0 Introduction:

- the English nominalizer -ing of nominal gerunds has two roles, i.e. two different (though homophonous) types of -ing nominals need to be distinguished
- both types contain verbal structure
- one type contains an aspectual -ing suffix
- one type contains a nominalizing -ing suffix
- the two types are sharply distinguished by a DP-phase that - in line with SMT or virtual conceptual necessity - (cf. Chomsky 1995, 2000) blocks reference to verbal internal modification and an event interpretation
- at the same time this accounts for the grammaticality of a plural marker in English nominal gerunds (contra Grimshaw 1990)
- in German the distinction between the two types of nominalization is a morphological distinction that is reflected by the distinction between the nominalized infinitive in -en and nominalizations in -ung

1 The basic structures

Contrary to standard assumptions (cf. e.g. Grimshaw 1990, Alexiadou, Iordâchioaia and Soare 2008) nominal gerunds allow for pluralization in their incorporated as well as non-incorporated forms:

(1a) John’s/The cutting of the grass
(1b) John’s/The grass-cutting
(1c) John’s/The cuttings of the grass
(1d)  John’s/The grass-cuttings

The structures for the forms in (1) are the following:

(2a)  

```
      DP
     /   \
    NP   D’
   /     \
 John D  NP
       /   \  
   ‘s Spec N’
```

```
      N AspP
     /   \
    V+Asp ∅ DP Asp’
   /     \
 cutting the grass Asp VP
```

```
      VP Asp P
     /   \
    cutting V DP
   /     \
   cut the grass
```

(2b)  

```
      DP
     /   \
    DP   DP
   /     \
 John ‘s NP
```

```
      Spec N’
     /   \
    N AspP
   /   \
 V+Asp ∅ VP AspP
```

```
      Asp VP
     /   \
    grass-cutting grass-cut Asp VP
```

```
      VP
     /   \
    ing NP VP
   /     \
   grass V NP
```

```
      VP
     /   \
    cut grass
```


Nothing about everyday meaning rules out the illicit modifications:

(3) *the shootings of Jews for hours in the holocaust did not bother the participants
2 A closer look

2.1 Non-incorporated non-plural nominal gerunds

- these forms contain verbal functional structure (contra Abney 1987; Siegel 1997; Alexiadou, Iordâchioaia and Soare 2008 and others)
- in particular these forms contain an aspectual projection (cf. van Hout & Roeper 1998, Fu, Roeper & Borer 2001)
  - aspectual modifiers are licensed
  - non-sentential adverbial modifiers are licensed
  - *do-so* anaphor is licensed
  - sentential modifiers are not licensed

(4a) John’s cutting of the grass in an hour
(4b) John’s cutting of the grass with a scythe/immediately
(4c) John’s cutting of the grass and Bill’s doing so too
(4d) *John’s cutting of the grass unfortunately

2.2 Incorporated non-plural nominal gerunds

Does the incorporated structure contain any verbal functional structure?

Version 1 (van Hout & Roeper 1998):

- eventuality variable is bound generically
- incorporated nominals are ambiguous between result and event reading
- the incorporated element is a head only, i.e. a non-maximal projection and thus available for insertion into the Abstract Clitic Position (ACP) (cf. Keyser and Roeper 1992):

(5) \[
\begin{array}{c}
\text{V} \\
\text{V} \\
\text{ACP}
\end{array}
\]

Similarly: lose out, stand out, hold up,....

Note: the category of the item in the ACP can be P, N or A

- play dumb/chess/out
- play dumb/ play out the game vs. *play dumb out the game

- no indication for the existence of verbal functional structure in the incorporated versions, at most there is a V

- is the incorporated element an argument of the verb?
Version 1’ Roeper and Synder (2005), Barrie (2006):
- incorporated element is a head that is an argument of the verb
- option 1: head-movement leaves behind a trace, no ACP
- option 2: phrasal movement of the internal argument is forced by a symmetric c-command relation between the verb and its complement

\[ (6) \]
```
  VP            VP
  \( V^\circ \) N^\circ  \rightarrow  N^\circ  VP
   washing  glass     glas  V^\circ N^\circ
                     washing  glass
```

- option 2 is compatible with option 1 when the head-movement assumption is given up that is not crucial for the analysis, under phrasal movement the ACP is still ruled out

- the status of the -ing suffix is unclear

Version 1” Harley (2009):
- the incorporated element is treated as an unanalyzed root or
- the incorporated element undergoes category change prior to -ing attachment
- the nature of the incorporated element is strongly distributional

- this mirrors the effects of the ACP
  - the incorporation is forced by a case feature
  - verbal functional structure is not involved
  - head-movement in incorporation remains

Version 2:
- the -ing suffix is an aspectual affix
- verbal functional structure is licensed

(7a) John’s grass-cutting and Bobby’s doing so too
(7b) John’s grass-cutting with a scythe
(7c) John’s grass-cutting for hours
(7d) * John’s grass-cutting in an hour
(7e) John’s grass-cutting immediately
(7f)  * John’s grass-cutting unfortunately

(7g)  Johni enjoyed PROi rock throwing

➤ do so anaphor is licensed (7a)
➤ non-sentential adverbial modifiers are licensed (7b) & (7e)
➤ sentential modifiers are not licensed (7f)
➤ atelic modifiers are licensed (7c)
➤ telic modifiers are not licensed (7d) (which is what is expected because the incorporated element is not quantized and if it were it would not be in a symmetric c-command relation with the verb)
➤ control of PRO is possible (7g)
➤ analysis is compatible with phrasal movement and head-movement alike
➤ movement is determined by antisymmetry and not by case features

2.3 Non-incorporated plural nominal gerunds

Version 1:
• availability of plural marking on AS-nominals is language specific (Rodenburg 2006)
• Germanic languages do not allow for plural marking on AS-nominals, while Romance languages do
➤ does not account for the form in (1c)

Version 2:
• availability of plural marking is subject to intra-language variation with a distinction between nominal gerunds and verbal gerunds (Iordâchioaia and Soare 2008; Alexiadou, Iordâchioaia and Soare 2008)
• the aspectual projection in verbal gerunds and the classifier projection in nominal gerunds are in complementary distribution and determined by boundedness that mirrors the distinction between inner and outer aspect
➤ the structure for the verbal gerunds is on a par with the structure for nominal gerunds presented above (in 2c)
➤ post-head adverbial modifiers are fine, pre-head adverbial modifiers are out, as expected
from structures that host a nominal projection on top of a verbal projection

➢ no explanation for the licensing of plural forms in nominal gerunds

Version 3:

• pluralized nominal gerunds are not grammatical with the do-so anaphor, non-sentential adverbal modifiers and aspectual modifiers are not licensed either

(8a) *The/Ted’s cuttings of the grass immediately
(8b) *The/Ted’s cuttings of grass for hours
(8c) *The/Ted’s cuttings of grass with a scythe
(8d) *Ted’s cuttings of grass and Bobby’s doing-so too

• existing plural forms do not denote an event any longer
• existing plural forms denote either a result or a plurality of individualized events

(9a) The cuttings of grass
(9b) The shootings of the deer

• the distinction between a result reading and an interpretation as a plurality of individualized events rests on the nature of the direct object

(10a) The roastings of coffee
(10b) The roastings of the coffee
(11a) The pilings of gravel
(11b) The pilings of the gravel

• if the direct object is a definite description the structure can be interpreted as referring to a plurality of several individuated events
• the same effect can be observed when the direct object is a plural form

(12a) The screenings of movies
(12b) The killings of journalists

➢ an exclusive result reading is possible only for nominal gerunds in which the direct object is a mass term
➢ this suggests that nominal gerunds contain verbal functional structure (in form of an aspectual projection) as well
- *-ing* affix is not an aspectual affix but a nominalizing affix

- Marantz (2007) distinguishes between inner morphology (little x-head merged with a category-neutral root) and outer morphology (category changing affixed merged with an already categorized head)

- the nominalizing *-ing* affix corresponds to a category changing little *n*-head that constitutes a phase

- constitution of a phase induces Spell-Out and only the edge remains active for further computation

- the AspP complement (and lower projections) is not available for further computation and thus inaccessible for modification of any kind, because the edge property blocks access to lower projections

**2.4 Incorporated plural nominal gerunds**

- incorporated pluralized nominal gerunds are (somewhat surprisingly) well attested:


- none of these forms have an event interpretation

- the forms are interpreted either as results or as a plurality of individualized events (as was the case with the non-incorporated structures)

- non-pluralized forms may have a result interpretation, but an event reading is recoverable:

(14a) The picture-framing (carefully)

(14b) The road-crossing (by bike)
(14c) The stove-heating (with wood)
(14d) The chair-stringing (for hours)
(14e) John’s pipe-sealing (and Bill’s doing so too)
  • this is not the case with non-inflected NN incorporations:

(15a) *The movie screen for hours
(15b) *Dick’s gun fire and George’s doing so too
(15c) *The stove heat with wood
(15d) *The lap-time accurately
  ➢ the incorporated plural forms of nominal gerunds do not license aspectual modifiers,
    non-sentential adverbial modifiers or the do-so anaphor either and control of PRO is not
    licit either

(16a) *The movie-screenings for hours
(16b) *The stove-heatings with wood
(16c) *The lap-timings accurately
(16d) *Dick’s gun-firings and George’s doing so too
(16e) *Johni enjoyed PROi rock-throwings
  ➢ incorporation is again forced by a symmetric c-command relation between the verb and
    its complement
  ➢ an exclusive result reading is again limited to the incorporation of mass terms
  ➢ verbal functional structure is again projected below the nominalizing node, but, due to the
    phase-inducing character of the nominalizing -ing affix and the edge property, access to
    lower projections is once again blocked

3 A closer look at German

• German has two different types of nominalizations that correspond to English nominal
  gerunds in -ing: the nominalized infinitive in -en and nominalizations in -ung
• both types of nominalizations can be incorporated
• Alexiadou, Iordâchioaia and Soare 2008 argue that the nominalized infinitive corresponds
to English verbal gerunds ---- according to section 2.1 English nominal gerunds contain verbal functional projections and thus correspond to the nominalized infinitives in German

(17a) das Spalten des Holzes (17b) das Holzspalten
the split-en(inf) of the wood the wood-split-en(inf)
‘the splitting of the wood’ ‘the wood-splitting’

(18a) die Spaltung des Holzes (18b) die Holzspaltung
the split-ung of the wood the wood-split-ung
‘the splitting of the wood’ ‘the wood-splitting’

3.1 Non-incorporated nominalized infinitives

• nominalized infinitives can be formed from virtually any verb

(19a) das Küssen (19b) das Laufen (19c) das Geben
the kiss-en(inf) the run-en(inf) the give-en(inf)
‘the kissing’ ‘the running’ ‘the giving’

(19d) das Rasieren
the shave-en(inf)
‘the shaving’

• aspectual modifiers are licensed in nominalized infinitives

• non-sentential adverbial modifiers are licensed in nominalized infinitives

• nominalized infinitives cannot be pluralized

• anaphoric reference is possible

(20a) das Mähen des Rasens für zwei Stunden
the mow-en(inf) the lawn-gen for two hours
‘the mowing of the lawn for two hours’

(20b) das Mähen des Rasens in zwei Stunden
the mow-en(inf) of lawn-gen in two hours
‘the mowing of the lawn in two hours’
(20c) das Mähen des Rasens mit einer Sense
the mow-en(inf) the lawn-gen with a scythe
‘the mowing of the lawn with a scythe’
(20d) das Mähen des Rasens gestern/heute abend
the mow-en(inf) the lawn-gen yesterday/this evening
‘the mowing of the lawn yesterday/this evening’
(20e) das Mähen des Rasens von Bobby und das gleiche Vorgehen von Jack
(the mow-en(inf) the lawn-gen of-gen Bobby and the same proceed-en(inf) of-gen Jack)
‘Bobby’s mowing of the lawn and Jack’s doing so too’

➤ German non-incorporated nominalized infinitives behave exactly like the English forms in (1a)
➤ German progressives are formed with the same affix (cf. Barrie 2006), which suggests that the -en affix is an aspectual affix (that reflects inner and outer aspect just like English aspectual -ing)
(21) beim Mähen des Rasens

3.2 Incorporated nominalized infinitives
• the incorporated structures share the same properties with the non-incorporated nominalized infinitives in German

(22a) das Rasenmähen für zwei Stunden
the lawn-mow-en(inf) for two hours
‘the lawn-mowing for two hours’
(22b) *?das Rasenmähen in zwei Stunden
the lawn-mow-en(inf) in two hours
‘the lawn-mowing in two hours’
(22c) das Rasenmähen heute abend/gestern
the lawn-mow-en(inf) this evening/yesterday
‘the lawn-mowing this evening/yesterday’
(22d) das Rasenmähen mit einer Sense
the lawn-mow-en(inf) with a scythe
‘the lawn-mowing with a scythe’
(22e) das Rasenmähen von Bobby und das gleiche Vorgehen von Jack
(the lawn-mow-en(inf) of-gen Bobby and the same proceed-en(inf) of-gen Jack)
‘Bobby’s lawn mowing and Jack’s doing so too’
the ungrammaticality of the telic aspectual modifier is expected, because the incorporated element is not quantized and thus a telic reading does not arise

- only direct internal arguments can be incorporated

(23a) der Mann läuft  
the man runs

(23b) das Laufen des Mannes/des Mannes Laufen  
the run-en(inf) the man-gen/the man-gen run-en(inf)

(23c) *das Mannlaufen  
the manrun-en(inf)

(24a) der Mann läuft den Marathon  
the man-nom runs the marathon-acc

(24b) das Marathonlaufen des Mannes  
the marathon-run-en(inf) the man-gen

(25a) der Mann gibt dem Jungen das Geschenk  
the man-nom gives the boy-dat the present-acc

(25b) das Geben des Geschenks an den Jungen  
the give-en(inf) the present-gen to the boy-acc

(25c) das Geschenkgeben an den Jungen  
the present-give-en(inf) to the boy-acc

(25d) *das Jungegeben des Geschenks  
the boy-give-en(inf) the present-gen

The same can be observed in English -ing of nominal gerunds, where it is only the direct internal argument that can be incorporated:

(26a) The man promises the boy a present

(26b) The promising of a present to the boy

(26c) The present-promising to the boy

(26d) *the boy-promising of the present

- this is what is expected when incorporation is forced by a symmetric c-command relation between the verb and its complement that is resolved by complement-specifier roll-up in terms of Barrie 2006, since none of the non-incorporable elements is a first sister of the
verb

• the same applies to reflexives:

(27a) der Berg spiegelt sich im Wasser
    the mountain reflects self in the water
(27b) das Spiegeln (des Berges) im Wasser
    the reflect-en(inf) (the mountain-gen) in the water
(27c) *das Wasserspiegeln
    the water-reflect-en
(27d) (?)das sich-Spiegeln (des Berges) im Wasser
    the self-reflect-en(inf) (the mountain-gen) in the water
(27e) *das Bergspiegeln im Wasser
    the mountain-reflect-en(inf) in the water

3.3 Non-incorporated nominalizations in -ung

• nominalizations in -ung cannot be formed as freely as nominalized infinitives:

(28a) *die Küssung  (28b) *die Laufung  (28c) *die Gebung
      the kiss-ung   the run-ung   the give-ung
(28d) *?die Rasierung
      the shave-ung

• blocking cannot be the reason for the restrictions on the forms in (28):

(29) *die Singung, die Schreibung, die Liebung, die Jagung, die Gehung, die Sehung,
    die Essung, die Kratzung, die Kommung, ...

 ➢ transitivity is a necessary but not a sufficient condition for nominalization as can be seen
   from prefixation
• whether the prefix can be stranded or not seems to be irrelevant for the nominalization

(30) schreiben *die Schreibung beschreiben die Beschreibung
     ausschreiben die Ausschreibung
(30’a) er schreibt den Auftrag aus   (30’b) er beschreibt den Weg
transitivity-sensitivity indicates that verbal structure is involved

- *-ung nominalizations can be pluralized
  
  - *-ung nominalizations denote either a result or a plurality of individualized events but never the reoccurrence of an event
  
  - *-ung nominalizations cannot be modified by non-sentential adverbial modifiers or aspectual modifiers and cannot be used in anaphoric contexts

(31a) *die Spaltung des Holzes gestern
      the splitt-ung the wood-gen yesterday

(31b) *die Spaltung des Holzes in zwei Tagen
      the splitt-ung the wood-gen in two days

(31c) *die Spaltung des Holzes für zwei Tage
      the splitt-ung the wood-gen for two days

(31d) *die Spaltung des Holzes von Bobby und das gleiche Vorgehen von Jack
      the splitt-ung the wood-gen of-gen Bobby and the same proceed-en(inf) of-gen Jack

- *-ung nominalizations can be interpreted reflexively only indirectly via a PRO_{arb} reading, which is another indication that there is a phase involved that cannot be accessed after nominalization (cf. Sichel 2009)

(32a) die Anmeldung der Gäste
      the register-ung the-gen guests

(32b) das Anmelden des Gäste
      the register-en the-gen guests

3.4 Incorporated nominalizations in -ung

- incorporated nominalizations in -ung in many respects behave like their non-incorporated counterparts
  
  incorporated -ung nominalizations denote either a result or a plurality of individualized events but never the reoccurrence of an event
  
  incorporated -ung nominalizations cannot be modified by non-sentential adverbial
modifiers or aspectual modifiers and cannot be used in anaphoric contexts

• incorporated -ung nominalizations can be pluralized

(32a) *die Holzspaltung in zwei Tagen
the wood-splitt-ung in two days
(32b) *die Holzspaltung für zwei Tage
the wood-splitt-ung for two days
(32c) *die Holzspaltung gestern
the wood-splitt-ung yesterday
(32d) die Holzspaltungen
the wood-split-ung.pl

• incorporated -ung nominalizations can be formed from (some) transitive verbs

• incorporation is not limited to the direct internal argument; indirect arguments of
ditransitives or reflexives, modifiers and external arguments can be incorporated as well

(33a) die Stadtführung
city-guide-ung
(33b) Er führt sie durch die Stadt
‘He guides them through the city’

(34a) die Wasserspiegelung (des Berges)/des Berges Wasserspiegelung
the water-reflect-ung (the mountain-gen)
(34b) der Berg spiegelt sich im Wasser
the mountain reflects self in the water

(35a) die Flussbiegung
the river-bend-ung
(35b) der Fluss biegt sich
the river bends self

• in contrast to the (relatively) unconstrained incorporation possibilities listed above, in
nominalizations in -ung the nature of the incorporated element is much more restricted
• the incorporated element in -ung nominals must be specified either for plural, for genitive
case or it must be a bare stem, while in nominalized infinitives any of these forms can be incorporated.

(36a) die Straßenkreuzung (37a) das Straßenkreuzen
(36b) *die Straßekreuzung (37b) das Straßenkreuzen

- the fixed inflectional marking on the incorporated element of the -ung nominal is yet another indication for a phase
- inflectional marking must be fixed before the incorporation operation into the -ung affix, because later access will once again be blocked by the edge property
- inflectional marking need not be fixed before the incorporation operation into the -en affix, because -en does not constitute a phase-inducing node and the incorporated element remains available for further computation
- interpretational differences follow: the form in (37a) refers to an event of crossing one (or more) street(s), the form in (37b) refers to an event of crossing more than one street, the forms in (36) do not allow for such a distinction

4 Consequences

- in English two types of nominal -ing of gerunds need to be distinguished
- both types of nominal gerunds involve verbal functional projections and in particular an aspectual projection
- if the -ing affix is an aspectual affix, aspectual modifiers, non-sentential adverbial modifiers and the anaphor do-so are licensed
- if the -ing affix is an aspectual affix, pluralization is not possible
- if the -ing affix is a true nominalizing affix, aspectual modifiers, non-sentential adverbial modifiers and the anaphor do-so are not licensed
- if the -ing affix is a nominalizing affix, pluralization is possible
- if the -ing affix is a nominalizing affix, a phase-node that blocks access to lower verbal functional projections is involved
- both types of nominal gerunds allow for incorporation structures and the distinction between the incorporated and non-incorporated forms rests on the nature of the direct
internal argument

- German nominalizations in -en behave exactly like English nominal gerunds where the -ing affix is an aspectual affix
- German nominalizations in -ung behave exactly like English nominal gerunds where the -ing affix is a nominalizing affix
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