only the covert v_poss has a degree argument. Crucially, this suggests that only Class 1 expressions are gradable. We will provide evidence for this when we look at how Class 1 and Class 2 expressions encode comparatives in Section 4.2. This new account is also desirable over the previous account since possession is expressed overtly in Class 2 expressions using the EX copula, and gradability can be encoded in the relation of possession of a property concept nominal. Thus, gradability, in our revised account, is tied directly to property possession, with both Class 1 and Class expressions. Finally, there is no need to posit two nominal *-am* morphemes in the language.

3.1. Revised Class 2 expressions

The Class 2 property concept roots first compose with the null v head without possessive semantics. The nominal marker *-am* then nominalizes this expression. Unlike the previous account, the null v head does not incorporate a degree argument. The existential copula then turns the nominal into a gradable predicate.

- (19) a. $[[[\sqrt{pokk} + \emptyset_v] + am_n]_n]$ (revised, Class 2)
 b. $[[\emptyset_v]] = \lambda I. \lambda x [x \text{ is an instance of } I]$
 c. $[[pokkam]] = \lambda x. [x \text{ is an instance of tallness}]$

Class 2 expressions are not gradable. They are made gradable optionally overtly using the comparative marker or a measure phrase. An existential degree quantifier, without

norm-related semantics (unlike the case of Class 1 forms, where POS binds the degree argument), binds the degree argument introduced with possessive predication.

After the null *v* head composes with the Class 2 root and turns it into a verbal element, one could ask why the relative marker *-a* does not turn these forms into reduced relative clauses. We are aware that this is an issue (as also pointed out by a reviewer), but we do not have a good answer to this question. We could say that the morpheme in (19b) that turns property concept roots into predicates is not verbal but nominal in category. This would explain why the *-a* does not attach to it; recall that *-a* only attaches to verbs. However, as we will soon see, we need a null verbal head with the same semantics as in (19b) to account for the form and meaning of certain color expressions (see the discussion around ex. (23)). Once that head is available in the inventory of Malayalam, we will have to stipulate that it does not apply to Class 2 roots. Now we have to stipulate that Class 2 verbal forms have to be nominalized. At least in the color expressions (next section), we will see that the same root can compose with a verbal head (with different semantics) to form a verb (e.g., the two forms of ‘white’). This suggests to us that Class 2 forms too are made verbal first and are then nominalized.

Additionally, one can ask why the Class 2 roots do not combine with the null *v_{poss}* and then with *-a*. In fact, in other related Dravidian language this is indeed what happens. In Kannada, Class 2 borrowed roots are turned into reduced relatives using *-a*. The semantics of these forms suggests that they incorporate a null *v_{poss}* before the addition of *-a*.

- (20) a. *santosha* ‘being happy’ i.e., ‘having happiness’
 b. *dukka* ‘being sad’ i.e., ‘having sadness’

As a reviewer points out, the Kannada forms in (20) can be *-am* ending nominal forms truncated to *-a* phonologically. We acknowledge that this may indeed be true given forms such as (21a), where ‘*santosha*’ behaves similar to ‘happiness’ with the help of the past participial form of the “be” verb, namely ‘*agi*’. However, forms such as (21b) are also attested. These are similar to the pronominalization seen with Class 1 *-a* ending forms in Malayalam (11), suggesting that the forms in (20) show both nominal and adjectival properties.

- (21) a. ii *huḍuga santosha-agi idd-ane*
 this boy happiness-BE.PST BE-3P.SG
 ‘This boy is happy.’
- b. *huḍuga santosha-vanu/ huḍugi santosha-va|u*
 boy happy-3M.SG/ girl happy-3F.SG
 ‘The boy is happy.’ ‘The girl is happy.’

In Malayalam, as well as in Tamil, however, forms such as the ones in (20) do not occur. This could be a language-internal morphological fact: Class 2 roots can only combine with the non-possessive *v* just like Class 1 forms in that language only combine

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with the possessive *v*. This is a stipulation, but we think that the insight into the link between possession and gradability that a compositional analysis of these forms allows us, makes the stipulation worthwhile. Note that an alternative lexicalist account similarly involves a stipulation: adjectival lexemes are based on native roots and borrowed roots are lexicalized as nominals.

3.2 Intermediate summary

The two classes of property concept roots undergo different syntactic derivations, but crucially start with, and end with, the same meaning. The possessive relation is expressed at the level of the word, through a covert possessive verbal morpheme, with Class 1 roots, and at the phrasal level, through an overt possessive verb, with Class 2 roots. Gradability is directly related to property possession. Only Class 1 lexemes are gradable, Class 2 expressions become gradable only at the phrasal level, through combination with a copula expressing possessive semantics.

4. Color expressions in Malayalam

In Menon & Pancheva (2014), we subsumed color expressions under Class 1, since they are *-a* ending terms. In this section, we will look in detail at color expressions in Malayalam suggesting that they exhibit both Class 1 and Class 2 properties, even though morphologically they belong to Class 1 property-concept expressions.

The revised analysis in the previous section has implications for the analysis of color terms. Color terms are *-a* ending, like Class 1 expressions. However, they exhibit two different forms with different syntactic behavior. We will refer to these forms as *Simple* and *Complex*. The term *Simple* is meant simply in opposition to *Complex*, the Simple form has internal morphological composition, similar to Class 1 expressions (except with a non-possessive *v*, as we will see shortly). The Complex form, although *-a* ending too, differs from Class 1 expressions in that it is overtly more complex. An exhaustive list of color terms in Malayalam is given in (22) below.

(22) *Color expressions in Malayalam*

ROOT	SIMPLE	COMPLEX	NOMINALIZATION	MEANING
√we	we a	we utta	we uppə	‘white’ ⁵
√kar	--	karutta	karuppə	‘black’
√kem	--	čuvanna	čuvappə	‘red’
√pačč	pačča	--	paččappə ⁶	‘green’

⁵ Only the root for ‘white’ exhibits both simple and complex forms. We have to say that the lack of one form or the other for the remaining color roots is an accidental gap. However, we do note that there exist words for ‘red’ and ‘black’ that look simple but semantically mean different things, such as *kara* ‘stain’ and *čuva* ‘taste’. These two terms are nouns and not reduced relatives as seen by the presence of overt case marking.

√niil	niila	--	--	‘blue’
√maṇ	maṇṇa	--	--	‘yellow’
√čaar	čaara	--	--	‘ash grey’
√uut	uuta	--	--	‘violet’

Among the color roots, the roots for ‘white’, ‘black’, ‘red’, and ‘green’ (√weļ, √kar, √kem, √pačč) can be identified as having Proto-Dravidian origins. These roots have cognates in other Dravidian languages. The roots for ‘blue’ and ‘violet’ are borrowings from Hindi-Urdu, and the root for ‘yellow’ is derived from the Tamil word for turmeric ‘maṇṇal’. Apart from these, English terms for colors such as ‘cream’, ‘rose’, ‘pink’, ‘orange’ have been borrowed into the Dravidian lexicon and they are pronounced with morphology used in borrowing, such as the epenthetic vowel (ə in Malayalam, u in Telugu etc).

4.1 Syntactic and semantic behavior of color expressions

4.1.1. Simple color terms

Simple color terms morphologically resemble Class 1 expressions. However, they depart in their syntactic behavior exhibiting similarities with Class 2 expressions. Our proposal is to treat the Simple color terms similar to Class 2 forms up to a point. They compose with a ν head with no possessive semantics and no degree argument. This is intact with our earlier observation about the composition of $-a$, the Proto Dravidian relative clause marker, with verbal elements. Thus, Simple color terms are turned into participial verbal expressions by the addition of a null ν as in (23), the same null ν that derives Class 2 expressions according to (19b). Recall that for Class 2 forms, positing the null non-possessive ν was stipulative, at least as far as the syntactic category of the functional element is concerned. For Simple color terms though, the ν is justified on the ground that the relative marker $-a$ attaches next.

$$(23) \quad [[\emptyset_{\nu}]] = \lambda II \lambda x [x \text{ is an instance of } II]$$

The ν Ps that are created by the merge of the null non-possessive ν are further relativized by the verbal relative marker $-a$, see (24). This changes the syntactic category, as the structure is now participial; the semantic type remains unchanged. Note that the Simple color term *wella* means ‘being an instance of whiteness’, which is a predicate of individuals but of semantically different sortal type than the NP *kuppayam* ‘dress’ with which the color expression seemingly combines in (25a). This sortal mismatch disallows a Simple color form as in (24c) to combine with a noun phrase in the attributive position directly. Our proposal is to posit a null covert color expression, COLOR (à la Kayne 2005), which the Simple color terms modify, and a null expression of possession, (25b). Note

⁶ Note, however, that *paččappə* means ‘greenery’. All the other nominalizations refer to the color itself.

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that both null elements posited in the attributive structure (24b), which surfaces as (24a), can be seen overtly in (25c): the nominal *niram* ‘color’ and the possessive non-finite copula *u[[a]*, the same strategy employed in attributive modification in Class 2 expressions. The null possessive element POSS plays the role of linking together the Simple color nominal expression ‘white color’ with the noun phrase it modifies. We leave the precise formulation of this structure for future work.⁷

- (24) a. $[[\sqrt{\text{we}}[+ \emptyset_v]_v]$ (Simple color)
 Lit. ‘be an instance of whiteness’
 b. $[[\sqrt{\text{we}}[+ \emptyset_v]_v + -a]_{\text{rel}}$
 Lit. ‘being an instance of whiteness’
 c. $[[\text{we}][a]] = \lambda x. [x \text{ is an instance of whiteness}]$
- (25) a. *we[[a* *kuppayam* (Simple color)
 being-whiteness dress
 ‘a white dress’ (lit. #‘being an instance of whiteness dress’)
- b. *we[[a* COLOR POSS *kuppayam*
 being-whiteness color having dress
 ‘a white dress’ (lit. ‘being a white color having dress’)
- c. *we[[a* *niram* *u[[a* *kuppayam*
 being-whiteness color having-REL dress
 ‘a white dress’ (lit. ‘being a white color having dress’)

Simple color terms can appear in the predicative position with the EQ copula without the help of a bound pronominal morpheme, see (26a). This suggests that in this structure too, just like in the case of the attributive structure, Simple color terms combine with a null nominal COLOR; the presence of this nominal makes the pronominal forms unavailable. The structure behind the surface predication in (26a) is as in (26b). Note that the posited covert nominal COLOR can also be overt (27). The presence of the covert nominal makes the use of bound pronouns with the EQ copula (as in Class 1 predication) unnecessary, by providing the EQ copula with a nominal complement.⁸

- (26) a. *kuppayam* *we[[a* *aanə* (Simple color)
 dress being-whiteness EQ-COP
 ‘The dress is white.’

⁷ The question of the nature of the possession-encoding linker in (25a/b) – or even its presence – is tied to the structure of the predicative use of Simple color terms, as in (26a,b) and (27a).

⁸ A question arises as to whether there is a possession-encoding linker in (26a/b) in addition to the null COLOR. We would expect that to be the case, given the discussion concerning the attributive use of Simple color terms as in (25). The EQ copula can also take PPs, given its use in locatives, so a complement like ‘of a white color’ could be possible in (26a/b). However, (27a), with overt *niram* ‘color’ shows no such linking element. Similarly the interpretation of (28a) suggests the absence of a possession-encoding element in these predicative structures. We leave this question open for the future.

- b. kuppayam wella COLOR aaṇə
 dress being-whiteness color EQ-COP
 ‘The dress is white.’
- (27) a. kuppayam wella niram aaṇə
 dress being-whiteness color EQ-COP
 ‘The dress is of a white color.’
- b. kuppayat-inə wella niram unṭə
 dress-DAT being-whiteness color EX-COP
 ‘The dress is white color.’

We see that Simple color terms morphologically belong to Class 1 property concept expressions but exhibit peculiar syntactic behavior in predicative position. We suggested that Simple color terms start out as roots that are made verbal using the non-possessive *v* head (the same head we suggested combines with Class 2 non-color roots); then they are relativized by *-a*. In attributive position, Simple color terms modify a null covert nominal COLOR. They also combine with additional structure which encodes possession, enabling modification between the Simple color term and the NP. Simple color terms also exhibit canonical predication with the help of the equative copula, however, unlike Class 1 expressions, they do not require a pronominal element. We capture this by positing the same null covert nominal COLOR in the predicative position as in the attributive position, which the Simple color term composes with. This covert nominal plays a similar role to the bound pronominal in Class 1 predication, converting the participial *-a* form into a nominal expression. This null nominal is likely behind the ability of color terms in languages like English to appear in nominal positions, as seen in (3).

Importantly, Simple color terms are non-gradable (as shown in (28)). Gradability is introduced by the overt existential copula in predicative position, just as is the case with Class 2 property concept expressions.

- (28) a. traffic light pačča COLOR aaṇə
 traffic light green color EQ-COP
 ‘The traffic light is green.’
- b. # traffic light-inə pačča niram unṭə
 traffic light-DAT green color EX-COP
 ‘The traffic light is green.’ (Lit. ‘The traffic light has green color.’)
- c. # ii traffic light aa traffic lightin-e kaal-um kuuṭuttal pačča COLOR aaṇə
 this traffic light that traffic light-ACC than more green color EQ-COP
 ‘This traffic light is greener than that traffic light.’

As Kennedy and McNally (2010) note and as shown in (2), it is the traffic light’s classificatory property to be green in color; the property either obtains or it does not. Thus, as we can see in the Malayalam examples, when the Simple color term is used in (28a), only a non-gradable, classificatory reading is available. Gradability cannot be overtly introduced here, using the possessive copula, as in (28b), which results in infelicity. The comparative is also disallowed (similar to # *more female*).

Moreover, Simple color terms can be used as classificatory modifiers, as in (29), which are non-gradable (Kennedy and McNally 2010).

- (29) a. pačča we||am
green water (lit. ‘fresh water’)
- b. we||a wine
white wine (in fact, yellow in color)

In the next section, we will see that Complex color terms syntactically and morphologically behave differently from Simple color terms.

4.1.2 Complex color terms

Complex color terms also morphologically resemble Class 1 expressions, in that they are *-a* ending, but they depart from Class 1 non-color and Simple color expressions in exhibiting more complex overt morphology. Despite their overt morphological complexity, they pattern similar to Class 1 non-color expressions in their syntactic behavior. We analyze them accordingly. Complex color terms start out as roots that compose with a null *v_poss* with possessive semantics (30) (repeated from (8)). We analyze the *-utt* morpheme as a spell-out of the *v_poss*, it is the overt morpheme counterpart of the null possessive *v* head⁹ (the possessive copula, as we discussed earlier, is another overt possessive verbal form, morphologically free rather than bound).

$$(30) \quad \llbracket \emptyset_{v_poss} \rrbracket = \lambda II \lambda d \lambda x \exists y [y \text{ is an instance of } II \ \& \ x \text{ has } y \ \& \ \mu(y) \geq d]$$

The meaning of Complex color forms is norm-related – they are interpreted as making reference to a standard, as would be expected if POS is binding the degree variable rather than a regular existential degree quantifier. The meaning given in (31b) is similar to the meaning assigned to positive gradable adjectives such as ‘good’ in English by many semantic accounts.

$$(31) \text{ a. } \llbracket [\llbracket \sqrt{\text{we}} [+ \text{-utt}_{v_poss}]_v + \text{POS}]_v -a \rrbracket_{rel} \quad (\text{Complex color})$$

⁹ There is some variability in the phonological realization of this morpheme. As seen, complex ‘black’ and ‘white’ have the *-utt* morpheme, whereas complex ‘red’ has an *-ann* morpheme. We take this to be a phonological fact depending on the coda position of the root, lateral ending for *-utt* and nasal for *-ann*. They are both spell-outs of the null *v_poss* head.

Lit. ‘having an instance of whiteness measuring to a degree that exceeds the standard’

- b. $[[we[-utt-a]] = \lambda x. \exists d \exists y [y \text{ is an instance of whiteness and } x \text{ has } y \text{ and } \mu(y) \geq d \text{ and } d > d_s]$
 $\approx \lambda x. \exists d [x\text{'s whiteness} \geq d \text{ and } d > d_s]$

The participial *-a*-forms can be used in attributive position – they have the appropriate participial syntax as well as semantics to be interpreted through predicate modification with nominals such as *dress*. Unlike Simple color expressions, there is no null COLOR in attributive position in the case of Complex color expressions.

- (32) a. *we[-utt-a]* *kuppayam* (Complex color)
 having-whiteness dress
 ‘a white dress’ (lit. ‘having whiteness dress’)
- b. not: *we[-utt-a]* COLOR *kuppayam* (Complex color)
 having-whiteness color dress

The participial *-a*-forms can also be used in predicative position, after they are turned into light-headed relatives, i.e., DPs, through the merge of bound pronouns. Given the absence of the null nominal COLOR with Complex color terms, the obligatory presence of the pronominal is expected.

- (33) *itə we[-utt-a-tə]* *aaŋə* (Complex color)
 this having-whiteness-neut EQ-COP
 ‘it which has whiteness’ (lit. ‘it having goodness’)

Complex color expressions morphologically and syntactically behave like Class 1 non-color expressions. They use a covert possessive strategy and display canonical predication using the equative copula. They also show overt evidence for the existence of a possessive *v* head, which spells out as the *-utt/-ann* morpheme.

4.2. Implications for comparatives

The analysis we have sketched out predicts an asymmetry in comparison. Simple color terms should behave similar to Class 2 expressions in allowing the comparative marker ‘more’ in structures with the possessive predicate needed to introduce gradability. Complex color terms should behave similar to Class 1 non-color expressions in disallowing an overt comparative marker, as the degree variable introduced by the possessive *v*, with which *-a* combines, is closed off by POS. The color terms behave exactly as predicted by the analysis. In both predicative and attributive forms, *kuuʈuttal* ‘more’ (a form that only appears in comparatives) is optionally allowed with Simple color terms and disallowed with Complex color terms.¹⁰ In the case of Simple color

¹⁰ The issue of optionality of *kuuʈuttal* ‘more’ is addressed in Menon 2015, in prep.

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terms, the attributive form provides further evidence for our covert nominal COLOR. It has to be overtly pronounced.

(34) a. Simple color: predicative

ii kuppayam aa kuppayathin-e *kaa[um (kuu[uttal)* we[[a aaṇə
 this dress that dress-acc than more white EQ-COP
 ‘This dress is whiter than that dress.’
 (lit. This dress is white color more (so) than that dress.)’

b. Simple color: attributive

Anil Komalan-e *kaa[um (kuu[uttal)* we[[a niram u[[a kuppayam i[[tu
 Anil Komalan-acc than more white color having dress wore
 ‘Anil wore a whiter dress than Komalan.’
 (lit. ‘Anil wore a dress having whiteness more than the dress Komalan was wearing.’)

c. Complex color: predicative

ii kuppayam aa kuppayathin-e *kaa[um (*kuu[uttal)* we[[utta-tə aaṇə
 this dress that dress-acc than more white-pron EQ-COP
 ‘This dress is whiter than that dress.’
 (lit. This dress is having whiteness more than that dress.)’

d. Complex color: attributive

Anil Komalan-e *kaa[um (*kuu[uttal)* we[[utta kuppayam i[[tu
 Anil Komalan-acc than more white dress wore
 ‘Anil wore a whiter dress than Komalan.’
 (lit. ‘Anil wore a dress having whiteness more than Komalan.’)

In the comparatives in (34), the semantics of comparison is encoded in the standard marker *than*. We leave a detailed analysis of these comparatives for future work (See Menon 2015 and Menon in prep).

5. Summary and conclusions

We give below an updated summary of the structures for Class 1, Class 2, Simple color, and Complex color forms. The two classes of property concept roots participate in different structures, but both start with, and end with, the same meaning. Simple color terms are similar to Class 2 forms in that they are non-gradable and do not have a *v_*poss in their composition; Complex color terms are similar to Class 1 expressions in that they are formed with *v_*poss and are thus gradable.

(35) Class 1: native roots, non-color

a. [[[_{VP} √1+ Ø_{v_}poss] + POS] + a_{rel}] (attributive)
 ‘having an instance of Π that exceeds the standard’

- b. $[_{VP} [_{DP} [[[_{VP} \sqrt{1} + \emptyset_{v_poss}] + POS] + a_{rel}] \text{pron}] \text{EQ.COP}]$ (predicative)
 ‘be someone having an instance of Π that exceeds the standard’

(36) Class 2: borrowed roots

- a. $[_{VP} [_{DP} [_{VP} \sqrt{2} + \emptyset_v] + am_n] \text{EX.COP}_{non-finite}] + a_{rel}]$ (attributive)
 ‘having an instance of Π ’
- b. $[_{VP} [_{DP} [_{VP} \sqrt{2} + \emptyset_v] + am_n] \text{EX.COP}]$ (predicative)
 ‘have an instance of Π ’
- c. $[_{VP} [_{DP} [[[_{VP} [_{DP} [_{VP} \sqrt{2} + \emptyset_v] + am_n] \text{EX.COP}_{non-finite}] + a_{rel}] \text{pron}] \text{EQ.COP}]$ (predicative)
 ‘be someone having an instance of Π ’

(37) Simple color

- a. $[_{VP} \sqrt{SC} + \emptyset_v] + a_{rel}]$ (attributive to COLOR)
 ‘being an instance of Π_color ’
- b. $[_{DP} [[[_{VP} \sqrt{SC} + \emptyset_v] + a_{rel}] \text{COLOR}]$ (attributive to nouns)
 ‘being a Π_color ’
- c. $[_{VP} [_{DP} [[[_{VP} \sqrt{SC} + \emptyset_v] + a_{rel}] \text{COLOR}] \text{EQ.COP}]$ (predicative)
 ‘be an instance of Π_color ’
- d. $[_{VP} [_{DP} [[[_{VP} [_{DP} [[[_{VP} \sqrt{SC} + \emptyset_v] + a_{rel}] \text{COLOR}] \text{EX.COP}_{non-finite}] + a_{rel}] \text{pron}] \text{EQ.COP}]$ (predicative)
 ‘be someone having an instance of Π_color ’

(38) Complex color

- a. $[[[_{VP} \sqrt{CC} + \emptyset_{v_poss}] + POS] + a_{rel}]$ (attributive)
 ‘having an instance of Π_color that exceeds the standard’
- b. $[_{VP} [_{DP} [[[_{VP} \sqrt{CC} + \emptyset_{v_poss}] + POS] + a_{rel}] \text{pron}] \text{EQ.COP}]$ (predicative)
 ‘be someone having an instance of Π_color that exceeds the standard’

In this paper, we demonstrated that in Malayalam, a language that does not have a category of adjectives, adjective-like meanings for attributive modification and predication involving color terms are expressed by complex structures built from roots denoting property concepts. We provided an analysis of color expressions, by updating our previous account of the internal structure of one class of property concept expressions (Class 2 nominals). We argued that possession, either covert or overt is the basis for encoding property concept predication, including with color terms. Variation in property concept predication is rooted in the morphosyntax and semantics of the functional vocabulary that categorizes property concept roots. Color expressions come in two avatars, a simple form that needs overt possessive predication to be gradable and a complex form, which encodes possession covertly, is gradable, and exhibits canonical predication. We thus provided evidence from Malayalam for a distinction between gradable and non-gradable color expressions, posited by Kennedy & McNally (2010) and

McNally (2011) as a lexical ambiguity, and argued here to be a distinction rooted in the morphology rather than the lexical semantics of the color terms.

An alternative analysis such as the semantic variation hypothesis, in Francez and Koontz-Garboden (this volume), also needs to stipulate why Class 1 roots end up behaving like adjectives and Class 2 roots end up as nominals. Our analysis hinges on possession both below and above the word level. Below the word level, possession is introduced by a functional head that also introduces a degree argument. This head turns out to be a verbal head in Malayalam, although cross-linguistically this functional head could have a different category. Above the word level, possession is encoded using the possessive copula, which also contributes gradability. Our account posits that the source of variability in the behavior of property-concept expressions, within Malayalam, and likely cross-linguistically as well, is morpho-syntactic variation, a consequence of structure building processes, and not variability encoded in the lexicon.

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