

In the right mood, in the right place

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1 The issue

- In subordinate clauses of older Germanic languages, interactions between indicative/subjunctive mood alternations (MAs) and verb placement may sometimes be observed, as exemplified by the following examples for Old English (OE) and Old High German (OHG), in which indicative verbs occur to the left of certain complements and adverbials:¹

- (1) Ælfred cining, þe oft **gefeht** wið Denan OE
Alfred King, REL often fought.IND against Danes
'King Alfred who fought often against the Danes.'
[[coepigen.o3]_ +AGenEp:78.60]
- (2) n-ænig man, þe in þære Godes swinglan mid fullre gife **gestande** [...] OE
not-any man, REL in the God's afflictions with full grace stand.SUBJ [...]
'[...] none who faces God's afflictions with full grace.'
[[cogregdc.o24]_GDPref_and_4_[C]:11.274.13.3994]
- (3) Soso Krist **gibuozta** themo sancte Stephanes hrosse thaz entphangana OHG
as Christ healed.IND to.the saint Stephen horse the horse.desease
'as Christ healed Saint Stephen's horse from the disease'
(TS 367, 2)
- (4) daz ih fora dinem augom unskamenti **si** OHG
that I in.front.of your eyes not-ashamed am.SUBJ
'(so) that I do not feel ashamed in front of you.'
(AB 8,9)

- MAs are traditionally taken as indicators of the (in)dependent status of a clause in older Germanic (cf. a.o. the discussion in Schrodt 1983, Petrova 2008, Coniglio 2017, Coniglio/Hinterhölzl/Petrova t.a. for OHG and in Traugott 1972, Faraci 1980, Vezzosi 1998 for OE), similarly to modern Romance languages a.o. (cf. Farkas 1985, 1992, Giorgi/Pianesi 1997, Quer 1998, Poletto 2000, etc. Also cf. Giannakidou 2009, 2013 for Modern Greek):

- (5) Cerco una persona(,) che **sia** (/ è) più interessata di me Ital.
'I am looking for a person that is.SUBJ (/ a person, who is.IND) more interested than me.'

- Verb placement (V2, V-medial or V-final) also seems to compete for the function of marking (in)dependency (cf. Vezzosi 1998, Axel 2007, etc.), but it is also often considered as a reflex of information structure (IS), with the verb preceding or following its complements for example in order to focalize or background them, etc. (cf. Schlachter 2004, 2012, Hinterhölzl/Petrova/Solf 2005, Hinterhölzl/Petrova 2009, Petrova 2009, 2011, Petrova/Hinterhölzl 2010, Axel-Tober 2012, Hinterhölzl 2015, Coniglio/Linde/Ruette 2017, Coniglio t.a. for OHG; Pintzuk 1991, van Kemenade/Los 2006, van Kemenade 2009, Bech 2012, Pintzuk/Taylor 2012, De Bastiani 2017, Struik/van Kemenade 2018, van Kemenade/Los t.a. for OE; Walkden 2012, etc.).

¹ In the absence of further specifications, all examples for OE are taken from the York Corpus of Old English Prose and all examples for OHG are taken from the *Referenzkorpus Altdeutsch* (see Chapter 2 for references and more details about the two corpora). We would like to thank Erwin Komen and Tara Struik for helping us with the OE queries, and Katharina Paul for the OHG data.

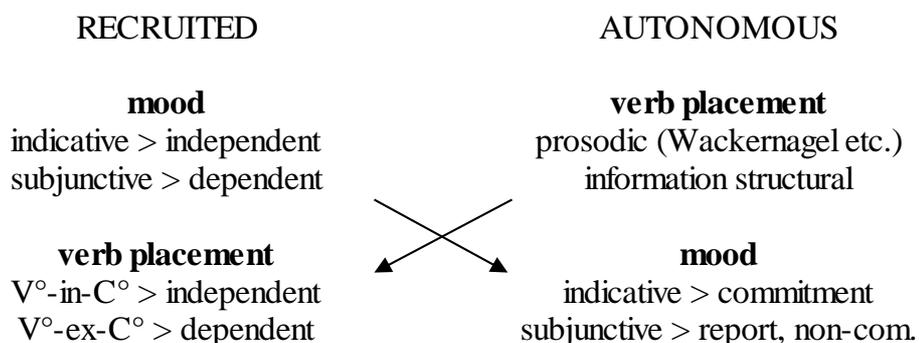
(6) *liohtfaz thes lihhamen ist ouga / oba thin ouga **uuir**dit luttar /*
light of.the body is eye if your eye becomes bright/simple,
thanne ist al thin lihhamo liohter OHG
then is all your body bright

‘The light of the body is the eye. If your eye becomes bright, then all your body is bright.’
 Lat. *Lucerna corporis. est oculus. / si fuerit oculus tuus simplex. / totum corpus tuum lucidum erit.*
 (T 69, 21ff, adapted from Hinterhölzl 2009: 48)

(7) *so hér then buoh **int&a*** OHG
when he this book opened
 ‘as he opened the book’

Lat. *& ut reuoluit librum*
 (T 53, 21, adapted from Petrova 2009: 258)

- In most modern Germanic languages, in contrast, MAs no longer reflect the different syntactic status of the clauses (but rather reported speech, counterfactuality, etc.), whereas verb placement has become the most reliable indicator for (in)dependency. Modern Germanic languages are thus configurational and make use of verb placement for signaling (in)dependency, whereas Romance languages (may) resort to MAs (Meinunger 2004, 2006, but cf. Poletto 2000, Ledgeway 2012, etc. for verb placement).
- Mainly based on Icelandic and German, a recent theoretical investigation (partially based on traditional literature) by Gärtner/Eythórsson (t.a., henceforth G/E) convincingly shows that Germanic languages reflect different stages of a more general diachronic change scenario (cf. Vezzosi 1998).
- They move from a system in which mood is “recruited” for clauses combining, i.e. for marking (in)dependency, and verb placement is related to prosody and IS towards a system in which verb placement indicates clausal (in)dependency, while verbal mood acquires different types of (semantico-pragmatic) functions (“autonomous mood”):



Tab. 1. *Clausal (In)dependency Marking* (slightly adapted from G/E t.a.:9)

- The Old English data possibly reflect a transitory scenario in the diachronic change outlined above, since remains of mood as a marker for clausal (in)dependency can be found, while at the same time mood reflects the speaker’s attitude or is dependent on the mood in the main clause (Mitchell 1985).
- This paper investigates the interactions between indicative/subjunctive mood alternations (MAs) and verb placement in Germanic by exemplarily investigating Old English (OE) and Old High German (OHG) subordinate clauses.

2 Methods

- Starting from the traditional view that MAs in Old Germanic languages indicate some sort of (in)dependency and that verb placement is only determined by IS, one would expect that, given

that these languages are assumed to be non-configurational in their early stages, MAs do not correlate with verb placement (null hypothesis).

- Considering OE and OHG, we empirically investigate whether there is a clear division of labor between mood and verb placement at the start to determine whether these two languages reflect different stages in a diachronic scenario as sketched for example in G/E (modulo the fact that languages like English signaled dependency by means of verb placement alternations until the loss of V2).
- For this investigation, all finite subordinate clauses (complement, adverbial and relative clauses) were extracted from:
 1. the York Corpus of Old English Prose (Taylor/Warner/Pintzuk/Beths 2003, queried through the Corpus Studio Web application, <http://corpus-studio-web.cttnww-meertens.surf-hosted.nl/crpstudio/home>)
 2. the *Referenzkorpus Altdeutsch* (ReA, henceforth; <http://www.deutschdiachrondigital.de/>, searchable via ANNIS, Krause/Zeldes 2016, <http://corpus-tools.org/annis/>).

2.1 Old English

- In order to determine the relative placement of the verb in the subjunctive and indicative mood in OE subordinate clauses, we selected complement, adverbial and relative finite clauses containing a verb either in the indicative or in the subjunctive.
- The ambiguous categories were left aside, including in the investigation only the indicative and subjunctive verbs with a clear label.
- For this pilot study, we included all categories of verbs, namely the auxiliaries *have* and *be*, the modal verbs, and the lexical verbs.
- This search obtains all sentences with a verb either in the indicative or in the subjunctive mood, the sentences obtained are either affirmative or negative.

	complement	adverbial	relative
indicative	3003	7817	10168
subjunctive	3443	3828	819

Tab. 1 Mood in OE complement, adverbial and relative clauses

- Given the annotation practice of this corpus, a separate search was produced in order to retrieve those sentences containing a negated verb, with which the negation is contracted (crasis), as in the following example.

(8) Fulgeorne hy witan, þæt hy **nagon** OE
 Full well they knew, that they not-have
 mid rihte þurh hæmedþing wives gemanan.
 with right through carnal intercourse woman's society.
 'They knew full well, that they did not have righteously the society of a woman through carnal intercourse.'
 [colaw5atr, LawVAtr:9.27]

- With the Corpus Studio Web application, (<http://corpus-studio-web.cttnww-meertens.surf-hosted.nl/crpstudio/home>), we counted the number of constituents preceding and following the indicative and subjunctive finite verb, as well as the number of words preceding and following the finite verb.

- The databases produced with the Corpus Studio Web application were processed with the Cesax Programme (<http://erwinkomen.ruhosting.nl/software/Cesax/publish.htm>), which allows their transformation into Excel and R-files.
- The counting excludes subordinators, but includes clauses which are complement of the clauses under examination.

2.2 Old High German

- Also for OHG, we selected complement, adverbial and relative finite clauses containing a verb in the indicative or in the subjunctive.
- Given the heterogeneous corpus of OHG texts, we decided to use “kleinere althochdeutsche Sprachdenkmäler”, which are annotated in ReA following Steinmeyer’s (1971) edition. In particular, we extracted sentences that were randomly selected from possibly autochthonous, non-translated texts.
- Like in OE, for this pilot study, we decide to include all categories of verbs, namely auxiliaries, modal verbs and lexical verbs. Furthermore, morphologically ambiguous cases were left aside.
- Wrongly annotated sentences were left aside as well, while free relative clauses – which are annotated as complement clauses in ReA – were substituted by other complement clauses.
- For reasons of statistic comparability, we prepared an equal number of indicative and subjunctive sentences, so that, for each case, we took a similar number of indicative and subjunctive clauses (the latter being less frequent). The total number of clauses considered were thus:

	complement	adverbial	relative
indicative	70	100	49
subjunctive	68	100	49

Tab. 2 Mood in OHG complement, adverbial and relative clauses

- In contrast to the OE corpus, the corpus for OHG does not allow automatic counting of words and constituents. Thus, we had to manually count the number of words and constituents before and after the finite verb (data were prepared in Excel, while R was used for statistics).
- As we did for OE, we excluded subordinators from counting, but given that the OE and OHG corpora are constructed in different ways, we could not include clauses that are complement of the clauses under examination in this pilot study. We are aware that this might have effects on the interlinguistic comparability between OE and OHG, but intralinguistical comparability was preserved.

3 Corpus Study

- Hypothesis to be tested: the null hypothesis (put forward e.g. by GE) that the position of the verb is not affected by mood in OE and OHG.
- Dependent variable: *pos*; that is, number of constituents in the sentence after the finite verb, divided by the total number of constituents in the sentence (minus the verb and the complementizer or relativizer). (Earlier analysis employing the number of words was discarded due to the criticism of an anonymous reviewer pointing out that this measure might be problematic).
- Example:

[that] [Peter] [**gave**] [Mary] [a flower].

$$pos = 2/3 = 0.67$$

[dass] [Peter] [Maria] [eine Blume] [gegeben] [**hat**].

$$pos = 0/4 = 0$$

- Thus, the higher the *pos* value, the earlier the verb appears in the sentence.
- The hypothesis then can be stated as:

$$pos(\text{indicative}) = pos(\text{subjunctive})$$

- In what follows, we test this hypothesis by looking at the effect of MOOD on our dependent variable. The aim is not to actually falsify the null hypothesis, but to establish whether there are effects of MOOD on the position of the verb in the two languages.

3.1 Old English

- Since the cases in the indicative by far outnumber those in the subjunctive, we had to adjust the sample size of the indicative to that of the subjunctive.
- By iterated re-sampling, we made sure that the effects we see are not dependent on the adjusted indicative sample we have drawn. We report the mean descriptive and inferential statistics based on a random sample from 10 iterated (re-)samplings.

Clause Type	Mood	mean(pos)	SD(pos)	N
Complement	Indicative	.42	.28	2932
	Subjunctive	.33	.27	2931
Adverbial	Indicative	.31	.28	3740
	Subjunctive	.23	.27	3740
Relative	Indicative	.26	.36	796
	Subjunctive	.21	.34	788
TOTAL	Indicative	.35	.29	7468
	Subjunctive	.27	.28	7457

Tab. 3 Overall descriptive statistics by Clause Type and Mood

- Inferential statistics:

Since the variable of choice, *pos*, has a binomial distribution, we computed logistic regressions with Mood as a covariate for the dataset reported above. (The full details of the regression models can be found in the appendix).

- Complement clauses: significant effect of mood, $z = -7.01$, $p < .001$.
In *that*-complements, the verb is serialized earlier in the indicative than in the subjunctive.
- Adverbial clauses: significant effect of mood, $z = -7.94$, $p < .001$.
⇒ In adverbial clauses, the verb is serialized earlier in the indicative than in the subjunctive.
- Relative clauses: significant effect of mood, $z = -2.36$, $p < .05$.
⇒ In relative clauses, the verb is serialized earlier in the indicative than in the subjunctive.
- TOTAL (independent of clause): significant effect of mood, $z = -10.72$, $p < .001$.
⇒ Overall, the verb is serialized earlier in the indicative than in the subjunctive mood.

- Graphically, the data is summarised as follows:

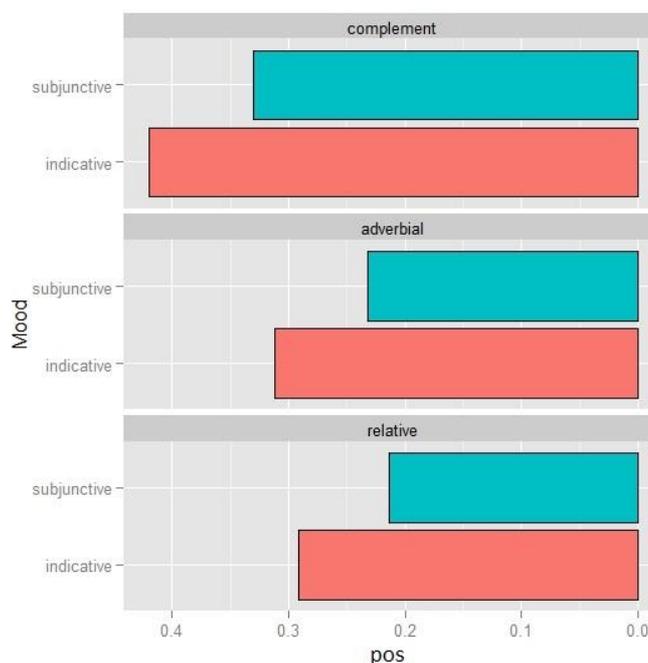


Fig. 1 Adjusted means of verb position (pos) dependent on Mood and Clause Type in OE

3.2 Old High German

- For Old High German, the same analysis was carried out as for Old English; all relevant details of the data treatment and statistical analysis were identical. However, the sample size in OHG is dramatically smaller and thus prohibits an inferential analysis in terms of logistic regression.

Clause Type	Mood	mean(pos)	SD(pos)	N
Complement	Indicative	.18	.29	70
	Subjunctive	.27	.33	68
Adverbial	Indicative	.19	.26	100
	Subjunctive	.13	.23	100
Relative	Indicative	.16	.26	49
	Subjunctive	.17	.29	49
TOTAL	Indicative	.17	.29	219
	Subjunctive	.21	.28	217

Tab. 4 Overall descriptive statistics by Clause Type and Mood

- Inferential statistics:

Despite the small sample size, we again computed logistic regressions. However, there were no significant effects of Mood on our dependent variable, *pos*, all $|z|$ s < 1.5, all *ps* > .10.

- Graphically, the Old High German data are summarized by the following plot:

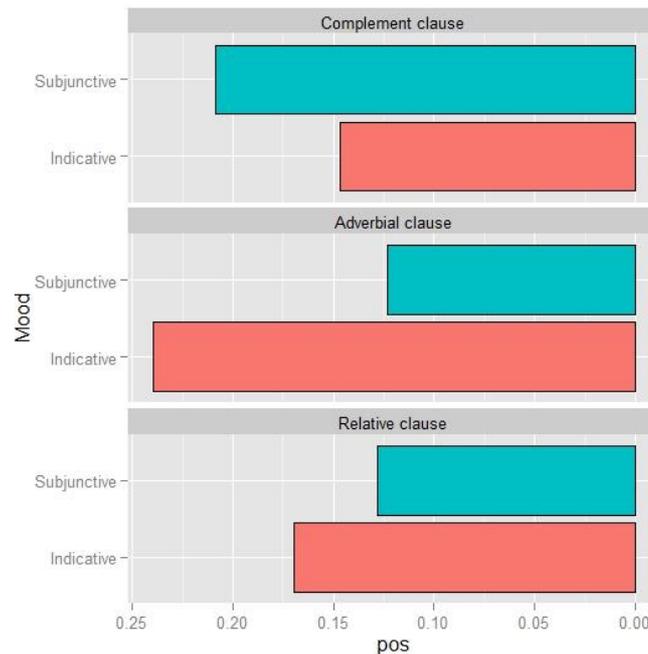


Fig. 2 Adjusted means of verb position (pos) dependent on Mood and Clause Type for OHG

- Overall Summary:**

The OE data show a reliable effect of Mood on the serial position of the verb. The sample size is sufficiently large to reject the null hypothesis. This, however, is not the case for OHG: the sample is not sufficiently large, and, accordingly, the finding that there is no effect of Mood on verb position in German has to be taken with a lot of caution.

4 Interpretation

- If G/E's and traditional assumptions are right, these empirical results indicate that the two languages reflect different stages in the proposed diachronic scenario.

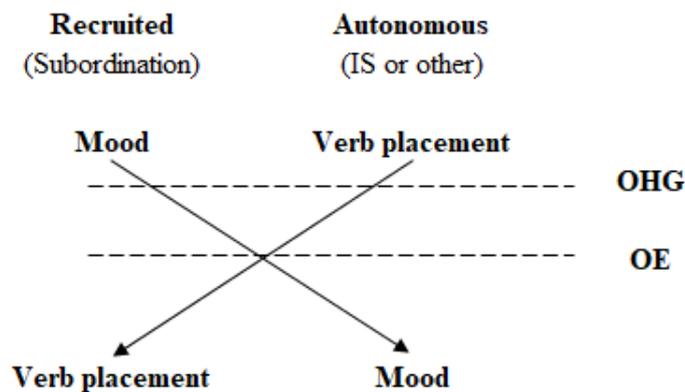


Fig. 3 Clausal (In)dependency Marking in OE and OHG

- OE was possibly situated at an intermediate stage (at the point of intersection), in which mood and verb placement strongly interact because neither the old system had already been completely abandoned nor the new one had completely prevailed (cf. Vezzosi 1998).
- In contrast, OHG could reflect a more conservative stage in which dependency was more frequently indicated by means of verb mood (31% of all OHG subordinate clauses exhibit a subjunctive verb, with – in particular – complement clauses scoring 44%, cf. Coniglio,

Hinterhölzl, Petrova t.a. Also cf. Coniglio 2017), while verb placement was still strongly dependent on IS.

	main		subordinate	
indicative	15902	92%	7600	69%
subjunctive	1475	8%	3410	31%

Tab. 5 Mood in main and subordinate clauses in ReA (from Coniglio, Hinterhölzl, Petrova t.a.)

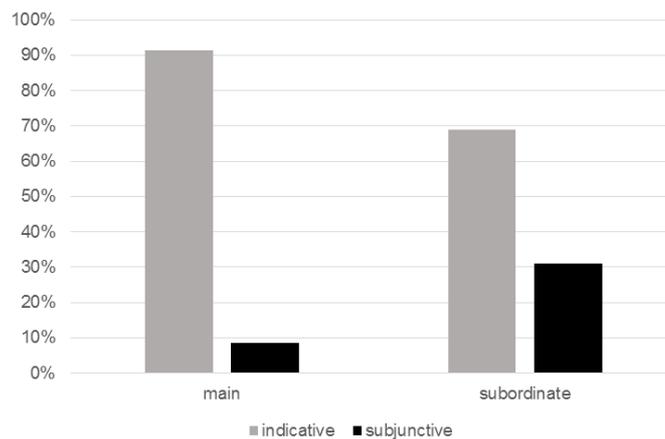


Fig. 4 Mood in main and subordinate clauses in ReA (from Coniglio, Hinterhölzl, Petrova t.a.)

5 Mood and verb position in Germanic (with a focus on Modern German)

- For the syntactic analysis, we propose that the morphological marking of mood on the verb, which is traditionally considered responsible for signaling (in)dependency, was independent from verb movement in the earliest stages of Germanic languages.
- In order to capture the change towards the system of (most) modern Germanic languages, in which verb placement configurationally determines whether a clause is (in)dependent, we argue for an analysis in which mood features are licensed syntactically via verb placement (and verb movement).
- In particular, in line with recent proposals, we interpret the higher position of the indicative mood in Germanic as the consequence of epistemic anchoring or of the presence of illocutionary force (Gärtner 2001, 2002, Lohnstein 2000, 2004, Catasso/Hinterhölzl 2016, Hinterhölzl t.a.).
- In modern German the alternation between the indicative and the subjunctive does not signal a difference in dependency, but rather the subjunctive indicates that the content of the embedded clause is anchored to an individual that is not the speaker. If the clause is unambiguously anchored to the speaker, a V2-clause has to be used:

- (9) a. Hans sagte, dass er Glück gehabt **hat** MG
 John said that he luck had had.IND
- b. Hans sagte, er **habe** Glück gehabt
 John said he had.SUB luck hat
- c. % Hans sagte, dass er **hat** Glück gehabt
 John said that he hat.SUB luck had
- (10) a. Ich habe nichts gekocht, weil ich ja noch was gehabt **habe** vom Sonntagsbraten. MG
 I have nothing cooked because I well still something had have from the roast

- b. Ich habe nichts gekocht weil ich **hab** ja noch was gehabt vom Sonntagsbraten.
I have nothing cooked, because I have well still something had from the roast

(11) a. Das Blatt hat eine Seite, die ganz schwarz **ist**. MG

- b. Das Blatt hat eine Seite, die **ist** ganz schwarz
This sheet has a side, which (is) completely black (is)
(based on Gärtner 2001:113)

- Embedded V2-clauses must be extraposed and cannot be in the scope of conditional, interrogative or negative operator (cf. Gärtner 2001, 2002, Catasso & Hinterhölzl 2016, Hinterhölzl t.a.).
- They have access to the speech situation and are epistemically anchored to the speaker.
- This is also evident from double access readings which are required by the indicative but not allowed by the subjunctive (cf. Catasso & Hinterhölzl 2016)

- (12) a. John said that Mary will visit Sue (*yesterday)
b. John said that Mary would visit Sue (yesterday)

Conclusions and outlook

- We have presented a pilot study investigating the interactions between indicative/subjunctive mood alternations and verb placement in Germanic by exemplarily investigating OE and OHG subordinate clauses.
- The results of the corpus indicate a different situation for OE and OHG, possibly indicating different stages in a more general diachronic scenario like the one sketched by G/E.
- The results of this pilot study need further refinements;
 - a. As regards the Old High German and Old English stage, in fact, we will consider the role of IS, and investigate empirically whether and how for instance definiteness and givenness interact with verb placement and mood.
 - b. We aim to distinguish between different relative complementizers.
 - c. Furthermore, also the effect of negation on verb placement needs a closer investigation.
 - d. We also intend to separately investigate complex and simple predicates;
 - e. Finally, the specific diachronic stages of the English and of the German language need to be analyzed. In the course of time, mood was actually lost in subordinate contexts. This change needs to be addressed together with other phenomena, namely the rise of auxiliaries or non finite complementation (Los 2005, Biberauer and Roberts 2008), and the loss of inflection (Van Gelderen 1997). Moreover, the different dialects of Middle English may display diachronic differences with respect to verb position (cf. Kroch and Taylor 2000). Furthermore, verb position had a different development in English with respect to the other Germanic languages (cf. Kiparsky 1996).

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Appendix

Logistic regression models and sample model outputs: we show just one run of the 10 iterated re-runs on the re-sampled data:

Complement clauses

```
Call:
glm(formula = pos.c ~ Cat, family = binomial(link = "logit"),
     data = d.that)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.0439  -0.8970   0.1440   0.4966   1.4866

Coefficients:
              Estimate Std. Error z value      Pr(>|z|)
(Intercept)  -0.70275    0.03925 -17.906 < 0.0000000000000002 ***
Catindicative 0.38027    0.05422   7.013   0.000000000000233 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 2407.9  on 5862  degrees of freedom
Residual deviance: 2358.4  on 5861  degrees of freedom
(1 observation deleted due to missingness)
AIC: 7104.5

Number of Fisher Scoring iterations: 3
Number of Fisher Scoring iterations: 3
```

Adverbial clauses

```
Call:
glm(formula = pos.c ~ Cat, family = binomial(link = "logit"),
     data = d.adv)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-0.86736  -0.72561   0.04251   0.38705   1.71077

Coefficients:
              Estimate Std. Error z value      Pr(>|z|)
(Intercept)  -0.78379    0.03525 -22.237 < 0.0000000000000002 ***
Catsubjunctive -0.41632    0.05240  -7.944 0.0000000000000195 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 3550.8  on 7477  degrees of freedom
Residual deviance: 3487.1  on 7476  degrees of freedom
(2 observations deleted due to missingness)
AIC: 7035.2

Number of Fisher Scoring iterations: 4
```

Relative clauses

```

Call:
glm(formula = pos.c ~ Cat, family = binomial(link = "logit"),
    data = d.rc)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-0.7834 -0.7834 -0.6930  0.5015  1.7575

Coefficients:
              Estimate Std. Error z value      Pr(>|z|)
(Intercept)  -1.02406    0.08038  -12.740 <0.0000000000000002 ***
Catsubjunctive -0.28019    0.11840   -2.366    0.018 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 1211.9  on 1583  degrees of freedom
Residual deviance: 1206.3  on 1582  degrees of freedom
(18 observations deleted due to missingness)
AIC: 1470.3

Number of Fisher Scoring iterations: 3

```

TOTAL (independent of Clause Type):

```

Call:
glm(formula = pos.c ~ Cat, family = binomial(link = "logit"),
    data = d.all)

Deviance Residuals:
    Min       1Q   Median       3Q      Max
-0.92836 -0.79122 -0.03527  0.49057  1.62107

Coefficients:
              Estimate Std. Error z value      Pr(>|z|)
(Intercept)  -0.61863    0.02426  -25.50 <0.0000000000000002 ***
Catsubjunctive -0.38229    0.03565  -10.72 <0.0000000000000002 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 7374.3  on 14924  degrees of freedom
Residual deviance: 7258.5  on 14923  degrees of freedom
(21 observations deleted due to missingness)
AIC: 15874

Number of Fisher Scoring iterations: 3

```