

Inflection and Derivation: How Adjectives and Nouns Refer to Abstract Objects

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Abstract. The study of nominalizations raises foundational questions about the relation between adjectives and nouns in natural language and the differences in their semantics. In this talk, we present a syntactic and compositional semantic analysis of a previously unanalyzed type of inflected adjective in Dutch and contrast it with the semantics of the corresponding uninflected forms and deadjectival nominalizations. We use a rather sparse ontology, but assign a special relational semantics to nominalized inflected adjectives. We then briefly compare our analysis of the inflected forms to that of *lo*-marked adjectives in Spanish (Villalba 2009) to shed light on reference to abstract objects in natural language more generally.

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1. Inflection, Derivation and Reference to Abstract Objects

Adjective inflection in Dutch depends in part on the gender of the noun that the adjective co-occurs with. Dutch has two definite articles: *het* (glossed here as ‘the_{sg,n}’), which is singular and neuter; and *de* (glossed here as ‘the’), which combines with all non-neuter (i.e. masculine and feminine) singular nouns, as well as all plural nouns. It has one (singular) indefinite article *een* ‘a’, which is used for all nouns. When a neuter noun appears with the indefinite article, any accompanying adjective appears in the basic uninflected form:

- (1) Ik kocht een groen boek [neuter noun, indefinite]
I bought a green_Ø book
‘I bought a green book.’

In contrast, the adjective appears in its inflected form in definite DPs containing neuter nouns (2a), as well as in both definite and indefinite DPs containing non-neuter nouns (2b), in plurals, etc.:

- (2) a. Het groene boek was mooi. [neuter noun, definite]
the_{sg,n} green_[+e] book was nice
‘The green book was nice.’
b. Ik heb een/de groene tafel gekocht [non-neuter noun, indef/def]
I have a/ the green_[+e] table bought
‘I bought a/the green table.’

All adjectives show this alternation, except when they end in //ə// (*roze* ‘pink’, *mauve* ‘mauve’), or *-a* (*lila*, ‘lilac’), or *-en* (*gouden* ‘golden’) which we therefore leave out of this discussion.

The focus of this paper is on the nominalized use of inflected adjectives (3b, 4b), in contrast to deadjectival nominalizations (3c, 4c), and uninflected forms (3a, 4a) to refer to abstract objects like colors and tastes. Note the subtle meaning differences between these examples, manifest in the corresponding translations:

- (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 slagroom en het groene
the red_[+e] of the strawberries, the white_[+e] of the mascarpone and the cream and the green
mintblaadje kleurden prachtig bij elkaar.
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.'
- (4) a. **Het bitter van olijven, het zout van ansjovis en het milde zuur van komkommers**
the bitter of olives, the salt of anchovies and the mild sour of cucumbers
'the bitter (taste) of olives, the salt (taste) of anchovies and the mild sour (taste) of cucumbers'
- b. **Het bittere in het bier** is een mooi contrast met **het zoete van de mout**.
the bitter_[+e] in the beer is a nice contrast with the sweet_[+e] of the malt
'The bitter (aspect) of the beer is a nice contrast with the sweet (aspect) of the malt.'
- d. Ik moest, net als Hollandse kindertjes, wennen aan **de bitterheid van witlof**.
I must.pst, just like Dutch children.dim, get-used to the bitterness of Belgian-endive
'Like all Dutch children, I had to get used to the bitterness of Belgian endives.'

The Dutch inflected form in (3b) and (4b) is strikingly similar to *lo*-marked adjective (5b) in Spanish (cf. [12]), which establishes a contrast with nominalized adjectives taking the article *el* (5a), and derived nominals (5c):

- (5) a. ¿Conoce usted más blancos que los esquimales?...**El blanco de los esquimales**...
know you more whites than the Eskimos? ... the white of the Eskimos
'Do you know more (shades of) white than the Eskimos?...The white of the Eskimos...'
- b. ...los acantilados negros contrastan bellamente con **lo blanco de las dunas de arena**.
the cliffs black contrast beautifully with the white of the dunes of sand
'...the black cliffs contrast beautifully with the white (aspect) of the sand dunes.'
- c. **La blancura del papel** es también una cuestión de gusto.
the whiteness-of-the paper is also a matter of taste
'The whiteness of paper is also a matter of taste.'

In contrast, English lacks the inflected form, and only shows the contrast between *the red* and *the redness*. For (b) either a paraphrase (see the above translations) or in some cases the derived nominalized form is used.

The nominalized use of inflected adjectives in Dutch is rather frequent with abstract adjectives (*het vreemde van dit boek* 'the strange thing about this book', *het gezonde van biologisch voedsel* 'the healthy thing about biological food'), but rare with concrete adjectives such as *dicht* 'closed': ?**het dichte van deze doos* 'the closed_[+e] of this box'. Not all adjectives allow modification by *-heid* to form a nominalization, or have uninflected nominal counterparts. We will focus on triplets like those in (3)-(4), which allow us to investigate the full range of forms and meanings. We use examples in the domain of color and taste terms for illustration, with the goal of addressing two questions:

- Q1:** What is the difference between the semantics of the three forms in (3a-c) and (4a-c)?
Q2: How is this semantics related to the morphosyntax of the three forms?

We use an exploration of **Q1** and **Q2** in the case of Dutch to gain insight into the relation between adjectives and nouns in natural language and the differences in their semantics, and to shed light on how reference to abstract objects in natural language works more generally. The analysis we develop is based on the following claims:

- The uninflected form (a) is nominal and denotes a description of the color/taste itself. The (neuter definite) article *het* has a standard interpretation (we assume the iota operator).
- The inflectional suffix *-e* in (b) is a valence-changing operator that turns the adjective denotation into a relation between the object identified by the PP and its color/taste aspect. *Het* denotes Chierchia's [3] nominalizer \cap , creating the entity correlate of the color/taste aspect and embedding the AP directly under DP.

- The derived noun in (c) describes realizations of the color/taste property associated with its adjective base. The (non-neuter definite) article *de* is interpreted as in (a).

In order to ground these semantic claims in the forms, we start with the morpho-syntactic analysis of uninflected, inflected and derived color and taste terms.

2. Morpho-syntax

2.1 The Uninflected Form

Uninflected color and taste forms are (neuter, mass) nouns. Three observations support this claim. (i) As nouns, they take adjectival (6a) but not adverbial modification (6a,b); note that there is no morphological distinction between uninflected adjectives and their adverbial counterparts:

- (6) a. Ook **het mooie**_[A]/***mooi**_[Adv] **geel** van de akoniet wordt weer zichtbaar en
also the nice/ nice yellow of the aconite becomes again visible and
daarna de crocussen, anemoontjes, narcissen en hyacinten.
afterwards the crocuses, anemones, daffodils and hyacinths
'The nice yellow of the aconite is also visible again, and after that the crocuses, anemones,
daffodils and hyacinths.'
- b. ***Het al te zuur van citrusvruchten** is in deze confiture verdwenen.
the all too sour of citrus-fruits is in this jam disappeared
'The all too sour of citrus fruits is lacking in this jam.'

(ii) As regular nouns, they combine with a variety of determiners (7a-c):

- (7) a. Meestal vertoonden deze noviteiten slechts bloemen in een bleek gele kleur,
usually displayed these novelties only flowers in a pale yellow color
terwijl **dit geel** ook nog spoedig naar rose verkleurde.
while this yellow also again quickly to pink discolored
'Usually, these new varieties only show flowers in a pale yellow color, and moreover, this
yellow soon changes into pink.'
- b. Luister goed, wij willen echt **geen geel** in onze tuin.
listen well we want really no yellow in our garden
'Listen to me, we really want no yellow in our garden.'
- c. Het is een druif die **weinig zuur, weinig zoet** aan een wijn meegeeft.
it is a grape that little sour, little sweet to a wine adds
'It is a grape that adds little acid, little sweet to a wine.'

(iii) In their bare form, they have a generic use (8):

- (8) a. **Rood** is een krachtige kleur. b. **Zoet** is één van de vier basismaken.
'Red is a powerful color.' 'Sweet is one of the four basic tastes.'

2.2 The Derived Form

The derived color and taste terms built on *-heid* are clearly (non-neuter count or mass) nouns. Four observations support this claim. (i) In their count use, derived terms can be pluralized:

- (9) De extra bleking van de houtpulp voor het bereiken van hogere **witheden** in het eindproduct is
the extra bleaching of the wood-pulp for the reaching of higher whitenesses in the final-product is
hier debet aan.
here indebted to
'The additional bleaching of the wood pulp to reach higher degrees of whiteness in the final product is
responsible for this.'

(ii) They take adjectival, not adverbial modification (10):

- (10) Ik heb ook rosacea en gebruik altijd een licht dekkende foundation om de **ergste/ *ergst**
 I have also rosacea and use always a light covering foundation to the worst_[A]/worst_[Adv]
roodheid te camoufleren.
 redness to camouflage
 'I have rosacea too, and I always use a light coverage foundation to camouflage the worst redness.'

(iii) As regular nouns, they combine with a variety of determiners (11a-b):

- (11) a. **Deze witheid** kan verschillen per papiersoort. Bij kopieer/printpapier, enveloppen en
 this whiteness can vary per paper-type. With copy/ print-paper envelopes and
 offset wordt **een witheid** tussen de 160 en 170 cie verlangd.
 offset is a whiteness between the 160 and 170 cie required.
 'This whiteness varies according to paper type. Carbon and printing paper, envelopes and
 offset paper require a whiteness between 160 and 170 cie.'
 b. Verwacht **geen zoetheid**, als je bitterheid schenkt.
 expect no sweetness if you bitterness pour
 'Expect no sweetness if you pour bitterness.'

(iv) In their bare form, derived terms have a generic use (12):

- (12) Blijvende **roodheid** is het meest voorkomende kenmerk van rosacea.
 permanent redness is the most occurring characteristic of rosacea
 'Permanent redness is the most common characteristic of rosacea.'

The syntactic features of derived color and taste terms are shared with other deadjectival nominalizations in *-heid* such as *goedheid* 'goodness', *schoonheid* 'beauty', *dichtheid* 'density', etc.

2.3 The Inflected Form

Somewhat surprisingly, in Dutch grammars there is no consensus as to whether the inflected forms in the (b) examples consist of an adjective with an elided nominal or a nominalization of the adjective (cf. [1], [6] for discussion).¹ A closer investigation reveals that both analyses run into problems. Three facts argue against a nominalization analysis in which the inflected adjective changes category and becomes a noun. (i) Unlike regular nouns, the inflected color and taste term allows adverbial, but not adjectival modification (13):

- (13) a. Zonder licht, om **het intens/ *intense rode van de ondergaande zon**
 without light in-order the intense_[Adv] /intense_[A] red_[+c] of the setting sun
 niet te verstoren.
 not to disturb
 'Without light, so as not to disturb the intense red (aspect) of the sunset.'
 b. Het winter nu weldra en dan komt ook misschien **het o zo witte van de sneeuw**.
 it winters now soon and then comes also maybe the oh so white_[+c] of the snow
 'It will soon be winter, and then perhaps will come the oh so white (aspect) of the snow.'
 c. **[het] al te zure van citrusvruchten** is in deze confiture verdwenen.
 the all too sour_[+c] of citrus-fruits is in this jam disappeared
 'the all too sour (aspect) of citrus fruits is lacking from this jam.'

(ii) Unlike regular nouns, the inflected forms do not tolerate any other determiner besides *het*:

¹ Of course, it is possible to elide a nominal and leave behind an inflected adjective. Our point here is that this is not the analysis of examples like (3b, 4b), and our claims below do not apply to real elliptical uses, which permit the unambiguous identification of the missing nominal.

- (14) a. *een/dit/zijn/geen/veel rode b. *een/dit/zijn/geen/veel zoete
 *a/this/his/no/many red_[+e] *a/this/his/no/many sweet_[+e]

(iii) Inflected adjectives do not occur without *het*. They are not used generically, either with or without *het*.

- (15) a. ***Rode** is... b. ***Zoete** is...
 *red_[+e] is... *sweet_[+e] is...

The alternative maintains the adjectival status of the adjective, but posits an empty or elided noun (cf. [6]). Two arguments that argue against the ellipsis analysis. (i) It would be impossible to explain the determiner restrictions (14), and the lack of a generic reading (15). (ii) If ellipsis were involved, it is practically impossible to determine which noun is to be inserted in the structure. The general nouns *kleur* ‘color’ and *smaak* ‘taste’ do not fit, because they are non-neuter nouns and require the non-neuter *de*:

- (16) a. de/ *het rode kleur van de aardbeien
 the.-neut/*the.+neut red color of the strawberries
 ‘the red color of the strawberries’
 b. de/ *het bittere smaak van witlof
 the.-neut/*the.+neut bitter taste of Belgian-endive
 ‘the bitter taste of Belgian endive’

In order to circumvent the problems raised by the nominalization analysis on the one hand and the empty noun/ellipsis analysis on the other hand, we propose that the inflected word remains an adjective after affixation, but that this inflected adjective directly complements the head of a DP, taking the PP (if one is present) as its own complement:

- (17) [_{DP} het [_{AP} rode [_{PP} van de aardbeien]]]

The structure in (17) is the simplest surface analysis and immediately explains the use of an adverbial modifier with the inflected form. The neuter article *het* is expected, since *het* is the default article in nominalized constructions built from non-nominal categories such as infinitives (cf. *het/*de zingen van Jan* ‘John’s singing’). In the absence of an elided noun, other determiners besides *het* (including *de*) are not expected and the fact that a bare generic use is unavailable might very well be due to the special construction involved. Therefore, we take the structure in (17) as the starting point for the semantics of inflected color and taste terms.

3. The Semantics of Uninflected, Derived, and Inflected Color and Taste Terms

3.1 Background Assumptions: Uncategorized Roots and Ontological Assumptions

In the semantics we are setting up for reference to abstract objects, we assume a basic ontology that includes kinds and token individuals (cf. [2] a.o.). Token individuals can be either abstract or concrete (i.e. we can talk about a token of a color or taste, just as we can talk about a token person or bicycle). In order to capture what is common to corresponding nouns and adjectives (e.g. *rood/rode*), we posit that both are constructed from entity-denoting, uncategorized roots that refer to the kind of color or taste, as in (18).

- (18) a. [[rood]] = **red** b. [[zuur]] = **acid**

The uncategorized roots can lead to either nominal or adjectival denotations. Crucially, we take *het* to have a double denotation. In its regular use as a definite article with neuter nouns, *het* denotes the iota operator. In its use with inflected adjectives, *het* denotes Chierchia’s [3] nominalizing (cap) operator \cap , directly embedding the adjective in a DP. These assumptions allow us to spell out the different semantic representations of uninflected, derived and inflected color and taste terms.

3.2 Uninflected Terms

In section 2.1 we classified uninflected color and taste terms as regular (neuter) nouns. Direct kind reference based on the nominal version of (18) is found in the bare generic use in (8) for instance. Following [13] and others, we take a layered approach to the DP such that (e.g.) the noun *rood_N* can denote the set of subkinds (shades) of the color via a relation of subkind instantiation, as in (19).

$$(19) \quad [[\text{rood}_N]] = \lambda x_k. \text{subkind}(x_k, \text{red})$$

The PP, if there is one (e.g. *van de aardbeien* ‘of the strawberries’), functions as a modifier, introducing a contextually appropriate relation R_i with the denotation of the DP complement to P (e.g. the strawberries, represented as **s**), as in (20).

$$(20) \quad [[\text{van de aardbeien}]] = \lambda P \lambda x [P(x) \wedge R_i(x, \mathbf{s})]$$

After the modifier is applied to the noun (see (21a)), the definite article *het*, interpreted as the iota operator, selects the unique subkind denoted by the modified nominal (see (21b)).

$$(21) \quad \begin{array}{ll} \text{a.} & [[\text{rood van de aardbeien}]] = \lambda x_k [\text{subkind}(x_k, \text{red}) \wedge R_i(x_k, \mathbf{s})] \\ \text{b.} & [[\text{het rood van de aardbeien}]] = \iota x_k [\text{subkind}(x_k, \text{red}) \wedge R_i(x_k, \mathbf{s})] \end{array}$$

This semantics captures the intuitive meaning of examples like (3a), in which the speaker refers to the particular shade of red found in the strawberries. Similarly, (4a) refers to the taste of olives, anchovies and cucumber as an abstract object (a kind), and qualifies it as sweet, salty or acidic respectively.

Uninflected color/taste terms can also refer to realizations of the color/taste, as in (7b,c). According to Zamparelli ([13]: 207ff.), quantifiers can range over subkinds or realizations of the kind. In line with this view, we posit, by way of example, the semantics of *veel* ‘a lot of’ in (22a), which leads to quantification over concrete instances of the color red in (22b):

$$(22) \quad \begin{array}{ll} \text{a.} & [[\text{veel}]] = \lambda P \lambda Q [(\text{veel } y: \text{Real}(y, \iota x_k [P(x_k)]) [Q(y)])] \\ \text{b.} & [[\text{veel rood}]] = \lambda Q [(\text{veel } y: \text{Real}(y, \iota x_k [\text{subkind}(x_k, \text{red})]) [Q(y)])] \end{array}$$

Though color and taste terms denote abstract objects, the semantic representations in (19), (21), and (22) are not qualitatively different from what we would posit for examples involving concrete nominals.

3.3 Derived Terms

The suffix *-heid* creates nominalizations for a wide range of adjectives; it does not attach to nouns. Therefore, the morphology supports derivation of the nominal *roodheid* ‘redness’, *bitterheid* ‘bitterness’ from the adjective (*rood_A*, *bitter_A*).

For the semantics of these adjectives, follow [5] who argue that color adjectives (at least) are ambiguous.² When referring to color (e.g. *very red hair*) the adjective embeds a measure function (**mf**) in its semantics and eventually denotes the set of entities whose value on that measure function exceeds the relevant standard degree for truthful application of the adjective; the uncategorized root supplies the identity of the measure function (23a).³ On the (frequently non-gradable) ‘proxy’ use (e.g. *a (#very) red traffic light*), the adjective contributes an indexically identified property P_i that is correlated (**cor**) with the color (23b) (e.g., the property of indicating that one must stop). For ease of readability, we abbreviate both of these denotations as in (23c).

$$(23) \quad \begin{array}{ll} \text{a.} & [[\text{rood}_{A[\text{gr}]}]] = \lambda y [\text{mf}_{\text{red}}(y) \geq \text{standard}(\text{mf}_{\text{red}})] \\ \text{b.} & [[\text{rood}_{A[\text{nongr}]}]] = \lambda y [P_i \wedge \text{cor}(y, P_i)] \end{array}$$

² Whether taste adjectives are also ambiguous is something we haven’t investigated. If they are not, only the sort of denotation in (23a) will be relevant.

³ (23a) simplifies Kennedy and McNally’s analysis in leaving out the compositional details involving the introduction of the standard value, as the way in which that value is introduced into the semantics of the adjective is not crucial to our main point.

$$c. \quad [[\text{rood}_{A[\text{gr}]/[\text{nongr}]}]] = \lambda y[\mathbf{Red}(y)]$$

Our semantics for the derivational suffix *-heid* builds on Chierchia's [3] proposal that properties such as that in (23c) have entity correlates that are formally assimilable to kinds: the suffix operates on such properties and returns the set of subkinds of their entity correlates, as in (24a). Thus, *roodheid* denotes the set of subkinds of redness (24b).

$$\begin{aligned} (24) \quad a. \quad & [[-\text{heid}_N]] = \lambda P \lambda x_k [\mathbf{subkind}(x_k, \cap P)] \\ b. \quad & [[\text{roodheid}_N]] = \lambda x_k [\mathbf{subkind}(x_k, \cap \lambda y. \mathbf{Red}(y))] \\ c. \quad & [[\text{de} [\text{roodheid van de huid}]]] = \lambda x_k [\mathbf{subkind}(x_k, \cap \lambda y. \mathbf{Red}(y))] \wedge R_i(x_k, s)] \end{aligned}$$

The derived form in (24b) can then undergo modification as in (24c), which specifies the meaning of (3c) as the unique subkind of the entity correlate of the property red that is associated with the skin (represented as *s*). The derived term can combine with determiners in the same way as the uninflected form, leading to quantification over subkinds as well as realizations thereof, as in (11b). When the nominalization is used bare, without any modification whatsoever, as in (12), we assume that by default the most general subkind (i.e. the kind itself) is referred to, as must be the case for concrete bare plurals.

3.4 Inflected Terms

The morphosyntax and the semantics of the inflected color and taste terms are crucially different from those of their uninflected and derived counterparts. We take the inflection *-e* to increase the valence of the adjective by one and to introduce a relation (P_{asp}) indicating 'the *P* aspect' of an argument (25a). The adjective provides a value for *P*, as in (25b):

$$\begin{aligned} (25) \quad a. \quad & [[-e]] = \lambda P \lambda y \lambda x. P_{\text{asp}}(y)(x) \\ b. \quad & [[\text{rood}_A + e]] = \lambda y \lambda x. \mathbf{Red}_{\text{asp}}(y)(x) \end{aligned}$$

The internal argument is then saturated either by a PP (e.g. the one in (26a)) or, in the absence of the latter, contextually. The result in (26b) is the property of being the Adj aspect of the denotation of the DP complement to the P. We suggest that what allows embedding of this AP in a DP is crucially the article *het*, which contributes Chierchia's cap operator, reifying the property denoted by the inflected adjective in (26c).

$$\begin{aligned} (26) \quad a. \quad & [[\text{van de aardbeien}]] = \lambda R \lambda x. R(s)(x) \\ b. \quad & [[[\text{AP rode}_A \text{ van de aardbeien}]]] = \lambda x. \mathbf{Red}_{\text{asp}}(s)(x) \\ c. \quad & [[[\text{DP}_{\text{D}} \text{ het } [\text{AP rode}_A \text{ van de aardbeien}]]]] = \cap \lambda x. \mathbf{Red}_{\text{asp}}(s)(x) \end{aligned}$$

(26c) gives us the intuitive meaning of (3b), in which the color term indicates a particular color aspect of the strawberries (contrasted with those of the mascarpone, the cream and the mint leaves). Similarly, (4b) contrasts the sweet and bitter aspects of beer and malt. Because of the relational interpretation of the inflected adjectives, the meaning conveyed, the color/taste is not directly predicated of the object denoted by the PP complement. Abstract adjectives lend themselves better to this process than concrete adjectives, thus the frequent nominalized use of *leuk* 'nice', *bijzonder* 'special', *vreemd* 'strange', etc., but in fact the process generalizes to a wide range of adjectives, e.g. *het gezonde van biologisch voedsel* 'the healthy aspect of biological food', *het grote van de zee* 'the large aspect of the sea'. Note that the result of reification in (26) is not kind reference but rather the entity correlate of a particular property, i.e. what Moltmann [9-10] calls a trope, because that property is uniquely instantiated in exactly one particular individual. Thus whether kind reference results from nominalization depends on the nature of the property being reified and not the \cap operator itself.

The inflected adjective is directly embedded under the DP, and as such it maintains its categorical status as an adjective. This explains why it tolerates modification by adverbials, but not by another adjective (cf. (13)). As far as the semantics is concerned, we propose that the adverbial operates on the adjective before it combines with the PP. This leads us to interpret *het te zoute van de ansjovis* 'the too salty_[+e] of the anchovies' as referring to the salt-aspect of the anchovies and saying by way of non-restrictive modification that it is excessive. This suggests that the modifier takes scope over the *-e* inflection as in (27):

- (27) a. $[[\text{zout}_A + e]] = \lambda y \lambda x. \text{Salt}_{\text{asp}}(y)(x)$
 d. $[[\text{te zoute}]] = \lambda y \lambda x. (\text{Too}(\text{Salt}_{\text{asp}}))(y)(x)$
 e. $[[\text{pp van de ansjovis}]] = \lambda R \lambda y. R(a)(y)$
 e. $[[\text{te zoute van de ansjovis}_A]] = \lambda x. (\text{Too}(\text{Salt}_{\text{asp}}))(a)(x)$
 f. $[\text{DP}]_D \text{ het } [\text{AP te zoute van de ansjovis}]] = \bigcap \lambda x. (\text{Too}(\text{Salt}_{\text{asp}}))(a)(x)$

The low interpretation of the adverbial modifier is in line with syntactic constraints as well as semantic intuitions.

3.5 Parallels between Adjectives and Verbs

Our analysis places the inflected adjective construction in direct parallel with Dutch *het*-nominalized infinitives and English imperfect *-ing* nominals in (28) (see [3] and [4]).⁴

- (28) a. Het zingen van Jan stoorde mij. b. Zingen is leuk.
 the singing of Jan bothered me singing is fun
 ‘John’s singing bothered me.’ ‘Singing is fun.’

If one might want to hypothesize that English *-ing* contributes the nominalization function, in Dutch this role is clearly assumed by *het*. We therefore take the neuter article *het* to directly embed the infinitive in a DP, and thus to denote the nominalization function for verbs and adjectives alike. Just like nominalized adjectives, nominalized infinitives do not occur with determiners other than *het*.

Interestingly, nominalized infinitives can occur bare in generic uses, as we see in (28b), but nominalized inflected adjectives strictly require the presence of the article *het* and never get a generic interpretation (cf. (15)). These properties correlate with the semantics proposed here. The inflection turns the adjective into a relational predicate, and the extra argument is always a specific object the P_{asp} is predicated of; leaving out the argument contributed by the PP complement is simply not possible under the semantics posited in (25). The argument does not have to be realized overtly if it can be contextually retrieved, but it has to get a specific value. Similarly, when the infinitive is accompanied by overt arguments with specific reference, *het* must be used; (28a) is ungrammatical without the determiner. Bare generic uses of the infinitive normally do not have PP complements; the crucial difference between the infinitive and the inflected adjective is that the former allows binding of its external argument with a generic *pro*, whereas no such binding is possible for the internal argument of the latter.

4. Comparison with Related Work

We now turn to a brief comparison of our analysis with the most closely related work we know, namely Villalba’s [12] analysis of Spanish *lo*-nominals (cf. (5b)) vs. deadjectival nominalizations (5c).

Villalba takes as his departure point Moltmann’s [9–10] ontology, which includes both tropes and kinds of tropes. Tropes are particular instances of a property manifest in a particular individual in space and time (e.g. John’s honesty). In contrast, kinds of tropes are not situated in space or time (e.g. honesty in general). Villalba observes that both *lo*-nominals and derived nominals pass Moltmann’s tests for identifying tropes – e.g., they can appear as complements to perception predicates:

- (29) a. aprendió a **ver la belleza de las cosas cotidianas**. ([12]: (16b))
 learned to see the.fem beauty of the.fem.pl things daily
 ‘(s)he learned to see the beauty of everyday things’
 b. Al **ver lo imposible de su amor**... ([12]: (17a))
 to-the see LO impossible of his/her love
 ‘When (s)he saw the impossibility of his/her love...’

⁴ Dutch infinitives also do some of the work of infinitives in English. We set aside these uses here as the correspondence we have observed is between the inflected adjective and *-ing* forms in English (and by extension *het*-marked infinitives in Dutch), and not between the inflected adjective and the English infinitive.

However, he observes that *lo*-nominals with PP complements contrast with derived nominals with PP complements in not easily allowing generic uses. (*lo*-nominals without complements can easily appear in generic sentences; see (31)).

- (30) a. En este país, la banalidad de la política es muy común. ([12]: (24a))
in this country the.fem banality of the.fem politics is very common
‘In this country, the banality of politics is very common.’
b. *En este país lo banal de la política es muy común. ([12]: (25a))
in this country LO banal of the.fem politics is very common
- (31) Lo cortés no quita lo valiente ([12]: (36a))
LO polite not takes LO brave
‘Being polite is compatible with being brave.’

Based on contrasts such that in (30), and other data as well, Villalba argues that Moltmann’s ontology is insufficient to account for Spanish *lo*-nominals. Rather, an additional sort of abstract object must be introduced, namely *qualities*. The property/quality distinction is taken from [7-8]. For Levinson, a property is a condition or state that an object is in; as such, he argues that it cannot be quantified (e.g. *??a bit of being happy*). In contrast, a quality is an abstract substance that can be quantified (e.g. *a bit of happiness*). Taking advantage of this distinction, Villalba proposes that *lo*-nominals and derived nominals denote different subsorts of abstract objects: *properties* and *qualities*, respectively. The derived nominal in (30a) denotes a *kind of quality trope*. However, he does not have formalize the semantics or fully explain why *lo*-nominals only very selectively appear in generic sentences (where they would denote *kinds of property tropes*), while derived nominals are not restricted in this respect.

Our analysis and Villalba’s are similar in positing a sortal difference between the denotation of Spanish *lo*-nominals/Dutch nominalized inflected adjectives vs. derived nominal DPs. However, our analysis does not make a linguistically interesting distinction between qualities and properties. As far as we can determine, what Villalba calls qualities behave for purposes of grammar just like concrete entities. In contrast, there is evidence that properties as abstract objects do have a special status in grammar. Thus, our analysis is ontologically somewhat more parsimonious than his.⁵

In addition, by making explicit the contrast in the internal semantics of nouns and inflected adjectives, our analysis allows us to predict the lack of generic interpretation for the latter. If we were to extend the analysis to Spanish, treating *lo* as the \cap operator and assigning the modified adjective a semantics like that of the inflected form, the contrast in (30) would follow directly. (31), which is not possible in Dutch, suggests that Spanish differs from Dutch in allowing for binding by a generic *pro* of the internal argument to the adjective. If the internal argument is generically interpreted, it is unsurprising that the entity correlate of the property can also be generically interpreted.

5. Conclusions

We conclude that Dutch inflected forms are adjectival, not nominal. In fact, the DPs containing them are an example of what used to be called an “exocentric” construction (see e.g. [11] on nominal gerunds). Nominalized adjectives are a previously unidentified sort of example of this construction, to our knowledge. The data indicate that *het*’s interpretation as a nominalizing operator is shared with Spanish *lo*. English *the* apparently lacks this interpretation, which explains why there is no English counterpart of the Spanish and Dutch constructions. Crucially, *het* only embeds inflected adjectives in a DP. We take the *-e* suffix to enrich the valence of the adjective by one, creating a relational semantics denoting the Adj-aspect of the object denoted by the PP complement. At a more general level, we conclude that 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. These nuances of meaning can be capture while maintaining a parsimonious ontology involving kind level and token level entities.

⁵ In this respect, our analysis also contrasts with the approach to color terms presented in Moltmann (to appear, Chapter 6). Moltmann assigns the sort of abstract objects color terms denote a special status in her ontology.

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