

Deriving color adjectival nominalizations

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ABSTRACT. In this paper I examine two types of nominalizations related to color adjectives in Greek, a suffixed one and a neutral one, which I will compare to their English and Dutch (and German) counterparts. I show that the two differ in that suffixed nominalizations denote stage level properties, while neuter nominalizations denote individual level properties. This difference is due to the fact that suffixed nominalizations are count nouns, while neuter nominalizations are mass nouns. A comparison between Greek, and Dutch/German and English shows that languages have different nominalization strategies: nominalization can take place at three layers: at the root level, at the nP level, and finally at the DP level. This explains the differences in distribution and interpretation among the different nominalization types across languages.

KEY WORDS. Color adjectives, suffixed nominalization, neuter nominalization, stage level, individual level.

1. Introduction

In the recent literature, the extent to which natural languages exploit the distinction between (category preserving) inflection and (category changing) derivation to create subtle nuances of meaning that enrich the palette of reference to abstract objects has emerged as a new focus on the study of the interface between morpho-syntactic representations and their interpretation, see e.g. McNally & de Swart (2011), Villalba (2009) among others.

In this paper, I contribute to this discussion by looking at two types of nominalizations related to color adjectives in Greek, which I will compare to their English and Dutch counterparts. The first type, labeled here suffixed nominalization, is mostly derived via the addition of an affix to an adjectival stem, e.g. *-ada* (2a), or *-ila* (2b), and bears feminine gender. The second type, labeled here neuter nominalization,¹ simply surfaces in what looks like the neuter form of the adjective in question (2c) vs. (1):

¹ Here I refer to (2c) as neuter (adjectival) nominalization, following Villalba (2009).

- (1) to aftokinito ine prasino
the car-nom is green-neut
the car is green
- (2) a. i prasinada ton mation tis *suffixed nominalization*
the green-ness the eyes hers
the greenness of her eyes
- b. o tihos ehi endoni asprila
the wall has intense whiteness
there is an intense whiteness on the wall
- c. to prasino tu milu ine endono *neuter nominalization*
the red the apple-gen is intense
the red of this apple is intense

Dutch, as described in McNally & de Swart (2011), shows a three way distinction. Next to the inflected form (3b), corresponding to the neuter form in (2c), and the suffixed form (3c), there is also a non-inflected form of the adjective that can appear in nominal distribution, see e.g. (3a). A similar partition is found in German, see Alexiadou, Iordachioaia, Marzo & Umbreit (2012).

- (3) a. Misschien kun je het **rood** van de aardbeien nog een beetje roder maken?
maybe can you the red of the strawberries yet a bit redder make
'Maybe you can change the red (shade) of the strawberries so that it is a bit redder?'
- b. Het **rode** van de aardbeien, het witte van de mascarpone en de the red[+ -e] of the strawberries, the white[+ -e] of the mascarpone and the slagroom en het groene mintblaadje kleurden prachtig bij elkaar.
cream and the green mint-leaf.dim colored beautifully with each-other

'The red (aspect) of the strawberries, the white (aspect) of the mascarpone and the cream, and the green mint leaf are a wonderful color combination.'

c. De **roodheid** van de huid kan achterliggende oorzaken hebben.
the redness of the skin can deeper causes have
'The redness of the skin can have deeper causes

In contrast, English lacks the inflected form, and only shows the contrast between two forms: *the red* and *the redness*.

The questions that I will deal with in this paper are:

- What are the differences between the various forms?
- How do these relate to their morpho-syntactic representations?
- How does the two way distinction in Greek relate to the two way distinction in English, and how do these relate to the Dutch three way distinction?

2. The morpho-syntax of de-adjectival nominalizations

2.1. The neuter nominalization

There are two possible analyses for examples such as the ones in (2c): either these are cases of nominalization of an adjective or these could be analyzed as an instance of nominal ellipsis, as in (4):

- (4) esi tha agorasis to prasino aftokinito ki ego to kokino ~~aftokinito~~
you fut buy.2sg the green care and I the red one
You will buy the read care and I the red one

At first sight, an analysis according to which such strings contain an elided noun seems plausible, since in Greek the noun for color, *hroma*, is also neutral. If, however, these cases involved ellipsis, we would expect the remnant to behave like an adjective, contrary to fact. Importantly, strings of the type in (2c) do not tolerate gradation (**to pio ble tu uranu* 'the more blue of the sky').

Importantly, there seems to be some evidence in favor of the

nominalization analysis. First of all, they allow adjectival modification, in contrast to their Dutch counterparts, see the contrast in (5) vs. (6). If this were a case of ellipsis, we would expect the color term to behave like an adjective and only allow adverbial modification, which is not the case:

- (5) to endono / *endona ble tu uranu
the intense(NEUT)/intensely blue the sky-gen
- (6) het intens/*intense rode van de ondergaande zon
the intense (ADV)/intense (ADJ) red of the setting sun

Again in contrast to their Dutch counterparts, they tolerate other determiners.

- (7) afto to kitrino ginete grigora roz/poli kitrino epese
this the yellow becomes soon pink/much yellow is around
- (8) *een/dit/veel rode
a/this/much red

Unlike other types of neuter nominalizations, color nominals can only take an argument in the genitive and not in the PP form:

- (9) to ble tu uranu/*me ton urano
the blue the sky.Gen/at the sky
- (10) to kalo me ti Maria
the good at the Mary

In addition, there is a difference in meaning between (9) and (10): while (9) entails the predication of the adjective about the genitive DP, the neuter nominal in (10) does not. The latter rather establishes a partitive relation with the genitive DP, which is missing in the former:

- (11) to kalo me ti Maria = > I Maria ehi kati kalo
the good at the Mary Mary has something good
- (12) to ble tu uranu = > O uranos ine ble
the blue the sky-gen the sky is blue

Further examples illustrating the presence of a partitive reading with non-color nominalizations are given in (13), from Alexiadou, Iordachioaia, Marzo & Umbreit (2012):

- (13) a. To kalo tu Jani ine i ipomoni tu.
the good the John-gen is the patience his
The good thing about John is his patience.
- b. To kalo me ta vilia tu Larson den ine i dedalodis plokas.
the good with the books the Larson-gen neg are the daedalian plots
The good thing about Larson's books is not the daedalian plots.

The situation in (13) seems similar to what has been observed for Spanish LO- nominalizations, see Villabba (2009), where the data come from, building on Bosque & Moreno (1990):

- (14) a. Lo interesante del libro es el primer capítulo.
LO interesting of-the book is the first chapter
The interesting part of the book is the first chapter.
- b. Me asusta lo peligroso de la empresa.
to.me frightens LO dangerous of the.FEM enterprise
It frightens me how risky the enterprise is.

Importantly, such a partitive reading is absent from color nominals. There is a further difference between color nominalizations and other neuter nominalizations concerning productivity: the neuter nominalization of non-color adjectives, is idiosyncratic, in the sense that it is possible with some adjectives but not with all:

(15) a.	perifanos proud	perifan-i-a pride-fem	*to perifano the proud	
	b.	ilikrinis honest	ilikrin-i-a honesty-fem	*to ilikrines the honest
	c.	mikro small-petty	mikro-tit-a pettiness	*to mikro the petty

In contrast, all color adjectives produce nominals of the type in (2c). This, in addition to the interpretational differences outlined above seems to suggest that the neuter nominal in (13) is a case of substantivization, i.e. nominalization out of a root, as proposed in Giannakidou & Stavrou (1999), while color terms seem to involve a case of de-adjectival nominalization. The question then arises, what about the suffixed nominalization.

2.2. The suffixed nominalization

The suffixed nominalizations in *-ada* or *-ila* are clearly nouns. The following observations support this claim. First, they take adjectival modification:

- (16) i endoni kokinila
the intense redness

Second, they combine with a variety of determiners:

- (17) tin/afti i /poli asprila
the/this the/much whiteness

Third, they can pluralize, in contrast to the neuter nominalization:

- (18) a. i apriles
the whitenesses
- b. *? ta aspra
the white-pl

This suggests that the suffixed nominalization is a count noun, while the neuter nominalization behaves like a mass noun.

There is a further difference between the two types of nominalization, and this relates to their temporal structure. While the suffixed nominalization can occur as the subject of a predicate such as *last*, this is not possible with the neuter nominalization. If, as it is standardly assumed, predicates such as *last* require eventualities as their subject, the contrast below suggests that suffixed nominalizations have some temporal structure (cf. Martin 2010):

(19) *i asprila kratise deka meres*
the whiteness lasted 10 days

(20) **to aspro kratise 10 meres*
the white lasted 10 days

A second piece of evidence in favor of this view comes from the observation that suffixed nominalization can be spatio-temporally restricted:

(21) a. *i kokinila sto heri mu me anisihise*
the redness in the hand my me worried

b. **to kokino sto heri mu me anisihise*
the red in the hand my me worried

c. *i kokinila ton proigumenon imeron eksafanistike*
the redness the past days disappeared

d. **to kokino ton proigumenon imeron eksafanistike*
the red the past days disappeared

In conclusion, suffixed nominalization behave like stage-level predicates (see also Roy 2010), while neuter nominalizations behave like individual level predicates. While the former are count nouns, the latter are mass nouns.

Note that both suffixed nominalizations, i.e. *-ada* and *ila* ones, can

have such stage-level readings. In fact, most of the time, the two forms are used interchangeably. Occasionally, suffixed nominalizations can take idiosyncratic interpretations, e.g. *prasinada* 'green-ness' can also mean *grass*:

- (22) a. i asprila tu paniu i asprada tu paniu
 the whiteness the cloth-gen the whiteness the cloth
- b. to derma mu ehi kokinadas/kokiniles/aspriles/asprades
 my skin has rednesses/whitenesses

Finally, as far as the behavior of the accompanying genitive is concerned, I note that this again can appear only in the genitive form, and it does not differ in interpretation from the genitive that co-occurs with the neuter nominalization, suggesting that also in this case the genitive is an argument of the embedded adjective.

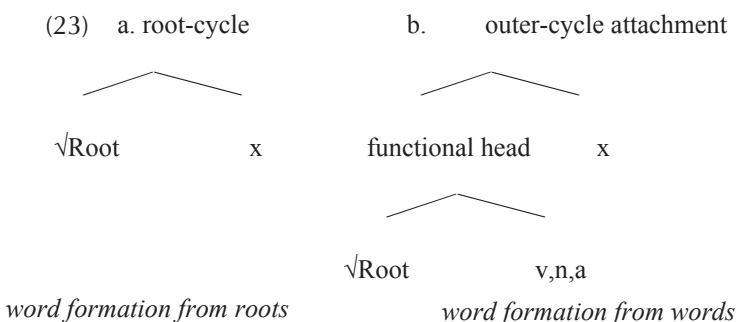
3. Towards an analysis

3.1. Background

I will assume a view on word formation couched within the framework of Distributed Morphology (see Arad 2005, Marantz 2001, Embick 2010). From this perspective, the following pieces constitute the building blocks of word formation:

1. Language has atomic, non-decomposable, elements, called roots.
2. Roots combine with the functional vocabulary and build larger elements.
3. Roots are category neutral. They are then categorized by combining with category defining functional heads.

There are two cycles for word-formation (Marantz 2001/to appear), i.e. two levels at which categorizing affix can appear: the root cycle and the outer-cycle. Affixation at the root cycle leads to word formation out of roots, while affixation at the level that includes already a categorizing affix involves word formation out for words:



The two processes have very different properties. To begin with, roots are assigned interpretation at cycle (23a), i.e. the constraint in (24) holds:

(24) Locality constraint on the interpretation of roots/Cyclic generalizations:

Roots are assigned an interpretation in the environment of the first category-assigning head with which they are merged. Once this interpretation is assigned, it is carried along throughout the derivation. (Arad 2005, Embick 2010).

Moreover, merger with root implies:

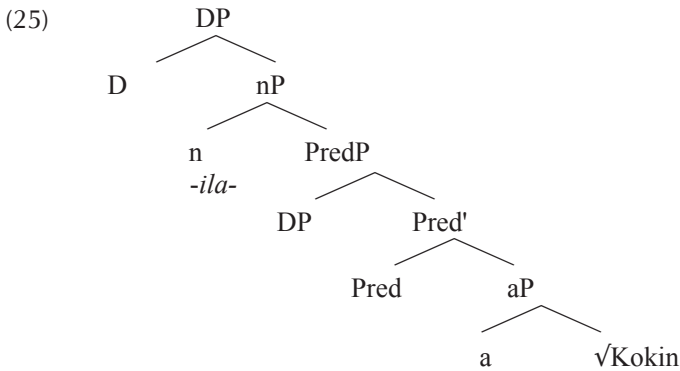
1. negotiated (apparently idiosyncratic) meaning of root in context of morpheme
2. apparent semi-productivity (better with some roots than others)
3. meaning of construction cannot be an operation on “argument structure” but must depend on root semantics independent of argument structure
4. corollary of the above: cannot involve the “external argument”

In contrast, merger above a category-determining morpheme implies:

1. compositional meaning predicted from meaning of stem
2. apparent complete productivity
3. meaning of structure can involve apparent operation on argument-structure
4. can involve the external argument. (Marantz 2001/to appear).

3.2. Deriving the two types of adjectival nominalizations

We have seen that both types of adjectival nominalization are actually nominal. Both suffixed and neuter nominalizations are productive and inherit the argument of the adjective. From the perspective of the framework introduced in section 3.1, this means that the root must be first categorized by *a*, an adjectivizer, and then by *n* which will host the nominalizing suffix, as in (25). I follow Roy (2010) and assume that on top of the *aP*, the nominalization also includes a *PredP* (see also Bowers 1993), which hosts the argument of the adjective inherited by the nominal itself.

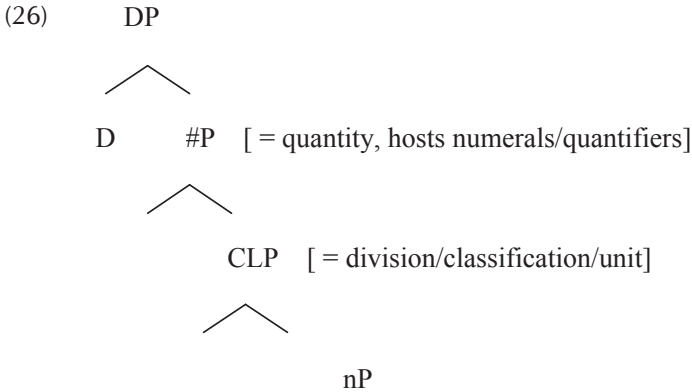


In view of the fact that the neuter nominalization realizes a genitive argument of which the property of the adjective is predicated, it should be similar in structure with the suffixed nominalizations, with the difference that they do not have a suffix.

The question that arises is then the following: if (25) is the structure for both the suffixed and the neuter nominalization, how can we account for the differences between the two types in terms of mass vs. count interpretation? Second, how is the stage-level/individual level distinction grammatically realized?

In order to deal with these issues, I will build on Husband (2006), who argues that these two properties are related. To begin with, recent work on the nominal structure of noun phrase argues that count and quantity interpretation arise from the presence of a specific functional projection within the extended projection of the nominal, see Borer (2005) for detailed

discussion. Building on Borer (2005), different functional projections between the DP and the NP are assumed: (i) the quantity phrase (#P in her system; similar but not equal to NumberP) and the Classifier Phrase (CLP in her system). All nouns enter the derivation as mass, and become count in the syntax, via ClassP.



In view of the fact that suffixed nominalizations can be pluralized, they must contain CLP. That is, suffixed nominalizations contain the layers #P and CLP between nP and DP, while neuter nominalizations lack these layers, see (27). Crucially, following Husband (2006), a stage level interpretation in nominals is related to the presence of the quantity phrase. As Husband argues, a quantity structure in the stative domain is interpreted always as stage-level.



4. Crosslinguistic variation

In this final section, I will turn to issues concerning cross-linguistic variation. I mentioned in section 1 that languages seem to cut the domain of reference to abstract objects differently. First, there are languages like Greek, which have two types of nominalizations: the neuter one and the suffixed one, respectively. Second, there are languages like Dutch and German that show a three way distinction: next to the two types of nominalizations found

in Greek, they also have a non-inflected form. Third, there are languages like English which show a two-way distinction but different from the one found in Greek: they only have suffixed and non-inflected nominalizations.

McNally & de Swart (2013) address this issue and identify three point of variation: i) the presence of number inflection in the nominal system, ii) the semantics and productivity of derivational morphology that forms nouns from adjectives, and iii) the existence of specifically neuter definite articles.

Let me begin by contrasting the inflected adjective found in Germanic to its Greek counterpart. As McNally & de Swart (2011), the inflected adjective in Dutch does not behave like a noun. It can only appear with a specific determiner, namely *het*, (28):

- (28) **een/dit/veel rode*
 one/this/many red

This then suggests, as McNally & de Swart (2011) also argue, that the inflected forms are actually adjectives that become nominal in the context of a determiner:

- (29)
-
- ```

graph TD
 DP[DP] --- D[D]
 DP --- a[a]
 a --- ROOT["√ROOD"]

```

The difference between Greek neuter nominalizations and their Germanic counterparts thus is captured in the model outlined in 3.1 by means of the presence of nP. The categorizer n nominalizes a root or another category, but importantly it brings in a full internal nominal syntax, i.e., gender features and declension information. This means that it will force the resulting structure to fully behave like a noun, i.e., only adjectives will be allowed as modifiers (adjectives usually agree with the noun), and all types

of determines should be licit.

However, languages seem to also nominalize structures by means of a D alone (lordachioaia to appear). This has been argued to be the case, among others, with the verbal gerund in English, where the possessive is the only nominal marking, everything else indicates a verbal structure (see Alexiadou 2001, Alexiadou, lordachioaia & Schäfer 2011):

(30) John's **constantly**/\***constant** reading this novel

In this respect, Dutch inflected nominalizations are similar to the verbal gerund in English, because they lack an nP and are nominalizations by D alone. Importantly, D introduces an external nominal syntax, but not an internal one; it thus basically accommodates a structure of a different category into a nominal context. The crucial evidence in favor of this view is the fact that the two nominalizations sharply contrast with respect to the selection of determiners. While neuter nominalizations in Greek are compatible with just any determiner, Dutch inflected forms are restricted to the definite determiner. I assume here that the un-inflected form in Dutch (and German), and the suffixed nominalization found in these languages behave similarly to the Greek neuter and suffixed nominalization respectively.

Turning now to English, Kennedy & McNally (2010) point out that color nouns are routinely used to refer to colors, and as exemplified in (31), they are mass nouns. This is shown by their ability to appear in bare singular form and their compatibility with mass quantifiers.

- (31) a. Green was a surprising choice for the color of the dining room.  
b. There was a little/not much green in the carpet.

McNally (2011) argued that color nouns differ from suffixed nominalizations in that only the latter can pick out proxy properties, color terms cannot. Taking as point of departure the framework put forth in Kennedy & McNally (2010), color adjectives are argued to be ambiguous between a true color reading and a so-called proxy reading, where proxy is understood as having the property denoted by the color term:

- (32) a. ...if there is blueness around the mouth....  
b. ...if there is blue around the mouth...

Since color adjectives can have both proxy and true color readings, McNally argues that the contrast above shows that a) *redness* involves nominalization of an adjective, and b) the color noun is more basic than the color adjective. In turn, from the perspective of the framework in 3.1, this suggests that *red* involves nominalization of a root.

On the basis of these observations, we can now summarize the analysis of the different types of color nominalizations. Suffixed nominalizations in all languages are nominalizations of an adjective. Neuter nominalizations in Greek are similar to their suffixed counterparts, the difference between the two relating to the presence of quantity structure in the latter but not in the former. Inflected nominalizations in Dutch and German are nominalizations of an adjective, which, however, acquires nominal properties via the presence of a determiner. Non-inflected nominalizations in Dutch and German are again similar to their suffixed counterparts. In contrast, bare nominalizations in English are nominalizations of a root.

## 5. Conclusions

In this paper, I examined two types of nominalizations related to color adjectives in Greek, a suffixed one and a neutral one, which I compared to their English and Dutch (and German) counterparts. I showed that the two differ in that suffixed nominalizations denote stage level properties, while neuter nominalizations denote individual level properties. This difference is attributed to the fact that suffixed nominalizations are count nouns, while neuter nominalizations are mass nouns. A comparison between Greek, and Dutch/German and English showed that languages have different nominalization strategies: nominalization can take place at three layers: at the root level, at the nP level, and finally at the DP level. This explains the differences in distribution and interpretation among the different nominalization types across languages.

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