

Measuring the Establishment of the Canonical Subject Position in Early English

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Abstract

A hypothesized syntactic slot, called *Spec,IP*, is assumed to develop into a general subject position over the course of Old, Middle and Early Modern English. This theory predicts that several constructions should develop canonical subjects at the same rate of change. The establishment of a generalized subject position is measured in three different contexts - matrix clauses, subordinate clauses and cases of rigid subject-verb inversion. It can be shown statistically that canonical subjects do indeed rise at the same rate of change in all of them.

1 Introduction

In Modern English, subjects - defined as nominative NPs that agree with the finite verb - are almost unvaryingly placed in a pre-verbal position in declarative contexts. In earlier stages of the language, however, subject placement was considerably more variable. The subject could be placed low in matrix clauses if other constituents preceded the finite verb, which often created verb-second patterns (1). It could also occur post-verbally in subordinate clauses where the finite verb or some other material immediately followed the subordinator (2). Lastly, it could be positioned low in rigid subject-verb inversion contexts, like direct questions or the *then+verb* construction, if it was not immediately adjacent to the finite verb (3). Here, and throughout the paper, subjects are underlined.

- (1) þurch blod is in hali boc sunne bitacned.
through blood is in holy book sin betokened
'Sin is symbolized by blood in the Holy Book'
(CMANCRIW-1,II.89.1076, c. 1220)
- (2) ... Schein, wher was a mariag mad between the lord Lisle and the ladi Anne
(King Edward VI Diary, c. 1550)
- (3) ða cwoman us þær on ðæm wege twegen ealde men togeanes.
then came us there on the way two old men towards
'Then, two old men came there on the way towards us'
(coalex,Alex:32.1.399, c. 870)

This paper summarizes a corpus study on the establishment of the canonical subject position in early English in the three contexts exemplified in (1)-(3). Section 2 hypothesizes that, given a particular theory of subject placement in early English, the development of canonical subjects should proceed at the same rate of change in all of them. Section 3 describes the methodology and results of the quantitative study measuring the rise of canonical subjects. Section 4 shows in statistical terms that the three contexts investigated do indeed change at the same rate. Section 5 concludes.

2 Subject Positions in Early English

Subjects could be placed in four distinct positions in early English. Firstly, they could occur in the same structural slot as Modern English canonical subjects. I will refer to this position as Spec,IP, the specifier of a functional projection above VP. For example, Spec,IP can be identified as the position immediately following complementizers in subordinate clauses, (4).

- (4) ... forþan ðe God wolde þa forð gangan on menniscne lichaman.
 ... because God would then forth go on human body
 ‘... because God would then live in a human body’
 (comart2,Mart.2.1-[Herzfeld-Kotzor]:Ju24,A.15.3)

Secondly, subjects could occur in a syntactic slot above Spec,IP in matrix clauses, which I will call Spec,CP. This position was (and still is) the locus of topicalized elements, such as *Bagels* in [_{CP} *Bagels*, *I like*]. In early English, subjects in Spec,CP could be identified, for example, through scrambled pronouns that occur at the CP-IP boundary, (5).

- (5) min God [me] asende to ___ sona his engel
 my God me sent to soon his angel
 ‘My God sent his angel to me at once’
 (coaelhom,ÆHom.22:326.3470)

I will collectively refer to subjects in Spec,IP or Spec,CP as ‘high subjects.’

Third, subjects could appear low in the syntactic structure. I will assume that such subjects are VP-internal. They can be identified by structures that show subjects after a syntactic element that indicates the left VP boundary, like adjuncts, but before another VP element, like particles. This is illustrated in (6), where the adjunct *every night* indicates the beginning of the VP while the stranded preposition *to* disambiguates its end (see also (1)-(3)).

- (6) Hire com ælce niht [_{VP} sumes haliges wifes gast to]
 her came each night some holy woman’s gost to
 ‘Every night, the spirit of some holy women came to her’
 (comart1,Mart.1-[Herzfeld-Kotzor]:De25,B.10.26)

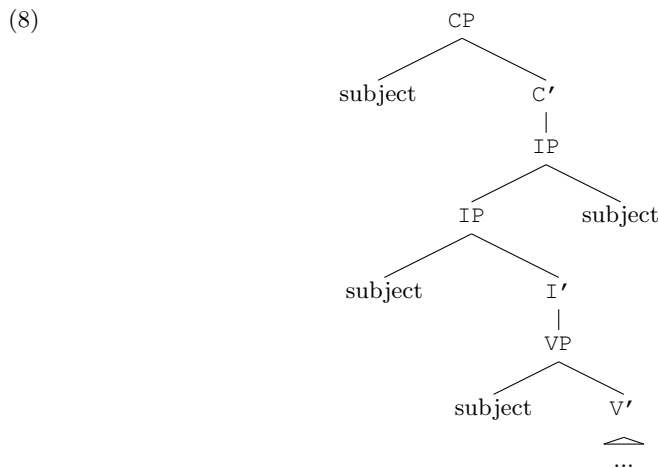
I will call subjects in Spec,VP, ‘low.’

Finally, subjects could be extraposed. Extraposition is modeled as rightward adjunction to IP and can be identified by subjects that occur after certain diagnostic elements, like non-finite verbs. This is illustrated in (7).

- (7) On þisum geare eac æt Heamstede innan Barrucscire. wæs gesewen
 in this year also at Hamstead in Berkshire was seen
blod of eorðan.
 blood from earth
 ‘In this year, too, blood was seen [rising] from the earth at Hamstead in Berkshire’
 (Chronicle4.cochronE,ChronEꞮPlummer]:1103.12.3391)

I will not be concerned with extraposed subjects here.

A schematic syntactic tree of the four subject positions is shown in (8).



My theory is that Spec,IP used to be able to host non-subject material or not project at all, but that it gradually developed into the canonical subject position of Modern English. By the time the textual transmission of Old English begins, this change is well underway so that most subjects are already compatible with a Spec,IP parse even in the earliest textual records.

This theory predicts that all surface construction are affected uniformly by the increasing requirement to put an overt subject in Spec,IP. Therefore, canonical subjects should increase at one constant rate of change independently of the specific construction that they appear in. In other words, the rise of canonical subjects should display a so-called Constant Rate Effect (Kroch, 1989). I will investigate this hypothesis by comparing the ratios of high to low subjects diachronically in three independent contexts: declarative matrix clauses, subordinate clauses and rigid subject verb inversion contexts.

3 Measuring the Rise of Canonical Subjects

The data for this study came from three parsed corpora of historical English, the *York Parsed Corpus of Old English Prose* (Taylor et al., 2003) for Old English (c. 850-1100), the *Penn-Parsed Corpus of Middle English 2* (Kroch & Taylor, 2000) for Middle English (c. 1100-1500) and the *Penn-Parsed Corpus of Early Modern English* (Kroch et al., 2003) for Early Modern English (c. 1500-1700). The data was coded and collected with *CorpusSearch 2* (Randall, 2004).

Only full subjects were considered for this study. Full subjects were defined as subjects that do not only dominate a pronoun or dominate more than one word. Pronominal subjects do not display variability in their positioning and were therefore ignored.

The dependent variable, ‘Subject position,’ was coded as either ‘High’ or ‘Low’ for all sentence tokens according to the conditions outlined below. The major independent variable was ‘Time.’ Each of the 348 texts in the dataset was assigned an approximate but specific date of composition. Further, it has been pointed out that information structure plays a crucial role in early English subject placement. Subjects occur low significantly more frequently if they are information-structurally new (e.g., Speyer, 2010; Biberauer & Kemenade, 2011). For this reason, ‘Definiteness’ was included as a second independent variable. Since definite subjects, which include demonstratives, possessives, or proper names, are more likely to have been mentioned before in the discourse than indefinite subjects, which do not include any such elements, definiteness can function as a proxy for information structure. I will not discuss here the relevance of other independent variables, such as the heaviness of the subject or different verb types.

Sentences tokens in which a full subject co-occurs with the word *there* were ignored. Such structures develop into Modern English *there*-expletive constructions, in which the associate of the expletive still occurs low. The inclusion of such clauses would have disrupted the otherwise coherent diachronic trajectory of the change.

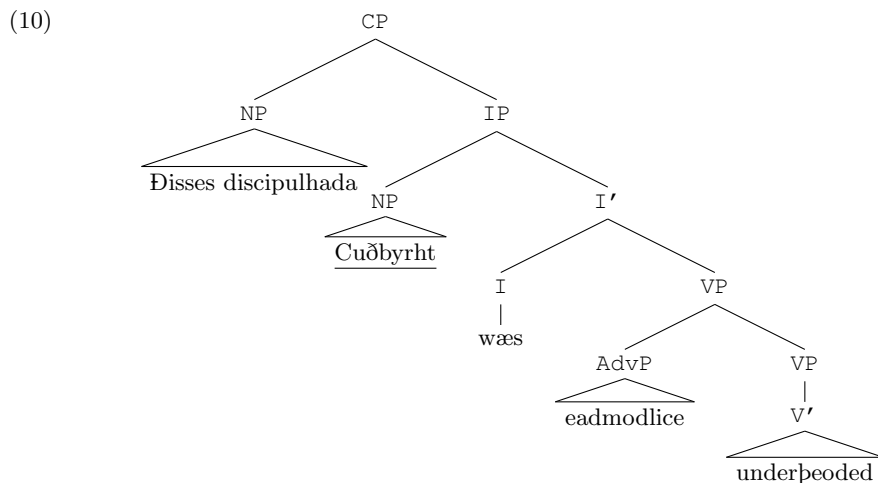
3.1 Context 1: Declarative Matrix Clauses

The first context consists of declarative matrix clauses. In Old English, the finite verb is often placed high in the clause, but, rarely, matrix clauses can also be verb-final (Pintzuk, 1999). Matrix clauses were categorized as “verb-early” if the finite verb was followed by a post-verbal VP element. Relevant VP elements were defined as particles, pronouns, stranded prepositions, noun-phrases and adjective phrase that are not particularly heavy (less than 4 words), small clauses and non-finite verbs. Subjects that appear before the finite verb in such configuration were counted as high, (9a). If an Old English clause is verb-final, however, a pre-verbal subject may not nec-

essarily indicate a high subject position. Thus, subjects in verb-final clauses were classified as high only when at least three other constituents followed the subject, (9b). I assume that later stages of English do not have verb-final structures. Thus, any pre-verbal subject is in the canonical subject position even if some appositive material intervenes between subject and verb, (9c).

- (9) a. Ðisses discipulhada Cuðbyrht wæs eadmodlice underþeoded
to-this disciplehood Cuthbert was humbly submitted
‘Cuthbert humbly submitted to his training’
(cobede,Bede_4:28.360.33.3629)
- b. Sume men ðonne of hiora scome þa wætan for þæm nyde þigdon.
some men then from their shame the water for the need consumed
‘Some men in their need consumed the liquid from their private parts.’
(coalex,Alex:13.16.118)
- c. Thys gentyلمان in the meane whyle departed out of the churche.
(MERRYTAL-E1-P2,69.130)

A tree for the hypothesized structure of (9a) is shown below. Note that the subject occurs high, in Spec,IP.

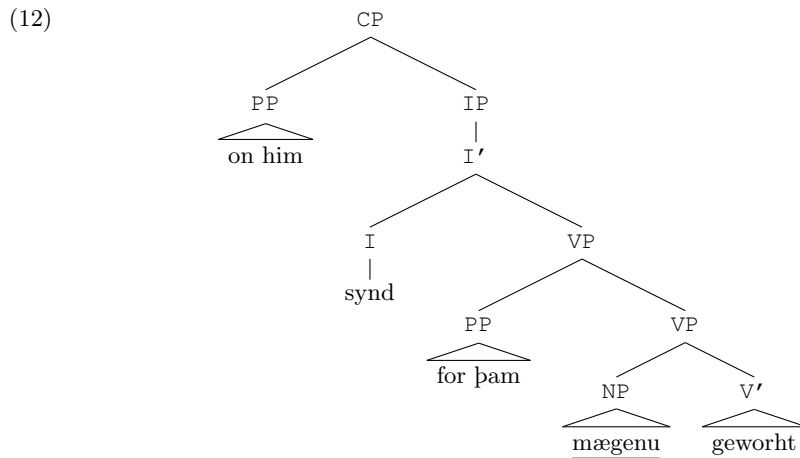


Subjects were classified as low if they occurred after the finite verb and, in addition, before a VP element. The additional VP element was defined as above and its presence was required in both Old English as well as later language stages in order to ensure that the subject was in fact inside the VP and not extraposed, (11a). In addition, subjects were counted as low if they occurred after at least three constituents in Old English verb-final clauses, (11b).

- (11) a. & on him synd for þam mægenu geworht.
and on him are for that miracles wrought
‘And therefore myracles are wrought by him.’
(cowsgosp,Mk-[WSCp]:6.14.2577)

- b. & eft ymb lytel ge þa gesculdru ge eft þone neweseoþan
 and again about little both the shoulder and again the bowels
 þæt sar gret
 that sore meets
 ‘and after a little while, the pain takes hold of both the shoulder as well as
 the bowels.’
 (colaece,Lch.II.2:46.1.5.3024)

A tree for the parse assumed for (11a) is given below. The subject is placed inside the VP.



The search queries returned 58,855 relevant matrix clauses. Figure 1 plots the ratio between high and low subjects against time. Here, and in the following graphs, every data point corresponds to one text in the corpora. Their size is proportional to the number of examples found in each text such that a standard size point character represents 25 examples. In addition, there is a regression line from a logistic regression model with ‘Time’ as the only predictor.

As the graph shows, there is a coherent increase in canonical subjects during the Old and Middle English periods. The rate of high subjects, as measured by the current methodology, increases from c. 80% in 850 to basically 100% by around 1400.

There are a few outliers in the early 16th century that show far more low subjects than would be expected. These are almost entirely due to a formulaic expression, *To x be this delivered*, in letters associated with the Plumpton family. Two examples are shown below.

- (13) a. To my right worshipfull and my especiall good father Sir Robart Plumpton,
 kt. be thes delivered.
 (WPLUMPT-1510-E1-H,220.3)
- b. To Sir Robart Plumpton, knight, being lodged at the Angell behind St.
 Clement Kirk, without the Temple barr, at London, be these delivered.
 (RPLUMPT2-E1-P1,172.13)

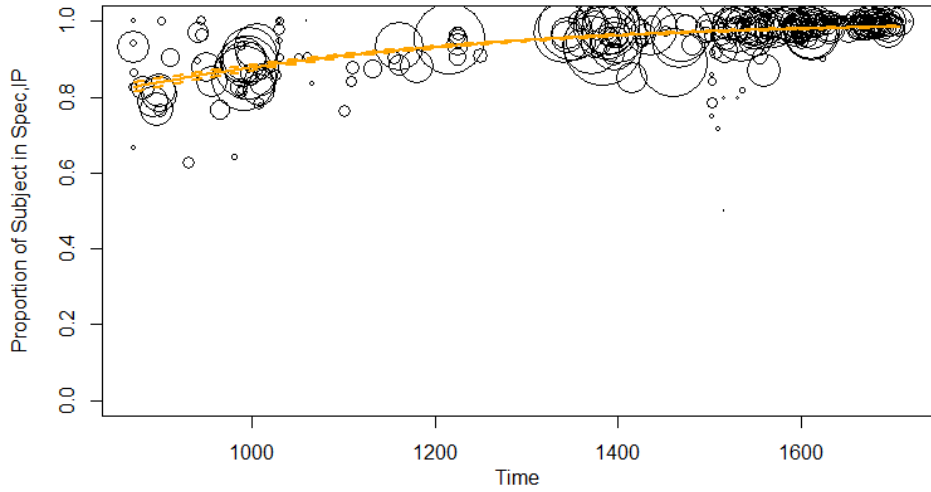


Figure 1: The development of canonical subjects in matrix clauses

Table 1 presents a simple logistic regression model that predicts from the independent variables ‘Time’ and ‘Definiteness’ the outcome of the dependent variable as a high as opposed to a low subject.

| Coefficients: | Estimate | Std. Error | z-value | Pr(> z) |
|-------------------|----------|------------|---------|-----------|
| (Intercept) | -0.9629 | 0.09698 | -9.929 | <.001 *** |
| Time | 0.003104 | 0.00007656 | 40.545 | <.001 *** |
| DefinitenessINDEF | -0.6969 | 0.04450 | -15.660 | <.001 *** |

Null deviance: 5720.0 on 4332 degrees of freedom
Residual deviance: 3703.4 on 4330 degrees of freedom
AIC: 5508.5

Table 1: Logistic regression model for matrix clauses

The model returns both predictors as significant. Their effect size is quantified in terms of the change in the log-odds ratios. For every one year increase, the model predicts that the log-odds of finding a high subject as opposed to a low subject increase by 0.0031. The log-odds of finding a high subject as opposed to a low subject are estimated to be lower by 0.697 for indefinite than for definite subjects. The overall model fits reasonably well (e.g. Nagelkerke Pseudo- $R^2 = 0.508$) and is in line with the expected tendencies.

3.2 Context 2: Subordinate clauses

Subordinate clauses with an overt subordinator formed the second context for this study. The following types of subordinate clauses were searched for:

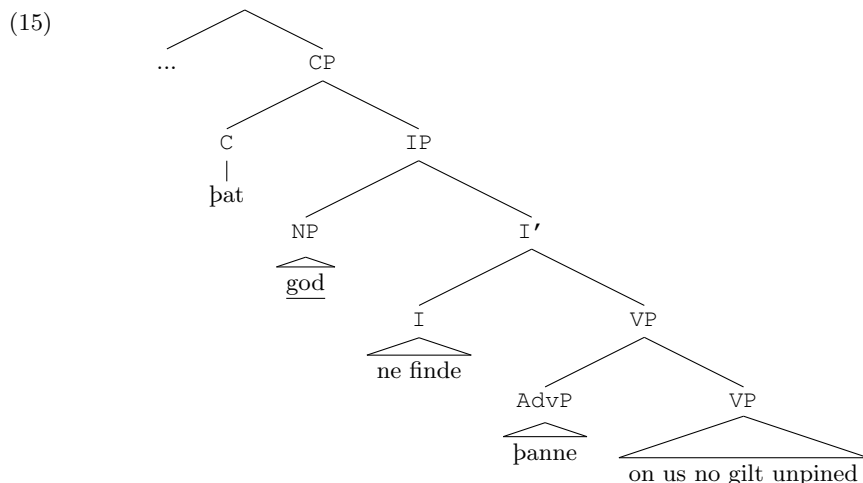
(i) complement, degree and consecutive adverbial *that*-clauses, (ii) all other adverbial clauses, (iii) indirect questions, as well as (iv) non-subject relative, free relative, clause-adjoined relative and clefted clauses.

Subordinate clauses are often verb-final in early English. Since verb-final patterns persist even into the Middle English period, the coding queries distinguished between “verb-early” and verb-final configurations for all languages stages, and not just - as for matrix clauses - for the Old English texts.

If the subject occurred before the finite verb, which in turn was followed by a VP element, it was classified as high. Relevant VP elements were defined exactly as in the previous context, i.e. as particles, pronouns, stranded prepositions, noun-phrases and adjective phrase that are not particularly heavy (less than 4 words), small clauses and non-finite verbs, (14a). In verb-final clauses, the subject must be initial and precede at least two more constituents, (14b).

- (14) a. ... þat god ne finde þanne on us no gilt unpined.
 ... that God not finds then on us no guilt unpunished
 ‘... that God does not find any unpunished sins in us then’
 (CMTRINIT,69.963)
- b. ... ccc & xcvi wintra þæs þe his cyn ærest Westseaxna lond on
 ... 300 and 96 years that that his kin first of-West-Saxons land from
 Wealum geodon.
 Welsh received
 ‘... 396 years since his kin first received Wessex from the Welsh’
 (cochronA-1,ChronA-[Plummer]:0.41.51)

The syntactic tree in (15) illustrates the structure assumed for subordinate clauses with high subjects.

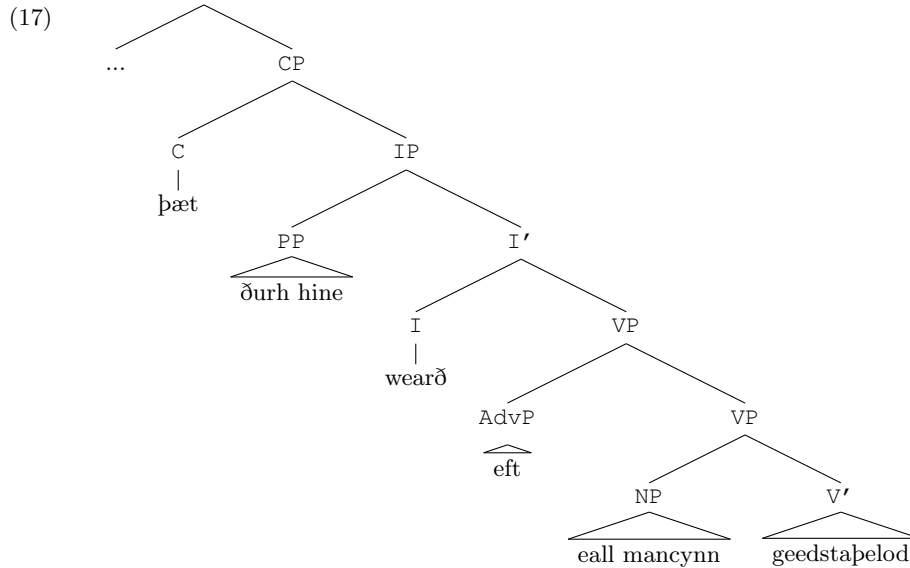


Low subjects had to follow the finite verb. In addition, an additional post-subject VP element was required, defined as above, in order to exclude

structures with subject extraposition. Relevant sentences either show an intervening constituent between subordinator and finite verb, (16a), or are verb-initial, (16b). For verb-final clauses, the subject must be preceded by at least two constituents to count as low, (16c).

- (16) a. ... swa þæt ðurh hine wearð eft eall mancynn geedstapelod.
 ... so that through him was again all mankind restored
 ‘so that all mankind was again restored by him’
 (coelive,ÆLS_[Memory_of_Saints]:22.3347)
- b. ... þæt mot se ðe wyle mid soþum læcecraefte his lichaman getemprian
 ... that may he who wants with true leechcraft his body cure
 ‘... that he who wants to may cure his body with true leechcraft’
 (cocathom1,ÆCHom_I,31:450.315.6332)
- c. ... þæt in þære mægðe Eastseaxna of dæle Cristes geleafa aidlad
 ... that in the province of-East-Saxons in part Christ’s faith annuled
 wære
 were
 ‘... that Christ’s faith was abandoned in part in the province of Essex’
 (cobede,Bede_3:22.250.17.2554)

Example (17) shows the syntax assumed for subordinate clauses with a low subject in Spec,VP. Note that non-subject material can appear in Spec,IP.



There are 9,363 subordinate clauses that include high or low subjects. Figure 2 plots the proportion of high subjects against time.

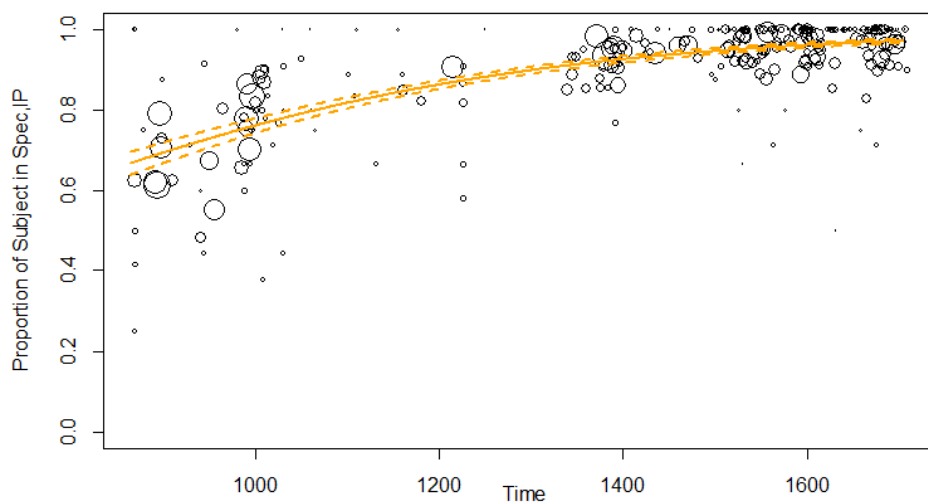


Figure 2: The development of canonical subjects in subordinate clauses

The graph shows that the frequency of canonical subjects steadily rises in subordinate clauses, from c. 70% in 850 to better than 95% in 1700. There is only one major reason why canonical subjects are not found in 100% of all subordinate clauses by the end of the Early Modern English period: They can still occur in locative relative or clause-adjoined relative clauses, especially with auxiliary or unaccusative verbs. Relevant examples are given in (18).

- (18)
- a. ... the highest Mountain on the Island, on whose Summit was a miraculous Piece hewed out of solid Stone:
(FRYER-E3-P1,1,194.6)
 - b. ... in sight of High Lake where were many shipps rideing along that harbour.
(FIENNES-E3-P2,180.287)
 - c. ... Nigellus, of whom be no verye famose thinges written.
(LELAND-E1-P2,123.409)
 - d. ... issues or passages that are called Meates, through whom passeth the spirit of life too and fro. (VICARY-E1-H,31.42)
 - e. ... whereby also shall well appeare this sentence to be most trewe
(ASCH-E1-H,54R.137)
 - f. ... Wherbie was nothing else ment
(ASCH-E1-H,19V.110)

Low subjects become impossible in adverbial clauses or indirect questions after about 1300. Similarly, *that*-clauses include low subjects only sporadically from that time on, namely in cases where a prominent constituent is placed immediately after the subordinator and the finite verb in second position. An example is shown in (19).

- (19) ... To which objection thus I answer, That - at low water, the sea being ebd away, and a great part of the sand bare; vpon this same sand being mixed with rockes and cragges - did the Master of this great worke build a round circular frame of stone

(JOTAYLOR-E2-H,1,132.C2.152)

A logistic regression model for the rise of canonical subjects in subordinate clauses is shown in Table 2. As before, it includes the predictors ‘Time’ and ‘Definiteness.’

| Coefficients: | Estimate | Std. Error | z-value | Pr(> z) |
|-------------------|------------|------------|---------|-----------|
| (Intercept) | -1.6661605 | 0.1570297 | -10.61 | <.001 *** |
| Time | 0.0031840 | 0.0001282 | 24.83 | <.001 *** |
| DefinitenessINDEF | -1.0141628 | 0.0718119 | -14.12 | <.001 *** |

Null deviance: 3902.4 on 3665 degrees of freedom
Residual deviance: 2851.9 on 3663 degrees of freedom
AIC: 3662.7

Table 2: Logistic regression model for subordinate clauses

The model returns both predictors as significant. The log-odds of finding a subject in Spec,IP are estimated to increase by 0.0032 per year, and to decrease by 1.0142 for indefinite subjects. There are quite a few outliers and so the model fit is not ideal (e.g. Nagelkerke Pseudo $R^2 = 0.315$). Overall, however, the model conforms to the expected generalizations in the data.

3.3 Context 3: Clauses with rigid subject verb inversion

The last context I will be concerned with here consists of clauses that always invert the finite verb with the subject even when it is pronominal. In such cases, the finite verb is assumed to occur under C, which is why such word order configurations are also referred to as “V-to-C” contexts. Specifically, I included (i) direct questions, (ii) negative verb-first matrix clauses, (iii) *then*+verb structures and (iv) verb-first conditionals for this investigation.

Since the finite verb is always placed under C, the variable headedness of IP is irrelevant. Therefore, the search queries did not distinguish between clauses with “early” verbs and verb-final structures.

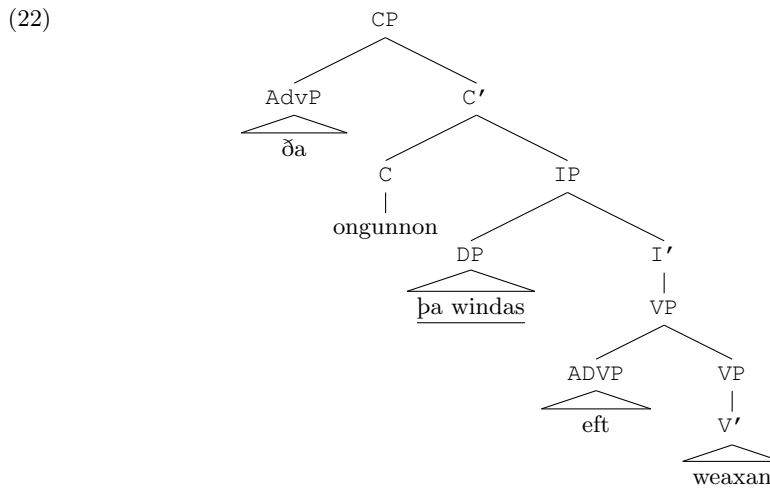
A subject was considered high if it occurred before at least one constituent, as an instantiation of the left edge of the VP, followed by a VP constituent, defined once again as in the previous two contexts. Example (20a) illustrates for the *then*+verb construction, example (20b) for verb-first conditional clauses.

- (20) a. ða ongunnon þa windas eft weaxan
 then began the winds again grow
 ‘Then the winds grew strong again
 (coalex,Alex:30.9.373)
- b. it had been utterly impossible to have drawn Breath in this Place, had not
 the late unusual Rain something allayed the Fury of the Heats
 (FRYER-E3-P1,2,188.105)

In most cases, the subject was positioned immediately after the finite verb. However, Old English pronouns, (21a), or single adverbs, (21b), were allowed to intervene between verb and subject.

- (21) a. þa becom him Antigones mid firde on
 then came him Antigones with troop against
 ‘Then, Antigones came against him with an army’
 (coorosiu,Or_3:11.79.22.1575)
- b. Did euer any man by his death deliuer another man from death
 (HOOKER-B-E2-P1,48.133)

The tree below indicates the phrase structure assumed for (20a).

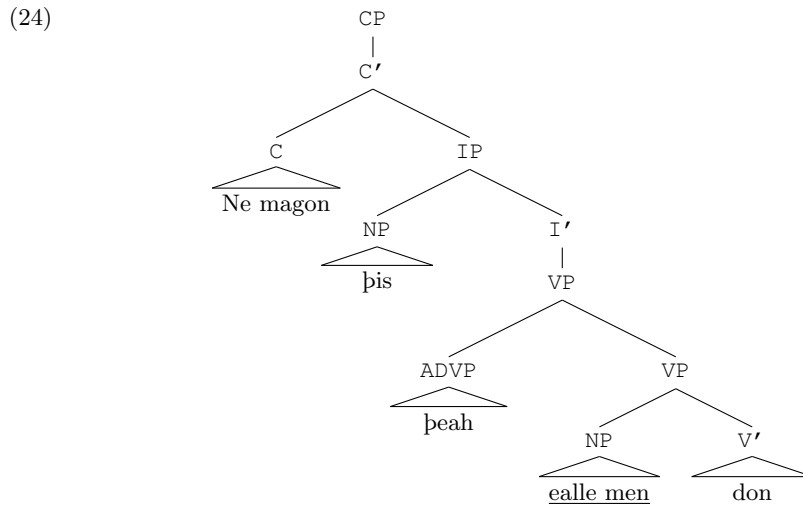


Subjects were categorized as low if they appeared after a non-pronominal noun phrase, (23a), a prepositional phrase, (23b), or some other adjunct or more than one light adjunct (23c).

- (23) a. Ne magon þis þeah ealle men don
 not may this however all men do
 ‘All men cannot do this however’
 (coblick,HomS_10_[BIHom_3]:37.208.499)
- b. ðonne wyrð þurh Godes mihte sona deofol swyðe geyrged
 then becomes through God’s might soon devil greatly terrified
 ‘Then, the devil will be greatly terrified by God’s might’
 (cowulf,WHom_8c:30.602)

- c. Nis þe nu git nan unabrendlic broc getenge
 not-is you now yet no intolerable affliction near
 ‘There is no intolerable affliction affecting you’
 (coboeth,Bo:10.23.4.381)

The tree in (24) exemplifies the structure assumed for low subjects in rigid subject verb inversion contexts. Note that Spec,IP can host non-subject material.



I found 2,011 examples of rigid subject verb inversion contexts with high or low subjects. The development of canonical subjects in this context is presented in Figure 3 below.

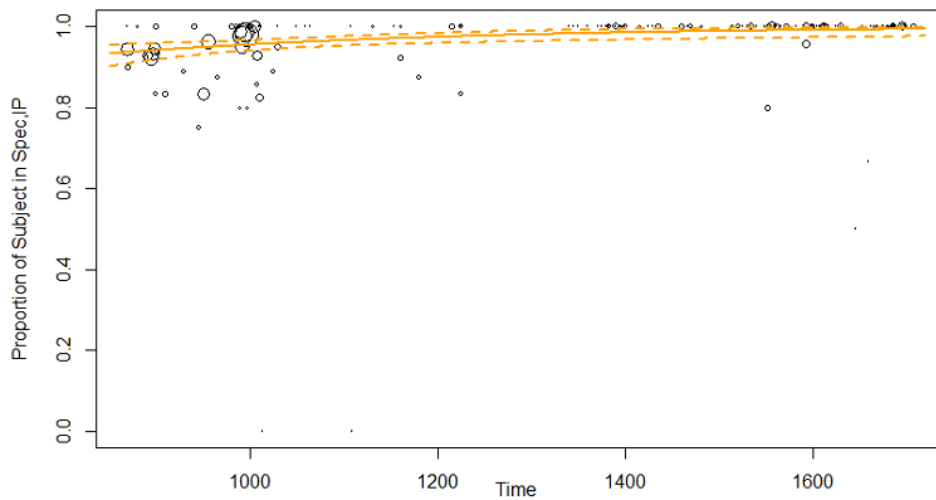


Figure 3: The development of canonical subjects in inversion contexts

Canonical subjects are very wide-spread in clauses with rigid subject verb inversion even in the earliest English textual records, accounting already for

c. 90% of all cases in early Old English. They become completely regularized by around 1300.

There are far fewer relevant examples here than in the previous two contexts. For that reason, even small counts of low subjects will register as outliers in the graph. For example, in a textbook by Welsh mathematician Robert Recorde from 1551, there happen to be two examples of subjects that were categorized as low because they appear after the adverbially used noun *need* ‘by necessity.’

- (25) a. If the summe of mounye in my purse, and the mony in your purse be equall eche of them to the mony that any other man hathe, then must needes your mony and mine be equall togyther.
(RECORD-E1-P2,2,B2V.47)
- b. Likewise, if anye ij. quantities, as A and B, be equal to an other, as vn to C, then muste nedes A. and B. be equall eche to other
(RECORD-E1-P2,2,B2V.48)

Otherwise, there do not appear to be any discernible regularities in the small number of low subjects in subject verb inversion contexts after the Old English period.

Table 3 presents a simple logistic regression model with the predictors ‘Time’ and ‘Definiteness’ for this context.

| Coefficients: | | | | |
|-------------------|------------|------------|---------|-----------|
| | Estimate | Std. Error | z-value | Pr(> z) |
| (Intercept) | 0.1661104 | 0.8824690 | 0.188 | 0.850693 |
| Time | 0.0033359 | 0.0008777 | 3.801 | <.001 *** |
| DefinitenessINDEF | -1.5259854 | 0.2916284 | -5.182 | <.001 *** |

Null deviance: 306.97 on 514 degrees of freedom
Residual deviance: 271.78 on 512 degrees of freedom
AIC: 348.4

Table 3: Logistic regression model for inversion contexts

Once again, the two independent variables are returned as significant. The log-odds of realizing the subject in the canonical subject position are estimated to increase by 0.0033 per year. The log-odds of high subjects are lower by 1.52 for indefinite than for definite subjects. The overall model fit is relatively poor (e.g. Nagelkerke Pseudo-R² = 0.183). Nevertheless, the model further corroborates the significance of the main effects time and subject definiteness for the change under investigation.

4 Demonstration of a Constant Rate Effect

I will now show that the rise of high subjects proceeds at the same rate of change in the three contexts investigated in the previous section. The presence of a Constant Rate Effect in the data lends further support to the assumption that the parallel developments do in fact result from the same underlying cause, i.e. the establishment of Spec,IP as the canonical subject position.

First, I will compare the slope parameters from the three independent logistic regression models presented in the previous section. Table 4 repeats the coefficients for the predictor ‘Time’ and also gives their respective 95% confidence intervals.

| Model | Time Coefficient | 95% Confidence Interval |
|---------------------|------------------|-------------------------|
| Matrix clauses | 0.003104 | [0.002954, 0.003254] |
| Subordinate clauses | 0.003184 | [0.002935, 0.003437] |
| Inversion contexts | 0.003336 | [0.001803, 0.005292] |

Table 4: Time coefficients of logistic regression models

The three slope parameters are fairly close to each other. Their 95% confidence intervals overlap considerably and it seems quite plausible that they center around a common mean. The identity of the slope parameters can also be assessed visually by plotting the logistic transform of constructions with high subjects against time, which flattens the sigmoid curve into a straight line. If canonical subjects spread at the same speed in the three contexts, the tree lines should be parallel to each other. Figure 4 shows the logits of canonical definite subjects.

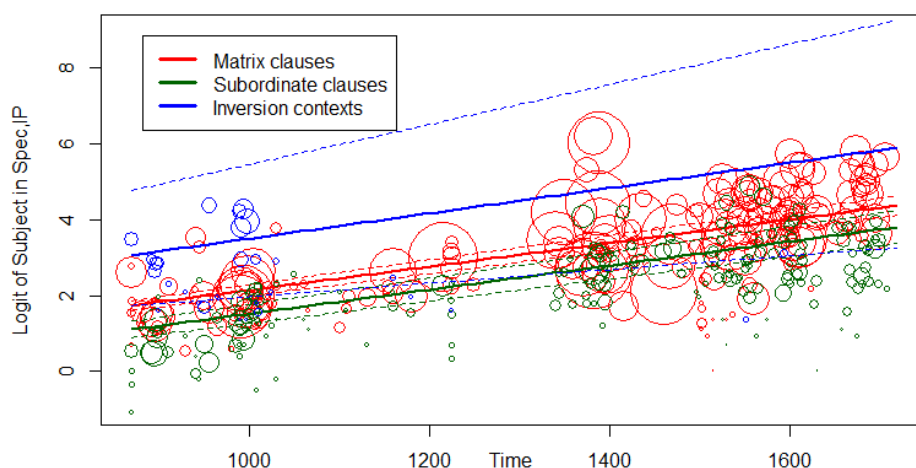


Figure 4: Logits of high subjects in the three contexts

As Figure 4 shows, the rate of change from low to high subjects does indeed seem to be identical since the three lines run approximately parallel to each other for matrix clauses (red line), subordinate clauses (green line) and inversion contexts (blue line).

Secondly, it is possible to test if the three time coefficients are significantly different from each other. To do this, a combined logistic regression model must be fitted to the data that includes ‘Context’ as an additional variable with the values ‘matrix clause’, ‘subordinate clause’ and ‘inversion contexts.’ As it turns out, this variable is a significant predictor for the position of the subject in a model that otherwise includes ‘Time’ and ‘Definiteness’ as independent variables. Next, an interaction term between ‘Time’ and ‘Context’ must be added to the model. This interaction effect will allow the regression lines to have different slopes for every context. If the three contexts truly develop in the same manner, the addition of the interaction effect to a model with only main effects will not significantly improve the model fit. If a model is superior that allows the three contexts to develop differently from each other, the ‘Time’ - ‘Context’ interaction variable will significantly improve the model fit. Table 5 presents an Analysis of Deviance table comparing a model with to a model without the interaction effect.

Model 1:

SubjectPlacement ~ Time + Definiteness + Context

Model 2:

SubjectPlacement ~ Time + Definiteness + Context + Time*Context

| Model | Resid. | Df | Resid. | Dev | Df | Deviance | Pr(>Chi) |
|-------|--------|----|--------|-----|----|----------|----------|
| 1 | 1333 | | 2289.7 | | | | |
| 2 | 1331 | | 2288.9 | | 2 | 0.79645 | 0.6715 |

Table 5: Analysis of Deviance table for combined model

As table 5 shows, the ‘Time’ - ‘Context’ interaction term does not significantly reduce the residual deviance. That means that the addition of the interaction term does not constitute a significant improvement over a model with the independent variables ‘Time’, ‘Definiteness’ and ‘Context’ only. Therefore, this result supports the hypothesis that canonical subjects become generalized at the same rate of change in all contexts.

5 Conclusion

This paper provided quantitative data on the rise of the canonical subject position in the history of English. It presented a theory of subject placement in early English in which one underlying position, identified as Spec,IP, becomes a generalized host for subjects in all relevant constructions. This hypothesis could be supported by the fact that three independent contexts - matrix, subordinate and subject verb inversion clauses - all undergo the fixation of the canonical subject position at the same rate of change.

The theory also predicts that there be changes in other constructions that should be directly affected by the changing nature of Spec,IP but that were not considered here. For example, as long as Spec,IP did not necessarily have to be projected, *that*-clause associates could occur without overt expletives, (26a). However, once Spec,IP had developed its Modern English properties, all clauses required the presence of a formal subject and so overt expletives became the norm, (26b).

- (26) a. þa wearð gefylled [þæt his swiðre hand wunað hal]
then was fulfilled that his right hand lived whole
‘Then it was fulfilled that his right hand was made whole’
(coalive_ÆLS_[Oswald]:169.5477)
- b. Hit wearð þa gefylled [þæt ealle ða femnan gewytan of worulde]
EXPL was then fulfilled that all the women departed of world
‘It was then fulfilled that all those women departed of this world’
(coalive_ÆLS_[Julian_and_Basilissa]:96.994)

Therefore, the rise of overt expletives should follow the same diachronic trajectory as the changes investigated in this paper. These and other related hypotheses will be evaluated in future research.

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