

Nominalization structures across languages

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1. Introduction

Point of departure: Borsley & Kornfilt (2000) show that the structure of nominalizations across languages is subject to constraints. While (1a) is well formed, (1b) is not, where nominal functional categories are found below verbal functional categories:

- (1) a. [NF [NF [NF [VF [VP]]]]]
b. *[VF [VF [NF [NF [VP]]]]]

- Looking at nominalizations from different languages, I discuss diagnostics for the internal structure, size and the mixed properties of nominalizations (see also Malchukov & al. 2008, Alexiadou 2001);
- Importantly the cut-off points between nominal and verbal structure are not random and do not necessarily correspond to phase heads (cf. Panagiotidis 2015 and references therein).
- I will then offer an outline of a possible explanation thereof and discuss issues of extended projection.
- Then I will address the asymmetry in (1): a nominal layer can be inserted almost at every sub-part of verbal structure in (1a), while the reverse does not hold. Why is verbalization limited (Baker 2000)?

2. Background

The functional structure of DPs and clauses, see Borer (2005), Alexiadou, Anagnostopoulou & Schäfer (2015):

- (2) a. [DP [#P (quantity) [ClassP plural marking [nP gender [Root
b. [CP [TP [AspectP [VoiceP external argument [vP internal argument [Root

AS vs. R-nominals: Grimshaw (1990): de-verbal nouns do not form a homogeneous class.¹ They are ambiguous between a reading that supports argument structure (AS nominals (ASNs)), and a referential (R)-reading that does not (Borer 2013).

- (3) a. the examination of the patients took a long time *ASN*
b. the examination was on the table *R*

¹ Note that Grimshaw actually distinguishes between three classes of nominals: (i) complex event nominals that license AS, (ii) event nominals that do not license AS but still have an eventive interpretation, and (iii) result nominals that do not license AS and lack an eventive interpretation.

Alexiadou & Grimshaw (2008):

- 1) Only nouns which are related to corresponding verbs have AS, but see Roy (2103) and Borer (2013) for de-adjectival nominalizations. This means that being associated with an event structure/argument structure is not a property of nouns per se.
 - 2) Nouns which are identical in form to verbs do not generally behave like ASNs, i.e. they are rigidly different from verbs (*recall, offer, report*). See also Borer (2013).
- (4) *The frequent report of looting
- 3) *-ing* nominals are always ASNs, but cf. Borer (2013).
 - 4) *-(a)tion* nominals are frequently ambiguous between ASN and non ASN readings.

On the basis of the above, we proposed the following generalization:

- (5) Only nouns derived from verbs can have AS.
- Crucially, then, this means that only those nouns that have a verbal source can appear together with their arguments. In other words, nominal structure embeds a verbal structure that may contain the verb's arguments.
 - The question is how much additional functional structure can be embedded in addition to the layers introducing AS.
 - R nominals have no verbal structure, i.e. have a structure along the lines of (2a).

3. The structural complexity of AS nominalizations across languages

- Nominalizations come either with the *verbal internal structure* in (6a) or with the *mixed internal structure* in (6b).
 - A verbal internal structure is associated with verbal functional projections, while a mixed internal structure is associated with the additional presence of nominal layers (see also Borsley & Kornfilt 2000):
- (6) a. [DP [extended Verbal P [vP ...]]] *verbal internal structure*
 b. [DP [Nominal FP [(extended Verbal P) [vP ...]]]] *mixed internal structure*
- Alexiadou & al. (2011): two 'categorical' scales that interact with one another: a *verbal* and a *nominal* one, see also Ackema & Neeleman (2004), Panagiotidis (2015) and references therein.
 - Each scale contains a number of properties (cf. Sleeman 2009).
 - Languages differ as to the cut-off points they choose within these scales (cf. Ackema & Neeleman 2004, Panagiotidis 2015).
 - On this view, the distinction between Vs and Ns is not absolute, but gradual in nature: the V/N cut-off point of a nominalization can be located at various points in these scales (contra Panagiotidis & Grohmann 2006, Panagiotidis 2015).
 - Today's focus: the nature of the cut-off points
 - *Argument Structure*: all nominalizations to be discussed have AS.

The verbal scale:

1. *Presence of a complementizer*
2. *Subject with nominative case*
3. *Occurrence of modal or auxiliary verbs*
4. *Accusative case on objects*
5. *Projection of outer Aspect*: this is evidenced by aspect shift and aspectual adverbs.
6. *(implicit external argument present)*

The nominal scale:

1. *Genitive/PP-subject*
2. *Genitive/PP-object*
3. *Gender features*
4. *Availability of plural*
5. *Possibility to combine with all types of determiners*
6. *Adjectival modification*

3.1 Some examples

1) Beginning with Chomsky (1970), the *English verbal gerund* (EVG) licenses accusative objects, while the *nominal gerund* (ENG, *-ing of*) takes PP-objects. Furthermore, VGs take adverbial modifiers and disallow adjectival ones, while NGs display the opposite behavior.

- (7) a. Pat disapproved of John's *quietly* leaving *the room*
b. *The *carefully* restoring *of the painting* took months
- (8) a. His/John's *prompt* answering *of the question*
b. *His *prompt* answering *the question*

Some English NGs allow plural, if there is no competition with other affixes (see Borer 2005, Alexiadou, Iordăchioaia & Soare 2010), but VGs do not (9):

- (9) a. the repeated killings of unarmed civilians
b. *Emma's *readings* *the poem*

Overt determiners are out in English VGs. NGs allow all kinds of determiners.

- (10) a. *That/*the/*a criticizing the book annoyed us
b. The/that/?a reading of the manuscript pleased us

Auxiliaries are in VGs, but not in NGs:

- (11) His *having* read War and Peace

The *English VG* is also grammatical with most verbs (12) (Borer 2005) and contributes imperfective/[-b] outer aspect Pustejovsky (1995). The projection of AspP English VGs is further supported by the compatibility with aspectual adverb, (Borer 1993, Alexiadou 1997, Cinque 1999).

- (12) a. John's arriving at 5 pm is unlikely.
b. John's eating breakfast
c. Mary's blinking is annoying
d. John's knowing the answer

- (13) John's constantly reading the morning newspaper

English NGs are incompatible with aspectual adverbs, which indicates the unavailability of AspectP.

- (14) John's constant omitting of details/*constantly

English derived nominals are similar to NGs, but less verbal.

Kratzer (2003): the *ing-of* gerund patterns with the verbal passive in excluding a *self-action* interpretation, the standard diagnostic for VoiceP in Kratzer (1996, 2003). By contrast, derived nominals allow a *self-action* interpretation indicating the lack of VoiceP.²

- (15) a. The children were being registered.
 i. *Th = Ag: The children registered themselves
 ii. Th ≠ Ag: The children were registered by someone
 b. The report mentioned the painfully slow registering of the children.
 Th ≠ Ag / *Th = Ag
 c. The report mentioned the painfully slow registration of the children.
 Th ≠ Ag / Th = Ag

2) *German verbal infinitives* (GVI) license accusative case and can be modified by adverbs. *Nominal infinitives* (GNI) take genitive (or PP-) objects and are modified by adjectives.

- (16) [*häufig* *die* *Sterne* *Beobachten*] macht Spass
 frequently the.ACC stars observe.INF makes fun
 (17) [*das häufige* *Beobachten* *der* *Sterne*] macht Spass
 the frequent observe.INF the.GEN stars makes fun

A difference between German VIs and English VGs is that the former cannot realize an overt subject, as (18) illustrates.³

- (18) (*Peters) *die* *Sterne* *Beobachten*
 Peters.GEN the.ACC stars observe.INF

Modals ok with GVIs:

- (19) [*Dauernd* *Kuchen* *Essen* *Wollen*] nervt
 permanently cake eat.INF want.INF is-annoying

Genitive subjects ok with GNIs but not with GVIs:

- (20) (*Toms*) *Beobachten* *des* *Kindes* (*durch Tom*)
 Tom.GEN observe.INF the.GEN child by Tom
 (21) **Toms* *häufig* *das* *Kind* *Beobachten*
 Tom.GEN frequently the.ACC child observe.INF

In German, *dieses* is an anaphor for nouns only, while *das/dies* are anaphors for both nouns and CPs.

² By this, I do not mean that they always lack VoiceP, but that they can lack VoiceP.

³ In this sense German VIs seem similar to PRO-ing gerunds, Siegel (1998):

(i) PRO smoking cigars is fun

- (22) a. *Daß Maria bereits angekommen ist,*
 that Mary already arrived is
*das/ dies /*dieses* weiß ich genau
 it/ this/ this know I well
- b. *Hans hat ein rotes Buch.*
 Hans has a red book
Das/ Dies/ Dieses war sehr teuer
 it/ this/ this was very expensive

German NIs can be referred to by *dieses* (23a), but VIs cannot (23b). This suggests that German NIs are neuter, while VIs are genderless/default. It also correlates with the case defectiveness of VIs (24b), i.e. they do not receive case in NP positions.

- (23) a. *Nächtliches Beobachten der Sterne* gefällt ihm.
 at-night.Adj observe.INF the.GEN stars pleases him
Dies/Dieses/Das entspannt ihn.
 this/this / it relaxes him
- b. *Nachts die Sterne Beobachten* gefällt ihm.
 at-night.Adv the.ACC stars observe.INF pleases him
***Dies/*Dieses/Das** entspannt ihn.
***this/*this** / it relaxes him
- (24) a. wegen *des Lesens* eines Buches
 because-of the.GEN read.INF a.GEN book
- b. ***wegen** ein Buch *Lesens*
 because-of a.ACC book read.INF.GEN

- *Availability of plural*: both German nominalizations do not pluralize.
- *Possibility to combine with all types of determiners*: German VIs allow definite determiners. The nominal counterpart allows all kinds of determiners.

- (25) a. *Das/dieses/*ein/*kein/jedes* die Marseillaise Singen
 the/this/a/no/every the.ACC Marseillaise sing.INF
- b. *Das/dieses/ein/kein/jedes* Singen der Marseillaise
 the/this/a/no/every sing.INF the.GEN Marseillaise

Both *German infinitives* induce *imperfectivity* (Ehrich 1991); this is shown by the fact that even NIs of telic verbs do not tolerate resultative VPs, but allow atelic process-VPs.

- (26) *Das Abholzen des Waldes*
 The deforest.INF the.GEN forest
- a. ***muss** bis morgen früh *erreicht sein*
 must till tomorrow morning achieved be
- b. *wird zwei Jahre lang fortgesetzt*
 is two years long continued

3) *Spanish*: two types of nominalized infinitives, *verbal infinitives* and *nominal infinitives* (SVI vs. SNI). Miguel (1996) takes the distribution of the nominative vs. PP-subject in (27) to be the main distinction between them.

- (27) a. el murmurar la gente
the murmur.INF the people.NOM
b. el murmurar de las fuentes
the murmur.INF of the fountains

- Only VIs license accusative case; subject can bear nominative:

- (28) a. [El cantar yo la Traviata]
the sing.INF I.NOM the.ACC Traviata
b. [*El cantar estas coplas de Lola] nos emociona
the sing.INF these.ACC songs of Lola us moves
c. [El cantar coplas de Lola] nos emociona.
the sing.INF songs.ACC of Lola us moves
- (29) el escribir constantemente novelas (*de) ella
the write.INF constantly novels (of) she

Spanish VIs allow *adverbial* modification, while NIs can only be modified by adjectives (Miguel 1996, Ramirez 2003):

- (30) a. El andar errabundamente/*errabundo Juan
the go-about.INF aimlessly/ aimless Juan
b. El (*constante) escribir ella novelas constantemente
the constant write.INF she novels constantly
c. El andar errabundo/*errabundamente de Juan
the go-about.INF aimless/ aimlessly of Juan
d. El constante temer (*constantemente) de Juan
the constant fear.INF constantly of Juan

Spanish NIs carry gender features which – although not visible in the suffix *-r* – become obvious in anaphoric contexts, where an NI can be referred to only by the masculine pronoun *él* and not by the default neuter pronoun *ello* usually employed with CPs (Miguel 1996).

- (31) Acostumbrado *al dulce mirar de su amada*,
used-to the sweet gaze.INF of his beloved,
*ya no podía vivir sin él /*ello*.
now not could live without him/it
'Used to the sweet gaze of his loved one, he could no longer live without it.'

- Neither nominalization can pluralize.
- Gen/PP on object possible with NIs only.
- Auxiliaries only with VIs:

- (32) [El *haber* él escrito novelas] explica su fama
the have.INF he written novels explains his fame

- The NI freely combines with all determiners:

- (33) a. Aquel/ese/este/un/el lamentar (*desesperadamente) de dos pastores
that/this/a/the lament.INF (desperately) of two shepherds
b. *Ese/*aquel/el haber él escrito esa carta
this/that/the have.INF he.NOM written that letter

Spanish VIs have no special aspectual contribution, but they can appear in the perfective with *haber* (34a), so they exhibit aspect shift; NIs are incompatible with aspectual adverbs:

- (34) a. el andar el niño tan tarde por esa zona
the go-about.INF the child so late in that district
b. el lamentar la familia lo sucedido
the regret.INF the family the happened
'the family regretting what happened'
c. el llegar tan tarde el niño
the arrive.INF so late the child
d. el comprar una casa Juan
the buy.INF a house Juan
- (35) El (constante) murmurar (*constatadamente) del mar
the constant whisper.INF constantly of the sea

4) *Greek*: Nominalization of CPs, Roussou (1991), see also Borsley & Kornfilt (2000) for further examples from other languages:

- (36) to oti efige me stenahorise *D embeds complementizer*
the that he left me upseted
That he left upseted me

- Only nominal property presence of definite D, which is invariable.

5) Japanese and Turkish (and maybe Quechua, Lefebvre & Muysken 1988): constitute examples of nominalization of TPs, Kornfilt & Whitman (2008), involving a DP layer, along the lines of (37). I will come back to that.

- (37) [DP [TP...

3.2 Summary

- The most nominal properties involving gender and plural marking are clearly excluded in verbal nominalizations.
- The least nominal ones like the presence of genitive subjects are sometimes also shared by verbal nominalizations (e.g. the possessive subject in the English VG).
- Only Spanish VIs and Greek nominalized clauses license nominative case for subjects.

	EVG	ENG	EDN	GVI	GNI	SVI	SNI	Greek	J & T
CP	-	-	-	-	-	-	-	+	-J/+T
S _{nom}	-	-	-	-	-	+	-	+	-
Aspect	+	-	-	+	-	+	-	+	+
O _{acc}	+	-	-	+	+	+	-	+	+
Adverbs	+	-	-	+	+	+	-	+	+
S _{gen}	+	+	+	-	+	-	+	-	+
O _{gen}	-	+	+	-	+	-	+	-	-
Gender	-	-	-	-	+	-	+	-	-
Plural	-	+	+	-	-	-	-	-	-/+
Determiners	-	+	+	-	+	-	+	-	-/+
Adjectives	-	+	+	-	+	-	+	-	-

4. Nominal structures across languages

Recall:

- (2) a. [DP [#P (quantity) [ClassP plural marking [nP gender [Root
 b. [CP [TP [AspectP [VoiceP external argument [vP internal argument [Root

The most verbal nominalization types are the Greek nominalized clause and *Spanish VIs*. The licensing of nominative Case indicates that Tense is projected. The presence of Tense is evidenced by the presence of reflexive clitics in Spanish VIs (Pesetsky & Torrego 2002), assuming that clitics in Romance attach to T°.

- (38) a. [DP [CP.. *Greek nominalized CPs*
 b. [DP [TP [Aspect [VoiceP [vP... *Spanish VIs*

- (39) a. el afeitar-se la barba Juan
 the shaving-clitic the beard Juan
 b. *el afeitar-se de la barba

English VGs and *German VIs* all have the structure in (40). The difference between them only concerns the features under Aspect⁰ which are distributed as in (41).⁴

- (40) [DP [AspectP [VoiceP [vP [..

- (41) English verbal gerund → imperfectivity
 German verbal infinitives → genericity

(42) represents the constructions which have a rich nominal internal structure in addition to the verbal layers. *German NIs* have the structure in (a), *Spanish NIs* the one in (b), *English NGs* the one in (c):

- (42) a. [DP [nP [Aspect [VoiceP [vP... *German NIs*
 b. [DP [nP [VoiceP [vP ... *Spanish NIs*
 b. [DP [(#P) [ClassP [nP [VoiceP [vP ... *English NGs*

- Adjectival modification and genitive Case assignment on the internal argument are related to the presence of an **nP**, as is gender (Kramer 2015, Alexiadou 2017, Lowenstamm 2008 and others).
- Plural is available under ClassP. Low adverbs will be licit if AspectP is present (Borer 1993, Alexiadou 2001). This means that German NIs will license both adjectives and adverbs:

- (43) Das *dauernde laut* Singen der Marseillaise
 the constant loudly sing.INF the.GEN Marseillaise

English derived nominals:

- (44) [DP [(#P) [ClassP [nP -ation [vP/VoiceP...

⁴ One could argue that different Aspect projections are involved in each case, following Cinque (1999).

Interim conclusions:

- The varied distribution of nominal and verbal layers explains the gradual properties in nominalizations across languages (cf. Ross 1972).
- The verbal functional hierarchy can be stopped at any point.
- Patterns that are not expected under any definition of extended projection are found, i.e. D can embed, TP, CP or AspectP.
- We could take n and/or v to correspond to what earlier approaches call lexical core and functional nodes above them to share features with v or n.
- In agreement with Borer (2013), parts of the extended projection are optional, but their presence or absence has interpretational consequences.
- What we do not seem to have is the reverse process, i.e. a verbalization morpheme attaching to a nominal head leading to partial verbalization (Baker 2000).

(45) *That solution will become John's best crystalize.

5. Scrutinizing the cut-off points

- Two nominalization strategies: D-based (D is the nominalizer) and n-based (n is the nominalizer).
- **D-based:** English VGs, Greek nominalized clauses, Spanish VIs, German VIs.
- **n-based:** English NGs, English derived nominals, Spanish and German NIs.

- (2) a. [DP [#P (quantity) [ClassP plural marking [nP gender [Root
b. [CP [TP [AspectP [VoiceP external argument [vP internal argument [Root

Our schematic structures:

- (46) a. [DP [CP..
b. [DP [TP...
c. [DP [AspectP...

- (47) a. [nP [AspectP..
b. [nP [VoiceP...
c. [nP [vP...

- (48) a. If n-based, then gender is present in languages that have gender.
b. If n-based, ClassP may also be included.
c. If n-based, then all types of determiners and adjectives are licensed.
d. If n-based, internal argument surfaces with genitive. *By* phrase possible.

- n-based nominalizations: variability of determiners due to nominal core (D-n agreement, Iordachioaia 2014).

- (49) a. If D-based: external argument may surface with genitive or nominative (depending on the presence of and features in TP)
b. If D-based: invariable determiners, if determiners are present at all.

- The verbal extended projection can be interrupted at any point, the nominal one cannot be interrupted.
- In other words, once *n* is inserted, the projections higher than *n* will all be nominal, if present.
- While *n*-based nominalizations are well-formed in terms of extended projection, *D*-based ones seem problematic.
- The types of embedding are not random but seem to correspond to sub-parts of the functional hierarchy, see Wiltschko (2014), Ramchand & Svenonius (2013), cf. Cinque (1999), Alexiadou (1997), Haider (2004), Ernst (2004):

(50) Wiltschko (2014):

CP	-	TP-	AspectP	-	VP
discourse linking		anchoring	point of view		classification

(51) Ramchand & Svenonius (2014):

CP	-	TP-	VP
proposition		situation	event

- Cut-off points do not really correspond to phase heads in the strict sense, unless we allow for every verbal functional category to be a phase.
- *n* cannot nominalize propositions & situations, at least in our sample.⁵
- Both *n* and *D* are compatible with nominalizations of point of view (re-categorization).
- *D* cannot nominalize classification: *nP/vP* parallelism (re-classification via *n*, in this case we have *D-n* agreement).
- Parallelism hypothesis, Acquaviva (2014), Alexiadou, Haegeman & Stavrou (2007), Wiltschko (2014):

(52)	CP	TP	AspectP	vP
	Determiner	Quantity	Division	Classification

- Reference to more abstract features than *N* and *V*; in other words, features on functional projections may contain more abstract semantic features or *uF* in the sense of Pesetsky & Torrego (2007), see Panagiotidis (2015). Sharing makes reference to these abstract features, e.g. *D* can embed *T* (quantity) and *Aspect* (Division).
- These features could be taken from versions of the functional hierarchy that assume a more semantic basis (universal).
- **More on the parallelism:**
- *DPs* are like *CPs* in some languages, while they are like *TPs* in others. In English, where *DP* = *TP*, it can nominalize Point of View. In Greek, where *DP* = *CP*, this is not possible.

⁵ A more general claim can be made that *n* never takes clausal complements. Strings such as *the claim that*, *the idea that* have been analyzed as involving modification or (reduced) relative structure, Stowell (1981), Grimshaw (1990), Kayne (2008), Cinque & Krapova (2012) among others.

- Do D-based nominalizations preserve verbal Case patterns (nominative on the external argument and accusative on the internal argument)?
- **Yes** in Spanish VIs and Greek nominalized clauses, TP is not defective.
- **No** in English verbal gerunds, there is no Tense. Similarly in Japanese and Turkish, subjects bear genitive, T is defective. Internal arguments bear accusative as this is not n-based nominalization that triggers ergativity.
- Internal arguments in D-based nominalization receive dependent accusative, as there is a higher argument in the extended projection (Baker 2015, building on Marantz 1991, Alexiadou 2001).
- In the presence of D and in the absence of TP or presence of defective T, D assigns genitive to the external argument.
- n-based nominalizations never preserve verbal patterns (ergative/passive structures, Alexiadou 2001). See also below.
- Nominalization is akin to passivization, Grimshaw (1990), Alexiadou (2009). Bruening (2012), Borer (2013).
- n is a phase head and its presence in the structure introduces nominal case properties, genitive on the internal argument as default, Baker (2015), Alexiadou (2001, to appear).
- Variation as to whether a second genitive assigned by D is possible, related to the status of DP. **Yes** in English (*John's destruction of the manuscript*).

An aside: a Turkish puzzle Turkish nominalized clauses: two types, while both have genitive subjects, only one can tolerate plural morphology and demonstratives, Kornfilt (2003) (FN = factive nominalizer, NFN = non-factive/subjunctive nominalizer):

- (53) a. ****[Hasan ->n bu durmadankumarhane -ye**
 Hasan-GEN **this** constantly casino -DAT
kaç -t>k -lar ->n] -ı duy -ma -mıfl -tı -m
 escape -FN -PL-3.SG-ACC hear -NEG -PERF -PAST-1.SG
 Intended reading: 'I hadn't heard (about) these constant runnings (away) of Hasan to the gambling casino.'
- b. **?(?) [Hasan->n bu durmadan kumarhane -ye**
 Hasan -GEN **this** constantly casino -DAT
kaç -ma -lar ->n] -dan hofllan -m> -yor -um
 escape -NFN-PL-3.SG -ABL like -NEG-PRSPROG -1.SG
 'I don't like these constant runnings (away) of Hasan to the gambling casino (i.e. that Hasan should run to the casino constantly).'

- According to Kornfilt (2003), the nominalization in (53b), the subjunctive nominalization, lacks Tense altogether, while the one in (53a) has defective Tense.
- Both nominalizations can include forms bearing passive morphology: the nominalisation morphemes, whether -mA or -DIK, are preceded by Voice and Neg suffixes (in this order), and they precede (nominal) agreement and case suffixes (also in this order), Kornfilt (2012):

- (54) [Sen-in üniversite-de oku -t -ul -ma-dığ -ın]-a
 you-GEN university-LOC educate-CAUS-PASS-NEG-DIK-2.SG-DAT
 inan-ma-dı-m.
 believe-NEG-PAST-1.SG
 'I did not believe that you weren't educated at (a) university.'

- Kornfilt (2003): the nominal morphemes share not just the morphological slot, but also certain semantic properties with the corresponding TAM morphemes: mood properties like indicativity versus subjunctivity are similar.
- Nominalizers are realizations of TAM, which would explain why they are independent of passivization.
- If subjunctive nominalizations take determiners and plural, this suggests a more nominal internal core.
- These are not n-based nominalizations, as they do not tolerate adjectives (J. Kornfilt p.c.)
- Plurality in Turkish is unlike plurality in e.g. English (following Mathieu 2014, this type of plural has a quantity interpretation, i.e. TP like).

6. Lack of verbalization

Baker (2000): we do not seem to find cases where a verbal head attaches to a nominal head leading to partial verbalization:

(55) *That solution will become John's best crystalize.

Borer (2013): there are no zero-derived verb-noun pairs that involve overt affixes:

- | | | | |
|------|-----------------|----------------|-------------------|
| (56) | *an instantiate | to instantiate | Borer (2013: 325) |
| | *an acidify | to acidify | |
| (57) | a salutation | *to salutation | |
| | a formation | *to formation | |

- Baker (2000): n introduces a referential index, no syntactic node can have both a referential index and thematic grid.
- What about denominal verbs? As Baker states, we expect complete lack of nominal properties (no reference can be made to nominal core, no gender, no number, no definiteness, crystal -> crystalize).
- Shall we conclude that we never have verbalization of n, i.e. v always combines with root?

Arad (2005), Kiparsky (1997):

- | | | |
|------|---|--------------------------|
| (58) | a. I hammered the nail in (with my sandal). | <i>root derived verb</i> |
| | b. I painted the wall (with lacquer). | |
| (59) | a. I taped the picture (*/#with pushpins). | <i>noun derived verb</i> |
| | b. I lacquered the wall (*/#with paint). | |

- Borer (2013): Harley and Haugen (2007) show, however, that the judgments appear to result from a certain misclassification of the canonical Content of tape, lacquer and screw, respectively. Borer's proposal is then that English simply does not have zero categorizers, i.e. n and v heads realized via zero, contra Embick (2010) and others.

- (60) a. Lola taped the poster to the wall with band aids/mailling labels.
b. Screw the fixture on the wall with nails.

- Consider the asymmetry between n/D and v:

- (61) a. * $[v \text{ } [[DP \text{ } [\#P \text{ } [ClassP \text{ } [nP$
 b. * $[v \text{ } [\#P \text{ } [ClassP \text{ } [nP$
 c. * $[v \text{ } [ClassP \text{ } [nP$
 d. ? $[v \text{ } [nP$

Structures in (61) are ok as complementation, not as verbalization; n and D behave differently:

- (62) a. **D** $[CP \text{ } D \text{ } [TP \text{ } D \text{ } [AspectP \text{ } [VoiceP \text{ } [vP$
 b. $[CP \text{ } [TP \text{ } n \text{ } [AspectP \text{ } n \text{ } [VoiceP \text{ } n \text{ } [vP$

- Why is verbalization rare and unproductive (if at all, it allows structure 61d)? Why is n different from v?
- Nominalization is akin to passivization/ergative structure formation, Grimshaw (1990), Alexiadou (2009). Bruening (2012), Borer (2013). v does not have this property.
- Once a sub-part of nominal structure is built, Case becomes an issue. Incorporation of subparts of nominal structure to v (Baker 1988).
- What about zero n realization? Alexiadou & Grimshaw (2008) label zero a “stand-out” nominal allomorph, which is possible only in the root cycle, see Embick (2010):

- (63) a. Allomorphy generalization: a stand-out allomorphy is possible only in the root cycle.
 b. $[n \text{ } \sqrt{\text{ROOT}}$ root cycle
 c. $[n \text{ } [v \text{ } \sqrt{\text{ROOT}}$ outer cycle

- On this view, zero nominals are special because the nominal head n is attached directly to the Root. The allomorphy generalization above leads to the result that \emptyset -insertion is root-related, hence the lack of AS.
- The higher the affixation the less restrictions are observed. This means that *-ing* can basically attach to anything, explaining the productivity of gerunds, as opposed to zero nominals. Finally, *-(a)tion* can occur in both cycles, being underspecified.

- (64) Root outer cycle
 salutation crystalization
 formation acidification

- *Acidify* can only yield an outer cycle nominalization (63c). *To salutation* would be prohibited by the ban on denominal verbs.

7. Conclusions

- I have presented further support for the view that the distinction between Vs and Ns is not absolute, but gradual in nature.
- n-based nominalizations create ergative/passive structures.
- n is very different from v.

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