

# Is language redundant? How language users distinguish the agent from the recipient in English and Dutch

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# Introduction

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**Redundancy:** the same information expressed in multiple ways within the same utterance

- English questions: rising pitch + verb first order
- Middle Dutch past tense *begonde* (~ *begin*) 'beganed' (~ *begin*) (De Smet 2021: 83)

→ **Contra-redundancy account:** redundancy is inefficient, and therefore rare

- Individual language users will avoid it, if given the option
- Grammar will evolve to evade it

# Introduction

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**Pro-redundancy account:** redundancy is beneficial and therefore widespread

Advantages of redundancy:

- Robustness against information loss (Fedzechkina et al. 2012: 17897; Levshina 2021: 3).
- Learnability (Tal et al. 2020; 2021; Tal & Arnon 2022)

# Case study: who gave something to whom?

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Information: Who is the agent, and who is the recipient?

Indicators:

- Constituent order, e.g. *The student gave the teachers a lovely cake.*
- Nominal marking, e.g. *He gave the teachers a lovely cake.*
- Verbal agreement, e.g. *He gives the teachers a lovely cake.*
- Prepositional marking, e.g. *He gives a lovely cake to the teachers.*

→ English: presence of indicators is mostly determined by grammar, only prepositional marking is optional

# Case study: who gave something to whom?

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↔ Dutch: the language user has more freedom to adjust degree of redundancy

Indicators: 'you can give a lovely cake to that teacher tomorrow.'

- Constituent order, e.g. *Morgen kan **je die leraar** een lekkere cake geven.*  
Tomorrow can you that teacher a lovely cake give
- Nominal marking, e.g. *Die leraar kan **jij** morgen een lekkere cake geven.*  
That teacher can **you\_SUBJECT** tomorrow a lovely cake give
- Verbal agreement, e.g. *Die leraar **kun** je morgen een lekkere cake geven.*  
That teacher **can\_2SG** you tomorrow a lovely cake give
- Prepositional marking, e.g. ***Aan** die leraar kan je morgen een lekkere cake geven.*  
**To** that teacher can you tomorrow a lovely cake give

→ Any possible combination or even zero marking possible, e.g. *Die leraar kan je morgen een lekkere cake geven.*  
that teacher can you tomorrow a lovely cake give

# Data

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- Verbs *give* & *geven*
- Agent, theme and recipient expressed
- No passives
  
- Present-day English: 395 instances from Röthlisberger (2018) (ICE-GB & GloWbE-GB)
- Present-day Dutch: 500 instances from Sonar (Belgian subtitle component, no duplicates)
- (Middle English: 524 instances from Penn Helsinki Parsed Corpus of Middle English)
  
- Annotated for 4 indicators
- For each language, 100 randomly selected instances were annotated by two annotators: high inter-rater agreement

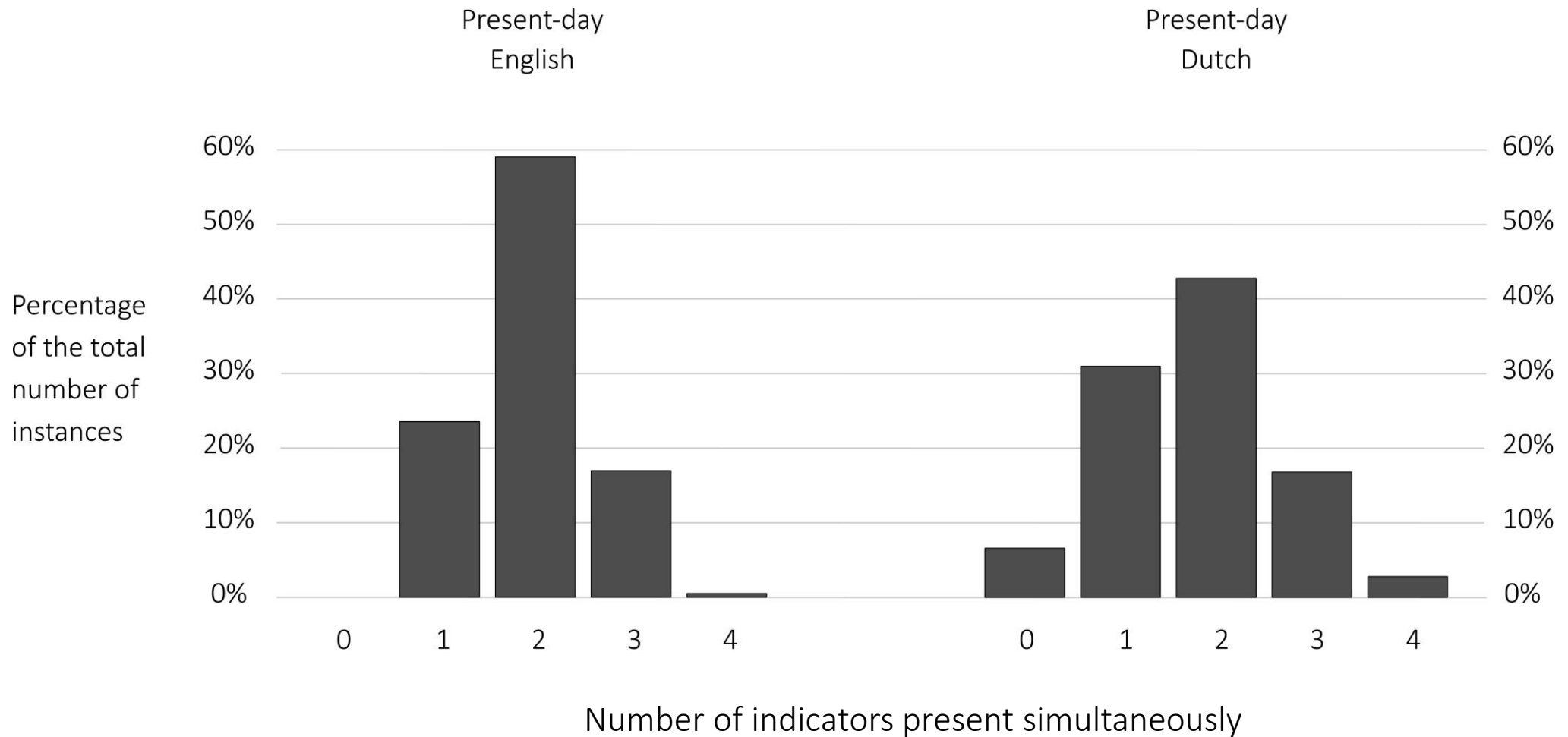
# Hypotheses

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- Contra-redundancy account: redundancy is inefficient, and therefore
  - rare
  
- Pro-redundancy account: redundancy is beneficial, and therefore
  - widespread

# Amount of redundancy


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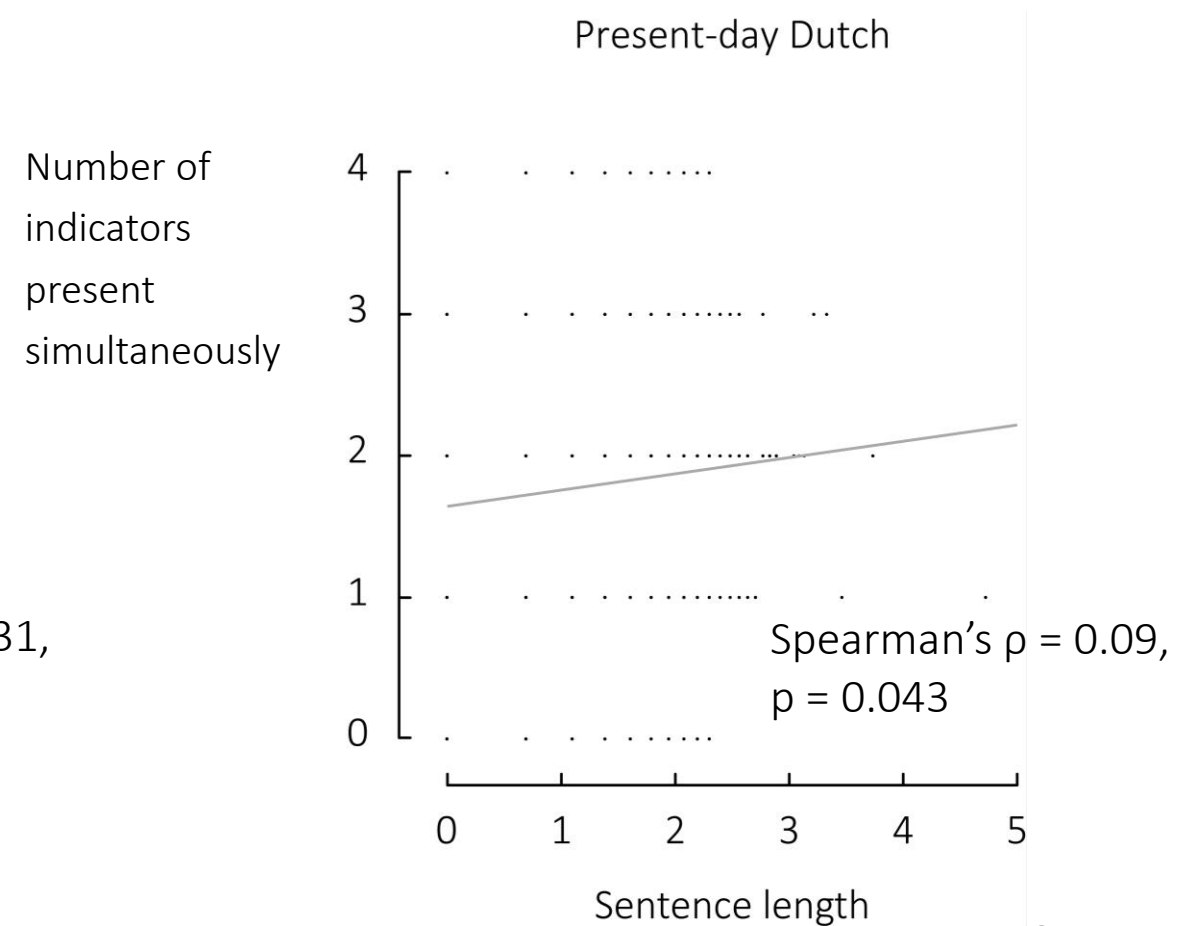
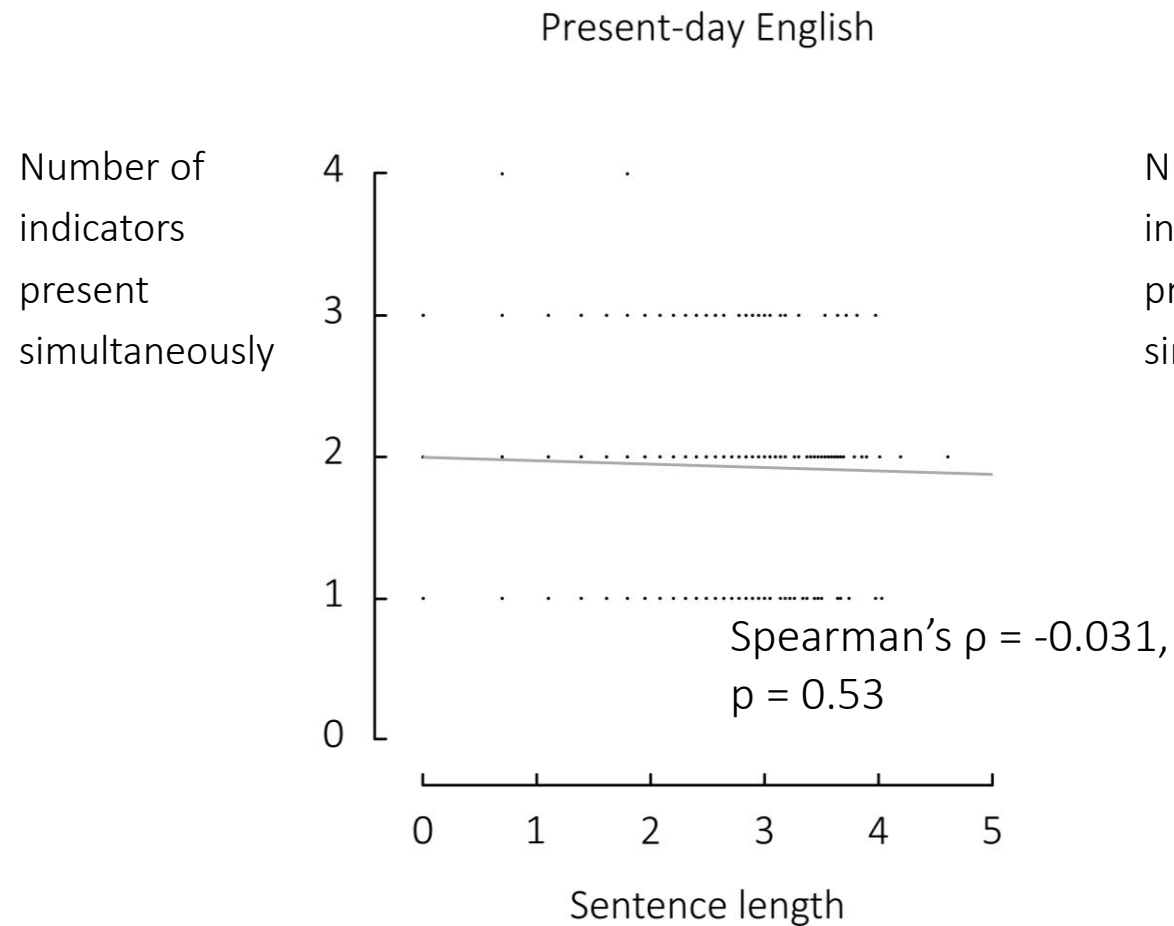


# Hypotheses

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- Contra-redundancy account: redundancy is inefficient, and therefore
    - rare
    - will correlate negatively with sentence complexity
  - Pro-redundancy account: redundancy is beneficial, and therefore
    - widespread: double marking dominant 
    - will correlate positively with sentence complexity
- Measure of complexity:  $\ln(\text{sentence length} - \text{the length of the agent, theme and recipient})$

# Correlation with complexity



# Hypotheses

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- Contra-redundancy account: redundancy is inefficient, and therefore
  - rare
  - will correlate negatively with sentence complexity
- Pro-redundancy account: redundancy is beneficial
  - widespread: double marking dominant 
  - will correlate positively with sentence complexity: weak positive correlation in Dutch 

# Interpretation

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Is agent-recipient marking in English and Dutch redundant?

- Double marking is the clear default in English and Dutch
- Triple and especially quadruple marking are comparatively rare
- Weak positive correlation between sentence length and the degree of redundancy in Dutch

→ Agent-recipient marking in English and Dutch is efficiently redundant

# Comparison English - Dutch

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- Degree of redundancy is more varied in Dutch than in English
- Weak positive correlation between sentence length and the degree of redundancy in Dutch, not so in English
- Negative correlations between indicators in English, none in Dutch

→ English grammar sets a constant level of redundancy across all sentences

Dutch language user can more freely adjust the degree of redundancy in their sentences

Thank you!

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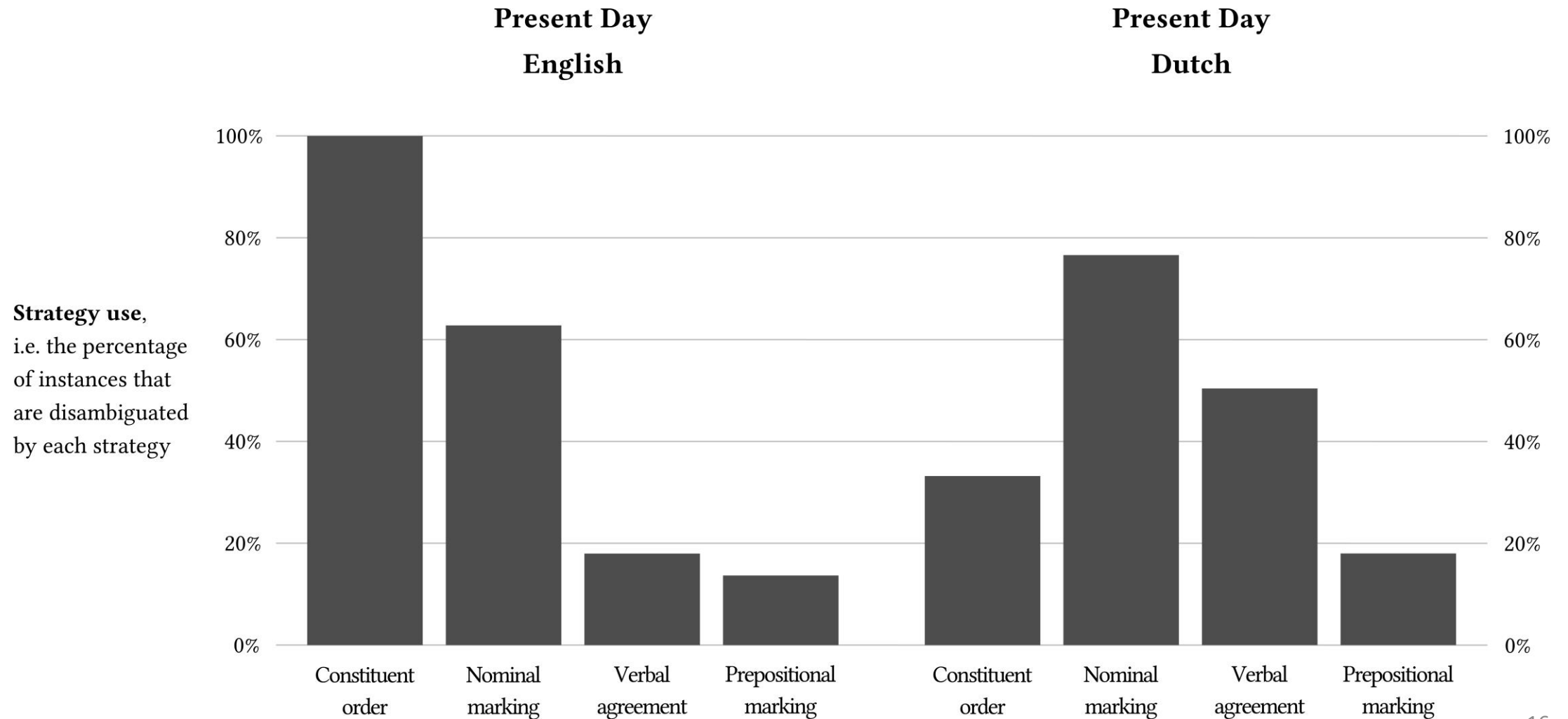
Pijpops, Dirk & Eva Zehentner. 2022. How  
redundant is language really? Agent-recipient  
disambiguation across time and space. *Glossa*.  
7(1): 1:41.



# EXTRA SLIDES

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# Strategy use in English and in Dutch





# Hypotheses

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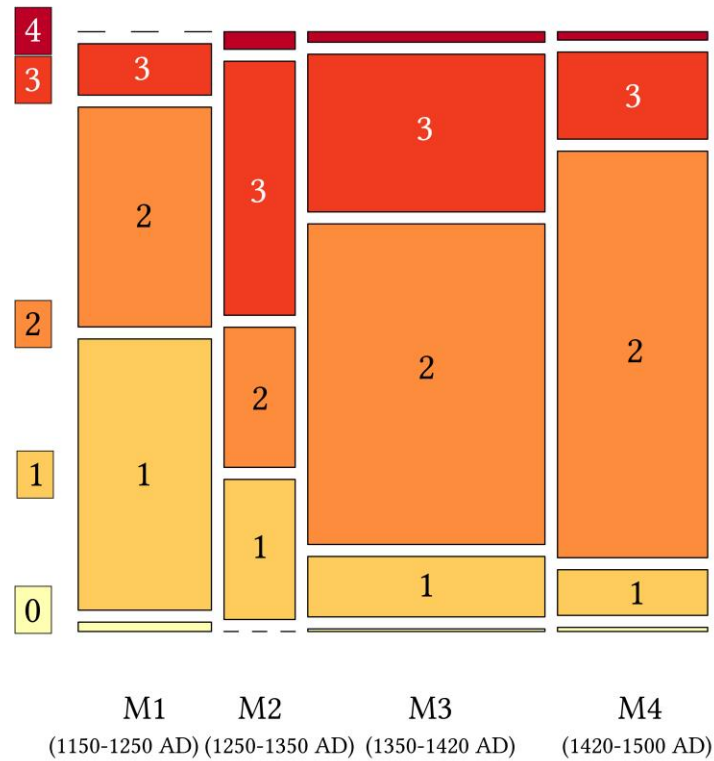
- Both accounts predict negative correlations between the use of strategies:
    - Efficiency account: if one strategy is already in use, the use of any other strategy is inefficient, and even more so if multiple strategies are already in use
    - Redundancy account: if multiple strategies is already in use, the use of another strategy is still useful, but less necessary
- Variable OTHER STRATEGIES EXCEPT VERBAL AGREEMENT and variable VERBAL AGREEMENT, etc.

# Negative correlations between the strategies

Language	Response variable	Estimate	Confidence interval of the estimate		P-value
			2.5%	97.5%	
Present-day English	Nominal marking	-0.46	-0.87	-0.05	0.0274
	Verbal agreement	-0.60	-1.02	-0.09	0.0192
	Prepositional marking	-0.60	-1.11	-0.11	0.0187
Present-day Dutch	Constituent order	0.14	-0.11	0.39	0.2890
	Nominal marking	-0.15	-0.40	0.10	0.2370
	Verbal agreement	0.07	-0.17	0.31	0.5460
	Prepositional marking	0.004	-0.28	0.28	0.9790

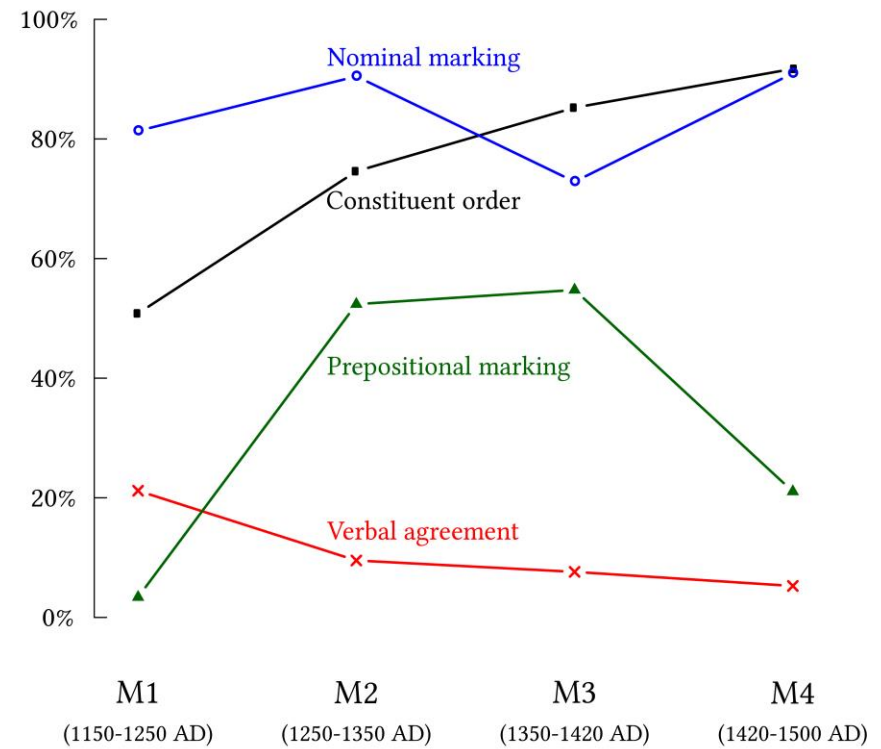
# Redundancy through time

Number of disambiguating strategies used simultaneously



Periods of Middle English

Strategy use, i.e. the percentage of instances that are disambiguated by each strategy



Periods of Middle English

## Why this case study?

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- Both agent and recipient are prototypically animate, sentient, volitional: investigate formal redundancy without semantic-pragmatic biases
- English and Dutch: same strategies to different extents
- Give: one of the most frequent verbs of transfer, best understood



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