

## Some notes on the origin and distribution of the IPP-effect\*

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1. In continental West-Germanic languages, a temporal auxiliary (Dutch *hebben* 'have', *zijn* 'be') selects a past (perfective) participle, marked in various ways, but most generally by a prefix *ge-* and an ending (*-d/t* or *-en*) (examples are from Standard Dutch unless marked otherwise):

(1) Ik heb ge-werk-t  
I have GE-work-D  
'I have worked.'

(2) Ik ben ge-kom-en  
I am GE-come-N  
'I have come.'

With so-called strong verbs, the participle may additionally be marked by Ablaut or suppletion:

(3) Ik heb ge-zong-en (< zingen)  
I have GE-sing-N  
'I have sung.'

(4) Ik ben ge-wees-t (< zijn)  
I am GE-be<sub>SUPPL</sub>-N  
'I have gone.'

If the participle selects an infinitive, it is commonly replaced by an infinitive (*Ersatzinfinitiv* or *Infinitivus-pro-participio* (IPP)):

(5) a. \* Ik heb ge-wil-d werk-en  
I have GE-want-D work-INF

b. Ik heb **will-en** werk-en  
I have want-INF work-INF

'I wanted to work.'

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(6) a. \* Ik heb hem ge-zie-n werk-en  
I have him GE-see-N work-INF

b. Ik heb hem **zie-n** werk-en  
I have him see-INF work-INF

‘I saw him work.’

(7) a. \* Ik heb ge-staa-n werk-en  
I have GE-stand-N work-INF

b. Ik heb **staa-n** werk-en  
I have stand-INF work-INF

‘I stood and worked, I was working for a while.’

The infinitive lacks the prefix *ge-* and is invariably marked by an ending *-en*. The infinitive also lacks the Ablaut of the participles (cf. (3)), but a suppletive form of the infinitive is found in precisely these circumstances:

(8) Ik ben wez-en zwemm-en  
I am be<sub>SUPPL</sub>-INF swim-INF  
‘I went for a swim.’

**2.** It is still unclear what triggers the morphological adjustment of the participle selecting an infinitive. Some generalizations emanating from dialect research are the following:

*word order*

The IPP is rarely found in mirror-image verb clusters, where the order is as in (9), illustrated in (10) for the Low Saxon Stellingwerf dialect (Bloemhoff 1977; the arrows indicate selection properties, and the numbers relative hierarchical position):

(9) infinitive<sub>3</sub> ← participle<sub>2</sub> ← auxiliary<sub>1</sub>

(10) ..dat Jan dat doe-n kun-d had (\*kunn-en) (3-2-1)  
that John that do-inf can-D had  
‘..that John could have done that.’

Blom & Hoekstra (1996: 76) report that in the Dutch dialect spoken in the Achterhoek (in the province of Gelderland, North-East of Arnheim, bordering on Germany) the IPP-effect is optional in 3-2-1 clusters (but obligatory in 1-2-3 clusters):

(11) a. dat ik schriev-mwill-n had (3-2-1)  
that I write-INF want-INF had

- b. dat ik schriev-m e-wil-d had (3-2-1)  
that I write-INF GE-want-D had  
'..that I had wanted to write.'

Likewise, Wurmbrand (2004: 55) reports that 3-2-1 clusters with IPP are not forcefully rejected by many German and Austrian speakers, and 3-2-1 with IPP is one of the possible orders of Swabian (Steil 1989:16):

- (12) ..daß d Anna ons bsuach-a well-a had (3-2-1)  
that theAnna us visit-INF want-INF has  
'..that Anna wanted to visit us.'

In mixed-order clusters (1-3-2, 2-3-1, 3-1-2) the IPP-effect is common: with 1-3-2 in Standard German (13a) (Wurmbrand 2004: 54), with 2-3-1 in West Flemish (13b) (Haegeman 1994: 521), and with 3-1-2 in Austrian Bavarian (13c) (Patočka 1997: 278).

- (13) a. ..daß er es hat lös-en könn-en (1-3-2)  
that he it has solve-INF can-INF  
'..that he was able to solve it.'
- b. ..da Valère nie nor us will-en kom-en eet (2-3-1)  
that Valery notto house want-INF come-INF has  
'..that Valery did not want to come home.'
- c. ..da ma wås lean-a hettn soi-n (3-1-2)  
that we something learn-INF had shall-INF  
'..that we should have learned something.'

The 2-1-3 order is apparently not attested where the top verb is a temporal auxiliary (cf. Zwart 1996, Barbiers 2004).

While these data suggest a shaded picture, one clear generalization emerges:

- (14) IPP occurs without exception in 1-2-3 clusters

### *morphology*

The use of a perfective prefix (*ge-* or one of its variants) appears to be a necessary condition for the IPP-effect to occur (Hoeksema 1980, Lange 1981). Dialects which lack the IPP-effect altogether (such as Frisian and Stellingwerfs) do not employ *ge-* in the formation of the past (perfective) participle (cf. (10)). On the other hand, the presence of *ge-* in the past participle does not allow us to predict that the IPP-effect will occur, in view of the optionality of IPP in 3-2-1 clusters (11) and in the clusters with mixed orders (13).

**3.** In view of the generalization in (14), it is surprising to find orders like (15), from Samatimeric (Sankt Martin German, spoken in the Banat region of Rumania; Mileck 1997: 246):

- (15) a. *iə hed si g-se:ŋ fuəd-fɔa-n* ([1]-2-3)  
you:PLhave them GE-see-N away-go-INF  
'You saw them drive off.'
- b. *ɛə hɔd k-holf-n ʊmgrɔ:m* ([1]-2-3)  
he has GE-help-N dig:INF  
'He helped shovel.'

We find similar phenomena in Luxemburgish (16) (Bruch 1973: 95), and in Austrian Bavarian dialects (17) (Patočka 1997: 255, 260, etc.):

- (16) a. *Hoffentlich huet keen dech ge-si go-en* ([1]-2-3)  
hopefully has noone you GE-see go-INF  
'Hopefully noone saw you leave.'
- b. *Ech hun dat ge-spier-t komm-en* ([1]-2-3)  
I have that GE-see-D come-INF  
'I saw that coming.'
- (17) a. *bini aa dei gång fråg-n* ([1]-2-3)  
amI also DEM GE:go:N ask-INF  
'So I went and asked them too.'
- b. *nâchdem hât desGârñ miâß-t g-wâsch-n wead-n*  
afterwards has the net must-D GE-wash-N become-INF  
'Afterwards the net must be washed.'

In both Samatimeric (Mileck 1997: 247) and Luxemburgish (Bruch 1973: 92-93), as well as in Austrian Bavarian (Patočka 1997: 290f) the finite auxiliary is placed after the participle in embedded clauses. This suggests a reconstruction of the embedded clause order as 2-3-1. The source data for Samatimeric are insufficient; an actual Luxemburgish example is in (18), from Bruch (1973: 95):

- (18) *ob-s de hollânesch ge-léier-t hues schwätz-en* (2-1-3)  
whether-2SG you Dutch GE-learn-D have speak-INF  
'whether you learned to speak Dutch.'

Similar orders are not attested in Patočka's (1997) survey of Austrian Bavarian dialects, where in embedded clauses only IPP clusters are found, with the exception of the case discussed below in (32).

The 2-1-3 orders are also attested for Zurich German (Lötscher 1978: 3):

- (19) *..wil er en ghöör-t hât choo* (2-1-3)  
because he him hear-D has come:INF  
'..because he heard him come.'

Mileck (1997:104) suggests that in Samatimeric verbs like *see* may select a clausal infinitive ('satzwertiger Infinitiv') without *zu*, witness cases like:

- (20) miə hɔm si k-sɛɪ-ŋ mid iənkɪnd ha:m gɛ:  
 we have her<sub>GE-see-N</sub> with herchild home go:<sub>INF</sub>  
 ‘We saw her go home with her child.’

The construction in (20) is reminiscent of the so-called ‘third construction’ of Dutch, where the infinitive is not taken to be part of the verb cluster:

- (21) ..dat hij hetge-probeer-d heeft te lez-en (2-1-3)  
 that he it <sub>GE-try-D</sub> has to read-<sub>INF</sub>  
 ‘..that he tried to read it.’

The generalization underlying the ‘third construction’ hypothesis is that clustering entails IPP, as in (22), so that the infinitive *te lezen* in (21) must be outside the cluster, i.e. extraposed.

- (22) ..dat hij hetheeft prober-ente lez-en (1-2-3)  
 that he it has try-<sub>INF</sub> to read-<sub>INF</sub>  
 ‘..that he tried to read it.’

That the 2-1-3 order in languages with 3-2-1 clusters must be identified as a third construction case is also argued by Reuland (1990) for Frisian. An example is given in (23):

- (23) ..dat er mydat boek ferbea-n hat te lêz-en (2-1-3)  
 that he me that book forbid-<sub>N</sub> has to read-<sub>INF</sub>  
 ‘..that he forbid me to read that book.’

If this applies throughout, the 2-(1-)3 orders without IPP do not constitute a counterexample to the generalization in (14).

4. The Plautdiitsch dialect spoken in the Siberian Altai region (Siberian Mennonite Plautdiitsch) shows the same construction types as the ones discussed in section 3. The auxiliary follows the participle in embedded clauses (24), the IPP-effect shows up in 2-3 clusters (25), but not everywhere (26) (data from Jedig 1969: 36, 159, 155).

- (24) van mo<sup>a</sup> de mut<sup>a</sup> niçj<sup>e</sup>-štorv<sup>e</sup> ve:<sup>a</sup> (2-1)  
 if only the mother not<sub>GE-die:N</sub> were  
 ‘If only mother hadn’t died.’

- (25) ji: haud t'e:n<sup>e</sup> härv<sup>e</sup> ([1]-2-3)  
 you:PL had can:<sub>INF</sub> mow:<sub>INF</sub>  
 ‘You could have mown.’

- (26) ämkunt<sup>a</sup> haud-st kun-t ne:m<sup>e</sup> ([1]-2-3)  
 theWalachian had-2SG can-D take:<sub>INF</sub>  
 ‘You could have taken the Walachian [a horse].’

The construction in (27) suggests that the infinitive selected by a participle is

‘satzwertig’: all its arguments are realized in the complement of the participle (Jedig 1969: 169):

- (27) *däi ha:ft j<sup>e</sup>-spi:<sup>e</sup>-t ämprodaväts ko:m<sup>e</sup>* ([1]-2-3)  
DEM has GE-see-D the merchant come:INF  
‘He saw the merchant come.’

5. It should be noted that the 2-3 order of Samatimeric (15) alternates with a 3-2 order in which the IPP-effect does show up (Mileck 1997: 246-247):

- (28) a. *iə hed si fuəd-fɔa-n sɛ:ŋ* ([1]-3-2)  
you:PL have them away-go-INF see-INF  
‘You saw them drive off.’
- b. *ɛə hɔd ʊmgrɔ:m hɛlf-n* ([1]-3-2)  
he has dig:INF help-INF  
‘He helped shovel.’

Conjecturing that the position of the finite auxiliary in embedded clauses is final again, these could be taken as additional examples of 3-2-1 IPP-clusters.

The Luxemburgish examples in (16) alternate with regular 1-2-3 clusters with IPP (Bruch 1973:95):

- (29) *wa keen dech hätt héier-e komm-en* (1-2-3)  
when noone you had hear-INF come-INF  
‘..when noone would have heard you come.’

In Austrian Bavarian dialects, the common pattern appears to be 1-3-2 with IPP (Patočka 1997: 278; cf. Wurmbrand 2004: 55):

- (30) *wiar i mit knecht und dian håun åabat-n miass-n* (1-3-2)  
how I with servant and maid have work-INF must-INF  
‘how I had to work with servants and maids.’

And Lötscher (1978: 3) notes that Zurich German (19) alternates with (31), i.e. 2-3-1 with IPP:

- (31) *..wil er en ghöör-e choo hät* (2-3-1)  
because he him hear-INF come:INF has  
‘..because he heard him come.’

These facts suggest that integration of the infinitive (the number 3-verb) into the verb cluster leads to the IPP-effect, regardless of surface order.

6. Austrian Bavarian shows among its additional word orders the one in (32), which differs from the one in (16) in the position of the most deeply embedded infinitive ([1]-2-3 vs. 3-1-2). Crucially, both orders lack the IPP-effect (Patočka 1997:291, also 278 note 419):

- (32) wånn-st iawand såg-n hå-st g-hea-t (3-1-2)  
 when-2SG someone say-INF have-2SG GE-hear-D  
 ‘when you heard someone say’

If the infinitive in (16) is a ‘satzwertiger Infinitiv’, a plausible hypothesis is that it has the same status in (32). The placement of the infinitive in (32) could then be the result of movement to the left across the verb cluster (‘intraposition’).

The 3-2 order without IPP is also reported for Samatimeric (Mileck 1997:104), providing a minimal pair with (28):

- (33) a. εa hōd mi kōm-a g-sεi-ŋ ([1]-3-2)  
 he has me come-INF GE-see-N  
 ‘He saw me come.’  
 b. du hōsdra kox-n k-holf-n ([1]-3-2)  
 you have.her cook-INF GE-help-N  
 ‘You helped her cook.’

Next to (18), Bruch (1973: 95) gives the 3-1-2 and 3-2-1 clusters in (34), both without IPP:

- (34) a. deen de leit moral priedig-en as gaang (3-1-2)  
 REL thepeopleethics preach-INF is ge:go<sub>SUPPL</sub>  
 ‘who has gone preach ethics to the people’  
 b. deen de leit moral priedig-e gaang as (3-1-2)  
 REL thepeopleethics preach-INF ge:go<sub>SUPPL</sub> is  
 ‘who has gone preach ethics to the people’

The main clause example in (35) suggests that the type 3-2 without IPP is also attested in Siberian Mennonite Plautdiitsch:

- (35) ät’ ha: äm ho:n sjri:-<sup>e</sup> j<sup>e</sup>-hi<sup>e</sup>-d ([1]-3-2)  
 I have thecock crow-INF GE-hear-D  
 ‘I heard the cock crow.’

It is then a small step to think of the Achterhoeks 3-2-1 order without IPP in (11b) as the result of a generalized rule of intraposition of a ‘satzwertig’ infinitive that was never part of a verb cluster.

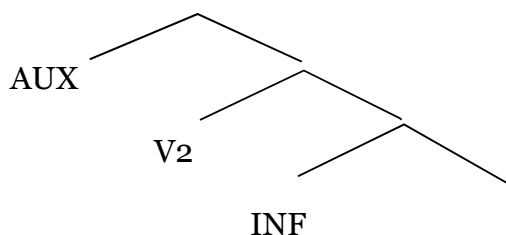
7. We assume, then, that an infinitive selected by a participle may either be part of the verb cluster (36a) or extraposed (36b). In the latter case, it may also be intraposed (36c).

- (36) a. [ AUX—V2—INF ] (1-2-3) V2 = IPP  
 b. [ AUX—V2 ] INF (1-2-3) V2 = PART  
 [ V2—AUX ] INF (2-1-3)

- c.    INF    [ AUX—V2 ] (3-1-2)    V2 = PART  
      INF    [ V2—AUX ] (3-2-1)

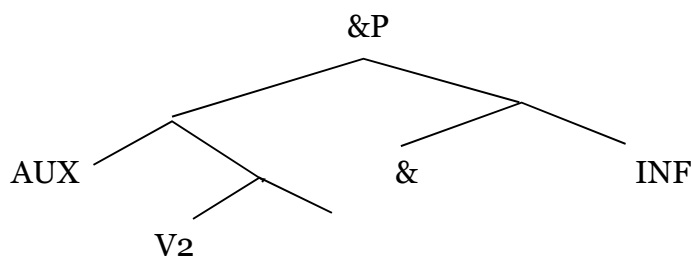
While many details are unclear, we may start from the working hypothesis that the infinitive is part of the cluster when it is merged as a (term of the) complement of V2, as in (37):

(37)



In contrast, the extraposed infinitive is merged in juxtaposition with the verb cluster, perhaps in a coordination-like structure as proposed for extraposition more generally by Koster (2000):

(38)



If these suggestions are on the right track, the appropriate generalizations concerning the IPP-effect are:

- (39) The IPP-effect occurs whenever a participle takes an infinitive in its complement domain.

This generalization denies any connection between the IPP-effect and surface word order, as in (14). It does however leave open the possibility that morphology is relevant, in the sense that the effect does not show up when the participle lacks the prefix *ge-*.

**8.** The common Germanic preverb *ge* (*ga*, *gi*) appears to have as its basic meaning ‘union’ (Van Swaay 1899: 37), hence ‘completeness’ (Van Swaay 1899: 44), yielding a natural connection with telicity and perfective aspect (Prokosch 1939:205). The preverb can be found with inherently telic verbs like Gothic *galukan* ‘close’, and Van Swaay suggests (1899: 46-47) that it could be productively applied to nontelic verbs to describe completed events (e.g. Gothic *lisan* ‘reap’ vs. *galisan* ‘collect’). From then on it could develop into a marker of perfective aspect. As such, it finds a home as a prefix to the past participle, but not in the Frisian/English branch, where the preverb disappeared almost completely.

A historical explanation of the IPP-effect would have to capitalize, then, on the development of the preverb as a verbal prefix marking perfective aspect on the past



participle. If for some reason this process was limited to participles not selecting a verbal complement, we have a natural point of divergence between two-verb and three-verb clusters, such that the *ge*-forms would only appear in the former.

This suggests that the IPP-form derives from the original West-Germanic past participle, before its association with the perfective preverb *ge*. A hypothesis of this type has apparently been entertained for a long time, witness references in Kern (1912: 49) to Lachmann, Grimm, and Wilmanns. Kern rejects the hypothesis on the ground that the Middle High German and Middle Dutch written record (1100-1500) shows but few cases where the infinitive could pass as a *ge*-less participle.

Kern's argumentation applies most forcefully to a variant of the hypothesis that derives the IPP-effect from suppression of *ge* in the Middle High German / Middle Dutch period. The suppression theory is motivated by the fact that the earliest IPP-cases of Middle High German date from the early 13th century (Kern 1912: 49, Paul 1920: 128), whereas the productive application of *ge* to the past participle goes back to Old Saxon / Old High German (Prokosch 1939: 205). Be that as it may, a more plausible scenario seems to me to be that the perfective preverb *ge* was never applied to the past participle in 3-verb clusters headed by a temporal auxiliary, for reasons to be discussed below. This suggests that the initial Old Saxon / Old High German varieties had *ge*-less participles in the relevant clusters, and that the assimilation of the *ge*-less participle to the infinitive antedates the emergence of an extensive written record.

I sympathize, then, with Paul (1920: 128), who suggests an (additional) process of analogy pressure from 3-verb clusters headed by a modal verb (i.e. AUX-INF-INF clusters), where the V2 is an infinitive. Any dialect data showing in the relevant position either *ge*-less participles or *ge*-less forms with partial traits of infinitival morphology could be taken as evidence supporting the analogy process.

In this respect it is interesting to find that the IPP form of Dutch *zijn* 'be' is built on the suppletive stem *weez* used for the past participle (cf. (4), (8)). This might indicate that the IPP is indeed a modified form of the participle. More strikingly, dialects employ an IPP-form of *zijn* which involves the dental ending of the past participle (De Schutter 1974 [1983: 273-275]):

- (40) a. Hij is wees-t viss-en  
           he is be<sub>SUPPL-D</sub> fish-INF  
           (West Flemish, Western East Flemish, parts of Antwerp province and Belgian Brabant)
- b. Hij is wees-t-en viss-en  
           he is be<sub>SUPPL-D-INF</sub> fish-INF  
           (Zeeuws, West Brabantish, northern Antwerp province, and parts of Belgian Brabant)

'He has been out fishing.'

In (40b), the ending combines the dental participial suffix and the infinitival ending. (The variant *geweest vissen* is comparatively rare, found only with some consistency in the North of Dutch Limburg; we cannot exclude that *vissen* here is a 'satzwertig' infinitive, on a par with cases like *te vissen geweest* / *geweest te vissen*. Interestingly, among the many variants and mixed forms discussed by De Schutter, there is none in

which the *ge*-prefix and the infinitival ending are combined.)

Furthermore, Wiese (1900: 154) mentions that the Altenburg dialect uses a special *ge*-less participle in 3-verb clusters:

- (41) a. ..dass ihm kein Mensch was hat konn-t  
that him no man something has can-D  
  
an-hab-en (1-2-3)  
on-have-INF  
  
'..that noone could do anything to him.'
- b. wenn man das hätte konn-twiss-en (1-2-3)  
when one that had can-D know-INF  
'If one only could have known that.'

The significance of these data is that the Altenburger past participle is normally formed with *ge*, and that the word order in auxiliary-participle clusters is 2-1. This makes it unlikely that the 1-2-3 orders with past participle in (41) involve an extraposed infinitive.

Hybrid forms like (40b) are also reported in Labouvie (1938: 105) for the dialect of Dillingen (Saar) with modal verbs:

- (42) Er hat nicht möch-t-en komm-en  
he has not may-D-INF come-INF  
'He was not allowed to come.'

The occurrence of the hybrid forms might be taken to indicate that *ge*-less participles at some point came under pressure to assimilate with infinitives, ultimately yielding total replacement of (*ge*-less) participles by infinitives in most varieties.

The most problematic case for this hypothesis involves those verbs whose participles show Ablaut, such as *helfen* 'help', participle *geholfen*. One would expect to find an intermediate stage where the IPP is *holfen*, of which I am not aware. However we do find, in Early Middle Dutch texts, examples of 3-verb clusters where V2 is a *ge*-less suppletive participle *daen* 'done' (instead of *doen* or *ghedaen*; Heersche 1991: 166, from Gent ca. 1237):

- (43) ..of hi also also recht es hem heuet daen sinn-en  
whether he thus like just is him has do<sub>SUPPL-N</sub> excuse-INF  
'..whether he thus rightly let himself be excused.'

Stoett (1971: 198) also gives the *ge*-less form *bleven* 'stayed' (instead of *blijven* or *gebleven*), although he sides with Kern (1912) on the question of the origin of the IPP-effect.

Stoett (1971: 198) lists many examples of the absence of the IPP-effect in Middle Dutch, as does Paul (1920: 128) from Early Modern German. But many of these cases might actually involve extraposition, as well as a factor of purism which Paul singles out.

9. If the historical scenario is correct, it remains to determine why *ge* could not be

associated with a participle selecting a verbal complement. The logic of the hypothesis requires that participle+infinitive combinations have different aspectual properties from isolated participles, such that application of the resultative/perfective preverb *ge* was not called for (or even incongruous) when a participle had an infinitive in its complement domain.

Here it is clear that an auxiliary-participle combination denotes an accomplishment, while the same combination of verbs with an added causative does not. Thus, whereas (44a) implies that the book was finished, (44b) not even implies that any reading took place:

- (44) a. Ik heb hetboek ge-lez-en  
I have thebook GE-read-N  
'I read the book.'
- b. Ik heb het boek lat-en lez-en  
I have the book let-INF read-INF  
'I let (sc. them) read the book.'

Similarly, a combination of an auxiliary with a perception verb denotes a completed event (the film was seen from beginning to end in (45a)), whereas the same combination with an added infinitive does not (the speaker witnessed an arbitrary segment of the shooting process):

- (45) a. Ik heb de film ge-zie-n  
I have themovie GE-see-N  
'I saw the movie.'
- b. Ik heb de film zien op nem-en  
I have themovie see-INF up take-INF  
'I saw (sc. them) shoot the movie.'

These facts suggest that 3-verb clusters headed by a temporal auxiliary are atelic, hence they would not have qualified for modification by the telic preverb *ge*.

In this respect it may be observed that other telic preverbs or particles may not be combined with the IPP:

- (46) a. Ik heb mijn fout ge-zie-n  
I have my mistake GE-see-N  
'I saw my mistake.'
- b. Ik heb mijn fout in ge-zie-n  
I have my mistake in GE-see-N  
'I realized my mistake.'
- (47) a. Ik heb het plan zie-n mislukk-en  
I have the plan see-INF fail-INF  
'I saw the plan fail.'

- b. \* Ik heb het plan in zie-n mislukk-en  
I have the plan in see-INF fail-INF  
(*intended reading*) 'I realized that the plan had failed.'

The particle *in* 'in' when combined with *zien* 'see' yields a resultative ('realize'). Such a combination is impossible in the IPP-construction, suggesting an incompatibility of the latter with resultativity.

Modal verbs, which feature prominently in IPP-constructions, have the inherent property of inducing atelicity. As described by Barbiers (1995), the semantics of modal verbs is characterized by the implication of a polarity transition, a transition from an unrealized to a realized state, with the particular character of the modal verb describing the transition as desired, possible, probable, necessary, etc. Consequently, a telic event (such as dying) becomes atelic through the addition of a modal verb:

- (48) a. Hijstierf  
he died
- b. Hijwilde / zou / kon / mocht / moest sterv-en  
he wanted / would / could / might / must die-INF

The atelic (nonresultative) character of (48b) is evident from the fact that a counterfactual consequent ('but he didn't) may be added, which is impossible with (48a). Similarly, the 3-verb cluster in (49a) is telic, but those in (49b) are not:

- (49) a. Hijis ge-storv-en (# maar hij leeft nog)  
he is GE-die-N buthe lives still  
'He died, he is dead (but he is still alive).'
- b. Hijheeft will-en / kunn-en / mog-en / moet-en sterv-en  
he has want-INF / can-INF / may-INF / must-INF die-INF  
( maar hij leeft nog)  
buthe lives still  
'He wanted / could / was allowed / had (to) die (but he is still alive).'

The modal verb *zullen* features marginally as the middle verb in 3-verb clusters, except (for some speakers) in the pluperfect, yielding an irrealis reading (50a). As discussed in Hoekstra (1997: chapter 3), this construction has a competitor in the 3-verb cluster in (50b), where the modal takes the top position:

- (50) a. Hijhad zull-en sterv-en ([1]-2-3)  
he had shall-INF die-INF  
'He would have died, was supposed to die.'
- b. Hijzou ge-storv-en zijn ([1]-3-2)  
he shall:PAST GE-die-N be:INF  
'He would have died.'

The fact that the hierarchical positions of the temporal auxiliary and the modal are unstable here suggests that the telicity-inducing capacity of the temporal auxiliary is absent in the 3-verb cluster.

Another class of verbs featuring prominently in the IPP-construction is that of postural verbs (*staan* ‘stand’, *zitten* ‘sit’, *liggen* ‘lie down’, *lopen* ‘walk’) which normally take a *to*-infinitive, but lose the *to* when embedded under a temporal auxiliary:

- (51) a. Hij zit te viss-en  
 he sits to fish-INF  
 ‘He is fishing, he is angling.’
- b. Hij heeft zitt-en viss-en  
 he has sit-INF fish-INF  
 ‘He has been fishing, angling.’

These postural verbs indicate durative actions (activities), which are inherently non-telic. This can be seen from the fact that they turn telic events into atelic events. In (52a), the resultative predicate *leeg* ‘empty’ induces a telic reading, which is lost in (52b):

- (52) a. Hij heeft de vijver leeg ge-vis-t  
 he has thepond empty GE-fish-D  
 ‘He fished all the fish out of the pond.’
- b. Hij heeft de vijver leeg zitt-en viss-en  
 he has thepond empty sit-INF fish-INF  
 ‘He has been busy fishing all the fish out of the pond.’

Counterfactual consequents (‘but there are still plenty left’) is impossible in (52a) but not with (52b).

Note that postural verbs sometimes have a resultative counterpart, such as *gaan zitten* [go sit] ‘sit down’ or *neer ploffen* [down puff] ‘plant oneself’, which cannot take a verbal complement. Crucially, in combinations like *gaan zitten werken* [go sit work] the reading ‘sit down’ for *gaan zitten* is lost (*gaan* here is a modal verb indicating that it is within the course of events that the action referred to by the infinitive will take place, as in *Het gaat regenen* ‘It looks like / is about to rain’).

The IPP-construction with *wezen* (8), repeated as (53a), looks perfective, and is characterized as such by De Schutter (1974 [1983: 265]). Thus, (8)/(53a) contrasts with (53b) in that the latter indicates absence of the person under discussion, and the former implies his return:

- (53) a. Hij is wez-en zwemm-en  
 he is be<sub>SUPPL</sub>-INF swim-INF  
 ‘He has been out for a swim.’
- b. Hij is zwemm-en  
 he is swim-INF  
 ‘He is out for a swim.’

But in a footnote added to the reprint (1983: 265), De Schutter points out that (53a) is perfective only in a temporal, not in an aspectual sense. In other words, (53a) reports a past activity, not a present result. This can be tested using standard diagnostics such as the modification by prepositional phrases referring to culmination (*in ten minutes*, Dutch *in tien minuten*) or duration (*for ten minutes*, Dutch *tien minuten*):

- (54) a. Hij is tien minuten wez-en zwemm-en  
 he is ten minutes be<sub>SUPPL</sub>-INF swim-INF  
 ‘He has been out for a swim for ten minutes.’
- b. \* Hij is in tien minuten wez-en zwemm-en  
 he is in ten minutes be<sub>SUPPL</sub>-INF swim-INF  
 (*intended reading*) ‘He was back from his swim in ten minutes.’

(Notice also that the addition of *uit*, normally inducing telicity in pairs like *kijken* ‘watch’ vs. *uitkijken* ‘watch to the end’, only makes the absence explicit, as in the English translation of (53a), so that we get *Hij is uit (wezen) zwemmen* indiscriminately of the use of the perfective construction. This *uit* has the special property of not attracting the stress like ordinary verbal particles, and of breaking up the verb cluster in constructions like *gaan uit eten* ‘go out to dinner’.)

We may also consider verbs like *proberen* ‘try’, *durven* ‘dare’, *helpen* ‘help’, which may either show up as a participle taking a ‘satzwertig’ infinitive (55a) or in the IPP-construction (55b):

- (55) a. Hij heeft ge-holp-en allochtonen te ler-en fiets-en  
 he has GE-help-N foreigners to learn-INF bike-INF
- b. Hij heeft allochtonen help-en ler-en fiets-en  
 he has foreigners help-INF learn-INF bike-INF
- ‘He helped foreigners to learn how to ride a bike.’

We can turn atelic predicates into telic ones by adding a resultative predicate such as *zich rijk* ‘himself rich’:

- (56) a. Hij heeft { tien minuten, \*in tien minuten } ge-studeer-d  
 he has ten minutes in ten minutes GE-study-D  
 ‘He studies { for / \*in } ten minutes.’
- b. Hij heeft zich { in tien minuten, \*tien minuten }  
 he has REFL in ten minutes ten minutes
- rijk ge-studeer-d  
 rich GE-study-D
- ‘He studied himself to a fortune { in / \*for } ten minutes.’

Although such resultative predicates cannot be without difficulty inserted when verbs

like *helpen*, *durven*, *proberen* take a clausal complement, I see a marked contrast depending on whether the IPP-effect applies or not:

- (57) a. ? Hij heeft zich rijk ge-holp-en allochtonen te ler-en  
 he has REFL rich GE-help-N foreigners to learn-INF  
 fiets-en  
 bike-INF
- b. \* Hij heeft zich rijk allochtonen help-en ler-en fiets-en  
 he has REFL rich foreigners help-INF learn-INF bike-INF

‘He made a fortune helping foreigners to learn how to ride a bike.’

- (58) a. ? Hij heeft zich beroemd ge-durf-d oliebranden te bluss-en  
 he has REFL famous GE-dare-D oil.fires to extinguish-INF
- b. \* Hij heeft zich beroemd durv-en oliebranden bluss-en  
 he has REFL famous dare-INF oil.fires extinguish-INF

‘He made fame by daring to extinguish oil fires.’

- (59) a. ? Hij heeft zich suf ge-probeer-d een vriendin te  
 he has REFL drowsy GE-try-D a girlfriend to  
 vind-en  
 find-INF
- b. \* Hij heeft zich suf prober-eneen vriendin te vinden  
 he has REFL drowsy try-INF a girlfriend to find-INF

‘He tried to the very end to find a girlfriend.’

This suggest that the IPP-construction is marked by absence of telicity.

I take these observations to support the hypothesis that 3-verb clusters headed by a temporal auxiliary are inherently atelic. This implies that in precisely these constructions, the participle selected by the auxiliary could not be combined with the resultative preverb *ge*. It follows that the IPP-effect did not come about through elimination of the *ge*-prefix, but through analogical pressure to assimilate original *ge*-less participles with infinitives.

**10.** The historical development of 3-verb clusters suggested here explains immediately the absence of the IPP-effect in dialects like Frisian and Stellingwerfs, where the past participle is never marked by *ge*-. Since these dialects showed no opposition between *ge*-marked and *ge*-less participles, no pressure to assimilate the latter with infinitives existed. Moreover, the functional load of the dental affix of the participle would have been too strong to give way to the nasal ending of the infinitive.

We see, however, the emergence of IPP-like effects with 1-2-3 clusters in contact

varieties of Frisian (De Haan 1996: 176; Wolf 1996: ).

- (60) a. ..dat er it hat kinn-e dwaan-n (1-2-3)  
that he it has can-INF do-INF  
'..that he was able to do it.'
- b. Ik ha juf sje-n rinn-en ([1]-2-3)  
I have miss see-INF run-INF  
'I saw miss run.'

Here the trigger for the change is not internal (systemic pressure) but external (language interference). The effect, however, (analogical change) is the same. Wolf (1996: 36) argues that morphological marking is a crucial factor triggering the change, which starts out with closed class participles like *sjoen* 'seen' which have the same ending as the infinitive. The history of the development would have been as in (61):

- (61) a. rinn-en sjoe-n →  
run-INF see-N
- b. sjoe-n rinn-en →  
see-N run-INF
- c. sje-n rinn-en  
see-INF run-INF

(61b) is the un-Frisian Dutch order, and Wolf argues that *sjoen* in this order is no longer felt to be marked as a participle, setting up the complete assimilation to the infinitive in (61c). The unstable nature of *sjoen* is also suggested by the emergence of hybrid forms like *sjoe-n-d* [see-N-D] (Wolf 1996: 36).

Here, the analogical development is triggered by factors which make the participle look less like a participle: the closed class morphology in combination with un-Frisian word order. The point of connection with the IPP-effect in dialects like Dutch is there, too, participles without *ge* may have been felt to be unlike participles, so that they came under pressure to assimilate with infinitives.

**11.** A more abstract question is how the choice between a participle and an infinitive is to be regulated in terms of what we know about the operation of the faculty of language. Following Hauser, Chomsky, and Fitch (2002) we make a distinction between a computational system (narrow syntax) and a pair of interface components dealing with sound (PF) and meaning (LF). Along with Aronoff (1992) and Halle and Marantz (1993), among others, we may take (inflectional) morphology to be part of the interface between narrow syntax and PF. Knowledge of language involves knowledge of a resource of words and paradigms, which is accessed at the point in the derivation where syntactic structures are transferred to PF for expression in some modality (sound or sign). A plausible hypothesis, then, would be to allocate the IPP-effect in morphology, i.e. outside of narrow syntax proper.

We may take participial morphology to be a function of the dependency of the participle (or a larger constituent) on the temporal auxiliary. In line with Zwart (2004)



we may take the relevant dependency to involve assignment of a feature from the auxiliary to its sister, which contains the participle. In ordinary cases, this feature, say [part], is spelled out on the participle as a morphological template *ge...d/n*.

If the IPP-effect is not a matter of narrow syntax, the auxiliary assigns the feature [part] to its sister, regardless the presence of an infinitive in the complement domain of the participle. A mechanism by which the infinitive (V3) assigns a secondary feature to the participle (V2) is not available, since the infinitive is a dependent of the participle, not the other way around. The question to ask, then, is by what mechanism the participle gets to spell out the feature [part] with infinitive morphology.

If the historical scenario sketched above is correct, the IPP-form is in fact a participle, and speakers of IPP-languages have in their inventory two types of forms which are addressed by the feature [part] (true participles and infinitives, sometimes with suppletive stems). This inventory can be exemplified nontrivially by the Dutch triple *zijn* (infinitive), *geweest* (true participle), *wezen* (IPP). Of these, the true participle must be accepted as the default form for the spell-out of [part]. And the default form apparently can only be overruled by the presence of an infinitive in the complement domain of the participle.

One suggestion would be that spell-out of terms may be sensitive to global properties of phrases. Then if the combination of a participle and the infinitive in its complement domain can be seen to function as a phrase with certain properties, spell-out of the participle might reflect these properties.

It is relevant to note here that the participle and the infinitive in its complement domain are not, on current assumptions, taken to be direct sisters in phrase structure terms. The infinitive has an argument structure of its own, suggesting that the complement of the participle is a larger constituent, involving all kinds of arguments and nonarguments associated with the infinitive. Indeed, we quite regularly see these elements intervene between the participle (i.e. the IPP-element) and the infinitive (in dialects like West Flemish, Swiss German, Siberian Mennonite Plautdiitsch, etc. etc.). On current assumptions, then, the participle and the infinitive are not a constituent to the exclusion of all other material.

In this respect it is remarkable to find that the combination of the participle (i.e. the IPP-element) and the infinitive may constitute an idiom. This happens in Dutch with causative *laten* ‘let’ and with the perception verb *zien* ‘see’:

- (62) a.    *laten stikken*  
         *let suffocate*  
         ‘abandon, leave to one’s own devices’
- b.    *laten vallen*  
         *let fall*  
         ‘drop, cease to pursue’ ‘abandon, withdraw support’
- c.    *laten zitten*  
         *let sit*  
         ‘give up, forget about’

- (63) a. iemand zien zitten  
 someone see sit  
 'appreciate someone'
- b. iemand niet zien staan  
 someone not seestand  
 'ignore someone, fail to respect someone'

These expressions are idiomatic in that the verbs selected by *laten* and *zien* never have the relevant meanings outside this context. Thus, (64a) does not imply (64b):

- (64) a. Hij heeft mijlat-en stikk-en  
 he has me let-INF suffocate-INF  
 'He abandoned me.'
- b. # Ik ben ge-stik-t  
 I am GE-suffocate-D  
 'I suffocated'  
 (*not* 'I was abandoned')

Similarly, (65a) cannot be paraphrased as (65b):

- (65) a. Hij heeft mijnooit zie-n zitt-en  
 he has me never see-INF sit-INF  
 'He never liked me.'
- b. # Ik heb nooit ge-zet-en volgens hem  
 I have never GE-sit-N according.to him  
 'I never sat, according to him.'  
 (*not* 'He never liked me.')

If an idiom is a chunk of structure receiving a special (noncompositional) spell-out at LF, we have a reason to believe that the participle (the IPP-element) and the infinitive in its complement domain form a special unit, formally expressed by a feature [unit]. At PF, then, a feature combination ([part], [unit]) would point to the IPP-realization of the participle.

In connection with this it may be noted that the complement of an IPP-infinitive may not be fronted:

- (66) a. Ik heb hem niet zie-n zwemm-en  
 I have him not see-INF swim-INF  
 'I did not see him swim.'
- b. \* Zwemm-en heb ik hem niet zie-n  
 swim-INF have I him not see-INF

- c. Zwemm-en heb ik hem niet zie-n doe-n  
swim-INF have I him not see-INF do-INF  
'I did not see him swim.'
- d. Zie-n zwemm-en heb ik hem niet  
see-INF swim-INF have I him not  
'I did not see him swim.'

The repair strategy with *doen* in (66c) clearly involves another IPP + infinitive unit *zien doen*. In (66d) the entire unit is fronted, which is unproblematic. Apparently, these units cannot be separated by fronting operations (even though the word order variability suggests that some kind of short movement must be allowed).

**12. APPENDIX.** The situation in Afrikaans is somewhat different from the rest of Continental West-Germanic. It has been reported that the IPP-effect appears optionally (Du P. Scholtz 1963: 164):

- (67) a. ..dat ek kom werk het  
that I come:INF work:INF have
- b. ..dat ek ge-kom werk het  
that I GE-come work:INF have
- '..that I came to work.'

The 2-3-1 order with a *ge*-participle as V2 appears to be unique. The Samatimeric, Luxemburgish, and Austrian Bavarian 2-3 orders discussed above all had 2-1-3 or 1-2-3 orders, allowing us to hypothesize that the infinitive V3 is not part of the cluster.

Conversely, Afrikaans shows a unique pattern of serialization, again with optional *ge*-marking of the participle (Donaldson 1993: 225-226):

- (68) a. Hy het staan en praat  
he has stand:INF and talk:INF
- b. Hy het ge-staan en praat  
he has GE-stand and talk:INF
- 'He stood talking.'

Taking the coordination property of these constructions seriously, one would expect *ge* to appear on both verbs or on the first (which has a privileged status, cf. Johannessen 1993), but not on neither.

Finally, substandard varieties of Afrikaans show a third unique pattern, where *ge* is affixed to the V3 infinitive (De Vos 2002, from Baster Afrikaans):

- (69) Jan het die huis laat ge-bou  
John has thehouse let:INF GE-build  
'John had the house built.'

These facts taken together suggest that *ge* has a different status in Afrikaans than in the rest of Continental West-Germanic. De Vos (2002) likewise concludes that *ge* in Afrikaans expresses continuative rather than completive aspect.

Since Afrikaans derives in part from 17th century Dutch, where the IPP-effect was already robust, we must assume that the emergence of *ge* (in its various places) is an innovation. Data from De Vos (2001: 85), based on Robbers (1997), suggest that the IPP-effect is still predominant among verbs like *gaan* 'go', *laat* 'let', *sien* 'see', *bly* 'keep', and dispreferred with postural verbs like *sit* 'sit' and *staan* 'stand'. Since the latter appear in the innovative serial construction illustrated in (64), there is some reason to believe that *ge* takes on a new meaning and function in Afrikaans.

In connection with these observations, De Vos (2002) proposes a structural difference between Afrikaans and Dutch to the effect that *ge* is generated high in Afrikaans and low in Dutch (i.e. lower than the participle). In fact, De Vos proposes that *ge* is generated in the complement domain of the most deeply embedded infinitive (V3) in auxiliary headed V3-clusters (the ones giving rise to the IPP-effect). As a result, the relation between the participle and *ge* is non-local in 3-verb clusters, leading to default realization of the participle with infinitive morphology.

This analysis is incompatible with the one suggested here, as it takes the presence or absence of the IPP-effect to be the creative/mechanical result of the operation of the language faculty applied to Dutch, rather than the stabilization of historical accident. Importantly, we take the absence of the *ge*-prefix to be historically related to the aspectual properties of 3-verb clusters. This gave rise to a paradigm of past participle forms, one with and one without *ge*. The latter was subsequently modified to resemble pure infinitives more closely. The functional structure associated with completive aspect, therefore, is assumed not to be present in IPP-constructions (instead of present but unexpressed for reasons of locality).

The special position of Afrikaans is undoubtedly due to language contact. Equally particular appears to be the position of German dialects spoken in pockets in Northern Italy, such as the variety reported in Schweizer (1939) called *Zimbrisch* (Zimbrian). This dialect is strictly head-initial in both main and embedded clauses, with complements, predicates and verbal particles following the verb. Verb clusters appear to be invariably of the ascending (1-2-3) type, and no IPP-effect appears to occur (examples from Schweizer 1939: 94):

- (70) a.    de pruoder   dahuame henn-en nixt   ga-sex-t   kxenn-j    ([1]-2-3)  
          thebrothers at.home have-him not   GE-see-D come-INF  
          'The brothers at home did not see him come.'
- b.    alora inj hêrre hêt-ar ga-wou-t   fang-an   wänte           ([1]-2-3)  
          then theman has-heGE-want-D take-INF rocks  
          'Then the man wanted to pick up rocks.'

My suspicion is that in this dialect, as in Afrikaans, the element *ge* is not felt to contribute telicity, witness examples like (Schweizer 1939: 94):

(71) un hat-en funt-at nôu~ in de tave'rn g'-er hat  
and has-him find-D still in the tavern where-he has

ga-trinkx-et  
GE-drink-D

‘and he found him still in the tavern where he *was drinking*’

The context of the story makes it clear that the person was still drinking in the tavern when he was found. Hence we may conclude that *ge* is not a resultative/telicity marker in Zimbrian.

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