Priming as a diagnostic of grammatical status: Two case studies

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Introduction

- Diachronic generative syntax encompasses the analysis both of historical grammatical structures and of the processes by which they change
- Analysis of underlying structures is particularly challenging without access to native speakers

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Background on priming

Case one: Negation
- Empirical description
- Two analyses

Case two: *do*-support
- Empirical description
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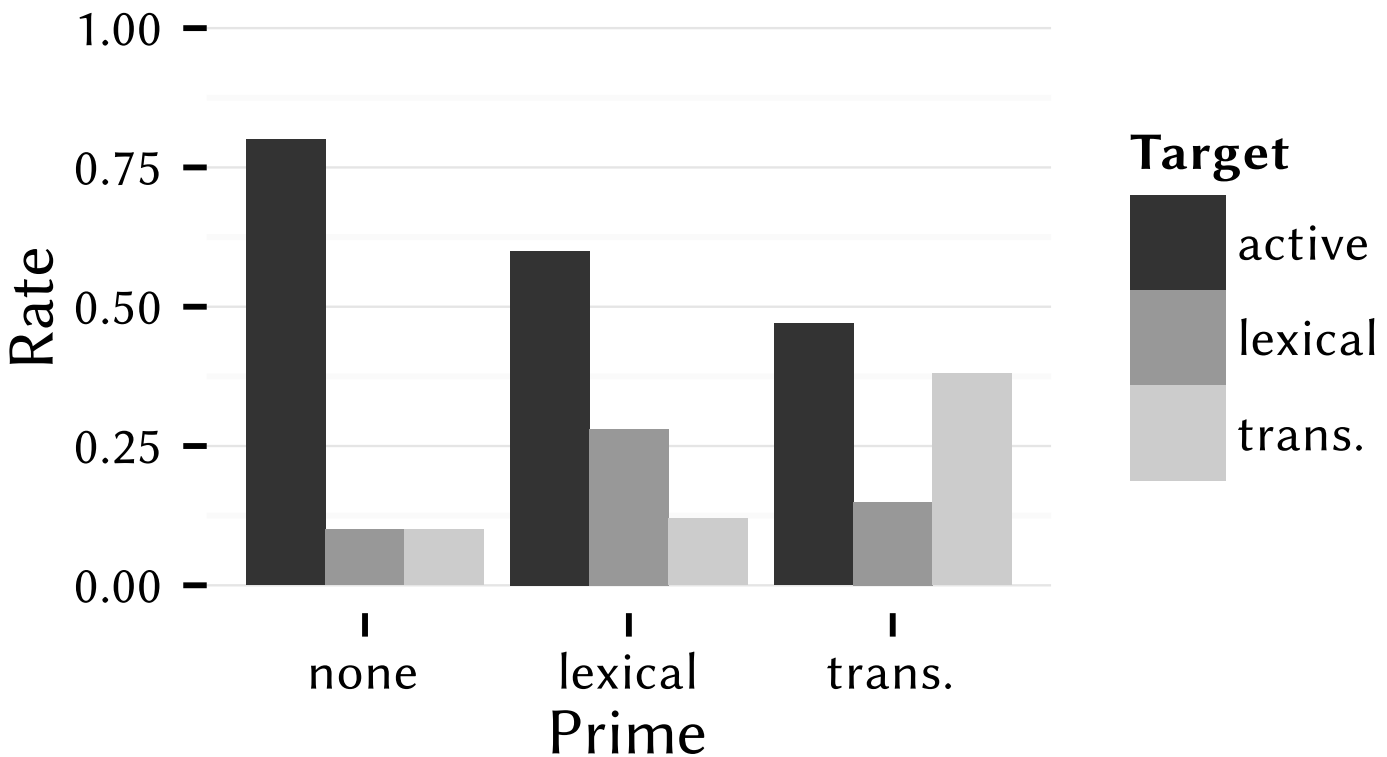
Priming

- **Priming:** the tendency to reuse a recently encountered linguistic option
- Extensive structural priming literature (beginning with Bock 1986) demonstrates that syntactic structures can be primed
- Example:
  - **Prime:** I gave the children candy
  - ⇑ I gave the dog treats
  - ⇓ I gave treats to the dog

Priming reflects structural identity

- Estival (1985): different types of passives (lexical vs. transformational) each prime themselves but not each other
- The structural distinction this reflects is maintained in modern syntactic accounts (e.g. Embick 2004)



Priming reflects structural identity

- Bock and Loebell (1990): Infinitival purpose clauses with "to" do not prime prepositional datives with "to"
  - I brought a book to study
  - I brought a book to Stella
- Ferreira (2003): complementizer *that* presence is not increased by previous use of demonstrative *that*

Priming reflects structural identity

- Priming can be a useful dependent variable for its reflection of underlying structures: repetition reveals sameness
- "If the processing of a stimulus affects the processing of another stimulus, then the two stimuli must be related [...] if the relationship between the two stimuli is syntactic, then we can use this relationship as a way of understanding what syntactic information is represented" (Branigan et al. 1995, p. 490)
- Linking hypothesis: priming effects in written historical data reflect structural identity in language production at the time

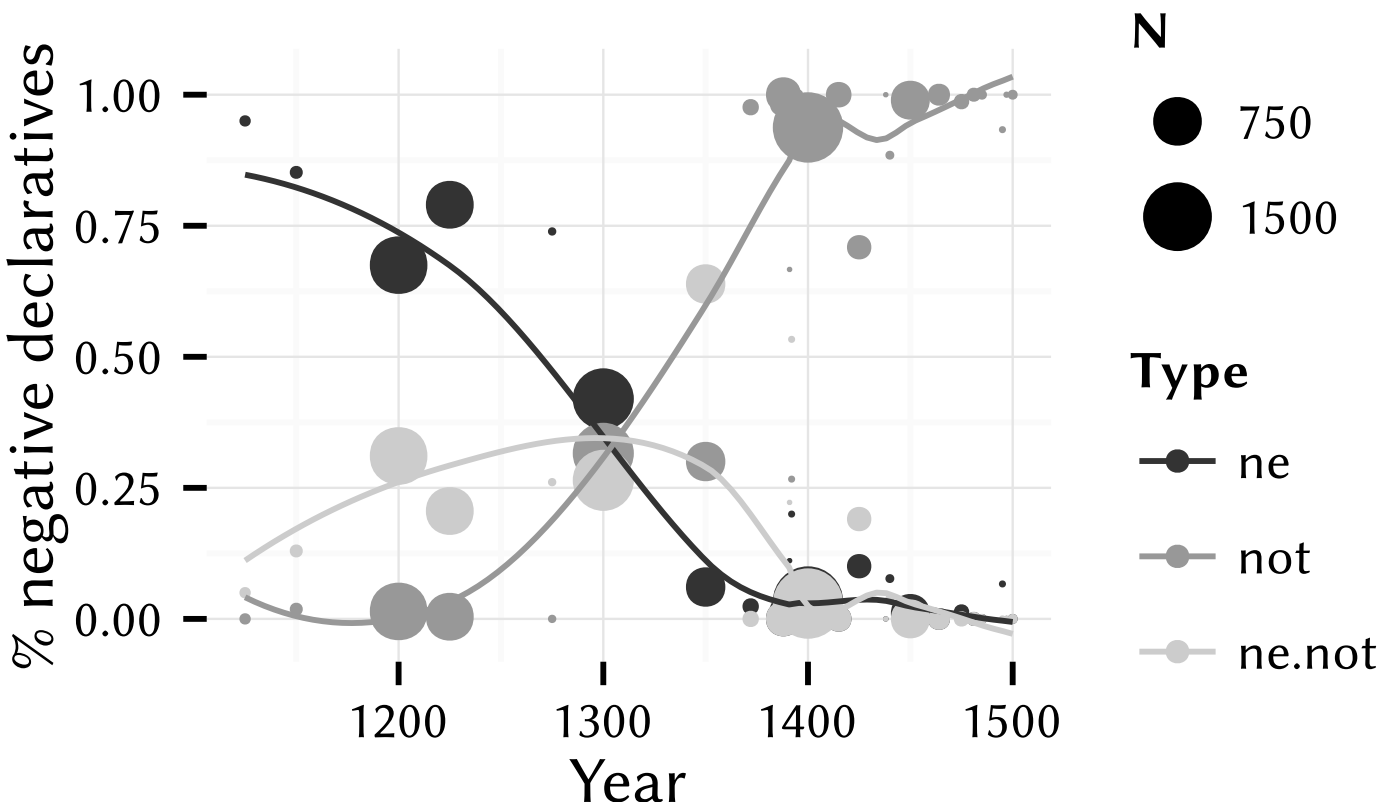
The change in negation

- In Middle English, there is a change in the exponence of Neg
- The negator *ne*, inherited from OE, is lost
- *not*, formerly a negative adverb, becomes the new negator

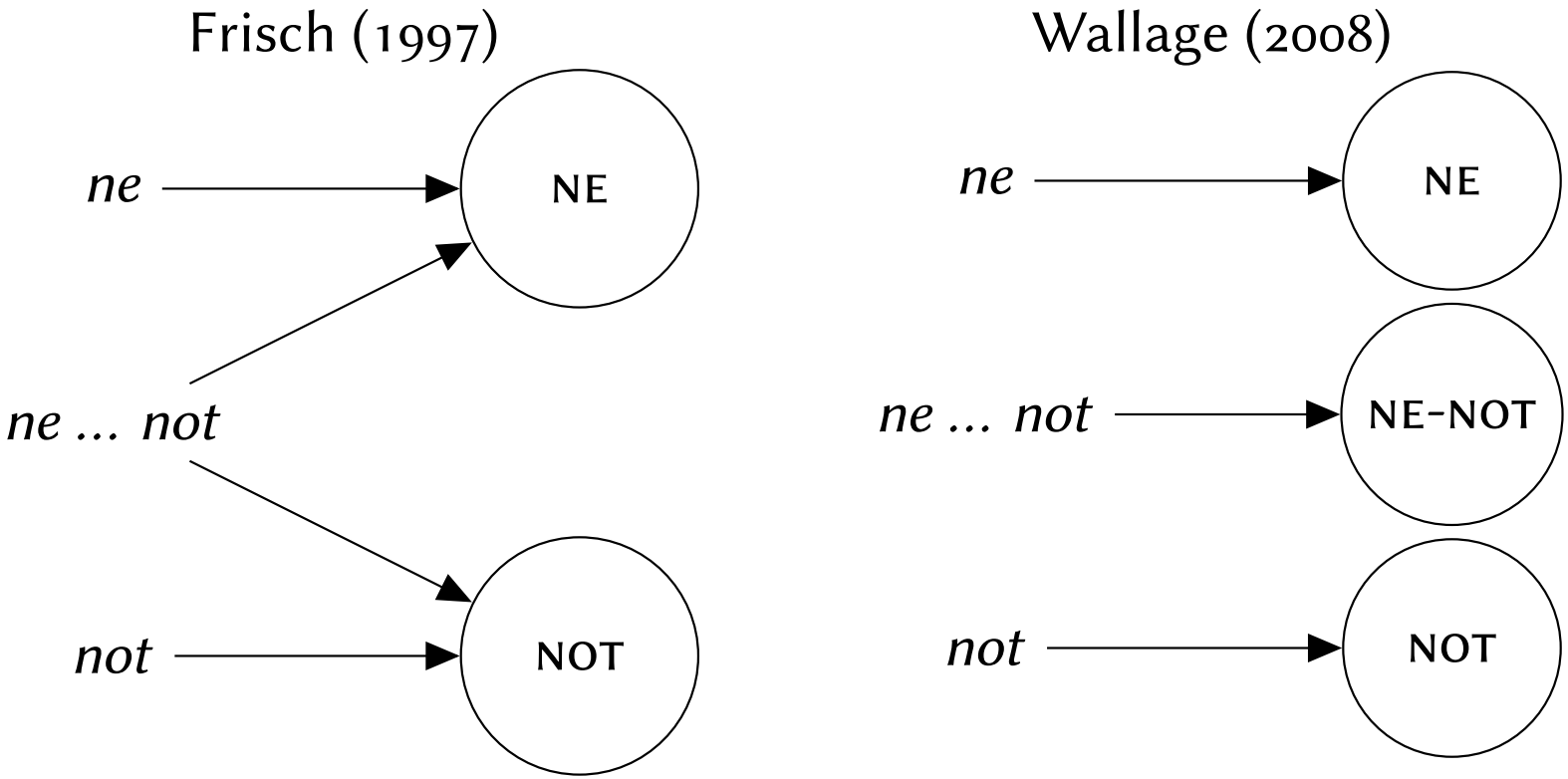
Details of the change

- During the period of the change, a large number of negative sentences have both *ne* and *not*:

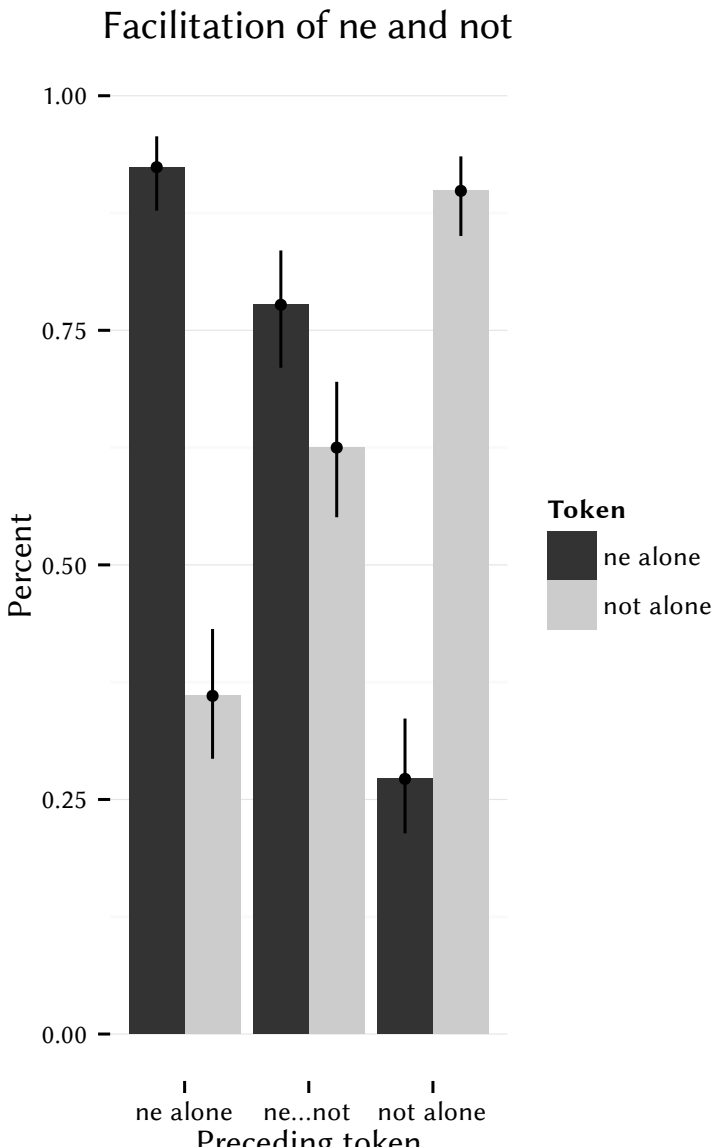
(1) he ne shal nouȝt decieue him
Early Prose Psalter, 161:131:11, from Frisch (1997)

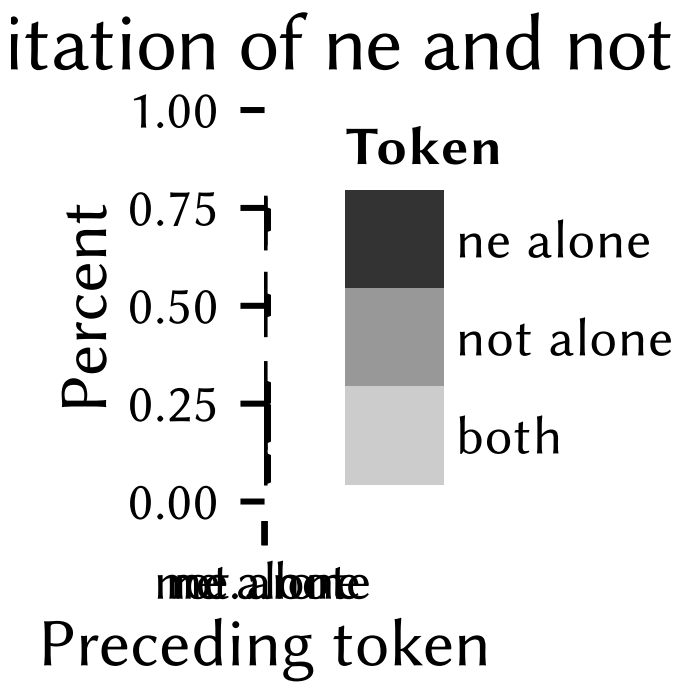


Two analyses



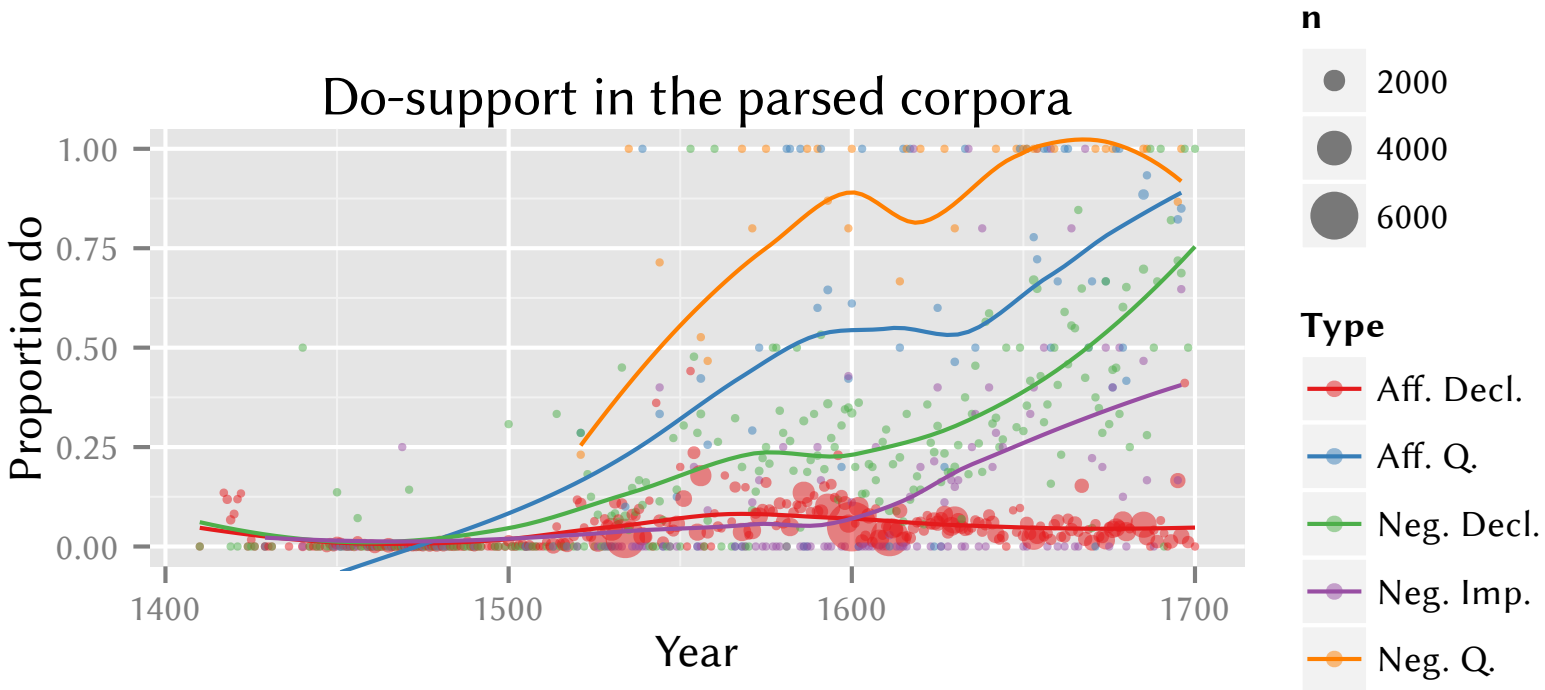
Results (PPCME2)





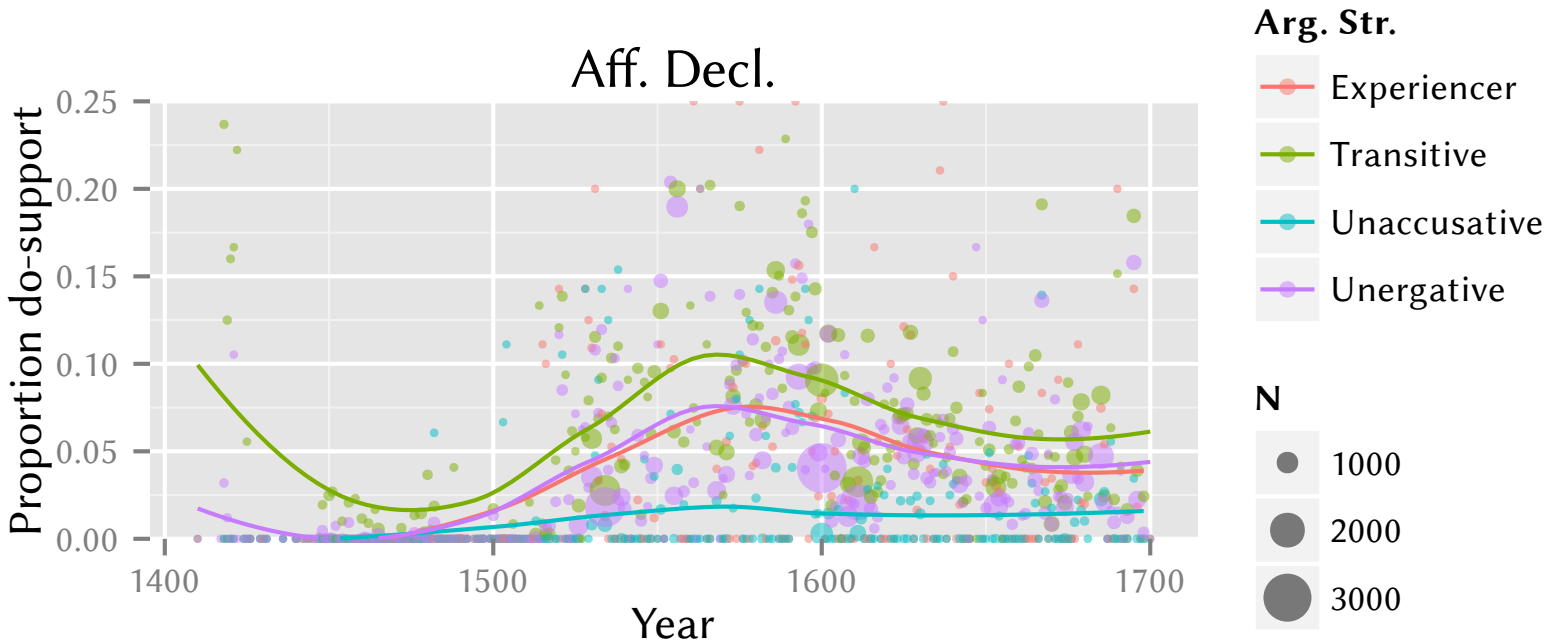
Do-support

- In the Early Modern English (EME) period (1500–1700), the use of auxiliary *do* became obligatory in English negative declaratives and questions (inter alia)
- During the course of this change there was a period when *do* was used in (non-emphatic) affirmative declaratives, which is banned in present-day English



Two kinds of *do*

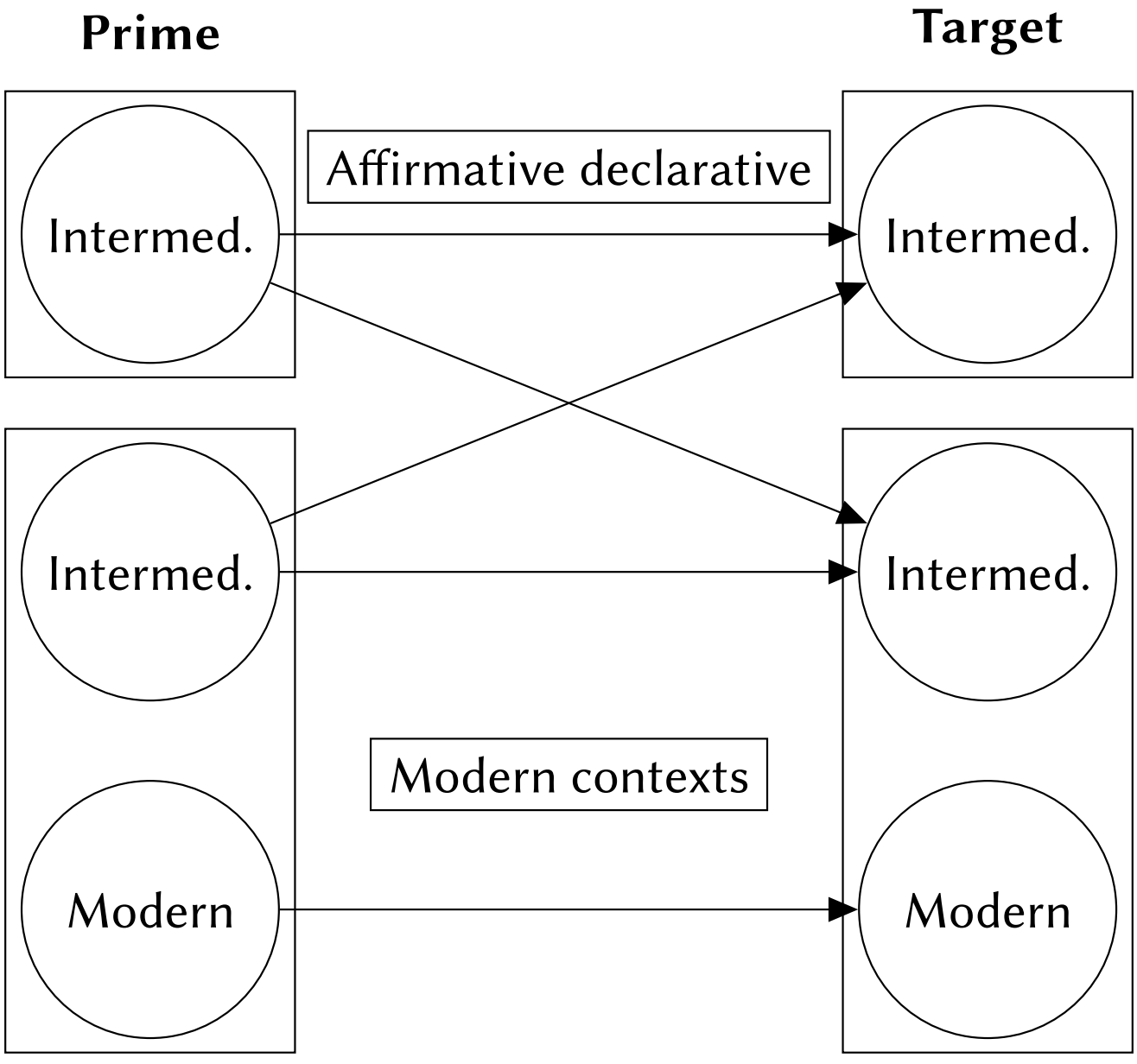
- Ecay (2012) proposed that the *do* found in affirmative declaratives is distinct from the modern type of *do*, is merged lower than T, and functions in early EME as a marker of argument structure



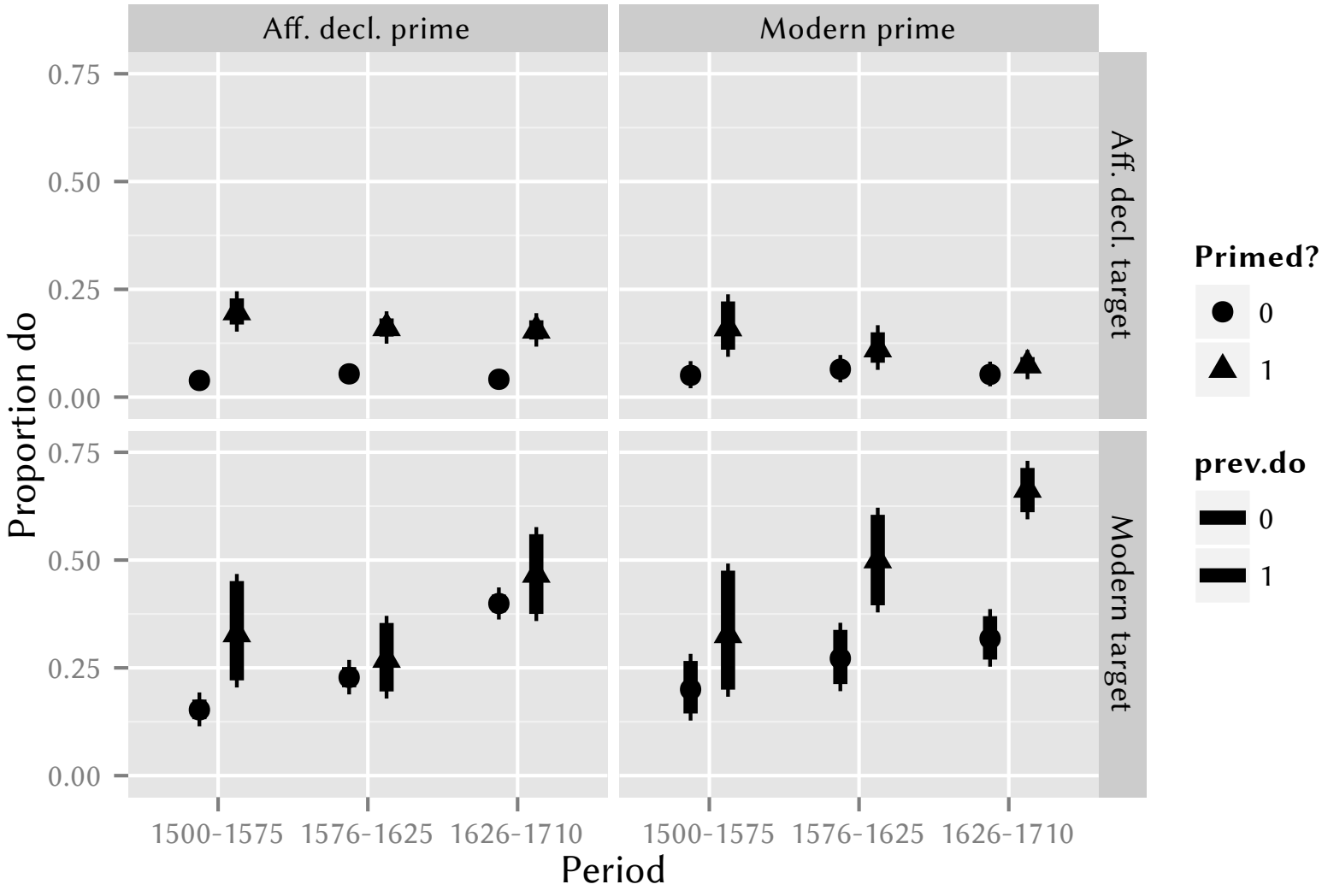
- If this is so, it should be visible in priming data

Priming predictions for *do*

- The intermediate (low-*do*) grammar can produce surface *do* in affirmative declarative contexts
- It can **also** do so in modern *do*-support contexts (with external argument)
- The modern (high-*do*) grammar can produce surface *do* only in the modern *do*-support contexts


Prime
Target
Intermed.
Affirmative declarative
Intermed.
Intermed.
Intermed.
Modern contexts
Modern
Modern

Results


Aff. decl. prime
Modern prime
Aff. decl. target
Modern target
Proportion do
0.75
0.50
0.25
0.00
1500-1575
1576-1625
1626-1710
Period
Primed?
0
1
prev.do
0
1

Results (PPCEME + PCEEC)

- Affirmative declaratives always prime each other, as expected
- Modern environments prime each other more strongly over time, as disguised affirmative declaratives disappear
- Cross-priming lessens over time, also related to the disappearance of disguised affirmative declaratives

Conclusions

- The Constant Rate Effect is important because it provides a link between frequency data attested in historical corpora and the mental representations that underlie language and language change
- We would like to suggest that priming data constitute another, independent source of linkage between these two domains
  - As has been shown in our two case studies
- The investigation of priming evidence can support and refine the conclusions of quantitative studies of syntactic change

Conclusions

- Priming research has been deployed in studies of spoken corpora to answer questions about grammatical variation in contemporary American English and Romance languages
- There is also a large and growing experimental literature on structural priming, to which this work creates obvious bridges
- We would love to see more linguists using priming methods as a tool to understand their favorite variables!

Acknowledgments

We would like to thank the following:

- The compilers of the corpora used (PPCME2, PPCEME, PCEEC)
- Beatrice Santorini
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- Our fellow graduate students at Penn
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High technology

All the data and code used in this analysis is available on GitHub:
`https://github.com/aecay/digs15-negative-priming`

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