FACULTY OF ARTS AND PHILOSOPHY

ΔIALING, LT3 & HPIMS

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PARSING THE CORPUS OF HISTORICAL LOW GERMAN (CHLG)

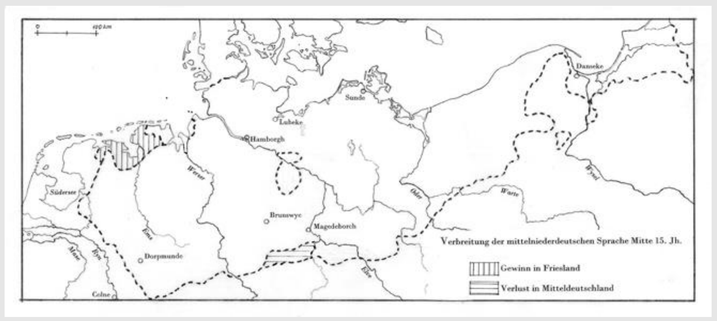
(HERCULES / FWO-RI AUGE 13/02)

Motivation

- **"Die Syntax des Mittelniederdeutschen ist weitgehend unerforscht. […] Untersuchungen zur mnd. Syntax sind ein dringendes Desiderat. (Peters 1973: 105)**
  (The syntax of Middle Low German is largely unresearched. Investigations of Middle Low German syntax are an urgent desideratum.)
- **"Zur mnd. Syntax liegen bislang nur Einzelbeobachtungen, keine umfassenden Darstellungen, vor." (Dietl 2002: 26)**
  (So far we only have individual observations on Middle Low German syntax, no comprehensive accounts.)

Historical Low German

- **Old Saxon** (700-1200)
- **Middle Low German** (1200-1650)



Middle Low German language area

Parsing decisions I: pronominal adverbs

- **Pronominal adverbs (e.g. *darumme*) are treated as PPs.**
- **The head P has a special POS-tag, 'PAVAP'.**
- **The D-element has its own POS-tag, 'PAVKO', and projects an ADVP which is the complement of the P.**

```
(IP-MAT (PP (ADVP (PAVKO Dar))
            (PAVAP (vmme)))
        (VVFIN is)
        (NP-SBJ-1 (DPDS dat))
        (ADJP-PRD (ADJD nutte))
        (CP-THT-1 ...)
)
`therefore it is useful that...' (Engelhus)
```

- **Frequently discontinuous in MLG.**

```
(IP-MAT (ADVP-1 (PAVKO dar))
        (VAFIN heuit)
        (NP-SBJ (DDARTA de)
                (NA uogit))
        (NP-OB2 (DNEGA nen)
                (NA recht))
        (PP (ADVP *ICH*-1)
        (PAVAP an))
)
`the representative has no right to that' (Duderstadt)
```

Parsing decisions II: conjunction

- **Conjunction with shared modification.**
- **Modifier is attached to highest node.**
- **Treat as phrasal conjunction.**

```
(NP-OB1 (DPOSA syn)
        (NP (NA hus))
        (CONJP (KON vnde)
               (NP (ADJA redeste)
                   (NA gud)))
)
`his house and (his) available goods' (Schwerin)
```

The CHLG at a glance

- A parsed (= syntactically annotated) corpus of historical Low German in Penn-Treebank style.
- Allows for efficient, reproducible searches for a large number of morphosyntactic structures.
- Collaboration between Ghent University and the Universities of Cambridge and Konstanz.
- **Part-funded through the** Hercules Foundation / an FWO Research Infrastructure grant (2014-2020).
- Two parts:
  1. Old Saxon: HeliPaD (Walkden 2016)
  2. Middle Low German: (in progress)

Workflow

Manual POS annotation + POS tagger (Koleva et al. 2017) → Chunker (Breitbarth, Farasyn & Witzenhausen) → Chunks > Penn (script from Truswell et al. 2016) → Annotald (Ecay et al. 2016) → CorpusSearch (Randall 2009)

Combining the Penn scheme with HiNTS

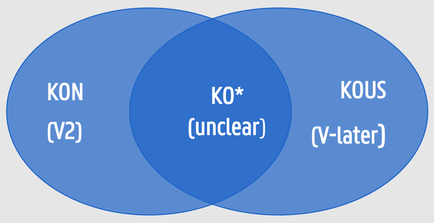
- **We use the morphologically fine-grained HiNTS tagset (Barteld et al. 2018), based on HiTS (Dipper et al. 2013), but adapted specifically for MLG.**

Advantages

- **Collaboration with the ReN corpus for POS-tagging.**
- **In line with other German corpora using Hi(N)Ts, such as the reference corpora for Middle Low German (ReN), Middle High German (ReM) and Old High German (DDD).**

Issues

- **Results in some redundancy in the encoding of syntactic information (HiNTS already encodes some syntax).**
- **3 POS-tags for conjunctions, based on word order:**



- **But V2/V-later order does not fully map onto main/sub-clause in MLG, due to word order variation.**
- **So annotating a clause as IP-MAT or IP-SUB cannot be done on word order (KON/KOUS) diagnostics alone.**

```
(IP-MAT (FM Jtem)
        (NP-SBJ (PPER wy))
        (VVFIN Bekennen)
        (CP-THT (KON dat)
                (IP-SUB (NP-SBJ (NE detmer)
                                (NE Rokeman))
                        (VAFIN hefft)
                        (VVPP gesettet)
                        (NP-OB1 (DPOSA syn)
                                (NA hus))
                                ...))
)
`likewise we recognise that Detmer Rokeman
has set his house...' (Schwerin)
```

Current stage: parsing

Scribal language	Text	Genre	No. IP-MATs
Westphalian	ArzneibuchAbdinghof	Science	–
	HerfordRechtsbuch	Law	–
	SoesterSchrae	Law	341
	SpieghelLeyen	Religion	1,350
Eastphalian	BraunschweigUrkunden	Law/Charter	170
	Duderstadt	Law	483
	EngelhusChronik	Literature	1,658
	Zeno	Literature	–
North Low German	BremenUrkunden	Law/Charter	58
	BuxtehuderEvangeliar	Religion	2,013
	Griseldis	Literature	586
	OlderburgUrkunden	Law/Charter	309
	WillekenBrief	Private Letter	–
Eastelbian	FlosBlankeFlos	Literature	–
	GreifswaldBürgersprache	Law	–
	RostockBürgersprache	Law	51
	SchwerinStadtbuch	Law	304
	StralsundUrkunden	Law/Charter	480
All			**7,803**

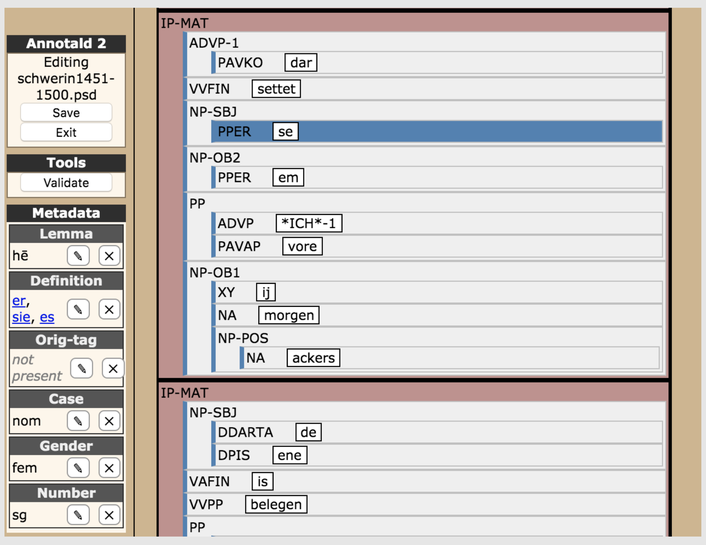
A closer look at the parsing process

- **Divided into interleaved phases of human and computer annotation.**
- **Maximising on the natural strengths/weaknesses of humans versus computers.**

Automatic chunking — basic constituents resolved
↓
Manual annotation — e.g. semantic roles, empty categories added
↓
Automatic verification — according to the annotation guidelines
↓
Manual refinements — inconsistencies fixed by hand

Annotald (Ecay et al. 2016)

- **Program for manual syntactic annotation in Penn Treebank style; CHLG-specific customisations.**



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