Prefixation and Force Dynamics
A Diachronic Corpus Study of German Prefix Constructions

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Overview

1. Synchronic question:
   - How can German prefix constructions be described?

2. Diachronic question:
   - How did they evolve over the past centuries?
# The Corpora

<table>
<thead>
<tr>
<th>Corpus</th>
<th>Periods</th>
<th>Total # of tokens</th>
<th>be-</th>
<th>ent-</th>
<th>er-</th>
<th>ver-</th>
<th>zer-</th>
</tr>
</thead>
<tbody>
<tr>
<td>FnhdC</td>
<td>1350-1400, 1450-1500, 1550-1600, 1650-1700</td>
<td>514,954</td>
<td>2589</td>
<td>249</td>
<td>1689</td>
<td>2117</td>
<td>85</td>
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<tr>
<td>MzENHG</td>
<td>8 30-year periods, 1500-1720</td>
<td>388,598</td>
<td>3072</td>
<td>329</td>
<td>2362</td>
<td>2677</td>
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<tr>
<td>GerManC</td>
<td>1600-1750, 1700-1750, 1750-1800</td>
<td>683,302</td>
<td>3222</td>
<td>589</td>
<td>2448</td>
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Prefixation in German

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<tr>
<th>Prefix</th>
<th>Meaning</th>
<th>Verbs</th>
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<tr>
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<td>‘drive on’</td>
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<tr>
<td>ver-</td>
<td>‘over, away; wrong’</td>
<td>verfahren</td>
<td>‘lose one’s way driving’ ‘messy’ (part.)</td>
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<tr>
<td>zer-</td>
<td>‘apart’</td>
<td>zufahren</td>
<td>‘damage / crunch by driving’</td>
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<tr>
<td>er-</td>
<td>‘out, away’</td>
<td>erfahren</td>
<td>‘learn’</td>
</tr>
<tr>
<td>ent-</td>
<td>‘against, away, de-’</td>
<td>entfaharen</td>
<td>‘escape’</td>
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</tbody>
</table>

(a) Wir **sprühten** _Farbe_ auf die Wand.
(b) Wir **be-sprühten** _die Wand_ mit _Farbe_.

(a) We **sprayed** _paint_ on the wall.
(b) We **Ø-sprayed** _the wall_ with _paint_.

Prefixation in German

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Prefixation in German

verb
- hacken ‘to chop’

noun
- Faser ‘fibre’

adjective
- mürbe ‘tender’

derived verb
- zer-hacken ‘to chop sth up’
- zer-fasern ‘to fray’
- zer-mürben ‘to wear sb down’

Bases of ver- and zer-,
COSMAS II - Mannheimer Morgen
(Types)

Bases of ver- and zer-,
COSMAS II - Mannheimer Morgen
(Tokens)
Transitivity and Force Dynamics

<table>
<thead>
<tr>
<th></th>
<th>high transitivity</th>
<th>low transitivity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants</td>
<td>2 or more</td>
<td>1</td>
</tr>
<tr>
<td>Aspect</td>
<td>telic</td>
<td>atelic</td>
</tr>
<tr>
<td>Punctuality</td>
<td>punctual</td>
<td>non-punctual</td>
</tr>
<tr>
<td>Volitionality</td>
<td>volitional</td>
<td>non-volitional</td>
</tr>
<tr>
<td>Agency</td>
<td>A high in potency</td>
<td>A low in potency</td>
</tr>
<tr>
<td>Affectedness of O</td>
<td>O totally affected</td>
<td>O not affected</td>
</tr>
</tbody>
</table>

zer- ‘in two, apart’

**Agonist**: force holding together

**Antagonist**: force tearing apart

punctual transition from a rest state to a resulting state

(cf. Hopper & Thompson 1980; Talmy 1988)
Construal

*Das Glas brach.* ‘The glass broke’

*Das Glas zerbrach.* ‘The glass broke (into pieces)’

*Er zerbrach das Glas.* ‘He broke the glass’

(cf. Langacker 2008: 369)
zer-

**NHG** zer-brechen

**Old English**

```
Sem  to- ‘be apart’ <agent theme >
R: means  bræc <breaker thing.broken>
Syn  to-bræc SUBJ OBJ
```

Unification of the to- construction with the verb bræc

Argument structure constructions tend to be **polysemous**

(cf. Petré & Cuyckens 2008: 143)
in two, into pieces (event)

active zones of the body, e.g.
- teeth: *zemagen* 'gnaw into pieces'
- hands: *zerreißen* 'tear to pieces'
- feet: *zertreten* 'crush (underfoot)'

(cf. Fleischer & Barz 2012)
Prefixation in German

noun/verb $\rightarrow$ adposition $\rightarrow$ preverb $\rightarrow$ **verbal prefix** $\rightarrow$ loss/fossilization

<table>
<thead>
<tr>
<th>Preverbs, e.g. ab-</th>
<th>Prefix be-</th>
</tr>
</thead>
<tbody>
<tr>
<td>identical preposition</td>
<td>yes (ab)</td>
</tr>
<tr>
<td>can be separated</td>
<td>yes</td>
</tr>
<tr>
<td>stressed</td>
<td>yes</td>
</tr>
</tbody>
</table>

(cf. Heine 2009)
Analyzability

<table>
<thead>
<tr>
<th>Analyzable</th>
<th>Idiosyncratic Semantics</th>
<th>Cranberry Morphs</th>
<th>Not Analyzable / Fossilized</th>
</tr>
</thead>
<tbody>
<tr>
<td>be-kämpfen ‘fight (sb.)’</td>
<td>be-kennen ‘confess’</td>
<td>be-ginnen ‘start’</td>
<td>bleiben</td>
</tr>
<tr>
<td>kämpfen ‘fight’</td>
<td>kennen ‘know’</td>
<td>Germ. *gennan</td>
<td>&lt; be-leiben; OHG leiben ‘leave over’</td>
</tr>
</tbody>
</table>
Diachronic Evolution

Old High German
750-1050

(MHG Dictionary Document Archive)

waiting for corpora...

Bonn ENHG Corpus
Corpus, c. 1350-1700

Mainz ENHG Corpus
1500-1720

GerManC,
1650-1800

Early New High German
1350-1650

COSMAS II

New High German
1650-1950

PDG (today)
Some observations

• In MHG, some verbs can occur in the unprefixed form which are nowadays tied to their prefix, e.g. PDG verdauen ‘digest’, but *dauen

MHG

Wen swer isset, der muoz ouch daz ezzen dowen.

‘Since whoever eats must also digest the food’ (Lucid 15,2 | MhdWB)

(but tauen ‘dew’)
Some observations

• Many highly frequent prefixed verbs have become lexicalized

Warum solte sich nicht freuen mein vom Leib entschiedner Geist?
‘Why shouldn’t my spirit rejoice, which is/has separated from my body?’ (NOBD-1680-KT-neu | MzFNHD)

ent + scheid ‘divorce, separate’

PDG entscheiden ‘decide’
Some observations

• Many highly frequent prefixed verbs have become lexicalized

*seyn* doch alle drey durch Krafft vnd Anruffung dises heiligen Wunderbarlichen Sacraments vom Todt wiederumb erweckt vnd von newem mit dem Leben *begabt* worden  (Augsburgischer Arzt, 1678)

‘all three, by means of invoking this wonderful sacrament, have been resurrected from the dead and *given* new life’

be + geben
‘give’

PDG (*sich*) *begeben* ‘go to; happen’; *begabt* ‘gifted’
Some observations

• Some prefixed verbs have been reanalyzed since their bases have fallen out of use

*Der Fleis von diesem Mann hat viele schon **ergoetzt***
‘This man’s diligence has already **delighted** many people’
(DRAM_P2_WOD_1737_Verehrung | GerManC)

*Pabst Gregorius pflegte gemeiniglich in heissen Sommerzeiten sich an diesem Ort zu **ergetzen***
‘Pope Gregorius used to **enjoy himself** at this place in hot summertimes’
(HUMA_P2_OOD_1704_WasserKunst.txt)
Some observations

**ergetzen**  <  OHG *gezzan*, 'gain, obtain'

cf. Engl. *get*

cf. Germ. *ver-gessen*, 'forget'

**ergötzen**  <<  Götze ‘idol’
Some observations

erneuern < neuern

Des swuorenz an der selben stat, / Als si der rich fúrste bat, / Und núwertent ir aide da

‘This they swore right there as the noble prince requested, and they renewed their oaths there’ (RvEWh, 2643 | MhdWB)
Some observations

MHG be-haben, ver-werden/ent-werden

welt ir gotes hulde behaben,/ die burde sult ir mit ainander tragen.
‘If you want to gain/keep God’s favor, you shall carry the burden together.’ (Kchr 13207 | MhdWB)

bezzir ist, daz ich eine ir sterbe,/ dan durch mich uirwerde/ alsus manic kindelin
‘It is better that I alone die than that many children perish because of me’ (TrSilv99 | MhdWB)
Some observations

With some bases, various prefixes can be used (almost) interchangeably in earlier stages of German, but not in PDG.

Als der fromme Koenig Ezechias [...] die trawrige Bottschafft [...] beklagte erlaengerte jhm sein Schoepffer das zeitliche Leben
‘When the pious king Ezechias [...] mourned about this sad message, the Maker prolonged his temporal life’ (WOBD-1620-ST-078 | MzENHG)

Do erstumet sant Jeronimus
‘Then St. Hieronymus became silent’ (WOBD-1500-KT-005.txt)
Some observations

The application of *ver-* and *er-* seems to be more constrained nowadays:

*dieweil sie vyl baß zuo ziehen vnnnd zuo vnderweisen seind von jugend auff/ eesie *verwachsen*/‘while they are to be educated and instructed better from their youth on, before they *grow up*’ (WOBD-1530-KT-024 | MzENHG)

*der Specerey-Haendlere und anderer Handels-Leute *verliegen* gebliebene alte Wahren* ‘the old goods *left over* by the spice merchants and other trade people’ (LEGA_P2_OOD_1704_OrdnungNuernberg | GerManC)

*es war ordentlich warm und nicht so viel Schnee in den Furchen, daß man damit eine Nußschale voll Wein abkühlen oder einen Kolibri hätt‘ *erwerfen* können.*

‘It was pretty warm and there wasn’t as much snow in the furrows that one could have cooled a nutshell of wine or *pelt* a hummingbird with it’ (NARR_P3_NoD_1796_Siebenkaes.txt)
Some observations

The application of *ver-* and *er-* seems to be more constrained nowadays:

Nach jrer sprach werden sy Russy [...] vnd sein j[?]n so ain grosse menig *erwachssen*/ das sy alle eingemischte völckher vnd Nationen eintweder ausgetrieben/ oder zu jren sitten gezwungen haben/

‘According to their language they are called Russians [...], and such a great amount of them has *emerged* that they have ether cast out indigenous people and nations or forced them to adopt their customs.’
(OOBD-1560-ST-039 | MzENHG)

*wo eines Weibs (die jhre Zeit hat) Haupthaar vnder den Mist gelegt werde/ soll darauff ein gifftige Schlange *erwachsen.*

‘When the head hair of a woman (who has her period) is laid under the dung, a poisonous snake will *grow* from it.’
(WOBD-1680-ST-116 | MzENHG)
Some observations

Starting in the ENHG period, new constructional subschemas seem to emerge, e.g. [PREF-X-ig-en]: Eid > ver-eid-ig-en

welchs alles [...] dz leiden christi vnsers Herrn dadurch vernichtiget/ ‘All this [...] invalidates Christ’s suffering’
(OOBD-1560-KT-040 | M)

Diß plaster geleyt vff eynen vergifftigen biß heylet den zuo ‘This plaster, laid on a poisoned bite [injury], will heal it’
(Hortus Sanitatis Mainz 1485, FnhdC)
-igen

-igen, FnhdC

Period

P1  P2  P3  P4
Some observations

Starting in the ENHG period, new constructional subschemas seem to emerge, e.g. [ver-X-lich-en]:

attested in FnhdC, MzENHG, GerManC:
verherrlichen 'glorify'
verehelichen 'merry'

attested in COSMAS II:
veröffentlichlen 'publish' (öffentliche 'public')
veranschaulichen 'illustrate' (anschaulich 'vivid, clear')
verdeutlichen 'make clear' (deutlich 'plain, clear')
versinnbildlichen ('allegorize') (Sinnbild 'allegory')
Hypotheses

• Prefixed verbs tend to become disentangled from their bases
  – when they vastly outnumber their bases in frequency, they become obligatory
  – when both prefixed verb and base are highly frequent, the prefixed verb tends to exhibit a highly idiosyncratic semantics

→ Increase in relative frequency
**Results**

- signifi cantly less tokens in P4 than in P3 (Fisher’s Exact Test, p<0.001, odds ratio=1.24) and in P3 than in P1 (p<0.001, odds ratio=1.16)

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**FnhdC**
- significantly less tokens in P4 than in P3 (Fisher’s Exact Test, p<0.001, odds ratio=1.24) and in P3 than in P1 (p<0.001, odds ratio=1.16)
GerManC
- slight increase in relative token frequency, decrease in type frequency
Hypotheses

• New constructional subschemas emerge, attracting new bases, especially adjectival and nominal ones (cf. ver-*enig*-en, be-*eidig*-en)

→ Increase in relative frequency of nominal and adjectival bases
Hypotheses

MzENHG
- significant increase in token frequency of prefixed verbs with nominal bases (Kendall’s τ=0.57, T=22, p<0.05)
Hypotheses

MzENHG
- highly significant increase in token frequency of be-prefixed verbs with nominal bases (Kendall’s τ=0.71, T=24, p<0.01)
Multidimensional Scaling
(Wheeler 2005; Hilpert 2011, 2013)

• In a set of n elements, each element is compared to every other element in the set (and against “itself” at different points in time) (Hilpert 2013: 67f.)

• Elements that behave similarly are plotted in close proximity
A fictitious example...
GerManC, Period 3
Conclusion

- Prefixed constructs / micro-constructions enormously heterogeneous
- Tendency towards “fossilization”
- Change at the level of constructional subschemas
Avenues for further research

- Replication of the results with larger corpora
- More detailed qualitative studies
- More detailed investigation of present-day usage
- Nominalizations and Adjectivizations
- Interaction with emerging prefix(oid)s / particles
- Interaction with argument structure constructions
- Experimental studies
Thank you for your attention!

Data available at www.stefanhartmann.eu