

The glass ceiling effect of workspaces: locality and agreement in Dutch ANN-compounds

Marijke De Belder (FWO/CRISP/HUBrussel KU Leuven)
marijke.debelder@hubrussel.be

Marjo van Koppen (Utrecht University/UiL-OTS)
j.m.vankoppen@uu.nl

Main data

Adjectival inflection inside Dutch ANN-compounds

- 1) oud-**e**-heren-club
old-**agr**-gentlemen-club
'old gentlemen's club'

Main observation

Adjectival inflection inside the left hand [AN]-constituent is sensitive to functional material belonging to the head of the compound.

This is unexpected from the lexicalist viewpoint which assumes that morphological structures are opaque for syntax (Di Sciullo & Williams 1987).

Main claims:

▪ Compounding

Compounds are built in syntax (morphology = syntax) and their transparency follows from regular syntactic principles.

▪ Methodology

An online survey with a large number of respondents helps theoretical linguists to deal with vague judgments about certain constructions. These vague judgments may point us to syntactically underspecified and rare domains (such as a workspace which is not a phase) and different strategies to deal with a certain construction.

Overview

1. Core data
2. Online survey
3. Prerequisites for the analysis
4. Analysis
5. Conclusion

1. Core data

[[AN]N]-compounds in Dutch are productive. The non-head can be either singular or plural.

- 2) a. kaal-e-kat-adoptie b. kaal-e-kat-en-adoptie
 hairless-AGR-cat-adoption hairless-AGR-cat-PL-adoption
 ‘adoption of hairless cats’ ‘adoption of hairless cats’

A D-layer is consistently lacking (see Borer 2009, Harley 2009).

- 3) * een de-kaal-e-kat-adoptie
 a the-hairless-AGR-cat-adoption

Adjectives in the Dutch DP inflect:

-∅: neuter, singular and indefinite

-e: elsewhere

- 4) een bruin-∅ paard_{NEUTER} [neuter, sg, indef]
 a brown-AGR horse
 ‘a brown horse’
- 5) a. het bruin-e paard [neuter, sg, def]
 the brown-AGR horse
 ‘the brown horse’
- b. bruin-e paard-en [neuter, pl, indef]
 brown-AGR horse-PL
 ‘brown horses’
- c. een bruin-e hond_{COMMON} [common, sg, indef]
 a brown-AGR dog
 ‘a brown dog’

The adjective inside ANN-compounds may inflect as well:

- 6) a. kaal-**e**-kat-adoptie b. kaal-**e**-kat-en-adoptie
 hairless-AGR-cat-adoption hairless-AGR-cat-PL-adoption
 ‘adoption of hairless cats’ ‘adoption of hairless cats’

The inflection of As varies according to the definiteness of the DP.

[AN] left hand parts systematically lack a D-layer.

-∅: neuter, singular and **indefinite**

*Empirical question:
So, what happens with inflection
in AN_{neuter}N compounds?*

If only somebody had done an online survey!

2. Online survey

2.1 Design of the questionnaire

- General set up:
 - questionnaire via Survey Monkey
 - 2 parts
 - speakers could choose to select more than one option
 - there were options which are irrelevant for the present purpose
- Distribution:
posted via *Taalpost* (mailing list with popular scientific and cultural facts on Dutch, mostly read by speakers from the Netherlands)
- Respondents:
part 1: 689 respondents
part 2: 673 respondents
- Fillers:
part 1: 20 fillers / 20 relevant questions,
part 2: 10 fillers / 16 relevant questions
- Variables
 - singular description, plural description, mass nouns
 - idiomatic and non-idiomatic combinations
 - gender of the N in the left hand part, gender of the head (neuter vs. common)

Example question 1:

The zoo created a house in which children can learn about how animals were used during the Ottoman empire. The organizers aim to emphasize on the fact that many exotic animals were important to society in that empire. They decide to call the empire ‘fabulous’ (Dutch: tof). They still need a name for the house. They find it important the new name sounds well. How should they call the house?

- een tofrijkhuis ‘a fabulous-empire-house’
- een tofferijkenhuis ‘a fabulous-empires-house’
- een tofrijkenhuis ‘a fabulous-empires-house’
- een tofferijkshuis ‘a fabulous-empire-s-house’
- een tofrijkshuis ‘a fabulous-empire-s-house’
- de bovenstaande ‘all the above possibilities sound odd’
mogelijkheden klinken allemaal vreemd

Example question 2:

The zoo trimmed a horse as if it lived in Bruges in the 14th century. Bruges was very rich at that time. As such, visitors discover how the trimming of a horse was influenced by wealth in a city.

The zoo still needs a name for the horse. They find it important the new name sounds well. How should they call the horse?

- een rijkestadpaard ‘a rich-city-horse’
- een rijkstadpaard ‘a rich-city-horse’
- een rijkstedenaard ‘a rich-cities-horse’
- een rijkstedenpaard ‘a rich-cities-horse’
- een rijkestadspaad ‘a rich-city-s-horse’
- een rijkstadspaad ‘a rich-city-s-horse’
- de bovenstaande ‘all the above possibilities sound odd’
mogelijkheden klinken allemaal vreemd

2.2 Results

Results for non-idiomatic ANN-compounds with a singular description:

| Table 1 | | AN _{neut} N _{neut} | | AN _{neut} N _{com} | | AN _{com} N _{neut} | | AN _{com} N _{com} | |
|-------------------|---------------------|--------------------------------------|-----|-------------------------------------|-----|-------------------------------------|-----|------------------------------------|-----|
| | | % | N | % | N | % | N | % | N |
| Definite | e-affix on A | 33 | 257 | 34 | 229 | 72 | 474 | 79 | 523 |
| | bare A | 29 | 197 | 30 | 196 | 4 | 25 | 2,8 | 19 |
| | neither OK | 36 | 240 | 38 | 256 | 13 | 88 | 15 | 101 |
| Indefinite | e-affix on A | 25 | 169 | 28 | 191 | 64 | 428 | 74 | 513 |
| | bare A | 45 | 309 | 39 | 265 | 6 | 38 | 3,9 | 27 |
| | neither OK | 33 | 227 | 36 | 250 | 24 | 158 | 15 | 104 |

%/N of informants that select {affix/no affix/neither OK} for an [[AN]N]s with a specific gender specification depending on definiteness

2.3 Four main generalizations

1. *The e-affix is always an option.*

Recall that indefinite, singular, neuter DPs select \emptyset as an inflectional marker. We therefore do not immediately expect the schwa on neuter nouns, yet some speakers have it in this context.

| Table 2 | | $AN_{neut}N_{neut}$ | $AN_{neut}N_{com}$ | $AN_{com}N_{neut}$ | $AN_{com}N_{com}$ |
|-------------------|---------------------|---------------------|--------------------|--------------------|-------------------|
| | | % | % | % | % |
| Definite | e-affix on A | 33 | 34 | 72 | 79 |
| | bare A | 29 | 30 | 4 | 2,8 |
| | neither OK | 36 | 38 | 13 | 15 |
| Indefinite | e-affix on A | 25 | 28 | 64 | 74 |
| | bare A | 45 | 39 | 6 | 3,9 |
| | neither OK | 33 | 36 | 24 | 15 |

2. *The bare adjective occurs more often in indefinite N.SG contexts than in any other context.*

Bare As are most frequently chosen when the left hand noun is neuter (italics). This preference is clearest for indefinite DPs (italics & bold).

| Table 3 | | $AN_{neut}N_{neut}$ | $AN_{neut}N_{com}$ | $AN_{com}N_{neut}$ | $AN_{com}N_{com}$ |
|-------------------|---------------------|---------------------|--------------------|--------------------|-------------------|
| | | % | % | % | % |
| Definite | e-affix on A | 33 | 34 | 72 | 79 |
| | bare A | <i>29</i> | <i>30</i> | 4 | 2,8 |
| | neither OK | 36 | 38 | 13 | 15 |
| Indefinite | e-affix on A | 25 | 28 | 64 | 74 |
| | bare A | 45 | 39 | 6 | 3,9 |
| | neither OK | 33 | 36 | 24 | 15 |

3. Speakers do not converge on one strategy.

For common left hand nouns informants have a preference for an e-affix (bold numbers). Such a clear preference is not attested for neuter left hand nouns (grey area).

| Table 4 | | AN _{neut} N _{neut} | AN _{neut} N _{com} | AN _{com} N _{neut} | AN _{com} N _{com} |
|-------------------|---------------------|--------------------------------------|-------------------------------------|-------------------------------------|------------------------------------|
| | | % | % | % | % |
| Definite | e-affix on A | 33 | 34 | 72 | 79 |
| | bare A | 29 | 30 | 4 | 2,8 |
| | neither OK | 36 | 38 | 13 | 15 |
| Indefinite | e-affix on A | 25 | 28 | 64 | 74 |
| | bare A | 45 | 39 | 6 | 3,9 |
| | neither OK | 33 | 36 | 24 | 15 |

4. Neuter nouns in the left hand part increase ungrammaticality.

| Table 5 | | AN _{neut} N _{neut} | AN _{neut} N _{com} | AN _{com} N _{neut} | AN _{com} N _{com} |
|-------------------|---------------------|--------------------------------------|-------------------------------------|-------------------------------------|------------------------------------|
| | | % | % | % | % |
| Definite | e-affix on A | 33 | 34 | 72 | 79 |
| | bare A | 29 | 30 | 4 | 2,8 |
| | neither OK | 36 | 38 | 13 | 15 |
| Indefinite | e-affix on A | 25 | 28 | 64 | 74 |
| | bare A | 45 | 39 | 6 | 3,9 |
| | neither OK | 33 | 36 | 24 | 15 |

The empirical generalizations are the explananda of the talk:

1. Why is the e-affix always an option?
2. Why is the bare adjective more popular in indefinite N.SG contexts than in any other context?
3. Why do speakers not converge on AN_{NEUT}N?
4. Why do neuter nouns in the left hand part increase ungrammaticality?

3. Prerequisites for the analysis

3.1 Are we dealing with compounds in the case of [[AN]N]-structures?

Phrasal compounds are opaque to movement just like regular compounds:

- 7) jacht-hond
 hunt-dog
 'hunting dog/hound'

- 8) * Jacht- is het een hond.
 hunt is it a dog
- 9) kale-katten-adoptie
 hairless-cats-adoption
 'adoption of hairless cats'
- 10) * Kale-katten- is het adoptie.
 hairless-cats is it adoption

The right hand noun in phrasal compounds determines the properties of the compound, just as in regular compounds:

- 11) de hut
 the_{COM} hut
- 12) het rijk
 the_{NEUT} empire
- 13) de_{COM}/*het_{NEUT} toffe-rijk-hut
 the_{COM}/the_{NEUT} cool-empire_{NEUT}-hut_{COM}
 'the hut of a cool empire'

The left hand part of phrasal compounds cannot be referred to, just as in regular compounds:

- 14) * We hebben een jacht-hond. Morgen is er één.
 we have a hunt-dog tomorrow is there one
 Intended: 'We have got a hunting dog. Tomorrow there is a hunt.'
- 15) * Ze organiseert de kale-katten-adoptie.
 she organizes the hairless-cats-adoption
 Ik heb er twee geaaid.
 I have there two petted
 Intended: 'She organizes the adoption of hairless cats. I have petted two hairless cats.'

Phrasal compounds are atomic:

- 16) * Jacht-zwarte-hond.
 hunting-black-dog
 Intended: black hunting dog/hound
- 17) * Kale-katten-vrijwillige-adoptie
 hairless-cat-voluntary-adoption
 Intended: voluntary adoption of hairless cats

But, phrasal compounds have a different stress pattern than regular compounds:

- 18) a. HOOG-seizoen b. kaal-**e**-KAT-en-adoptie
 high-season hairless-AGR-cat-PL-adoption
 'high season' 'adoption of hairless cats'

And the adjective in the left hand part of phrasal compounds can be modified by a degree modifier, in contrast to the adjective in the left hand part of regular compounds:

- 19) a. * erg-hoog-seizoen b. erg-kaal-**e**-kat-en-adoptie
 very-high-season very-hairless-AGR-cat-PL-adoption
 'adoption of very hairless cats'

In sum: Phrasal compounds are compounds, but with a different a different stress pattern and more structure in their left hand part than primary compounds.

3.2 The analysis of (phrasal) compounds

We adopt the root hypothesis (Halle & Marantz 1993, Borer 2005a,b; 2013)

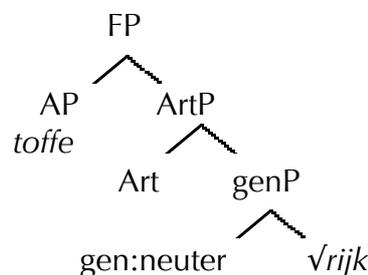
Roots merge with nominal inflectional markers like gender and number (Lowenstamm 2007, Kramer 2012)

Compounds are formed in syntax (following Harley 2009, Borer 2009, 2013).

The left hand part of an [[AN]N]-compound is a partial NP with functional material (such as gender and number marking), but without a D-layer, see (5).

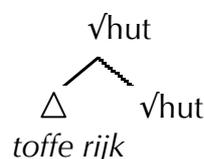
It is built in a separate workspace (Johnson 2002):

- 20) toffe rijk
 cool empire
 'cool empire'



...and merged with the head noun of the compound:

- 21) de toffe-rijk-hut
 the cool-empire-hut
 'the hut of a cool empire'



Two strategies to deal with this:

Strategy 1: The [undef]-feature on the adjective does not get valued and a default spell out obtains (see Preminger 2011), resulting in an elsewhere affix on the adjective.

24)

| type of compound | predicted adjectival inflection | |
|---|---------------------------------|-----------------|
| def [[AN _{NEUT}]N _{COM}] | -e | elsewhere affix |
| def [[AN _{NEUT}]N _{NEUT}] | -e | elsewhere affix |
| def [[AN _{COM}]N _{COM}] | -e | elsewhere affix |
| def [[AN _{COM}]N _{NEUT}] | -e | elsewhere affix |
| indef [[AN _{NEUT}]N _{COM}] | -e | elsewhere affix |
| indef [[AN _{NEUT}]N _{NEUT}] | -e | elsewhere affix |
| indef [[AN _{COM}]N _{COM}] | -e | elsewhere affix |
| indef [[AN _{COM}]N _{NEUT}] | -e | elsewhere affix |

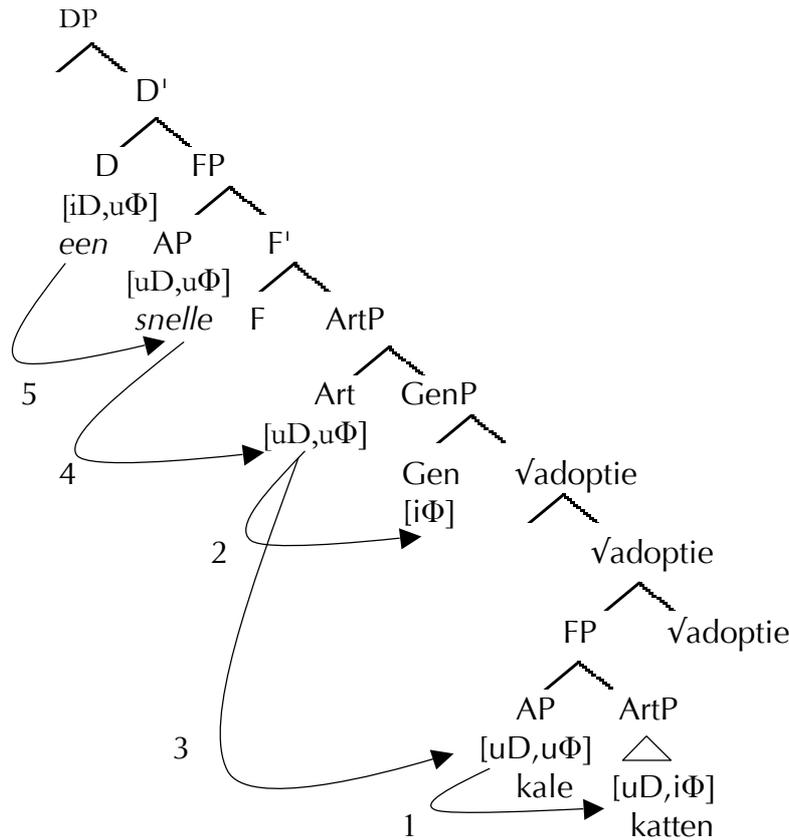
Strategy 2: The [undef]-feature on the adjective gets valued by the [idef]-feature of the containing DP outside its own workspace.

25)

| type of compound | predicted adjectival inflection | |
|--|---------------------------------|--------------------|
| def [[AN _{NEUT.SG}]N _{COM}] | -e | elsewhere affix |
| def [[AN _{NEUT.SG}]N _{NEUT}] | -e | elsewhere affix |
| def [[AN _{COM.SG}]N _{COM}] | -e | elsewhere affix |
| def [[AN _{COM.SG}]N _{NEUT}] | -e | elsewhere affix |
| indef [[AN _{NEUT.SG}]N _{COM}] | -0 | [neut. sg. indef.] |
| indef [[AN _{NEUT.SG}]N _{NEUT}] | -0 | [neut. sg. indef.] |
| indef [[AN _{COM.SG}]N _{COM}] | -e | elsewhere affix |
| indef [[AN _{COM.SG}]N _{NEUT}] | -e | elsewhere affix |

26) een snelle kale-katten-adoptie
 a quick hairless-cat-adoption
 'a quick adoption of hairless cats'

27)



- 1: sharing $[uD, u\Phi]$ *kale* and $[uD, i\Phi]$ *katten*, leading to valuation of $u\Phi$ of *kale*.
- 2: sharing $[u\Phi]$ of Art with $[i\Phi]$ of Gen, leading to valuation of $u\Phi$ of Art
- 3: sharing $[uD]$ of Art with $[uD]$ of *kale*
- 4: sharing $[uD, u\Phi]$ *snelle* and $[uD, i\Phi]$ Art, leading to valuation of $u\Phi$ of *snelle*.
- 5: sharing $[iD, u\Phi]$ D and $[uD, i\Phi]$ of *snelle*, leading to valuation of $u\Phi$ of D and all uD s linked to each other via feature sharing.

This is what we will call the glass ceiling effect of workspaces: nothing can move out of FP as it is a separate workspace (see Johnson 2002), but you can look into it.

4.2 Why are bare As so popular for indefinite $AN_{neut}Ns$? (Generalization 2)

The adjective in these compounds carries the 0-affix with the feature specification $[N.SG.INDEF]$.

The only way to get this feature specification on the A in an ANN-compounds is by having a $[N.SG]$ -noun within the $[AN]$ -constituent and by letting the adjective agree with the indefinite feature of the containing DP via feature sharing.

This adjectival agreement is a direct result of the glass ceiling effect. The glass ceiling effect results from syntactic principles, hence compounding (i.e. morphology) obeys syntactic operations, hence morphology is syntax.

4.3 Why is the e-affix always an option? (Generalization 1)

Two options to select the e-affix: one with and one without checking the uD within the [AN] (see section 4.1).

(i) Spell out obtains before merge of [AN] with [N] (see section 4.1: strategy 1). There is no feature sharing with the containing DP. In this case, the e-affix realizes a defective feature set, namely a set that contains an unvalued feature (Preminger 2011).

(ii) The e-affix spells out a fully valued set of features resulting from feature sharing between the adjectival Probe and the definiteness of the containing DP (just like the 0-affix) (see section 4.1: strategy 2)

Now, why do not all speakers have feature sharing with the containing DP, i.e. why do some speakers spell out before merge?

We claim that a situation where a workspace is not a phase (like the left hand [AN]-constituent that lacks the phase head D) is so rare that speakers did not acquire a standard strategy to deal with them.

As a result speakers differ in how they treat them.

Some speakers send the left hand [AN]-constituent to PF when it is merged.

They treat workspaces as spell-out domains. This then leads to selection of the default, i.e. elsewhere, affix or a crashing derivation (see section 4.4 below).

Others do not spell them out. In that case the adjectival probe can be part of the agree relations in the containing structure.

4.4 Why do neuter nouns in the left hand part increase ungrammaticality? (Generalization 4)

The key to answering this question is how an adjective with the feature specification [N. SG. uDEF] is treated.

Note that this situation only arises if the adjectival probe does not partake in feature sharing with the containing DP (i.e. spell out before merge, section 4.1: strategy 1).

The feature specification is incomplete: one feature does not get a value.

Some speakers do not hesitate to pair this with the elsewhere affix (-e), for others it leads to a crash because the set [N.SG.] is a subset of the set which is matched by the more specific 0-affix [N.SG.INDEF] and they remain undecided.

AN_{com}Ns with the feature set [COM, SG, UDEF] do not have this problem since [COM.SG] is not a subset of the more specific set leading to the 0-affix, i.e. [N.SG.INDEF].

4.6 Why do speakers not converge on AN_{NEUT}N? (Generalization 3)

The workspace is not a phase. Speakers deal with non-phasal workspaces in different ways.

- Option 1a: Spell it out and use the default affix (leading to e-affix)
- Option 1b: Spell it out and crash the derivation (leading to ungrammaticality)
- Option 2: Don't spell it out. The unvalued feature can partake in the feature checking processes of the containing DP (leading to the 0-affix)

5. Conclusion

Vague judgments

Methodological result on vague judgments:
vague judgments may indicate speaker variation

Theoretical result on vague judgments:
vague judgments may point to syntactically underspecified and rare domains (such as a workspace which is not a phase)

vague judgments may point to different strategies to deal with a certain construction

Compounding

Compounds are built in syntax: morphology is syntax below the functional domain.

The agreement properties of phrasal compounds follow from the glass ceiling effect. The glass ceiling effect results from syntactic principles, hence compounding (i.e. morphology) obeys syntactic operations, hence morphology is syntax.

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