

The Decline of Negative Concord and the Decline of *ne* in Middle English: Related or Independent?

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6 February 2019

1. Introduction

The loss of the negative particle *ne*

- Multiple marking of negative polarity (e.g. Jack 1978):

(1) hie **næure** mo godd **ne** sculen isien **ne** **nan** of his halzen
they **NEG**-ever more God **NEG** shall see **NEG**-or **NEG**-one of his saints
'They shall not see evermore God or any of his saints' (CMVICES1,19.208, c. 1180)

- Loss of *ne* as sentential negation (Jespersen's Cycle, Jespersen 1917):

(2) a. he **ne** sculde beon ded 'He should not be dead.' (LAYAMON,596.1830, c. 1200)
b. He **ne** shal **nouzt** sechen. 'He shall not seek.' (CMEARLPS,11.388, c. 1350)
c. They shall **not** mysse, 'They shall not miss.' (A right merrie Comedie, Act 1:2, c. 1570)

- Loss of *ne* in negative concord (NC):

(3) a. [**non** of heom] **ne** hadde [**no** space // To parfourni heore manace]
none of them not had no space to perform their menace
'None of them could make good on their threats' (LAUD108AINFANCY.949, c. 1265)

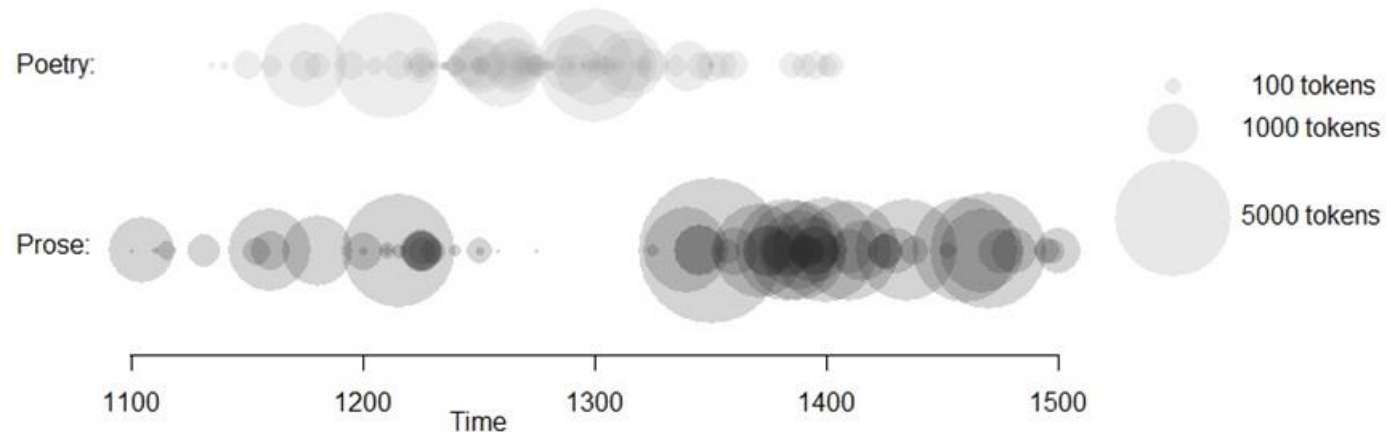
b. [**none** Emperour of Rome] shulde take [**none** opere truage] of bis lande
no emperor of Rome should take no other tribute of this land
'No Roman emperor should exact another tribute from this land' (CMBRUT3,35.1074, c. 1400)

c. [**no** man~ p~sone] bye [**eny** coloured Wolle or coloured wollen Yerne]
No man person buy any colored wool or colored woolen yarn
'Nobody may buy any colored wool or woolen yarn' (STAT-1500-E1-H,3,28.88, c. 1500)

2. Data Basis

Corpora used

- Corpora:
 - PPCME2 (Kroch & Taylor 2000),
 - PCMEP (Zimmermann 2015)
 - P-LAEME (Truswell et al. 2018)
- 167 Middle English text files; c. 1.5 million words of running texts in c. 120,000 sentence tokens
- Dating; code every text for one specific year, estimated date of composition
- Bridge prose gap with poetic record



Simplifying assumptions

- Reliability of annotation:
 - follow corpus annotation
 - e.g. ambiguity between *ne* as NEG or *ne* as CONJ
 - e.g. *noht* as NEG or Q
- Independent variable:
 - focus on time, ignore other variables
 - Other important factors: dialect, lexical effects, genre (prose vs. poetry), etc.
 - e.g. verbs like *witen*, *will*, *be*, *have* are more likely to occur with *ne* than others (e.g. Iyeri 2000, ch. 4)
 - E.g. clause type; *ne* may be more common in *if*-clauses than other clauses (Jack 1978)

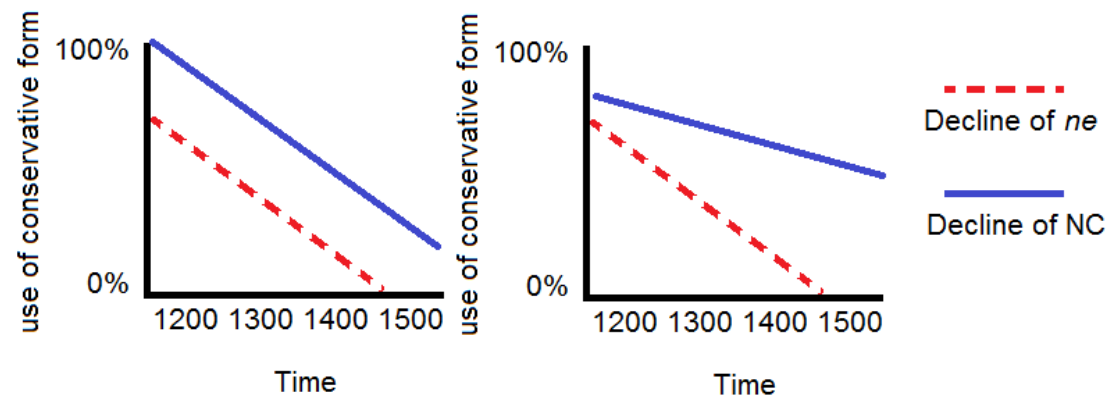
3. The loss of ne and its
Relation to the loss of NC

Research question

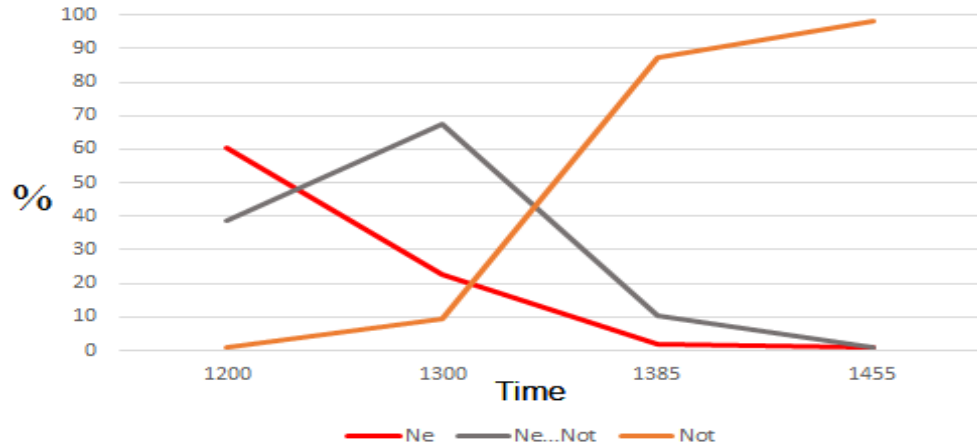
- Research question: Is *ne* lost at same rate as sentential negation and in negative concord?

“I have not systematically examined the data for all negative concord constructions, but my impression is that the decline in the use of *ne* is concurrent with a decline in the use of negative concord in general. [...] I return to this point in the conclusion as an open problem for future research.” (Frisch 1997: 33)

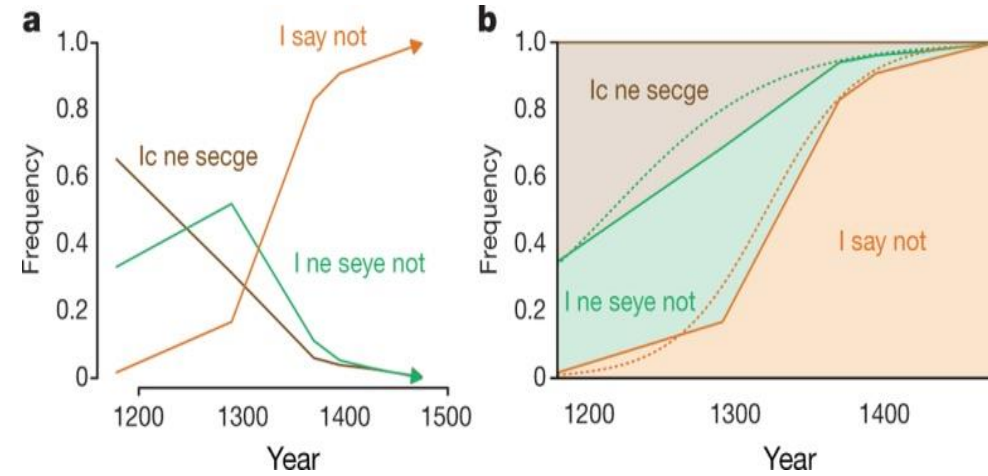
- Either *ne* is lost at the same or at a different rate as sentential negator and in NC structures



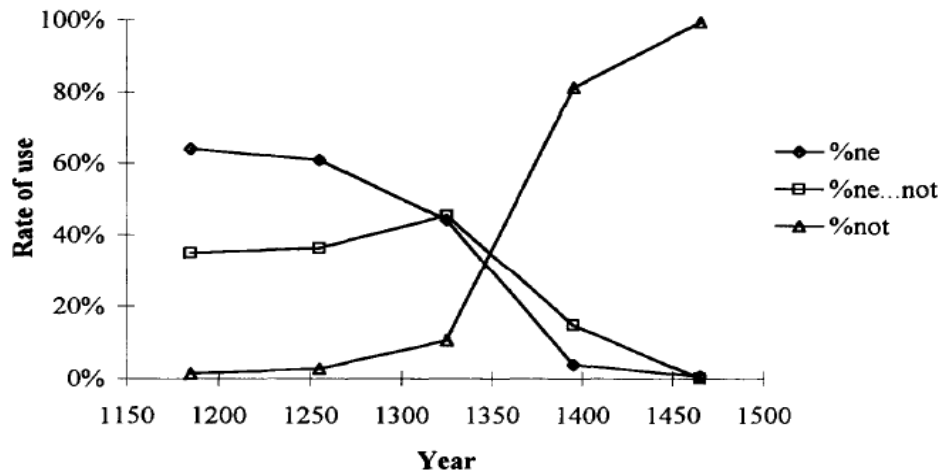
Previous measurements of the loss of *ne*



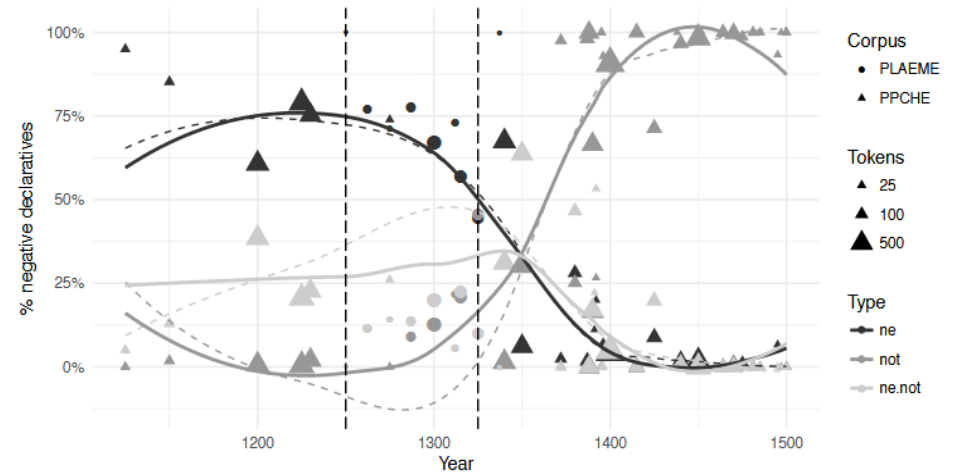
Based on Wallage 2008: 645, Table 1, N=5,556



Newberry et al. 2017: 225, N=5,475



Frisch 1997: 33, N=1,929



Truswell et al. 2018: 19 (N not reported)

Loss of *ne* as sentential negation - Measurement

- Data Collection:

- all *ne* and *ne ... not* clauses vs. all *not* clauses
- Exclude all sentences with additional negative items, e.g. negative objects or negative subjects

(4) **No** wil Y lufe [_{neg.object} **na** cleric fayllard]
Not will I love [no clerk lazy]
'I will not love a good-for-nothing clerk'
(*Interludium de clerico et puella*, CLERICOT.8)

(5) ac [_{neg.subject} **non**] **ne** couthe him telle.
but non not knew him tell
'But nobody could tell him' (Fridesw,81.99)

- Issues:

- Operationalization of *ne* and *not*? here: *ne* as NEG that does not include *t* (*ne, ni, no*), and *not* as NEG that includes *t* (*nawhiht, noht, not*), or as any NEG that co-occurs with a NEG without *t* (*ne ... na*).
- *Ne*-clitics (*nis, nat, nolde*)? All contractions were included (excluded e.g. in Wallage 2008).
- Pre- vs. post-verbal position of *not* (Frisch 1997)? All included.
- Expletive /redundant negation (e.g. *ne* after 'doubt', 'unless')? All included.
- *Ne* as CONJ, *not* as object?

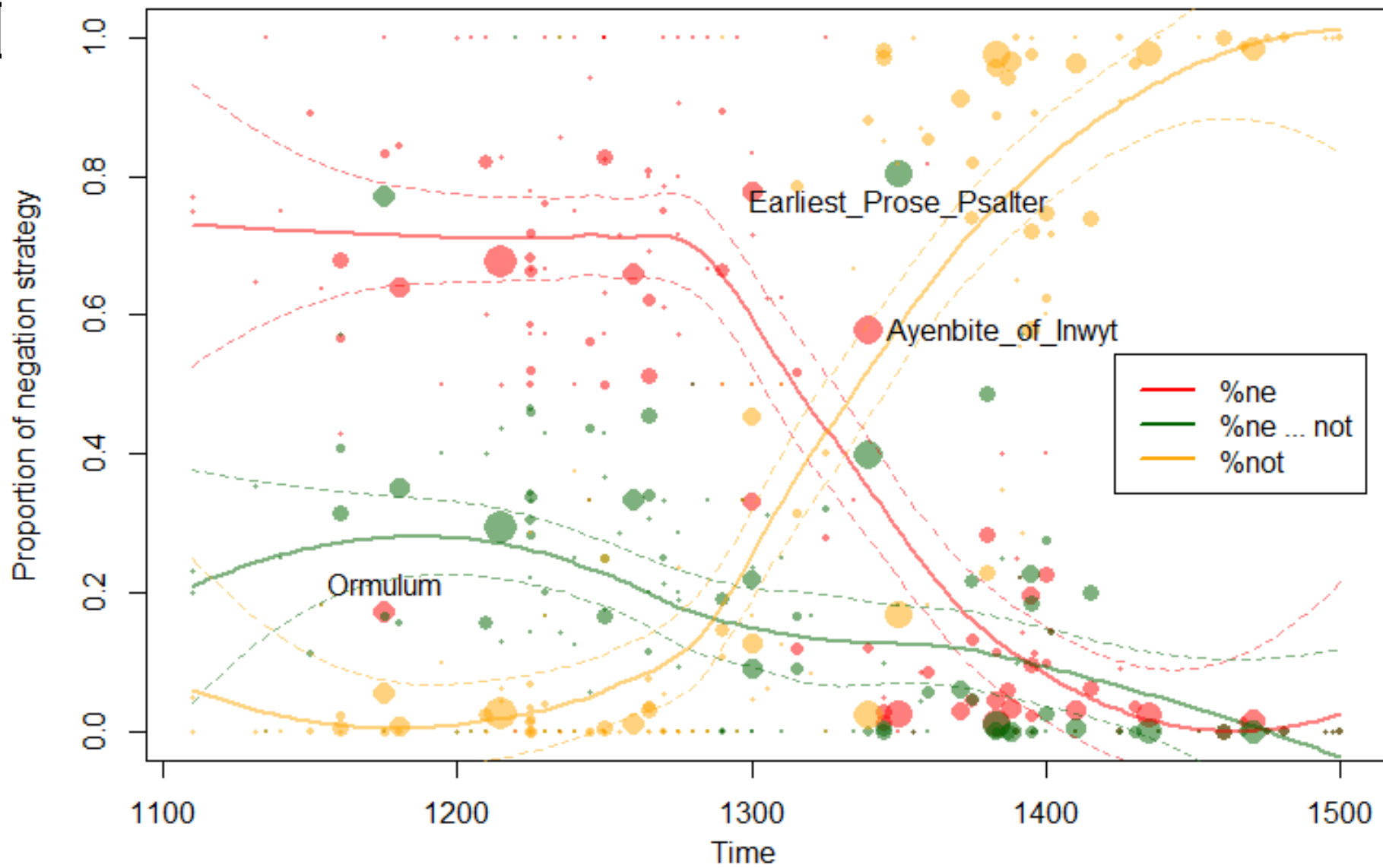


Fig. 1: Frequency of ME negation strategies, *ne*-clitics included, all NC excluded, not in all positions, $N=9,719$ ($N_{ne} = 3,230$, $N_{ne \dots not} = 2,087$, $N_{not} = 4,402$)

Modeling the loss of *ne*

formula = Ne ~ Year + (1 | Text), family = binomial, data = LossOfNe

Fixed effects:

	Estimate	Std.Error	z-value	p
Intercept	47.455	3.146	-14.099	<0.001***
Year	-0.03545	0.00238	-14.89	<0.001***

Random effect:

Texts: N=147
 Variance of random intercepts: 2.7

Null deviance: 13431 on 9718 degrees of freedom
 Residual deviance: 4820 on 9716 degrees of freedom

- Rate of change: loss of *ne* at a rate of **0.35 log-odds/year** (c. 260 years to drop from 99%-1% of use, 1210-1470).
- Model evaluation: Good performance, especially for a change from medieval times (Pseudo- $R^2_{\text{marginal}}=0.62$, Pseudo- $R^2_{\text{conditional}}=0.79$, Hosmer and Lemeshow: $X^2=2.6469$, $df=8$, $p=0.95$, no important outliers outside of deviance residuals of ± 3 , C-index=0.965, classification accuracy = 91.1% vs. baseline: 53.3%).

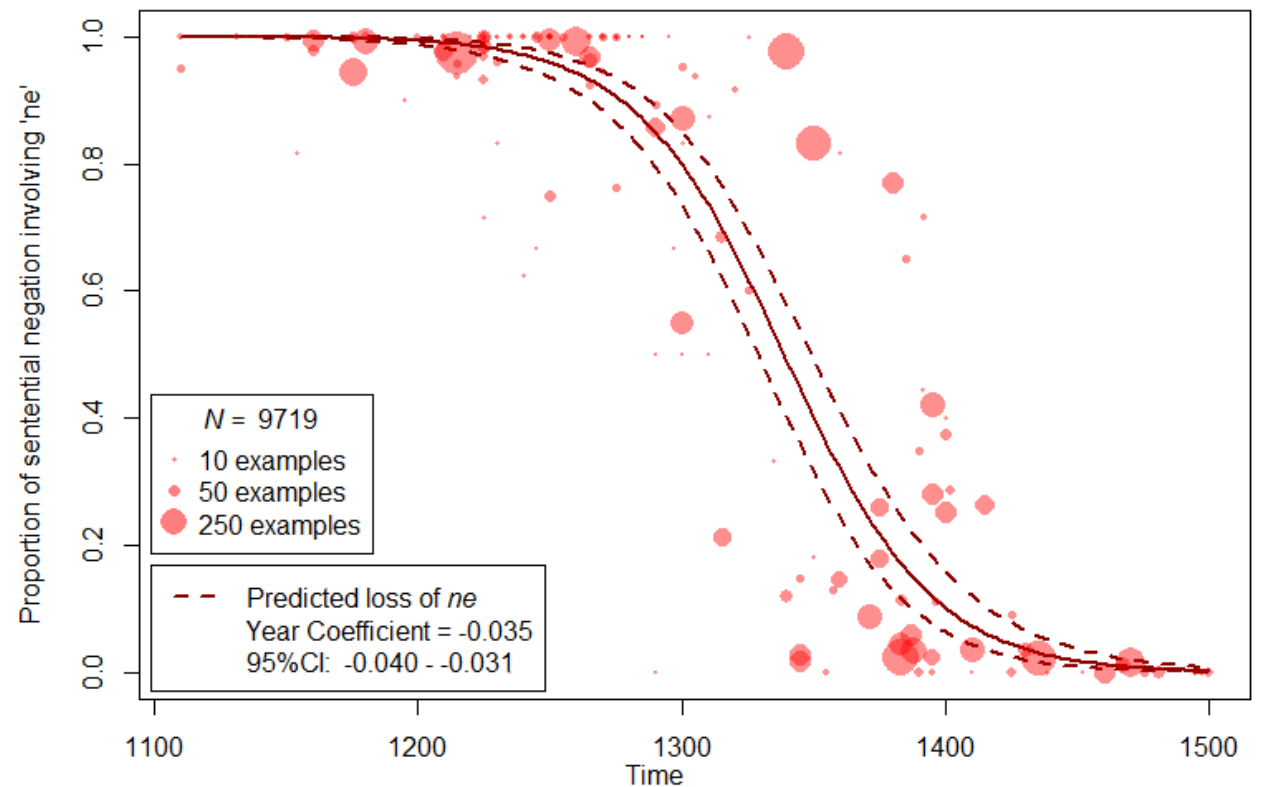


Fig. 2: Logistic regression model predicting the occurrence of *ne* ((*ne* + *ne...not*) vs. *not*) from time, random text intercepts, NC excluded, including *ne*-clitics, data points represent years.

(1) Negative adverb: *never* - Measurement

- Collection of all negative adverbs *never* with and without *ne*

(6) And þo .ij. sterres **ne** meeuen **neuere** (NC)

and those two stars not move never

‘And those two stars never move’ (CMMANDEV,120.2937)

(7) for þey synned **neuere**. (no NC)

for they sinned never

‘For they never sinned’ (CMWYCSER,234.204)

- Also includes lexeme *nevermore*

(8) thei **ne** were **neveremo** withouten the tormentz of hir wikkidnesse; (NC)

they not were nevermore without the torments of their wickedness

‘... That they shouldn’t be anymore without suffering their wickedness’

(CMBOETH,448.C1.398)

(9) The Jewes beyng in ther lyberte or captiuyte. had **neuer moo** kynges (no NC)

the Jews being in their liberty or captivity had never more kings

‘Whether in liberty or captivity, the Jews never had kings again’

(CMFITZJA,A5R.68)

- Free-form and clitic *ne*
- Exclusion of examples with other negative items

(10) Bide **neuere no** god man **non** so sori dai.

abode never no good man no so sorry day

‘No good man ever suffered such a miserable day’

(IacoIose,236.8.239)

- Issues:
 - Operationalization of *never*, *nevermore* as list of spelling variants
 - annotation mistakes, e.g. –TMP missing on adverb phrase for *never*,
 - variable annotations of *nevermore*, as NP–MSR, ADVP, ADVP–TMP, with QP
→ may result in missing data
- N= 1,381 (608 with *ne*, 773 without *ne*)

(2) Negative objects - Measurement

- Collect arguments coded as NP-OB1, direct objects, but also predicates of copulas, only local

- Negatively quantified objects with and without *ne*:

(11) they **no** haveth [**no** joye] (NC)
they not have no joy
'They do not have any joy' (Alisaunder,4.28.[Part_1].[Prologue].7)

(12) On hyme 3e had [**no** mercy] (no NC)
on him you had no mercy
'You had no mercy on him' (CMSIEGE,87.537)

- Also negatively coordinated objects (Q and CONJ can co-occur)

(13) ouer sithon **ne** forbaren hi [**nouth** circe **ne** cyrceiaerd,] (NC)
over often not fore-bore they neither church nor churchyard
'Too often they spared neither church nor churchyard'
(CMPETERB2,56.464)

(14) Forbar he [**neyper** tun, **ne** gronge] (no NC)
fore-bore he neither town nor farm
'He didn't leave out any town or farm' (Havelok,24.765.378)

- Negative quantifier stranded, neg. object pre-verbal:

(15) felawe_i **nauede** he [**non** t_i] (NC)
fellows not-had he none
'He didn't have any friends' (Maregrete,494.176.181)

(16) [**non** oðer] wile ge more; (no NC)
no other wants she more
'She does not desire anything else more'
(Bestiary,408.22.708.[Turtle-Dove_Nature])

- Exclusion of examples with other negative items

(17) ... þat **no**man do hure [**non** vnri3te]
... that nobody do her no unright
'... That nobody should do her wrong'
(AssumpVirg,112.52.31)

(18) Thow sall **noghte** do [**na** thyfte]
thou shall not do no theft
'You shall not steal' (CMROLLTR,12.324)

- N=2,093 (793 with *ne*, 1300 without *ne*)

(3) Negative subjects - Measurement

- Collect arguments coded as NP-SBJ
- Negatively quantified subjects with and without *ne*:

(19) [**no** zenne] **ne** is wyþ-oute uoulhede. (NC)
no sin not is without foul-hood
‘No sin is without ugliness’ (CMAYENBI,17.260)

(20) and [**no** synne] shal be in heuen; (no NC)
and no sin shall be in heaven
‘And no sin will be in heaven’ (CMEARLPS,43.1832)

- Also negatively coordinated subjects (Q and CONJ can co-occur)

(21) **ne** miitte us saui [castel tur **ne** halle] (NC)
not might us save castle tower nor hall
‘Castle, tower or hall cannot save us’ (EGSOMERT.21)

(22) þt [**no** fur. **ne** hete] ney me com (no NC)
that no fire nor heat nigh me came
‘... that neither fire nor heat came near me’
(CORP145SELT.1406)

- Parsing of extraposed subject conjuncts as sluicing prevented such structures to be found automatically

(23) sunne þar **ne** sineð [**ne** mone] [**ne** storre]
Sun there not shines nor Moon nor stars
‘Neither the sun nor the moon nor the stars shine there’
(PoemaMorale,232.228.279) (not included in dataset)

- Exclusion of examples with other negative items

(24) ... þat [**no**man] do hure **non** vnrihte.
... That nobody do her no unright
‘... That nobody should do her wrong’ (AssumpVirg,112.52.31)

(25) [**no** Cristen man] schuld fast **neythir** Sunday **ne** Þursday,
no Christian man should fast neither Sunday nor Thursday
‘No Christian should fast either Sunday or Thursday’
(CMCAPCHR,61.876)

- N=1,257 (558 with *ne*, 699 without *ne*)

Results

- Fit independent logistic regression models to every NC context

Context	Rate of change (in log-odds/year)
Loss of <i>ne</i> (vs. not)	-0.0354 ± 0.0041
NC with <i>never</i>	-0.0290 ± 0.0054
NC with <i>neg. obj.</i>	-0.0396 ± 0.0084
NC with <i>neg. sbj.</i>	-0.0434 ± 0.0107

- Likelihood Ratio Test

Model 1: $Ne \sim Year + Context + (1 | Text)$, family = binomial, data = AllData

Model 2: $Ne \sim Year + Context + Year:Context (1 | Text)$, family = binomial, data = AllData

Model	Df	Deviance	Diff. Df	Diff. Deviance	<i>p</i>
1	14445	7234.1			
2	14442	7229.9	3	4.22	0.24

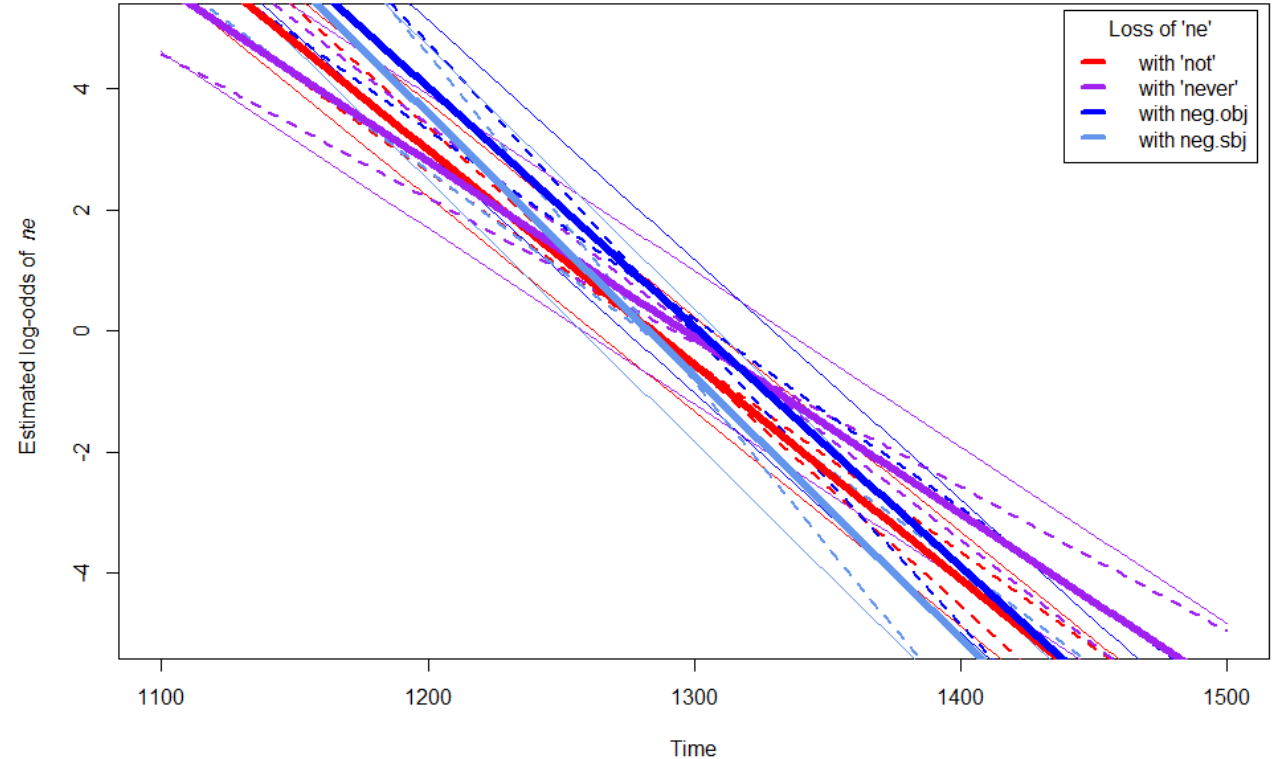


Fig. 3: Log-odds of finding *ne* over time in four contexts; parallel lines indicate identical rates of change, slanted lines differential rates of change.

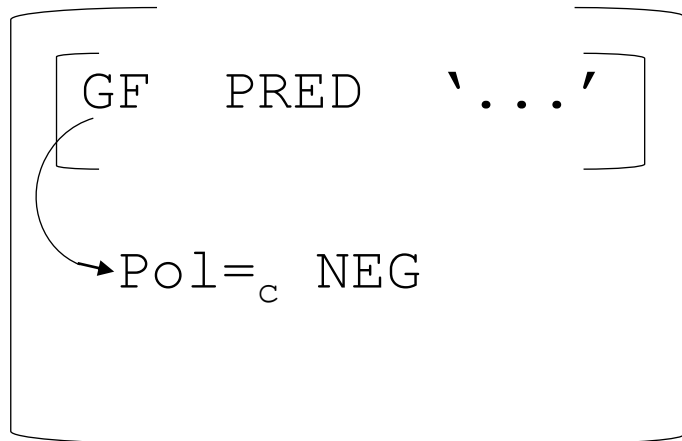
→ The results are not perfectly clear-cut. But there is reason to believe that the loss of *ne* occurs at the same rate of change, and roughly at the same time, in all contexts, with *not*, *never*, negative objects and negative subjects.

4. Some Formalization

Lexical entries for *n*-items over time

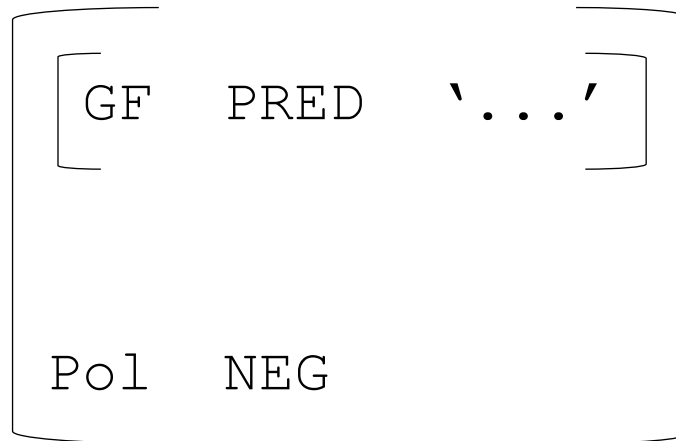
- Stage 1: OE/early ME
- *n*-items are licensed only under neg; cannot occur without neg; uninterpretable (constrained)

(26) heo *(*ne*) mугen **nan** þing
(*Elucidarius*)



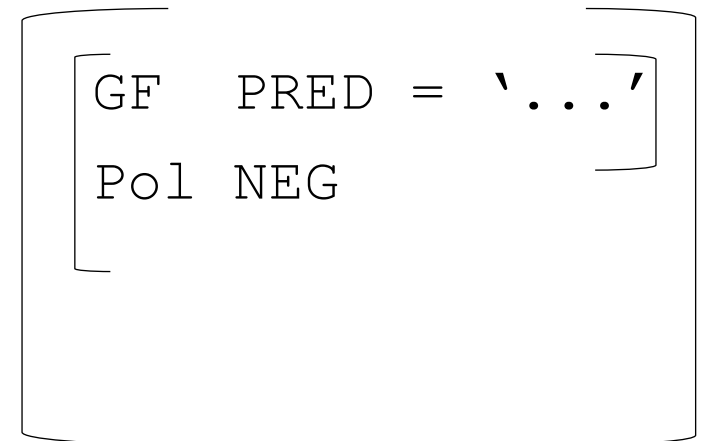
- Stage 2: timing unclear
- *n*-items introduce sentential neg, can occur with or without neg; interpretable as sentential neg.

(27) He *no* couthe **no** beter dyght;
thou konst **no** gode; (*Alisaund.*)



- Stage 3: late ME, early ModE
- *n*-items introduce neg locally; cannot co-occur with neg; interpretable as constituent neg

(28) he schvld (**not*) have **no**
grace (*SiegeJerusalem*)



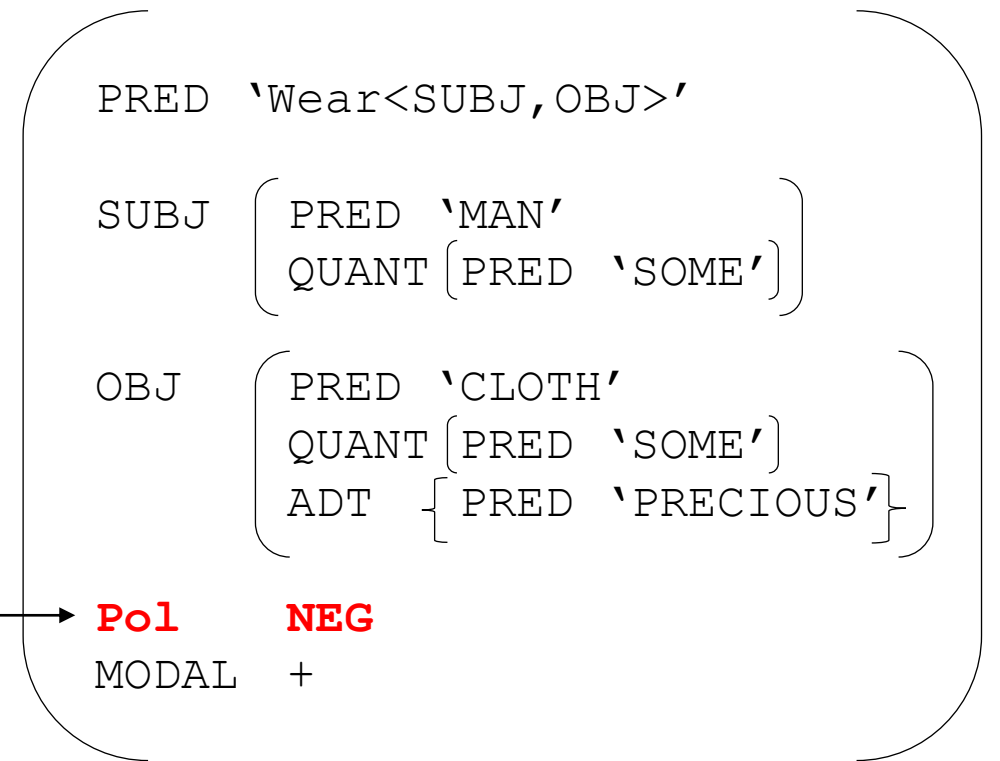
Example: Negative Concord without *ne*

- Negative concord without *ne* can only be licensed at stage 2, when multiple *n*-items can introduce sentential negation that unify

(29) [**no** man] schuld were [**no** precious cloth]
(CMCAPCHR,159.3734)

‘The following should not be the case: There is some man who wears some precious cloth.’

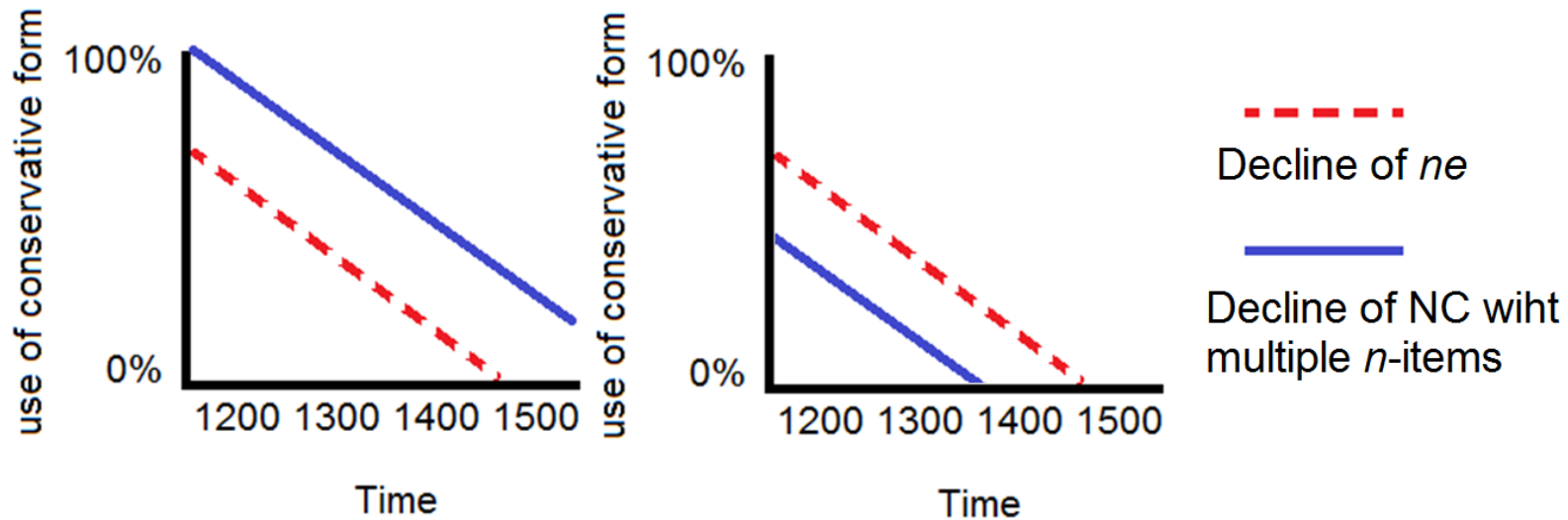
Ought: [$\exists x: \text{MAN}(x), \exists y: \text{CLOTH}(y) [\neg \text{WEAR}(x,y)]$]



5. Timing 1

Which change enabled which?

- A) *ne* was lost -> then *n*-items changed from stage 1 to stage 2 (“push”)
- B) *n*-item changed from stage 1 to stage 2 -> then *ne* was lost (“pull”)



6. Loss of *ne* in Negative
Concord with multiple *n*-items

Multiple NC - Measurement

- Collection of all sentences with more than 1 *n*-item

neg. sbj + neg. obj

(30) **Naueþ** [**no** man] [**none** sikerhede]

not-has no man no security

‘Nobody has any security’ (OwlNight,106.1268.702)

(31) ... [**no** wicked planete] have [**noon** aspect of enemyte]

no wicked planet have no aspect of enmity

‘... no wicked planet should have an unfavorable influence’

(CMASTRO,671.C1.268)

never + neg. coord. sbj

(32) [**neither** God **ne** man]

neither god nor man

ne sholde **nevere** knowe it.

not should never know it

‘Neither god nor man should ever know it’ (CMCTPARS,290.C2.93)

(33) [**nouthur** the kyng of Ermonyne **ne** the contree] weren **neuer** in pees

neither the King of Ermonyne, nor the country, were never in peace

‘The king or Ermonyne or the country weren’t ever at peace’

(CMMANDEV,98.2355)

- Free-form and clitic **ne**
- Also includes **not** as a negator
- Issues:
 - Not all negative items are currently included, e.g. Adjuncts like *nowhere*, *sluicing*, *extraposed PPs*, ...
→ may result in missing data
 - Small dataset, uncertainty
- N= 654 (298 with *ne*, 356 without *ne*)

Multiple NC - Results

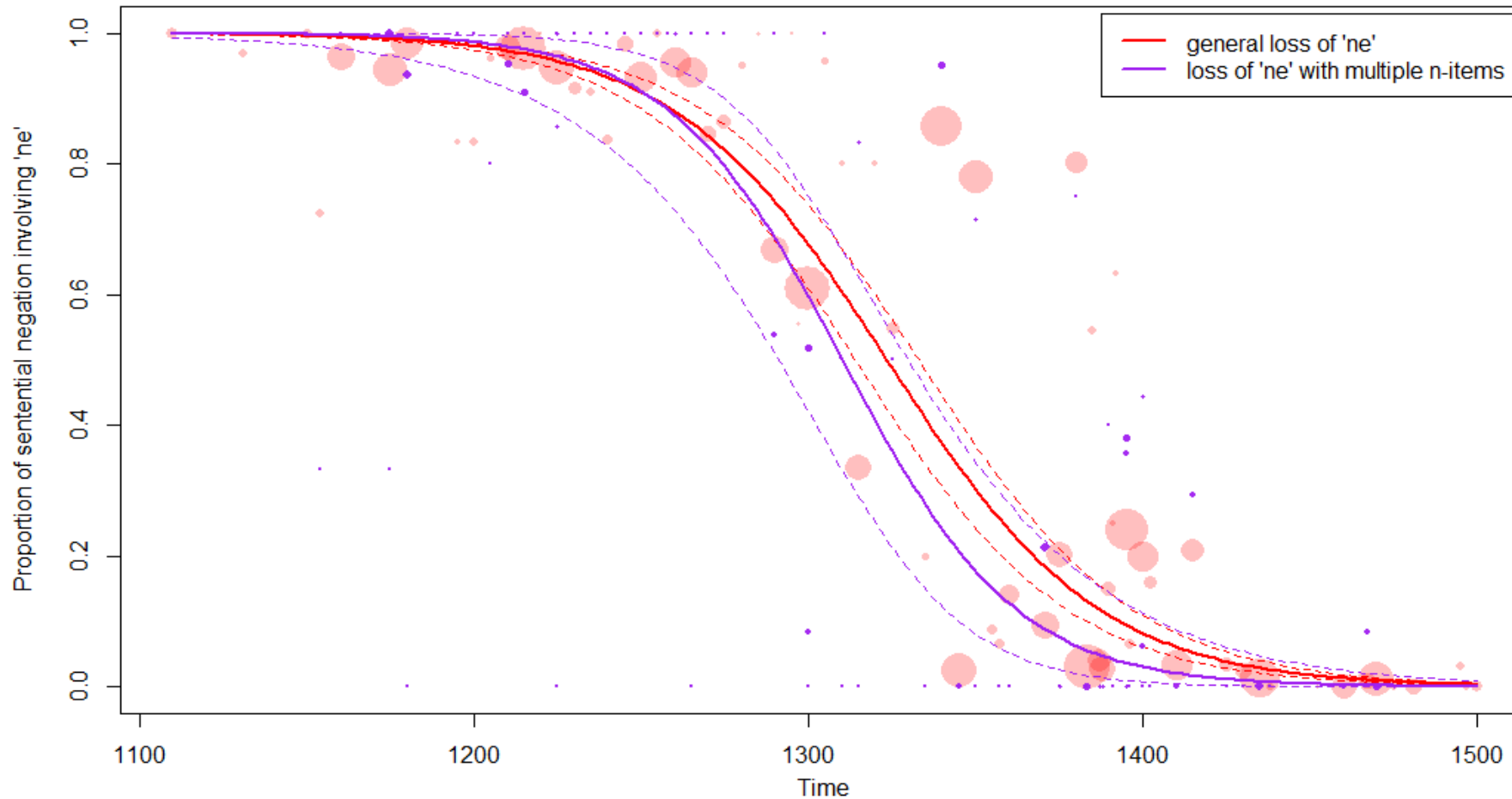


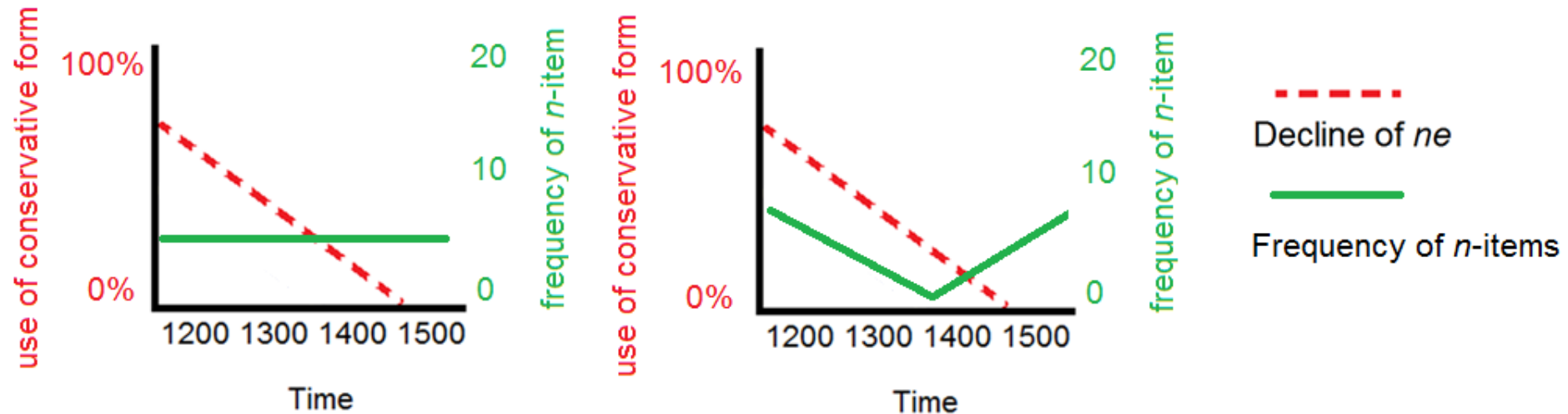
Fig. 4: Logistic regression models predicting the occurrence of *ne* in contexts with zero or one single *n*-item (red line N=14,450), and multiple *n*-items (N=654).

→ *Ne* with multiple *n*-items are lost at the same time or slightly earlier than elsewhere. This suggests that the reanalysis from uninterpretable to interpretable negative meaning co-occurs with or facilitates the loss of *ne*.

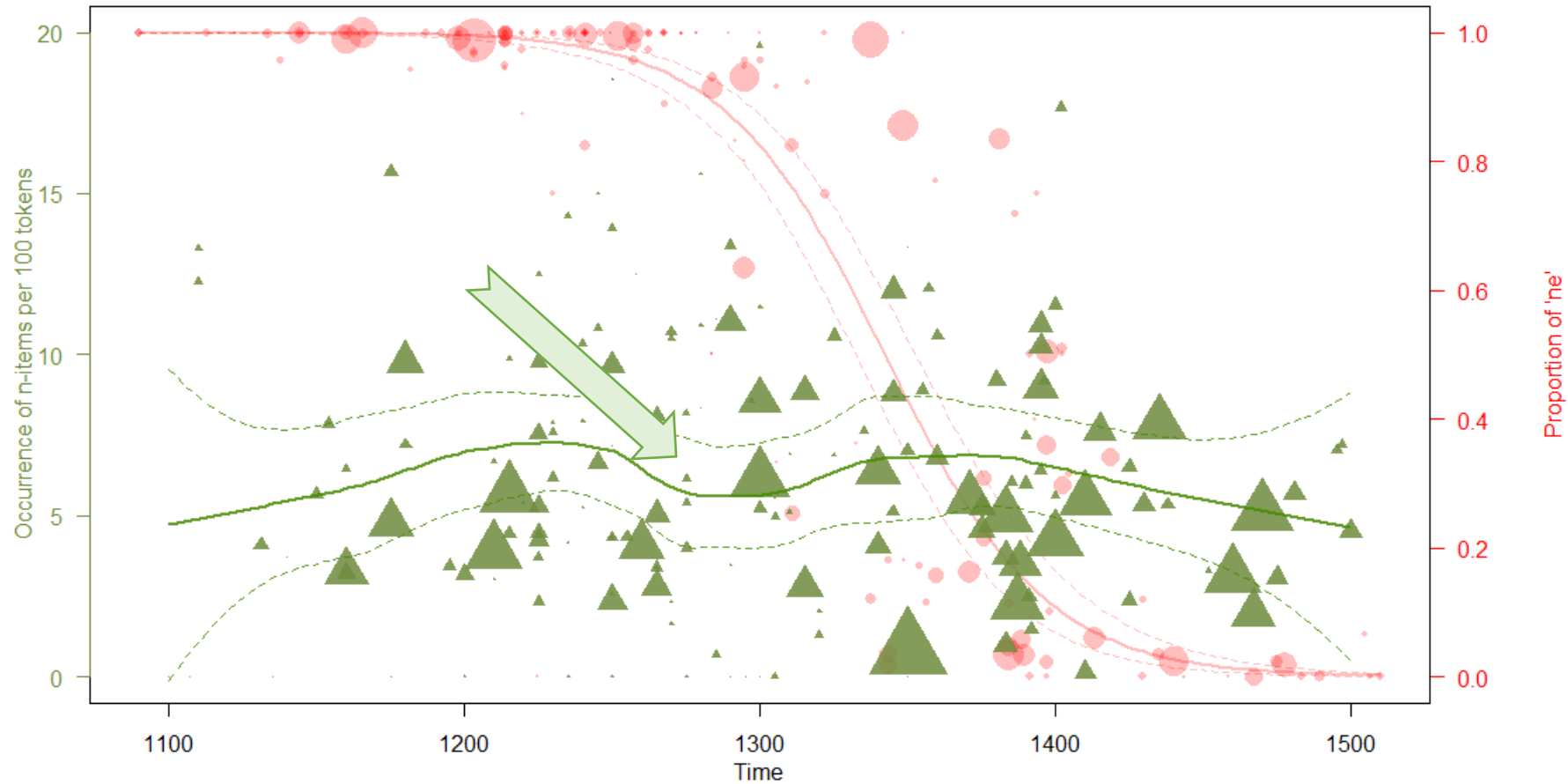
7. Timing 2

Potential dip

- As *ne* declines, a number of *n*-items, like *no*, *none*, *never*, may still be licensed only under negation. If so, some conservative *n*-items may have to be avoided. This could produce a dip in the use of *n*-items.
 - A) First re-analysis, then drop in *ne*, no overlap between the two.
 - B) Re-analysis contemporaneous with drop in *ne*, overlap,



Potential dip - Result



→ There may be a slight decline in the presence of *n*-items from c. 7-8/100 tokens to c. 5-6/100 tokens between c. 1250-1325. If the effect is real, it may point to time of reanalysis from uninterpretable to interpretable negation on *n*-items.

8. Conclusion

Conclusion

- **Ne** probably declines at the same rate and at the same time as a sentential negator and in negative concord structures. This supports Frisch's (1997) intuition.
 - all data *ne* vs. no *ne* can be used to measure the change (not just *ne* vs. *not*)
 - triples previous measurement sample size (5,000 > 15,000 examples), greater precision, detail
 - perhaps most important morpho-syntactic change of 14th century
 - can perhaps be used to classify / date new texts
- Loss of *ne* can be analyzed in conjunction with a reanalysis of *n*-items like *not*, *never*, *no*, from uninterpretable to interpretable negation (stage 1 > stage 2).
 - This reanalysis may have occurred in mid to late 13th century: (1) decline of *ne* with multiple *n*-items, (2) potential dip in the use of *n*-items at around that time
- Unfortunately, medieval data has low data quality, which leads to great uncertainty
- Open / further questions:
 - extended data set (negative PPs, other negative adverbs such as *nowhere*, *nomore*)
 - Formal analysis for negative conjunctions considerably more complicated than presented here (licensed in longer scope e.g. *ne wold i [pat pou heuedest [uilani Ne shame]]*)
 - Consideration of rise of NPI *any* from 15th century on.

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