The Role of Animacy in the Nominal Possessive Constructions of Modern Low Saxon

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Overview of the Talk

- Introduction
  - The Low Saxon language
  - The corpus used
  - The possessive constructions
  - The animacy scale used
- Corpus Study
  - Differences between constructions
  - Influence of animacy on the choice of construction
  - Robustness of the animacy effect
  - Importance of the animacy effect
- Summary

Introduction

The Low Saxon Language

- Also known as Low German, Nedersaksisch, Platt or Plattdeutsch
- West Germanic language closely related to Dutch, German and Frisian
- Different dialects are spoken in Germany, in the Netherlands, and in settlements in Russia and allover the American continent
- No standard language
- Estimates of the number of speakers vary between 2 million and 10 million

Taken from http://de.wikipedia.org
Modified by Jan Strunk
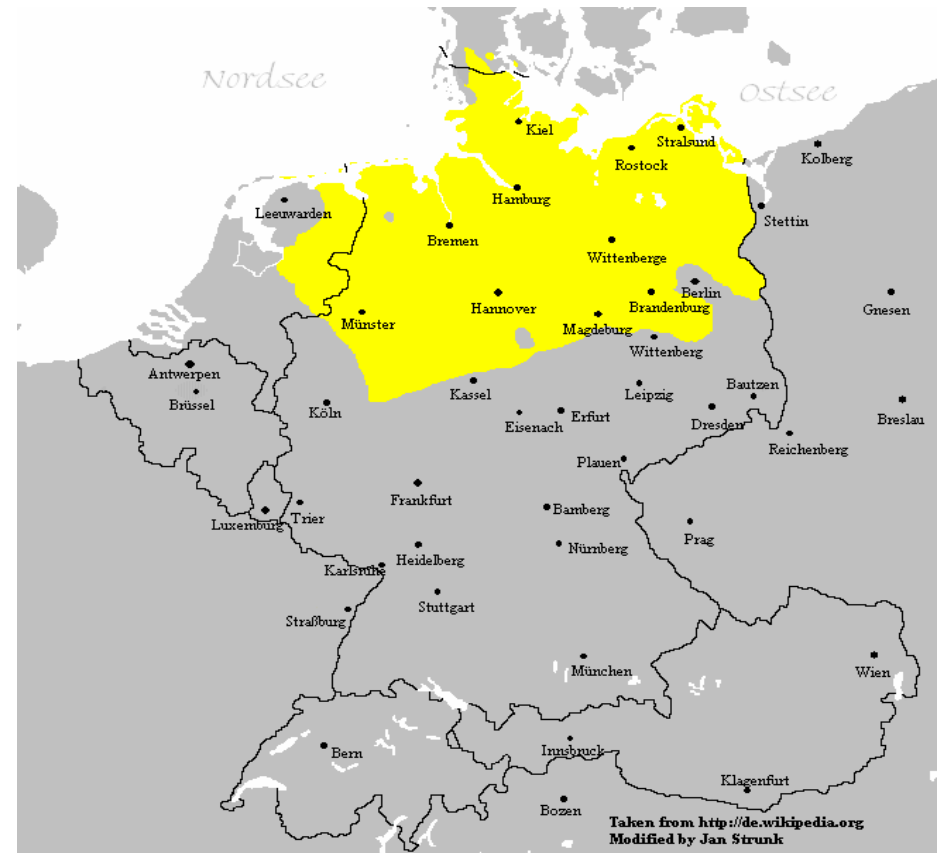
The Corpus

- A corpus of written modern Low Saxon
- Manually harvested from the internet
- 1,745 documents of Low Saxon only text
- ~ 1,000,000 tokens of running text
- Mixture of dialects as found on the web
- Different text styles: poetry, short stories, journals, jokes, news, political discussions, encyclopedia articles, religious texts
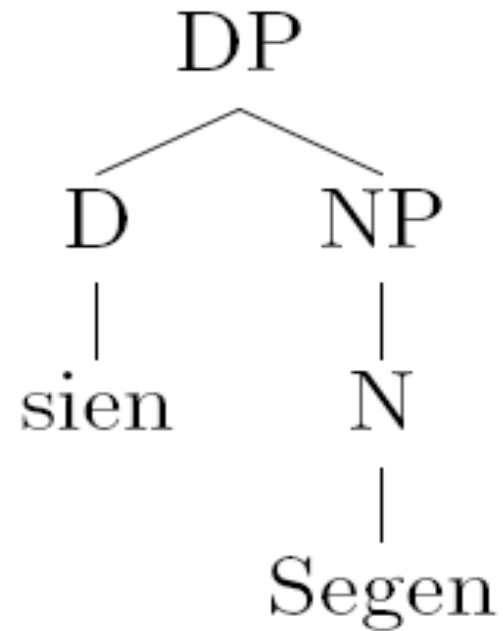
Possessive Constructions

- A possessive construction
  - Is a complex nominal phrase
  - Must allow both possessor and possessum to be overtly realized
  - Must be able to express three archetypical possessive relations (Langacker 1999, p. 176)
    - Ownership (*John's car*)
    - Kinship (*John's mother*)
    - Part-whole relationship between physical objects (*John's arm*)

- Only productive constructions

Possessive Constructions

- A manual search of the corpus yielded
  - 24,496 instances of possessive constructions
  - Eight different types of constructions
  - Four had to be excluded
    - Unproductive
    - Archaic or poetic
    - No overt expression of possessum possible
  - Four fulfilled the criteria

The Possessive Pronoun Construction (POSSP)

- Pronominal possessor phrase
- The possessive pronoun and the noun agree in number, gender, and case
- **Possessor > Possessum**
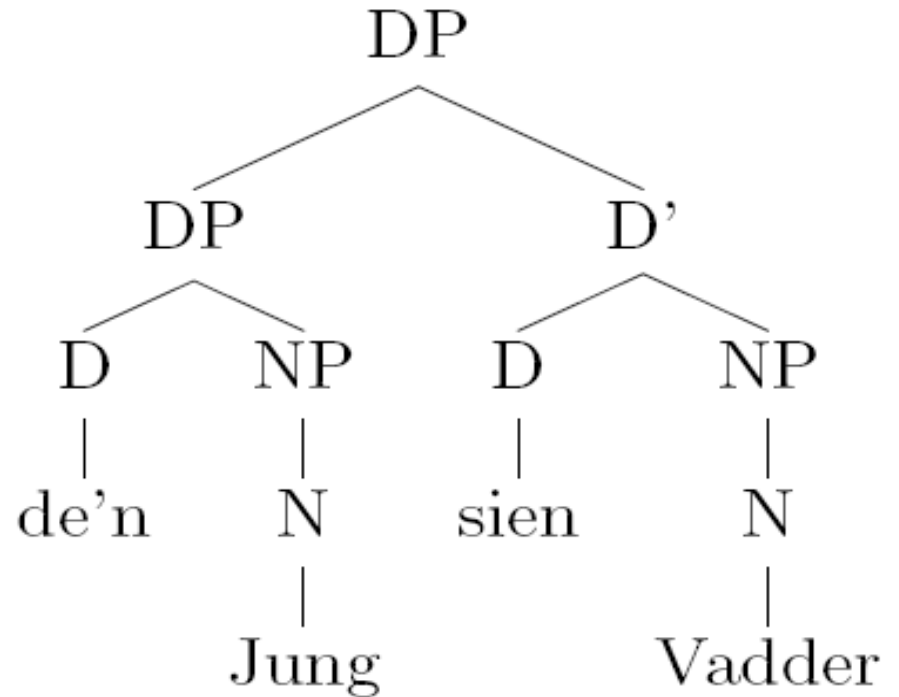- Similar to the English possessive pronoun construction

```
        DP
       /  \
      D    NP
      |     |
    sien    N
            |
          Segen
```

"His blessing"
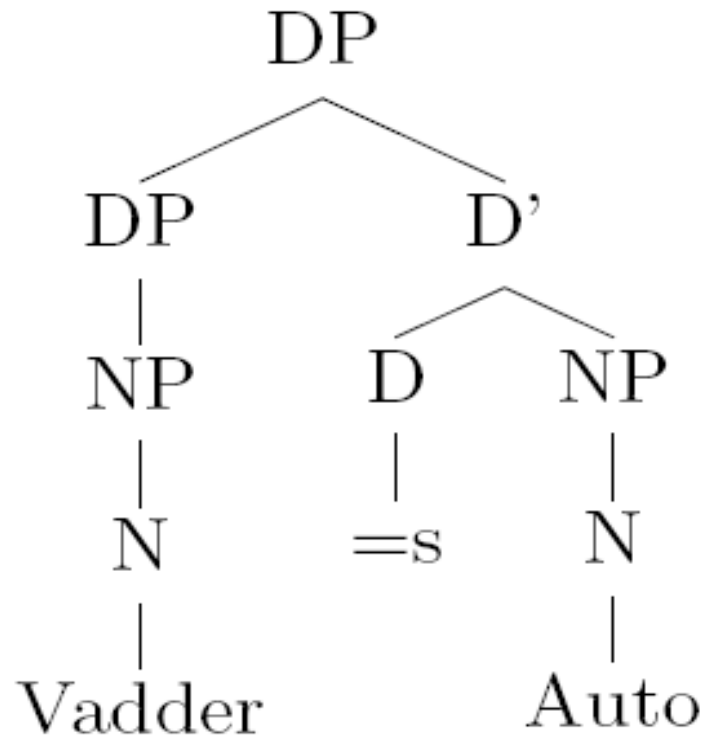
The Possessive Linker Construction (LK)

- POSSP plus additional full-DP possessor phrase in accusative case
- The possessive pronoun acts as linker and possessive marking
- The possessive linker and the possessum phrase agree in number, gender, and case
- The possessive linker and the possessor phrase agree in gender and number
- **Possessor > Possessum**
- No direct English analogue

"the boy's father"
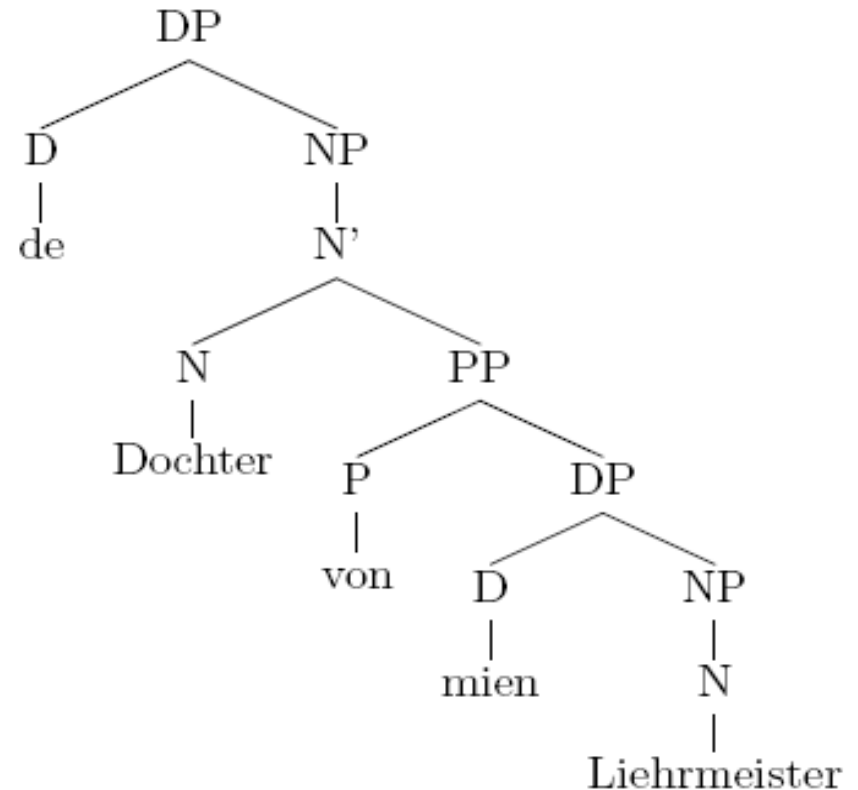
The S-Possessive Construction (SPOSS)

- Structure is similar to LK
- The linker is the invariant clitic possessive marker *"=s"*
- **Possessor > Possessum**
- (At least) superficially similar to the English s-possessive

```
              DP
            /    \
          DP      D'
          |      /  \
          NP    D    NP
          |     |    |
          N    =s    N
          |          |
       Vadder       Auto
```

"father's car"

The Prepositional Possessive Construction (PPC)

- Possessum phrase is modified by a PP headed by *van/von/vun* (*"of"*)
- Possessor phrase is the complement of this preposition
- **Possessum > Possessor**
- Similar to the English of-possessive

"my master's daughter"

The Possessive Constructions of Low Saxon as a Case of Syntactic Alternation

- Ownership
  - *ehr Huus* (her house)   [POSSP]
  - *Ruth ehr Huus* (Ruth's house)   [LK]
  - *Oma's Huus* (granny's house)   [SPOSS]
  - *dat Huus vun de CDU* (the CDU's house)   [PPC]
- Kinship
  - *ehr Mudder* (her mother)   [POSSP]
  - *Gerda ehr Mudder* (Gerda's mother)   [LK]
  - *Kurts Moder* (Kurt's mother)   [SPOSS]
  - *de moeke van Jezus* (Jesus' mother)   [PPC]
- Part/Whole of physical objects (Body part)
  - *ehr Ogen* (her eyes)   [POSSP]
  - *de Deern ehre Ogen* (the girl's eyes)   [LK]
  - *Broders Oog* (brother's eye)   [SPOSS]
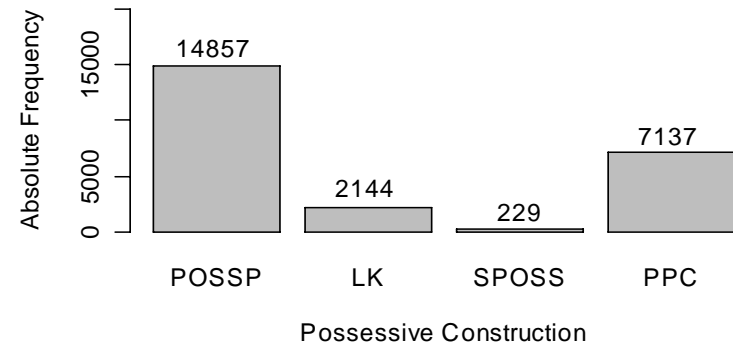 - *de Oogen vun de annern* (the eyes of the others) [PPC]

Animacy Hierarchy

- Scale of "literal" animacy combined with concreteness for inanimates (cf. Yamamoto 1999)
  - HUM → human being
  - ANI → other animate, i.e. an animal
  - ORG → human organization / collective
  - CONC → inanimate concrete entity
  - ABSTR → inanimate abstract entity or concept

- Tentatively ordered in the following scale

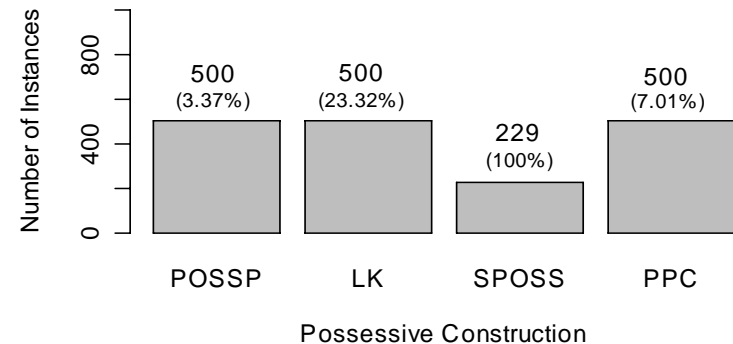 HUM > ANI > ORG > CONC > ABSTR

Corpus Study

Sampling Scheme

- Frequencies of the four constructions are quite different
  - The possessive pronoun construction is by far the most frequent
  - The s-possessive is quite rare
- A proportionate sample would yield too few instances of the rare constructions
- I therefore used disproportionate stratified random sampling
  - More reliable information on the rare constructions
  - Necessitates weighting with inverse sampling fractions when estimating the overall population

Absolute Frequency of the Four Constructions

Absolute Frequency

14857   2144   229   7137

POSSP   LK   SPOSS   PPC

Possessive Construction

Sampled Instances of the Four Constructions

Number of Instances

500 (3.37%)   500 (23.32%)   229 (100%)   500 (7.01%)

POSSP   LK   SPOSS   PPC

Possessive Construction

Construction-Based Perspective

Animacy in descriptive grammars of Low Saxon

"In most cases the genitive is replaced by the dative (or the accusative respectively) in conjunction with a possessive pronoun or paraphrased by a prepositional phrase, the former is usually used with persons, the latter with things."

(Weise 1910, p. 296, 297, my translation)

"With living beings the genitive is paraphrased by the possessive pronoun in conjunction with a preposed accusative […], with things it is paraphrased by the preposition "fun"."

(Bernhardt 1903, p. 4, my translation)

Hypothesis I

- The distribution of animacy levels in the possessor is different for LK and PPC
    - LK is used more often with possessors of high animacy (*"persons"*, *"living beings"*)
    - PPC is used more often with possessors of low animacy (*"things"*)

- I will test this hypothesis by comparing the proportions of the different animacy levels between the constructions

Distribution of Animacy for Possessors
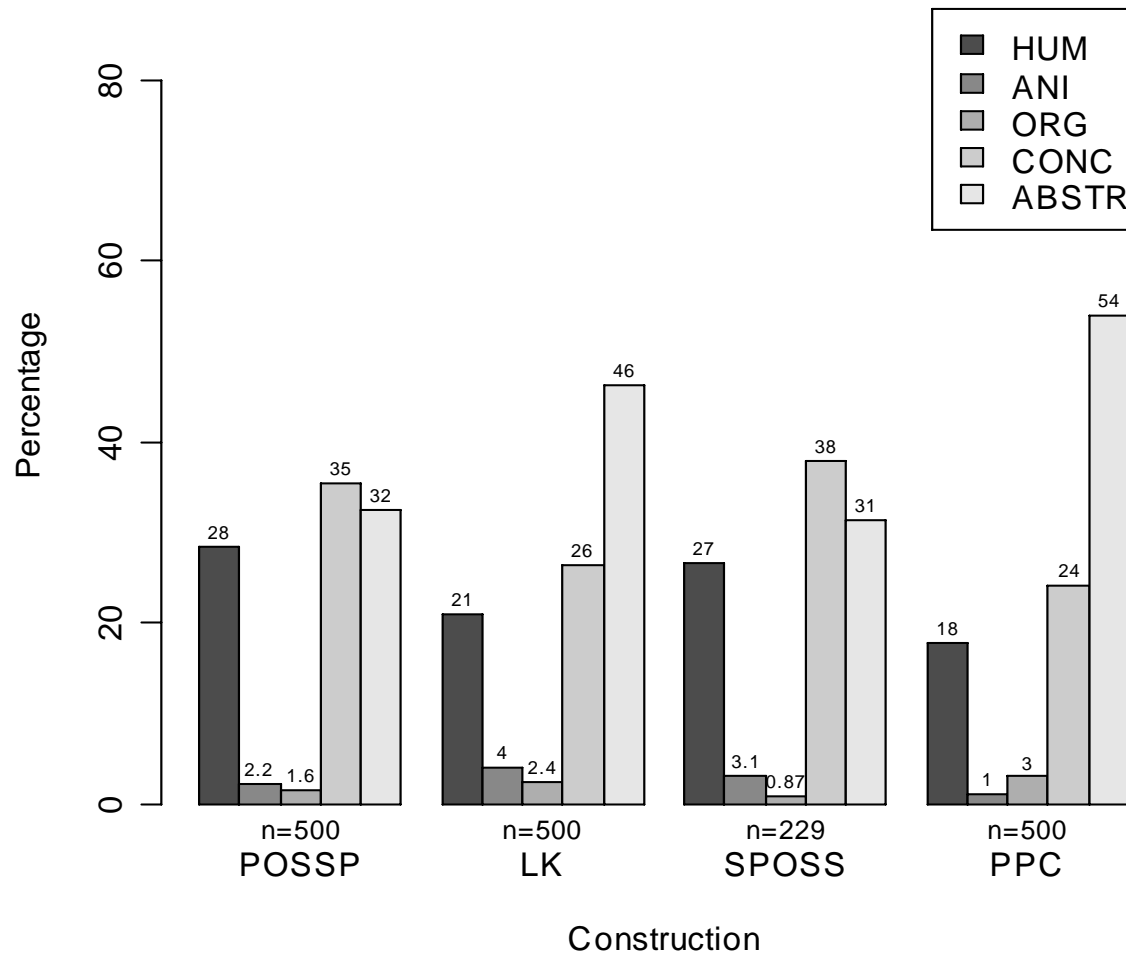

Animacy Distribution for Possessors
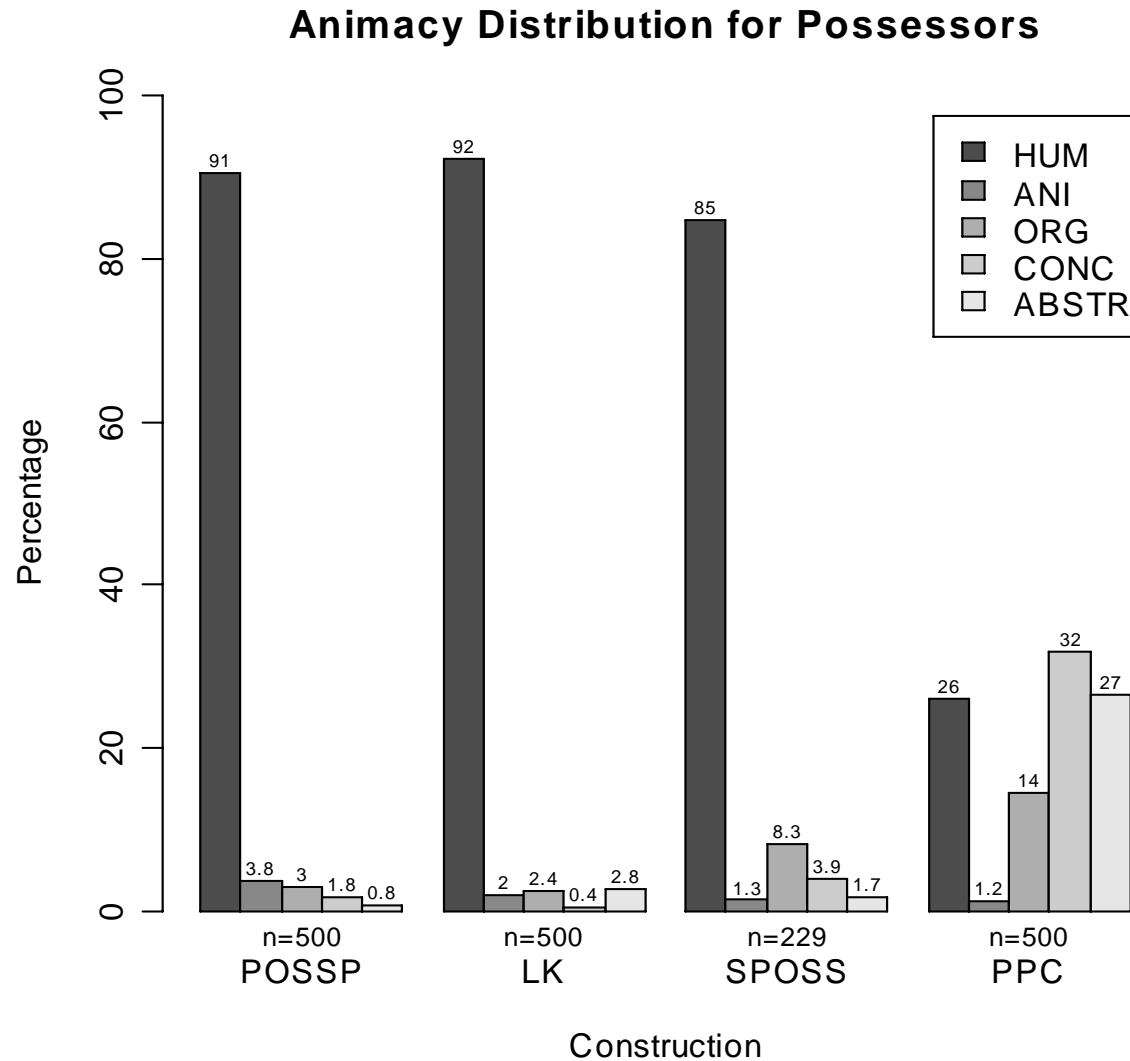
Differences between Constructions
Animacy of Possessor

- Almost all differences between PPC and the three prenominal constructions are significant
  - PPC has fewer HUM and more ORG, CONC and ABSTR
- Some significant differences between SPOSS and POSSP and LK
  - SPOSS has more ORG and fewer HUM than POSSP and LK
  - SPOSS has more CONC than LK
- Almost no significant differences between POSSP and LK
  - POSSP has fewer ABSTR and more CONC

Distribution of Animacy for Possessums

Animacy Distribution for Possessums

Differences between Constructions
Animacy of Possessum

- Differences between PPC and the three prenominal constructions are less clear!
- No significant differences between POSSP and SPOSS
- Almost no significant differences between LK and PPC
  – PPC has fewer ANI
  – LK has fewer ABSTR
- Some significant differences between PPC and POSSP and SPOSS
 – PPC has fewer HUM and CONC and more ABSTR

Choice-Based Perspective
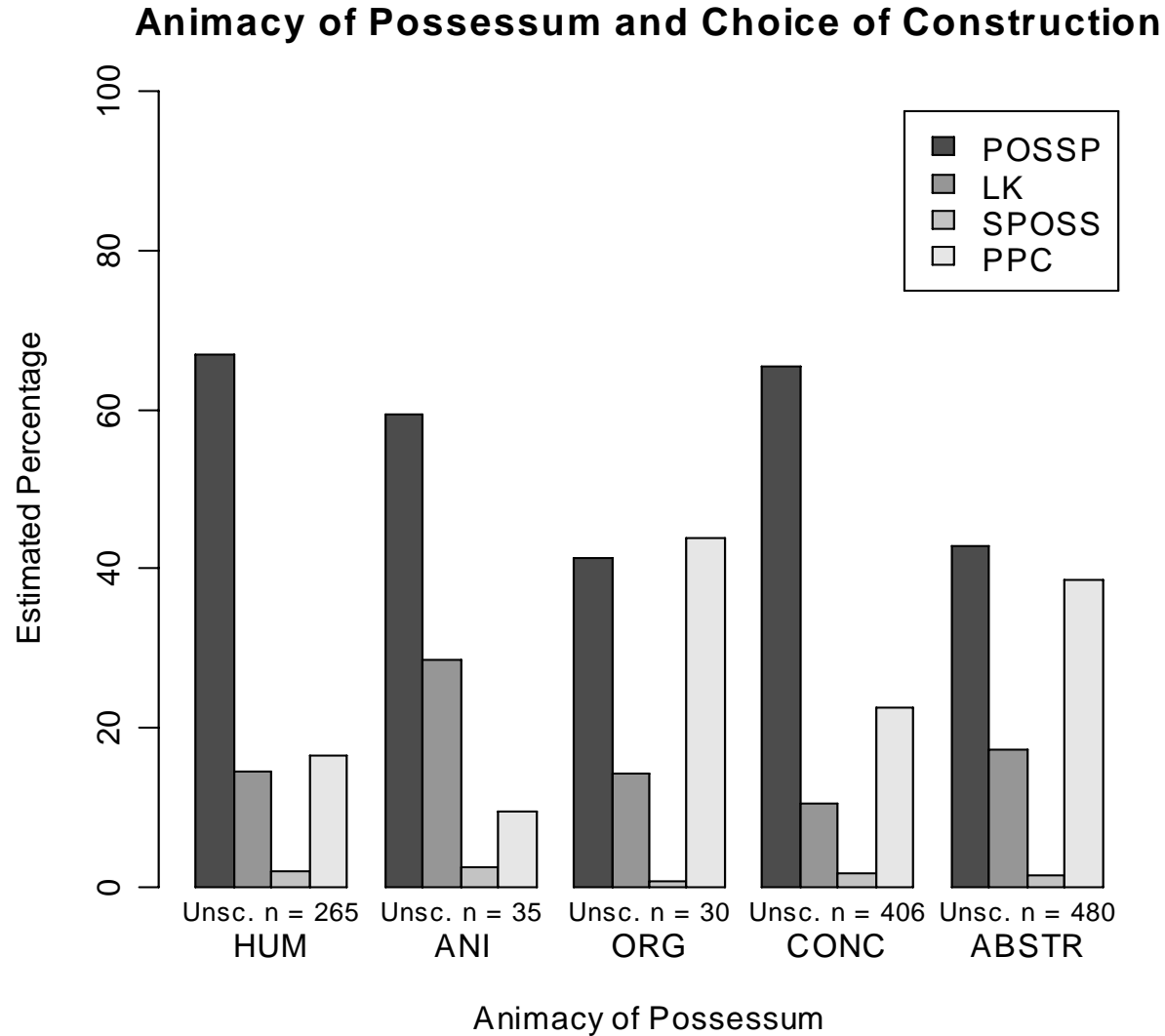
Hypothesis II

- Animacy plays an important role for the choice of possessive construction in Low Saxon
  - Possessors of low animacy facilitate the use of PPC
  - Possessors of high animacy facilitate the choice of POSSP, LK, or SPOSS
- Suggested by the differences between the constructions and by studies on the English possessive alternation (Altenberg 1982, Leech et al. 1994, Rosenbach 2002, etc.)
- I will test the influence of animacy in choice context only (non-choice context have been excluded)

Choice of Construction – Animacy of Possessor

Animacy of Possessor and Choice of Construction

25

Choice of Construction – Animacy of Possessum
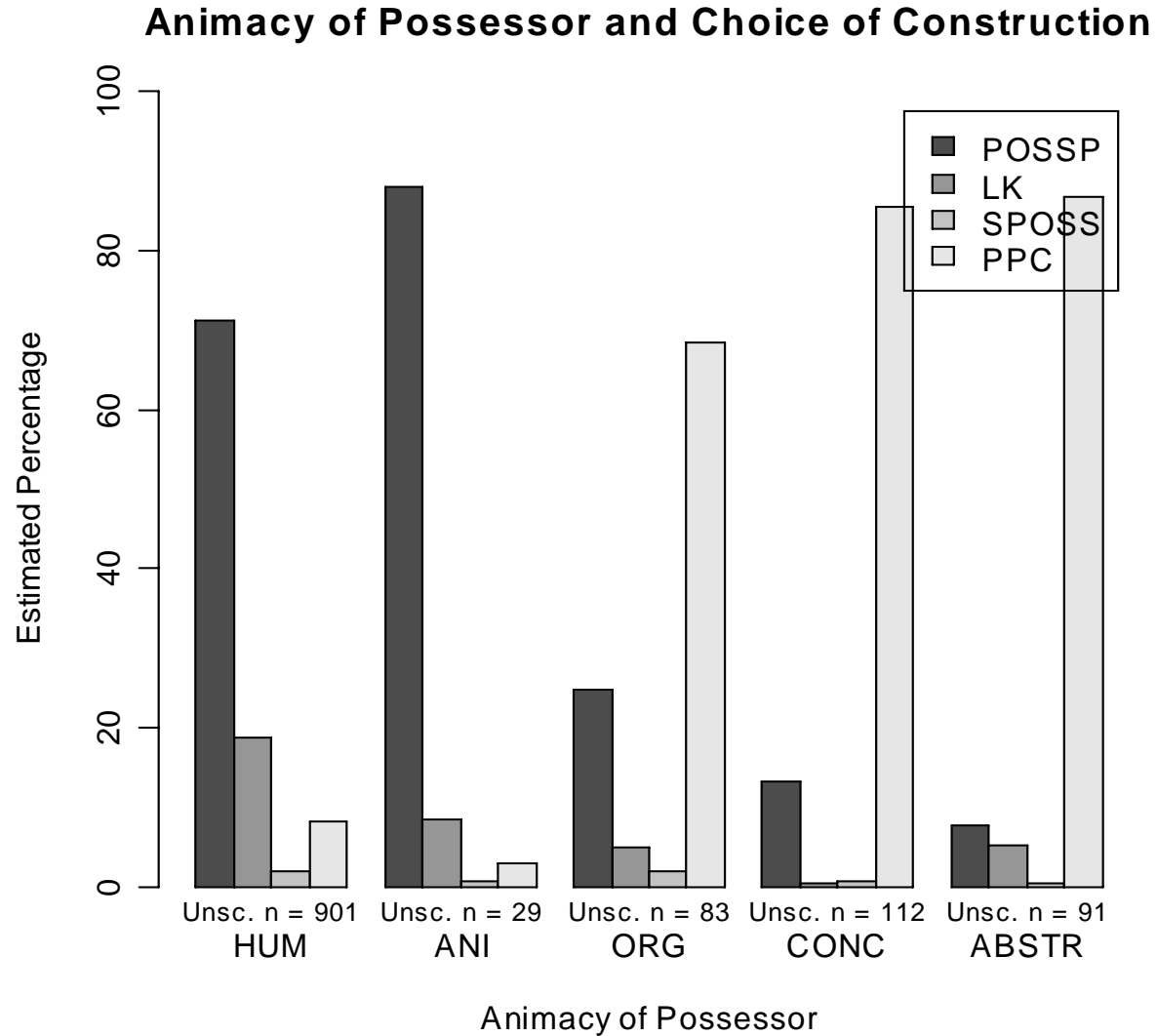
Animacy of Possessum and Choice of Construction

Choice-Based Perspective

- Animacy (mainly of the possessor) indeed seems to have a great influence on the choice of construction

- The observed pattern is very similar to the pattern in English (Leech et al. 1994, Rosenbach 2002, etc.)
  - Possessors of low animacy facilitate the use of PPC
  - Possessors of high animacy facilitate the choice of LK or SPOSS and especially POSSP
  - LK is more likely to be used with abstract inanimate possessors than concrete inanimate possessors (similar to the English s-possessive according to Leech et. al 1994, p. 71)

- The fact that the three prenominal constructions pattern together lends support to the hypothesis that animacy exerts influence via linear order: more animate < less animate

Hypothesis III

- The factor animacy cannot be reduced to weight or givenness (although it correlates with these factors)

- I will test this by determining the influence of animacy when weight and givenness are held constant

Robustness of the Animacy Effect
Case Study of its Interaction with Length

- Can the animacy effect be reduced to length (weight)?
- Plots of the animacy effect for three conditions:
  - Possessor < Possessum
  - Possessor = Possessum
  - Possessor > Possessum
- Same tendency for all three conditions
- Animacy cannot be reduced to length
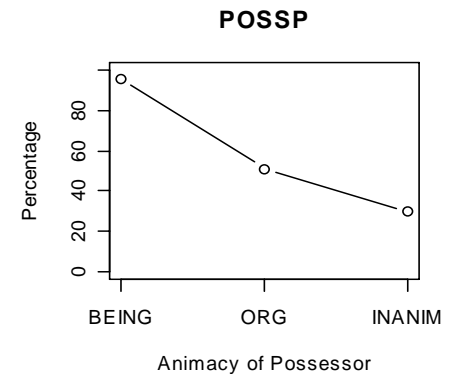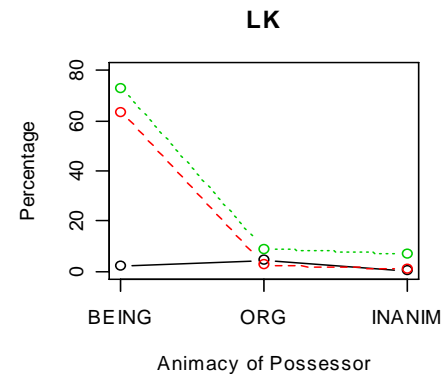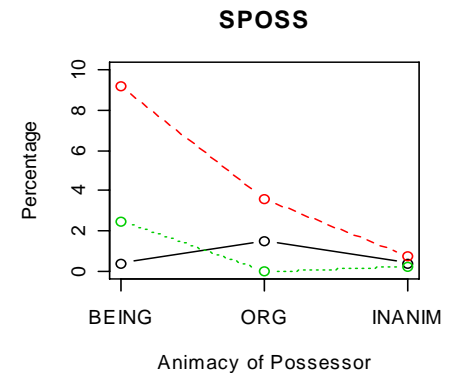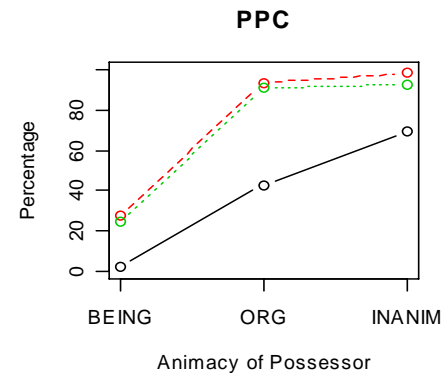
Robustness of the Animacy Effect
Case Study of its Interaction with Givenness

- Can the animacy effect be reduced to givenness (topicality)?
- Plots of the animacy effect for four conditions:
  - Possessor is new
  - Possessor is generally known
  - Possessor has been mentioned before
  - Possessor has been mentioned within the two preceding sentences
- Same tendency for all four conditions
- Animacy cannot be reduced to givenness
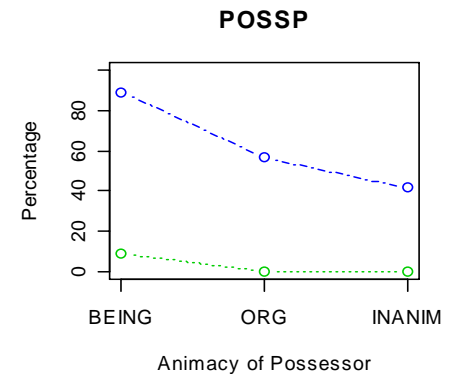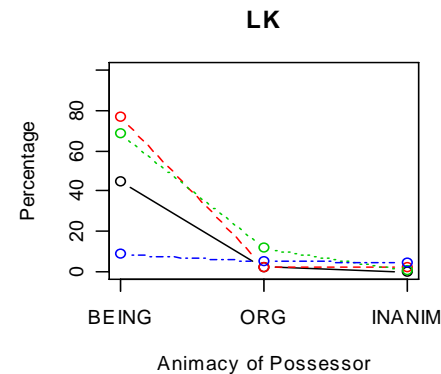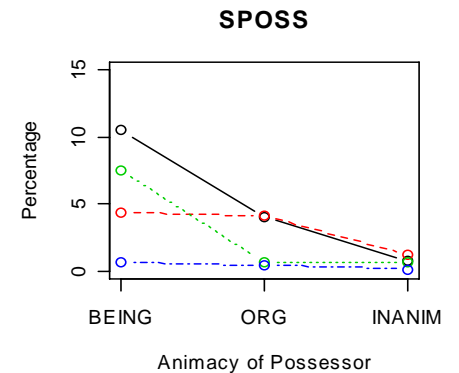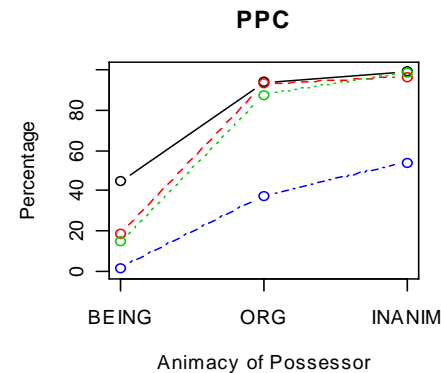
Results of a Multinomial Logistic Regression

- Task 1: Decision between all four constructions
- Task 2: Decision between all non-pronominal constructions (LK, SPOSS, PPC)
- Model Terms:
  - Length of Possessor and Possessum (**+**Interaction)
  - Givenness of Possessor and Possessum (**+**Interaction)
  - Animacy/Concreteness of Possessor and Possessum (**+**Interaction)
  - Possessive Relation
  - Definiteness of Possessor
  - Interaction of Animacy and Givenness of Possessor
  - Interaction of Animacy and Length of Possessor
  - Dialect

Results of a Multinomial Logistic Regression

- The final models for both tasks resulting from an automatic and manual model search (AIC) contain:
  - Length of Possessor
  - Animacy/Concreteness of Possessor
  - Dialect
- For task 2 animacy was the strongest factor
- For task 1 length of possessor was the strongest factor, animacy was the second strongest

Summary

- The factor animacy is very important for the choice of possessive construction in Low Saxon
- The animacy of the possessor is much more important than the animacy of the possessum
- Animacy can neither be reduced to weight/length nor to givenness/topicality
- Choice between LK and PPC similar to the choice between the s-possessive and the of-possessive in English
- Similar behavior of the three prenominal constructions suggests a tendency of ordering: more animate < less animate

Thank you!

Appendix I: Chi Square Tests

Animacy of the Possessor - Differences between Constructions						
Chi square test for equal proportions without continuity correction one degree of freedom						
	Combination of Constructions					
Animacy	POSSP.LK	POSSP.SPOSS	POSSP.PPC	LK.SPOSS	LK.PPC	SPOSS.PPC
HUM	0.3075	**0.0196**	**< 2.2e-16**	**0.0013**	**< 2.2e-16**	**< 2.2e-16**
ANI	0.0899	0.0681	**0.00846**	0.5135	0.3134	0.9006
ORG	0.5583	**0.0016**	1.599e-10	**0.0002**	7.913e-12	**0.02066**
CONC	**0.0338**	0.0854	**< 2.2e-16**	**0.0003**	**< 2.2e-16**	**< 2.2e-16**
ABSTR	**0.0174**	0.2548	**< 2.2e-16**	0.3950	**< 2.2e-16**	1.547e-15

Animacy of the Possessum - Differences between Constructions						
Chi square test for equal proportions without continuity correction one degree of freedom						
	Combination of Constructions					
Animacy	POSSP.LK	POSSP.SPOSS	POSSP.PPC	LK.SPOSS	LK.PPC	SPOSS.PPC
HUM	**0.0067**	0.6222	**6.992e-05**	0.0920	0.2007	**0.0061**
ANI	0.1006	0.4890	0.1305	0.5314	**0.0024**	**0.04278**
ORG	0.3663	0.4337	0.1398	0.1633	0.5583	0.0774
CONC	**0.0021**	0.4992	**0.0001**	**0.0015**	0.4236	**0.0001**
ABSTR	**7.916e-06**	0.7968	**5.402e-12**	**0.0002**	**0.0136**	1.468e-08

Appendix II: Non-Choice Contexts

- All instances that fulfilled one of the following criteria were excluded from the tests of the influence of animacy on the choice of possessive construction (cf. also Rosenbach 2002):
  - Possessum contains a deverbal noun
  - Possessum is ellipsed
  - Possessum has a determiner that is not the definite article
  - Possessum is indefinite
  - Possessor is first or second person
  - Possessive relation cannot be expressed by all four constructions (e.g. partitives)

Appendix III: Multinomial Logistic Regression – Task 1

Model Search for the Choice of Construction - Choice between all four constructions							
Model	Dev.	AIC	Accuracy	Term Dropped	LR	df	Pr (Chi)
Full	614.86	92.86	82.57 %	–	–	–	–
1	609.26	93.26	82.98 %	POSSESSUMLENGTH:POSSESSORLENGTH	0.4023	3	0.9398
2	506.52	98.52	82.81 %	POSSESSORANIM:POSSESSORGIV	5.2627	54	1
3	399.19	105.19	81.09 %	POSSESSUMGIV:POSSESSORGIV	6.6686	57	1
4	377.09	107.09	81.91 %	POSSESSORANIM:POSSESSORLENGTH	1.8980	12	0.9995
5	322.28	112.28	80.59 %	POSSESSUMANIM:POSSESSORANIM	5.1875	30	1
6	292.42	118.42	79.11 %	POSSRELATION	6.1472	18	0.9956
7	286.51	118.51	79.11 %	POSSESSORDEF	0.0906	3	0.9929
8	265.40	121.40	78.45 %	POSSESSUMGIV	2.8873	12	0.9963
9	243.97	123.97	78.54 %	POSSESSUMANIM	2.5731	12	0.9979
10	238.98	124.98	79.44 %	POSSESSUMLENGTH	1.0088	3	0.7991
Final	206.66	128.66	77.14 %	POSSESSORGIV	3.6736	18	0.9999
11	212.43	176.43	74.51 %	Final – DIALECT	47.7761	21	0.0007
12	261.26	207.26	68.42 %	Final – POSSESSORANIM	78.6070	12	7.6045e-12
13	706.96	634.96	37.66 %	Final – POSSESSORLENGTH	506.3063	3	0
14	733.89	703.89	37.66 %	Only POSSESSORANIM	–	–	–
Baseline	960.52	954.52 %	21.88 %	Only Priors	–	–	–

Appendix III: Multinomial Logistic Regression – Task 2

Model Search for the Choice of Construction - Choice between the non-pronominal constructions							
Model	Dev.	AIC	Accuracy	Term Dropped	LR	df	Pr (Chi)
Full	424.83	92.83	77.58 %	–	–	–	–
1	421.24	93.83	78.32 %	POSSESSUMLENGTH:POSSESSORLENGTH	0.4080	2	0.8155
2	354.50	98.50	78.00 %	POSSESSORANIM:POSSESSORGIV	5.2565	36	1
3	301.17	105.17	75.79 %	POSSESSUMGIV:POSSESSORGIV	6.6694	30	1
4	287.09	107.09	76.84 %	POSSESSORANIM:POSSESSORLENGTH	1.9182	8	0.9834
5	252.27	112.27	75.16 %	POSSESSUMANIM:POSSESSORANIM	5.1890	20	0.9996
6	234.41	118.41	73.26 %	POSSRELATION	6.1324	12	0.9093
7	230.50	118.50	73.26 %	POSSESSORDEF	0.0905	2	0.9558
8	217.39	121.39	72.42 %	POSSESSUMGIV	2.8892	8	0.9411
9	203.96	123.96	72.52 %	POSSESSUMANIM	2.5775	8	0.9580
10	200.98	124.98	73.68 %	POSSESSUMLENGTH	1.0179	2	0.6011
Final	180.65	128.65	70.74 %	POSSESSORGIV	3.6721	12	0.9887
11	200.43	176.43	67.37 %	Final – DIALECT	47.7777	14	1.4307e-05
12	243.26	207.26	59.58 %	Final – POSSESSORANIM	78.6073	8	9.3148e-14
13	194.85	146.85	68.63 %	Final – POSSESSORLENGTH	18.1972	2	0.0001
14	219.55	199.55	67.79 %	Only POSSESSORANIM	–	–	–
Baseline	318.08	314.08 %	28.11 %	Only Priors	–	–	–

Appendix IV: Literature

Altenberg, Bengt (1982): The genitive vs. the of-construction: A study of syntactic variation in 17th century English. Lund Studies in English 62. Gleerup, Lund.

Bernhardt, J. (1903): Zur Syntax der gesprochenen Sprache. *Niederdeutsches Jahrbuch 29*, 1-25.

Langacker, Ronald W. (1999): Grammar and conceptualization. Cognitive Linguistics Research 14. Mouton de Gruyter, Berlin/New York.

Leech, Geoffrey, Brian Francis and Xunfeng Xu (1994): The use of computer corpora in the textual demonstrability of gradience in linguistic categories. In: Catherine Fuchs and Bernard Victorri (eds.): *Continuity in Linguistic Semantics*, John Benjamins Publishing, Amsterdam/Philadelphia, 57-76.

Rosenbach, Anette (2002): Genitive variation in English. Conceptual factors in synchronic and diachronic studies. Topics in English Linguistics 42. Mouton de Gruyter, Berlin/New York.

Rosenbach, Anette (Version of December 2003): Comparing animacy versus weight as determinants of grammatical variation in English. To appear in *Language*.

Weise, Oskar (1910): Zu Reuters Syntax. *Zeitschrift für deutsche Mundarten*, 291-307.

Yamamoto, Mutsumi (1999): Animacy and reference. A cognitive approach to corpus linguistics. Studies in Language Companion Series 46. John Benjamins Publishing, Amsterdam/Philadelphia.

R Development Core Team (2005): R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. http://www.R-project.org
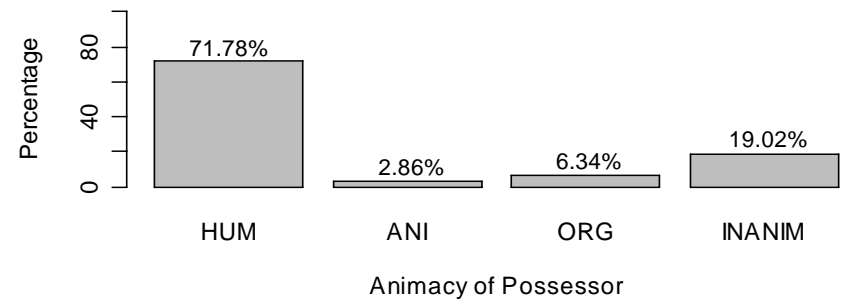
Possessors as Reference Points

Hypothesis I

- **Anchoring / Reference Point Function of Possessors**
  - Animates make better anchors / reference points because of
    - Higher topic continuity
    - Higher individuation
    - Higher empathy
  - → Most possessors should have a high animacy level

- **Additional Hypothesis:**
  - The animacy level of the possessor should be more influential than that of the possessum
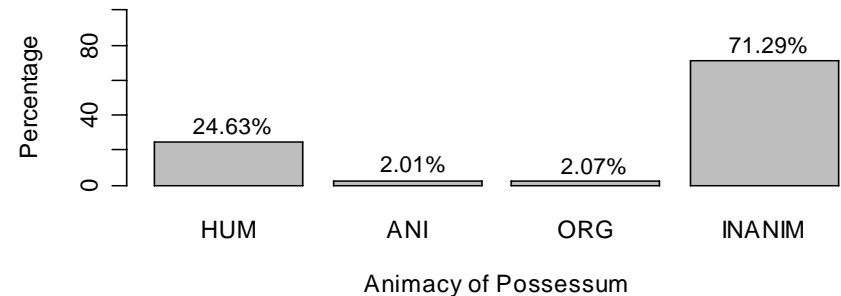
Overall Distribution of Animacy

- Estimate of the animacy distribution in the whole corpus for possessors and possessums
- Estimated from the disproportionate sample of 1729 instances
- Most possessors are human
- Most possessums are inanimate
- Evidence for the reference point hypothesis
- But probably dependent on the subject area of a text

Estimate of Animacy Distribution for Possessors

Percentage

71.78%

2.86%   6.34%   19.02%

HUM   ANI   ORG   INANIM

Animacy of Possessor

Estimate of Animacy Distribution for Possessums

Percentage

71.29%

24.63%

2.01%   2.07%

HUM   ANI   ORG   INANIM

Animacy of Possessum

Comparison of Dialects

The Corpus

Abbr.	Dialects	Docs	Lines	Constr.	Text types
EF	East Frisia, Germany	56	3664	437	Short stories, poems, songs, newsletters, other
EG	East Germany: Brandenburg	19	1324	330	Short stories, recipes
EN	East Netherlands: Drenthe, Twente	130	10612	1726	Short stories, poems, songs, other
GR	Groningen	67	9674	2298	Short stories, poems, other
NEG	North East Germany: Mecklenburg-Vorpommern	83	7290	1223	Short stories, riddles, songs, newsletters
NWG	North West Germany: Hamburg, Bremen, Northern Lower Saxony, Schleswig-Holstein	1031	70937	12003	Short stories, poems, lexicon articles, songs, news
PD	Mennonite Plautdietsch	263	23399	5975	New Testament
WP	Westphalia (and Eastphalia)	51	3395	505	Short stories, poems, proverbs

Dialects of Modern Low Saxon

- EF: East Frisian
- EG: East Germany (Brandenburg)
- EN: East Netherlands   (Drenthe, Twente)
- GR: Groningen
- NEG: North-East Germany (Mecklenburg-Vorpommern)
- NWG: North-West Germany (Hamburg, Bremen, Northern Lower Saxony, Schleswig-Holstein)
- PD: Mennonite Plautdietsch
- WP: Westphalian and Eastphalian

PD: In communities in Russia, Germany, Canada, USA, and other American nations
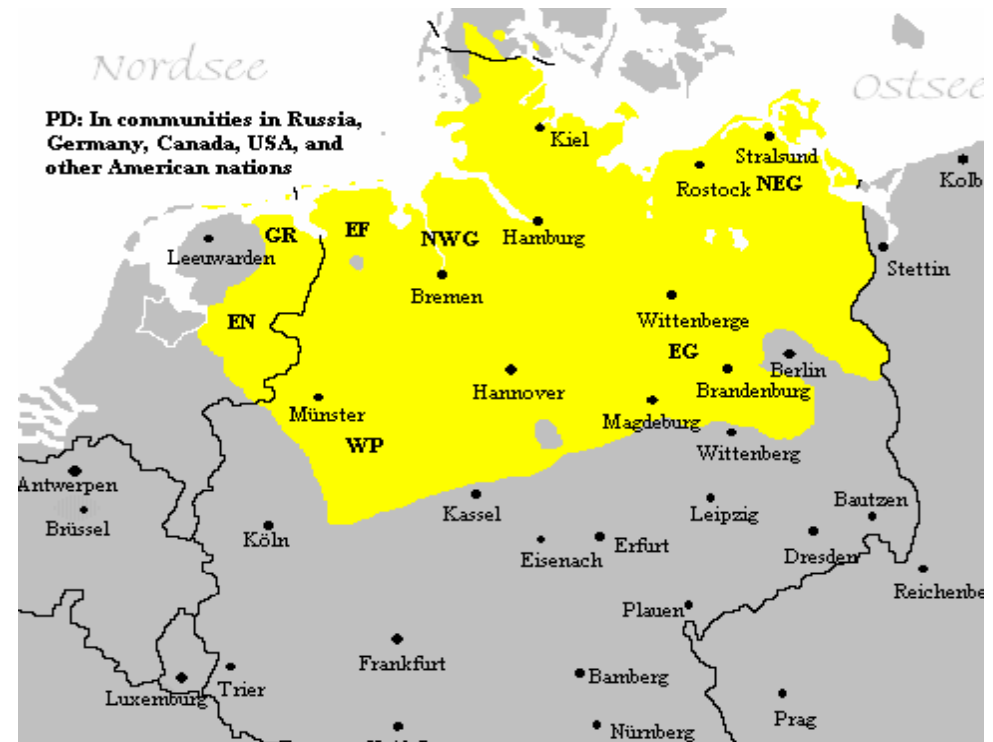
Robustness of the Animacy Effect
Are there any major dialect differences?

- Is the animacy effect consistent across dialects?
- Plots of the animacy effect for four conditions:
  - East Netherlands (EN)
  - Groningen (GR)
  - North-West Germany (NWG)
  - North-East Germany (NEG)
  - Mennonite Plautdietsch (PD)
- General tendencies are the same
- Frequency of use of the four constructions varies in different dialects
  - (LK is very frequent in PD)
- PD has a higher likelihood of choosing LK for ORG possessors