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Parameters of variation between verb–subject and subject–verb order in late Middle English¹

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This article sets out to clarify the contribution of syntactic properties and subject weight for variation between verb–subject and subject–verb order in a database of fourteenth- and fifteenth-century prose. It sets out the syntactic structures which are assumed, and investigates the impact on ordering of a set of factors, using established quantitative methodologies. A series of conclusions includes the continuing distinct status of initial *then*, the systematic importance of clause-final position, the different impacts of subject length in different contexts, and the presence of a definiteness effect for the late placement of a subject after a nonfinite unaccusative.

1 Introduction

English has lost the general V2 order of Germanic which was present in Old English, but it shows ‘residual V2’ with auxiliaries in interrogatives, after initial negatives, and in some other restricted contexts (see Nevalainen, 1997 for developments after negatives). It also retains inverted orders elsewhere with verbs (and verb groups) under specific conditions, where inversions perform pragmatic functions and typically show a strong contextual appropriacy. In some cases inversion is obligatory, in others it is optional.

- (1) (a) At issue is Section 1401(a) of the Controlled Substances Act.²
*At issue Section 1401(a) of the Controlled Substances Act is.
(b) In the year 1748 died one of the most powerful of the new masters of India.
In the year 1748 one of the most powerful of the new masters of India died.
(c) Outside stood a little angel.
Outside a little angel stood.
(d) With success would come wealth.
With success wealth would come.

¹ I am delighted to acknowledge a research readership granted by the British Academy which gave me the time to collect the data investigated here, and the comments of audiences at the XI Methods Conference (Joensuu, August 2002); at the Third York–Holland Symposium on the History of English Syntax (York, April 2004); and at seminars given in the Research Unit for Variation and Change in English at the University of Helsinki, and in the Department of Language and Linguistic Science at the University of York. I am also grateful to Wim van der Wurff and to two anonymous referees for their comments.

² Examples (a)–(c) here from Poutsma (1928), Green (1980), Stockwell (1984).

In today's English the choice of order in such clause types seems to involve both syntactic and other factors. The reversed order is clearly required with *BE* when its predicate is fronted as in (1a), and it is promoted by the presence of an unaccusative verb as in (1b–d). It has also been suggested that it involves the structuring of information. Birner (1994: 233) claimed that the ordering of examples like (1) above in a present-day corpus 'depends on the relative discourse-familiarity of the information represented by the preposed and postposed constituents', so that information that is more familiar precedes information that is less familiar, in line with the general view (variously defined, and expressed in different terms by different theorists) that 'given' information precedes 'new' information. But it may not only be the relative information status of constituents that is involved here. Wasow (2002) discusses factors which are relevant to the choice of a particular order of postverbal constituents in several constructions in Present-day English where variation in order is found. He notes that the comparative grammatical weight of a constituent (potentially defined in terms of its length or its grammatical complexity) plays a major role, with a strong tendency for less weighty constituents to precede more weighty constituents, and he goes on to suggest that utterance planning may be a crucial factor underlying this tendency. He also presents evidence that in at least some constructions weight and information structuring are distinct parameters, though in general their contribution is difficult to distinguish (2002: 69–81). Both of course are likely to reflect the planning and production, and the parsing and perception of utterances. Wasow notes more generally that the question of what factors motivate the selection of a particular order is a complex one with 'no simple answer' (2002: 109). See Culicover & Levine (2001) for some further recent discussion and analysis of inversion in Present-day English, Green (1980) and Stockwell (1984) for earlier discussion.

It is clear that information structuring and grammatical weight also had considerable importance in earlier English, as previous workers (Kohonen, 1978; Schmidt, 1980; Bækken, 1998; Bech, 2001, and others) have variously noted. This provides historians of English with an interesting series of questions about the characterization of inversions in earlier English. In particular we might ask: what are the most significant grammatical and other parameters relevant to the incidence of inversion? And how do grammatical possibilities interact with considerations of weight and information structuring in determining the distribution of different types of inversion? Answers to such questions clearly form part of any attempt to track the history of the loss of V2, or the development of further kinds of V2 in English. Bækken (1998) has provided a detailed treatment of inversion in the Early Modern period, and there are partial answers to some of these questions elsewhere, as in Schmidt (1980), who claims that there is a functional distinction between different types of inversion in late Middle English. Haeberli (2002b) has also surveyed the incidence of V2 in late Middle English, in the course of a more general survey. But we have no systematic picture of the interaction of different constructions and parameters for this period when the loss of V2 was in full swing. This is what I intend to provide here for examples with nominal subjects, and partly for examples which have personal pronouns as subjects. These are more complex since

they involve a dialectal component (Kroch & Taylor, 1997; Kroch, Taylor & Ringe, 2001), and this requires a more extended discussion than there is space for here (see Warner, in prep. a). I shall not attempt to provide an analysis of the separate contribution of information structuring. Given Wasow's (2002) discussion of the interrelationship between grammatical weight and information structuring, it is clear that the best initial treatment of the impact of these factors will involve looking at clause constituents in terms of their weight, though I will also consider definiteness, partly because of its importance for the ordering of subjects of unaccusative verbs. Further work (along the lines of Prince, 1992; Birner & Ward, 1998) on the relative newness of constituents and the discourse properties of constructions will be postponed until later. This approach has the advantage of simplicity, economy of time, and transparency.

2 Database

The database which underlies this study was collected from 32 prose sources belonging to the fourteenth and fifteenth centuries, broadly instructional or narrative in genre, but including some personal letters. The sources are listed at the end of this article.³ The aim in the first instance was to put together a database which would illuminate the dialectal distribution of V2 with pronoun subjects, but (as just noted) that is another topic. For each text I collected about 120 declarative main clause instances with an initial element liable to occur with inversion, where there was enough text for this, as is not always the case. This yielded a corpus of 3,804 examples of contexts which contain or lack inversion. I omitted verse to reduce the range of variation. Examples where inversion is not variable were omitted, so questions were not included. Subjunctives (of wish, desire, etc.), as in (2a), and imperatives were also omitted, since they clearly conditioned inversion, and would have needed a separate investigation if sufficient data to consider them properly was to be collected. Adverbial clauses or appositive material, as in (2b–d), were not counted as initial elements, since they are typically followed by an intonation break in today's English, and it is not clear that they are straightforwardly part of the following clause in the required sense. Both Bækken (1998) and Jacobsson (1951) note that adverbial clauses are uncommon with inversion. In the interests of economy, clauses introduced by most epistemic adverbials, as in (2e), were also omitted, since previous work (like that by Breivik & Swan, 1994; Bækken, 1998) had shown the occurrence of inversion to be extremely low with such adverbs. Also omitted was parenthetical *seide he/he seide* (etc.) in reported direct speech, as a potentially distinct phenomenon. The data were coded for a range of properties, and investigated using GoldVarb (Rand and Sankoff, 1990).

³ Some of the data were collected from the *Helsinki corpus of English texts* (Rissanen et al.) or from the first edition of the *Penn-Helsinki parsed corpus of Middle English*, now largely superseded by the second edition (Kroch & Taylor, 2000).

Table 1. *Overall percentage results for inversion*
(Bækken, 1998: 60)

1000	1200	1500	1600	1700
80%	60%	20%	18.5%	8.5%

- (2) (a) For-þi do we as þe apostle vs redis⁴
therefore do we as the apostle us advises
'Therefore let us do as the apostle advises us' (Arundel 135.28)
- (b) First or þou ga to mete: þou sal morne
first before you go to food you shall sorrow
'First, before you go to eat, you shall sorrow' (Arundel 150.19)
- (c) And when þis was done, Leire biganne forto make miche sorwe
and when this was done Lear began to make great sorrow
'and when this was done, [King] Lear began to sorrow greatly' (Brut 18.17)
- (d) And in this wordes: ȝyf I myght suffyr mare, I walde suffyr mare, I sawe sothly
and in these words if I could suffer more I would suffer more I saw truly
that ȝif he myght dye . . .
that if he could die
'And in these words, "If I could suffer more, I would suffer more", I saw truly that
if he was able to die . . . ' (Juliana 57.24)
- (e) and perawnter the defaute may be in thaym that hase thair saules for to kepe
and perhaps the fault may be in them that have their souls (for) to keep
and thaym sulde teche
and them should teach
'and perhaps the fault may be in those who have responsibility for their souls and
ought to teach them' (Gaytrick 30)

3 General view of inversion in the database

Overall the finite verb precedes the subject (including personal pronoun subjects) in roughly 40 percent of main clause instances where there is some clause-initial nonsubject element, and individual texts show a wide range of variation. Both facts are consistent with English being mid-change, where the change is the overall loss of V2. This fits neatly enough with what we know about the preceding and following periods. Bækken (1998: 60) presents overall percentage figures for inversion drawn from her results and from Kohonen's (1978) and these are given in table 1. A figure of some 40 percent for 1400 fits reasonably enough into this sequence. Results also compare well with those of Jacobsson (1951). He gives figures for inversions after a subset of connective adverbials (*then, now, there, here, so, yet, therefore*) in his prose database. His overall total for the period 1370–1500 is 44 percent (Jacobsson, 1951: 96); the corresponding overall figure for these adverbials in my database is 42 percent.

⁴ In this and subsequent examples, the subject and the finite verb relevant to consideration are underlined.

Examples with a nonsubject introductory element are given in (3). In (3a) the subject precedes the finite verb, in (3b) the subject follows the finite verb directly, and in (3c) the subject follows the finite verb and a nonfinite verb or a complement intervenes (the subject in such cases often being clause final). I shall call these three types ‘uninverted’, ‘inverted’, and ‘late subject’.⁵ A wide range of introductory elements occurred: objects, prepositional phrase complements, adjuncts of various types, both prepositional and adverbial, and complement infinitives and clauses.

(3) Variation in late Middle English

(a) **uninverted** order

And þen þe deuelles seiden to ham . . .
and then the devils said to them
‘And then the devils said to them . . .’ (RevPurg, line 482)

(b) **inverted** order

And þen seide þe deuelles to ham . . .
and then said the devils to them
‘And then the devils said to them . . .’ (RevPurg, line 534)

(c) **late subject** order

- (i) In here hous was nevere i-herde crye noþer noyse
in their house was never heard cry nor noise
‘In their house (neither) cry nor noise was ever heard’ (Trevisa Polychronicon 331.6)
- (ii) þanne wente out to Ion þe puple of Ierusalem
then went out to John the people of Jerusalem
‘Then the people of Jerusalem went out to John’ (Wyclifite Sermons, vol. III 124.29)

4 Syntactic analysis of V2

It is useful to start from an idealization of the situation which held in Old English, essentially following Haeberli (2001, 2002a, 2002b), developing earlier work by van Kemenade (1987), Pintzuk (1993, 1999) and others. In this idealized view, a finite verb in ‘second’ position may occur in one of two positions in clause structure: high (in C) or low (in AgrS or T, but here I will follow Haeberli in presuming that this position is AgrS). After an initial nonsubject interrogative *wh*-phrase or an initial negative *ne*, a finite verb in second position is high and it precedes both nominal and pronominal subjects. Similarly, in the case of *þa*, *þonne* ‘then’, the finite verb is almost invariably high, and in this position it precedes both nominal and pronominal subjects. The same holds to a lesser extent of *nu* ‘now’ (Koopman, 1998), and perhaps of some other adverbs.

⁵ In ‘late subject’ constructions in my corpus the finite verb is always separated from the following subject by a nonfinite verb, or a verbal complement, here including a directional phrase occurring as a complement of a verb of motion. There are a small number of instances where an adverbial adjunct or a personal pronoun object intervenes. These have not been counted as evidence of a ‘late subject’ construction, following the analysis of Haeberli (2001, and see 1999). Note that personal pronouns are arguably clitics in such constructions.

Table 2. *Possible positions for finite verb and subject in Old English*

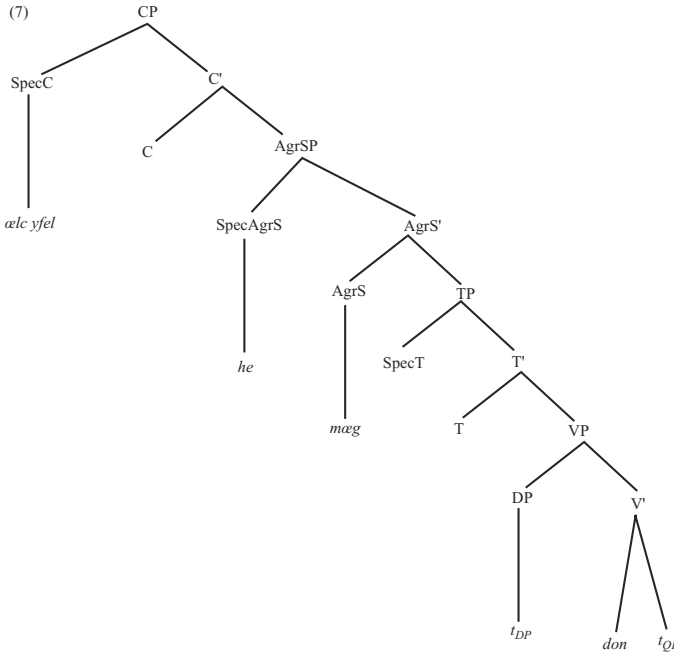
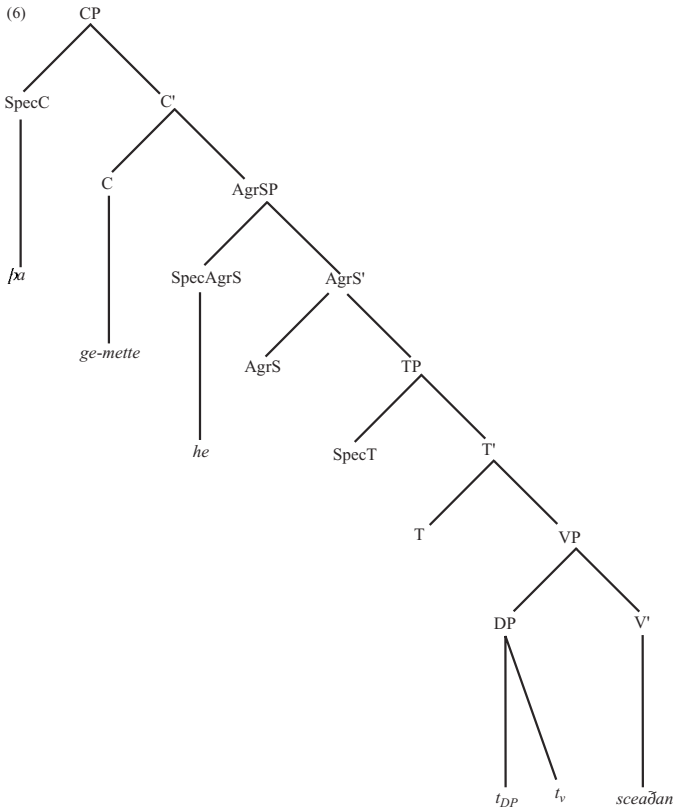
Topic position	High position for finite verb	High subject position for weak personal pronouns SpecAgrS	Low position for finite verb AgrS	Low subject position for other nominals SpecT
SpecC	C			
<i>þa, þonne</i>	finite verb	subject pronoun		
<i>þa, þonne</i>	finite verb			subject nominal
XP		subject pronoun	finite verb	
XP			finite verb	subject nominal

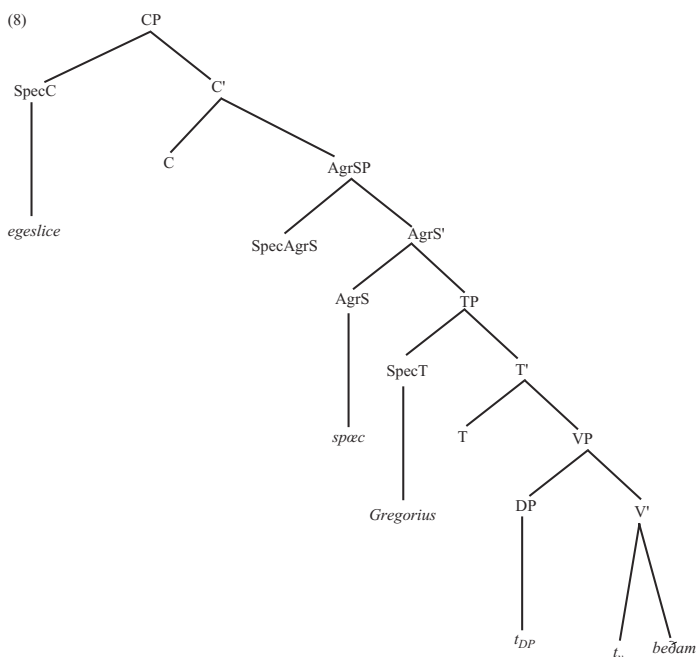
- (4) (a) *þa becom se apostol æt sumum sæle to þære byrig Pergamum*
 then arrived the apostle at some time to the city Pergamum
 ‘Then the apostle arrived at (a) certain time at the city (of) Pergamum’ (Ælfric
 Catholic Homilies 62.24; Kohonen, 1978: 121)
- (b) *þa ge-mette he sceaðan*
 then met he robbers
 ‘then he met robbers’ (ÆLS 31.151; Pintzuk, 1999: 138)

After other introductory elements, however, there is a typical contrast between pronominal and nominal subjects, in that a personal pronoun subject precedes the verb, while a nominal subject commonly follows it. The typical situation is that in (5).

- (5) (a) *ælc yfel he mæg don*
 each evil he can do
 ‘He can do each evil’ (WHom 4.62; Pintzuk, 1999: 86)
- (b) *And egeslice spæc Gregorius be ðam*
 and sternly spoke Gregorius about that
 ‘And Gregorius spoke sternly about that’ (Wulfstan 202.46; Haeberli, 2002b: 245)

Recent analysts of Old English have argued that this points to the existence of two subject positions in distinct projections; see Haeberli (2001, 2002a, 2002b), Hulk & van Kemenade (1997), van Kemenade (1999, 2000), Fischer et al. (2000), Cardinaletti and Roberts (2002), van Bergen (2003), and for early Middle English, Kroch & Taylor (1997). Personal pronouns occur in the higher position (here taken to be SpecAgrS), and precede the finite verb in AgrS, while other nominal subjects are lower, in SpecT, and follow the verb in AgrS. The construction types are illustrated below, with the inversion after *þa* of (4b) shown in (6), and the contrasting possibilities of (5) shown in (7) and (8). The information is also given schematically in table 2.





This situation has been shown by Kroch & Taylor (1997) to continue into early Middle English, and it is also reflected in a contrast between the two types of context in my database *c.*1400. This, and the historical development, can be seen from the figures of tables 3 and 4. In Old English, *þa*, *þonne* ‘then’ had high inversion with both nominal and pronominal subjects. In my Middle English database *then* maintains a distinctive position, having a similar level of inversion with nominal and personal pronoun subjects, and is most clearly joined in this by the adverbs *now* and *thus*. In this article I will call these three items ‘the *then* group’. The maintenance of this distinctive distribution is plain from the contrast of table 3. Table 4 puts this into historical context, presenting also comparative figures from Old and early Middle English, which show that the rate of inversion after *then* has dropped substantially compared with Old English and early Middle English, and that in other contexts the rate of inversion of nominal subjects has dropped to much the same level, but that of pronominal subjects has risen, while remaining distinctly lower than that of nominal subjects.⁶ So the contrast between construction types found in Old English is still mirrored here, though there is considerable blurring of the earlier distinctions.

Koopman and Haeberli both point out that in Old English there are quite a large number of exceptions to inversion of a nominal subject after a fronted element which is not an ‘operator’ (*þa*, *þonne*, etc.). Haeberli cites (9) among other examples.

⁶ But the figures for personal pronouns include data from northern and southern dialects in which they behave differently; see Warner (in prep. a).

Table 3. *Percentages of inversion of nominal and personal pronoun subjects*⁷

Initial element	Nominal subject	Personal pronoun subject
<i>Then</i> group	52%	55%
Other	48%	21%

This table presents figures from my database. $n = 3571$. The 149 clauses with late subject order have been omitted. So have clauses whose subjects are clausal or infinitival, or which are *man*, *men* 'one' with a singular verb.

Table 4. *Percentages of inversion of nominal and personal pronoun subjects in comparable contexts across time*

Initial element	Subject	OE	eME	IME
<i>þa</i> , <i>þonne</i> , <i>then</i>	Nominal	99%	95%	50%
	Pers prn		72%	57%
NP or PP Complement,	Nominal	76%	81%	53%
PP adjunct	Pers prn	2%	3%	20%
	$n =$	3324	345	1978

OE figures are calculated from those given in Koopman (1998), based on seven texts (three each for *þa*, *þonne*). He does not distinguish between nominal and pronominal subjects after *þa* and *þonne*. EME figures are taken from Kroch & Taylor (1997) and are for their seven early Midland texts. LME figures are from my corpus.

- (9) (a) æfter þan þæt lond wearþ nemned Natan leaga
 after that that land was named Natan lea
 'after him, that land was called Netley' (Chronicle A, 14.508.1; Haeberli 2002b:249, ex 4d)
- (b) Eallum frium monnum ðas dagas sien forgifene
 to-all free persons these days be given
 'These days should be given to every free person' (Laws 2, 78.43; Haeberli 2002b: 249, ex 4b)

He provides figures for samples drawn from ten texts across the Old English period, showing that inversion of a nominal subject in such contexts occurred in 71 percent of instances ($n = 654$) (2002b: 250, table 1). Compare the similar figure of 76 percent given in table 4 and calculated from Koopman's figures for a larger database containing a smaller number of texts. Haeberli points out that Old English was strikingly unlike the present-day standard Germanic languages in that inversion outside operator contexts was variable, not categorical. He accounts for this by allowing nominal subjects to

⁷ In table 3 clauses in which either the subject or verb is final make a distinctive contribution, partly because of the way examples are distributed across the cells of the table. If these are omitted, the pattern of the table remains broadly the same except that there is a clear difference in levels of inversion of nominals between contexts, with the *then* group showing considerably more inversion than other contexts.

Table 5. *Possible positions in functional projections of the clause for finite verb and subject, including empty expletive subjects*

Topic position SpecC	High position for finite verb C	High subject position SpecAgrS	Low position for finite verb AgrS	Low subject position SpecT	Surface inversion
<i>þa, þonne</i> , etc.	finite verb	pronoun			Y
<i>þa, þonne</i> , etc.	finite verb	nominal			Y
<i>þa, þonne</i> , etc.	finite verb	empty expletive pronoun		nominal	Y
XP		pronoun	finite verb		N
XP		nominal	finite verb		N
XP		empty expletive pronoun	finite verb	nominal	Y

occur in either the higher or lower position, motivating occurrence in the lower position as the consequence of the presence of an empty expletive subject in the higher position (Haeberli, 2002a, 2002b). When this pronominal has been selected from the lexicon, it occupies the higher position preceding the finite verb, the full nominal subject occurs in the lower position following the verb, and there is inversion in surface order. Haeberli further argues that the decline of V2 in this latter clause type is due to the loss of the expletive subject (which parallels the loss of expletive subjects elsewhere). Haeberli's analyses of these positions are summarized in table 5.

To this general view, based initially in the facts of Old English, we need to add an account of the decline of inversion after members of the *then* group in later Middle English, of the rise of inversion of pronouns elsewhere, and some account of sentences in which the subject follows the finite verb, but does not do so directly, that is, of my 'late subject' type. I have allowed for the decline of inversion after *then* group adverbs in Middle English by supposing that the verb does not always raise to C in these contexts, and for the extension of inversion before pronominal subjects elsewhere by supposing (with Haeberli) that there is wider use of V to C movement in other contexts in Middle English. In late subject types, where nonfinite verb forms or other complements intervene between finite verb and a following subject, it seems likely that we have to do with two possible subject positions. One of these is essentially an underlying object position, occurring directly after a passive participle, as in (10a) below, or a nonfinite unaccusative verb, as in (10e). Here unaccusative constructions are taken to be those that have no deep subject, but contain an underlying phrase in object position which is normally realized as a surface subject, following Perlmutter (1978), Burzio (1986), and Belletti (1988). The late subject construction is found when this phrase remains in its underlying postverbal position, so that the surface subject stays within VP. This requires some mechanism for assigning a distinct case to the subject (as proposed by Belletti, 1988), or checking subject case *in situ* (as suggested by van

Table 6. *Summary of construction types after an introductory element*

Finite verb	Subject	Surface construction
high (C)	high nominal or pronominal	inverted
	high empty expletive + low nominal	inverted
low (AgrS)	high nominal or pronominal	uninverted
	high empty expletive + low nominal	inverted
high (C) or low (AgrS)	in VP	late subject
high (C) or low (AgrS)	adjoined to VP	late (postposed) subject

Kemenade, 1997, following Hulk & van Kemenade, 1993). A second possibility for late subjects is that the subject occurs at the right edge of the clause, after nonfinite verbal forms, and other verbal complements, in a position which would involve adjunction to VP, and postposing, in some analyses; see (10g) below in particular for an example. Whatever the best analyses of such late positions, it is clear that they cannot simply be collapsed with examples in which the subject is in a higher functional projection of VP, and that some separate account must be given. Thus we seem to have an initial setup which includes the distinctions of table 6. The finite verb can be high or low after any introducer, but the *then* group is followed by a high verb roughly half the time, while other contexts are followed by a low verb most of the time, at least in southern dialects. Northern dialects differ in showing more general V to C (Kroch & Taylor, 1997; and see Warner, in prep. a).

This grammatical setup raises an important question for analysis: how should the data be grouped for interpretation? What is the most pertinent set of comparisons here? It seems that 'late subject' clauses have properties distinct from the other clause types, both in syntax (the subject remains in VP) and in terms of information structuring. This implies that one relevant comparison will be that between late subject clauses, on the one hand, and uninverted and inverted clauses taken together, on the other. Then in comparing inverted and uninverted clauses it seems appropriate to set aside the group of late subject clauses, since they do not clearly belong with either partner in this opposition. The difference between clauses introduced by the *then* group and by other elements also needs to be respected, and the data of these distinct clause types may also need to be separated for meaningful comparisons to be drawn.

5 Late subject clauses

Most of the late subject clauses contain a verbal group, typically with a passive participle (as in 10a, b, c) or an unaccusative verb (as in 10d, e), that is a verb (typically of motion or change of state: *come*, *go*, *die*, *fall*, etc.) whose surface subject is usually analysed at a more abstract level as a verbal object (as noted above; see Warner, in prep. b for

a careful attempt to establish the identity of unaccusatives in late Middle English). Finite unaccusatives also occur, as in (10f), and there are other possibilities too, as in (10g, h, i).

(10) late subject: finite verbs with subordinate V or other complement material between verb and subject.

- (a) Aftir hem were ysette hondslinges and stafslynges
behind them were placed handslings and stick-slings
'Behind them were placed handslings and stick slings' (Vegetius De Re Militari 91.23)
- (b) and in þis bataile was slayne Nemion, þat was Cassibalanus broþer
and in this battle was slain Nemion that was Cassibalanus' brother
'and in this battle, Nemion, who was Cassibalanus' brother was killed' (Brut 32.14)
- (c) And in þat same tyme were sent onto him be þe clergi of þis lond
and in that same time were sent to him by the clergy of this land
þe archbishop of ȝork and þe bischop of London
the Archbishop of York and the Bishop of London
'And at the same time the Archbishop of York and the Bishop of London . . . were sent to him by the clergy of this land' (Capgrave Chronicle 203.18)
- (d) out of hevene schal come þe kyng þat lest evermore
out of heaven shall come the king that lasts evermore
'out of heaven shall come the king who lasts for evermore' (Trevisa Polychronicon 299.8)
- (e) anoon schal springe oute a grete flawme of fiere
immediately shall spring out a great flame of fire
'immediately a great flame of fire shall spring out' (Hilton Mixed Life 403)
- (f) Than entered onto þe castell on Jon Butler
then entered into the castle one John Butler
'Then one John Butler entered into the castle' (Capgrave Chronicle 239.23)
- (g) Than sent to þe erl of Dorcet þis message þe erl Armenak: 'Now art þou
then sent to the Earl of Dorset this message the Earl Armenak now are you
so streyed . . .'
so beset
'Then the Earl Armenak sent this message to the Earl of Dorset, "Now you are so beset . . ." ' (Capgrave Chronicle 246.22)
- (h) As white as kinde makis þis lilie en þi sith, so whit makis mi sowle
as white as nature makes this lily in thy sight so white makes my soul
þe sorw of on hour e þe sith of God
the sorrow of an hour in the sight of God
'The sorrow of an hour in the sight of God makes my soul as white as nature makes this lily in thy sight' (Hugo Legat's Sermon 20.64)
- (i) And than schuleth wepe and weyle vpon hire the kyngis of the erthe þat haueþ
and then shall weep and wail upon her the kings of the earth that have
do lecherie wiþ hyre
done lechery with her
'And then the kings of the earth that have done lechery with her . . . shall weep and wail over her.' (Wimbleton's Sermon 557)

The incidence of this clause type was compared with that of inverted and uninverted clauses taken together, for the reasons just given. In the case of examples like (11) there

Table 7. *Auxiliary + infinitive/participle with nominal subject: incidence of 'late subject' construction versus other categories*

	% inverted and uninverted order	% late subject order	coefficient
overall percent input	80	20	0.903
<i>Properties of verb and subject</i>			
unaccusative/passive with indefinite subject	54	46	0.111
unaccusative/passive with definite subject	82	18	0.417
other	98	2	0.922
			81
subject long (7+ words)	47	53	0.102
subject medium (4–6 words)	63	37	0.254
subject short (1–3 words)	88	12	0.635
			53
<i>Properties of introductory element</i>			
introducer subcategorized	63	37	0.144
introducer not subcategorized	83	17	0.580
			44
introducer long	82	18	
introducer short (1–3 words)	79	21	
member of <i>then</i> group	93	7	
other	78	22	
<i>Date</i>			
before 1400	83	17	
after 1400	77	23	
n	468	118	= 586

In the table, factor groups which are not significant have no coefficient in the final column.⁸

is a derivational ambiguity: the finite verb has been raised into AgrS, but the nominal subject could in principle be in SpecTP, or in VP (either in its original position or perhaps adjoined to VP in the late postposed position). But if we restrict the comparison to clauses containing an auxiliary with an infinitive or participle, we allow for a three-way contrast between inverted, uninverted, and late subject types, as illustrated in (12), and avoid the possible problem that the inverted and late subject types may overlap in their derivational properties. This has the effect of basing the comparison on the most numerous set of combinations showing late subject order. The results of this comparison are set out in table 7.

⁸ In this article the level of statistical significance is $p = 0.05$.

- (11) Of þese seuene heuedes comen alle manere of synnes
 from these seven heads come all manner of sins
 ‘From these seven heads spring all manner of sins’ (Vices and Vertues 11.8)
- (12) (a) and þat mut God hymself do [inverted]
 and that must God himself do
 ‘and God himself must do that’ (Wyclifite Sermons 123.86)
- (b) And herfore Crist mut nedis be priour of al mankynde. [uninverted]
 and therefore Christ must necessarily be first of all mankind
 ‘And for this reason, Christ must necessarily be first of all mankind.’ (Wyclifite Sermons 126.16)
- (c) for þerof wole growe moch profite to þe body [late subject]
 for therof will grow much profit to the body
 ‘for from that will grow much profit to the body’ (Secretum Secretorum 52.35)

The dependent variable in table 7 is whether or not the subject is ‘late’, occurring after the verbal group, or earlier in the clause. The comparison was necessarily restricted to nominal subjects, since the late subject is never a personal pronoun in my database. The table gives the percentage of instances for each factor which have the subject above VP (showing inverted or uninverted order) or within VP (showing late subject order), so that the figures for each line total to 100 percent. The coefficients in the final column of the table are estimates calculated by GoldVarb, commonly referred to as ‘factor weights’. The ‘input’ weight of the first line generally corresponds roughly to the level of the overall probability of occurrence of the dependent variable (here being 0.9 as against the 80 percent found in the first column of figures). For each of the subsequent groups of factors, the weights give an estimate of the relative level of the probability of occurrence of the dependent variable for each factor within a group, in abstraction from the contribution of factors in other groups, and the overall input weight. The straightforward percentages of the preceding columns do not (of course) abstract away from the effect of the input weight. Nor do they abstract away from the effect of factors within other factor groups, but may be influenced by the presence of larger or smaller proportions of examples which show the effect of other factors. Hence the difference between individual factor weights and the percentages which correspond to them, which are those of the first column of figures. What is most interesting here about the level of analysis represented by the factor weights is the ‘range’ for each factor group which is given below its set of coefficients. This is simply the difference between the highest and lowest factor in each group (which is conventionally multiplied by 100, to give a number between 1 and 99). This provides an indication of the relative strength of that factor group: the stronger the factor group, the wider the range.⁹ It is immediately clear that the late subject construction is not infrequent with auxiliary combinations, occurring in 20 percent of instances, though it is less common than either of the other orders (for inverted order the figure is 36 percent, for uninverted order, 44 percent). But perhaps the most immediately striking property of this construction is its high incidence with passive participles and unaccusative

⁹ See Tagliamonte (2006) for an accessible introduction to variationist methodology and the use of GoldVarb.

verbs with an auxiliary. Such combinations favour the late subject, especially when that subject is indefinite (see the section of the table headed *Properties of verb and subject*).¹⁰ This particular combination has the late subject construction in 46 percent of instances. When there is a definite subject, a passive participle or unaccusative verb with an auxiliary occurs with the late subject construction in 18 percent of instances. In stark contrast, combinations of auxiliary with a verb which is not unaccusative disfavour the late subject, which occurs in only 2 percent of instances. Thus we have here two strong preferences. The first is that an unaccusative verb or passive participle strongly favours the late subject construction, where other verb types disfavour it. The contrast is not unexpected from a grammatical point of view, given that passives and unaccusatives have been so commonly analysed with the subject in an underlying postverbal position. The distribution strongly implies that the subject remains within the VP, in its original postverbal position, in a majority of instances. But there are examples which do not involve an unaccusative verb, see (10i) and (without auxiliary) (10g, h). Here such an account is not straightforward, and attachment to the right of VP may be a better analysis. This may also be the appropriate analysis for instances like (10c) where major constituents intervene between the unaccusative verb and its subject.

The second strong preference is that an indefinite subject favours the construction. This preference is, however, restricted to unaccusative verbs and passive participles; it is not shown by subjects occurring with other types of verb. If the subject may indeed remain in its original postverbal position, then a strong preference for the construction shown by indefinite subjects is what one would reasonably expect, given Belletti's (1988) analysis of Italian unaccusatives (and her more general consideration of the 'definiteness effect'). Belletti claims that unaccusatives (including passive participles) may have the effect of licensing a postverbal indefinite subject in their deep 'object' position, but that definite subjects cannot remain in this position, though they may occur adjoined to VP. The situation in Middle English as just reviewed shows a strong quantitative parallel, and in many cases definite subjects could be analysed as showing attachment at the right of VP.¹¹ But whether or not the grammar of Middle English had as sharp a 'definiteness distinction' as claimed for Italian by Belletti, there is further strong distinctive distributional evidence here that the subject often remains within the VP, in its original postverbal position, after a nonfinite unaccusative or a passive participle.

Whatever the syntactic analysis of late subjects, it is clear that they provide distinctive possibilities for the information structuring of the clause and that the differential incidence of the late subject construction with definite and indefinite subjects reflects this. Thus the syntactic property of unaccusatives, that they permit indefinite subjects to remain after the verb, supports a pattern of usage whereby the

¹⁰ Definites include nominals with a definite determiner, a demonstrative or a universal quantifier, and proper names (including abstracts where they are the names of kinds), that is essentially those nominals which Belletti (1988) takes to be definite.

¹¹ Some examples involve lists, on which see Belletti (1988: 15f). See Warner (in prep. b) for a more detailed discussion of the distributions here.

combination unaccusative+indefinite is predominant with late subjects. Note that there is an interesting contrast with the inversion of subjects in final contexts, discussed below.¹²

The grammatical weight of the subject is also relevant, in line with what Quirk et al. dub 'The Principle of End Weight' 'the tendency to reserve the final position for the more complex parts of a clause or sentence' (Quirk et al., 1972: 14.8), and see Quirk et al. (1985: 18.9, 18.43) and Wasow (2002: 3 and passim) for more general formulations. A straightforward measure of grammatical weight is length in words, and that is the measure adopted here. Wasow (2002) discusses this measure and measures of complexity based on counts of nodes, following Hawkins (1994). He concludes ultimately that 'counting nodes may be a more sensitive measure of weight than length' (2002: 32), though this result did not hold for all corpora investigated (2002: 40–1). But he notes that for some corpora counts based on length in words are 'statistically indistinguishable' from measures based on counting nodes (2002: 32, 1997: 93), and concludes that 'weight can be measured reasonably well by counting words, nodes, or phrasal nodes' (2002: 32). It seems clear that the added sophistication of a node-based count would add little if anything to results for Middle English. An alternative might be to consider phonological properties, such as a count of length in syllables rather than words (as noted by Green, 2004).¹³ But there are problems of practicality and transparency here, since it is not possible reliably to retrieve the pronunciation of final *-e* in the authorial language which seems likely to underlie many instances of nominal inversion. So measuring weight by counting words seems to be the best procedure. It is interesting to see that the late subject construction is favoured with longer subjects, disfavoured with shorter subjects (see the section of table 7, headed *Properties of verb and subject*); where the subject is 7 or more words in length, it is late in 53 percent of instances; where it is 1, 2, or 3 words long, it is late in only 12 percent of cases. The two parameters, length and definiteness, are both significant. This means that we have here an instance where grammatical weight and definiteness each makes a contribution to the occurrence of one construction or the other.¹⁴ Wasow (2002) noted that it was generally difficult to distinguish the related parameters (weight and givenness) in Present-day English, but found instances where both were significant. To conclude this part of the discussion: the late subject construction is strongly favoured with subjects which are weighty or which (being indefinites) are likely to contain new information; strongly

¹² Birner & Ward (1998: 83) note that 'an entity that is brand-new within the discourse is typically represented by an indefinite NP', but in an investigation of constructions with argument reversal (which includes examples of the late subject construction) they find that definite and indefinite subjects are equally common after the verb in a collection of Present-day English data (1988: 181). This result looks initially very different from the ME result presented here, but since definite subjects are more than twice as common as indefinite subjects with unaccusatives in my database, the resulting split of late subjects between definites and indefinites (52.6 vs 47.4 percent) is in fact almost the same as Birner & Ward's (51.4 vs 48.6 percent).

¹³ Wasow considers the property of having more than one phonological phrase, but only in the context of Heavy NP shift (2002: 16f).

¹⁴ There is an interaction between verb type and definiteness, hence the structure of the initial factor group of table 7. A separate regression restricted to unaccusatives shows that definiteness and length are both significant.

disfavoured with shorter subjects which are lighter or which (being definites) are likely to contain old information, and the parameters length and definiteness each make a contribution to the occurrence of one construction type or the other.

The next three contrasts involve properties of the initial element (see the sections of table 7 headed *Properties of introductory element*). When this element is subcategorized for, that is, when it has clearly moved, then the late subject construction is favoured, occurring in 37 percent of instances rather than the overall 20 percent. The length of this initial element is, however, not a significant factor: a traditional claim has been that a long introducer is inimical to inversion (Bækken, 1998: 414–15; Jacobsson, 1951); but this is not shown for late subjects. More striking, however, is the irrelevance of introduction by the *then* group. This inversion context has special properties in Old English, as noted above, and these clearly continue into Middle English. When one of these words is initial, inversion of a nominal subject across a modal or an auxiliary is more frequent. But table 7 shows that there is no overall effect for late placement of the subject: it is apparently dispreferred, but the effect is far from significant. This means that members of this group are not distinguished overall from other introductory contexts in their effect on late placement of the subject. This is unsurprising given that the special property of this group involves the movement of V. If the subject remains in VP, the importance of higher and lower positions of V for inversion is neutralized (recall the discussion of section 4 above, but see Warner, in prep. b, for further analysis). Finally, it is clear that the difference across time is small: see the last section of table 7, headed *Date*, which gives the contrast between figures before and after 1400. This difference is indeed far from significant, and the situation is apparently a relatively stable one.

6 Inverted and uninverted clauses

Now we will turn to the distinction between inverted and uninverted types, where nothing intervenes between verb and subject in the inverted cases.¹⁵ These will be considered in opposition to each other, omitting instances of the late subject construction, in accordance with the discussion above. Discussion is restricted to nominal subjects, because the distribution of pronominal subjects differs across dialects (Kroch & Taylor, 1997; Warner, in prep. a).

The cases need, however, to be subdivided into two groups. First we have examples like (13) where either the inverted subject or the verb is final in its clause. Examples here have no following complements or adverbial material, but may precede a conjoined clause, as in (13d). We might reasonably suppose that final position has some importance for weightier constituents, in accordance with the ‘Principle of End Weight’, ultimately for reasons connected with sentence processing, and the introduction of new or focused information. Some final subjects clearly introduce new information, as in (13c), or in (13b), which means roughly: ‘there are three things that preserve purity

¹⁵ Except for a few instances with intervening adjunct (mainly temporal) or object personal pronoun; see note 5.

...'; for others, Birner's characterization of moving from more given to less given seems appropriate, as in (13e). The implication is that these cases might differ in their properties from clauses of the second type, illustrated in (14), where a phrasal complement follows the subject and verb. It is important therefore to distinguish these types of inversion. For convenience, this second type will be called an 'internal context' for inversion. It is restricted to examples with a following phrasal complement, and does not include examples with a following finite complement clause or reported direct speech, because of the possibility that such complements represent a fresh information unit. The first type, where inverted instances are subject final, and uninverted instances are verb final, so that inversion either takes place or fails clause-finally, will be referred to as a 'final context' for inversion. The contrast is restricted to instances which contain a finite full verb, omitting examples with a modal or auxiliary plus nonfinite, since they do not occur in the type with subject final.

- (13) final context: finite verb+subject / subject+finite verb without following complement or adverbial

- (a) Clennes of hert, thre thynges kepes: Ane es waker thocht & stabel of cleanness of heart, three things preserve one is active thought and stable of god.
God
'Three things preserve purity of heart. One is active and constant thinking about God.' (Rolle, The Form of Living, 25)
- (b) Als wa, clennes of mouth, kepes thre thynges: Ane es þat þou umthynk þe also, cleanness of mouth preserve three things one is that you consider you before, or þou speke.
before ere you speak
'Also three things preserve purity of mouth. One is that you reflect before you speak.' (Rolle, The Form of Living, 25)
- (c) At þe byriyng was þe bischop of Chestir, þe abbot of Seynt Albones, ...
at the burying was the bishop of Chester the abbot of Saint Albans
'At the funeral were the Bishop of Chester, the Abbot of St. Albans, ...' (Capgrave 217.13)
- (d) After þis Kyng Bladud, regnede Leir his sone; and þis Leir made þe toun
after this king Bladud reigned Lear his son and this Lear made the town
of Leycestre
of Leicester
'After this King Bladud, Lear his son reigned; and this Lear founded the town of Leicester' (Brut 16.20)
- (e) Of þis dede of Crist men taken þat it is leueful for to write and aftirward from this deed of Christ men take that it is lawful (for) to write and afterwards to rede a sermoun, for þus dide Crist, oure alþere maystir.
to read a sermon for thus did Christ our of-all master
'From this deed of Christ's, men deduce that it is lawful to write a sermon, and afterwards to read it out, because Christ, our lord of all, did so.' (Wyclifite Sermons 132.45)
- (f) Þe Tewesday tofore þe Ascencioun his deep neighede, and his feet gonne to the Tuesday before the Ascension his death drew-near and his feet began to swelle
swell

'The Tuesday before Ascension day his death drew near, and his feet began to swell' (Trevisa 225.10)

- (g) Panne olde wyfes mette, and pere were i-seie wonder false siztes
then old women met and there were seen wonderful false sights
'Then old women gathered, and amazing false sights were seen' (Trevisa 91.16)

(14) internal context: finite verb+subject / subject+finite verb precedes a complement phrase

- (a) And so Gilbert gate Thomas of this woman.
and so Gilbert begot Thomas by this woman
'And so Gilbert begot Thomas by this woman.' (Mirk 38.21)
- (b) & þus gat kyng acab the vinezard.
and thus got King Ahab the vineyard
'And thus King Ahab obtained the vineyard.' (Lavenham 9.37)
- (c) so eet Baptist herbis and hony
so ate Baptist herbs and honey
'so [John the] Baptist ate herbs and honey' (Wyclifite Sermons 124.22)
- (d) And wip þis God mouyde Elizabeth to prophesie.
and with this God moved Elizabeth to prophecy
'And with this God moved Elizabeth to prophecy.' (Wyclifite Sermons 127.17)

One immediate difference is that with the verb BE inversion is categorical with nominals when it makes the subject final. For this reason, I have omitted examples with BE from the results for the 'final' context; also examples with SAY and SPEAK, which are likewise categorical for inversion with nominal subjects. Restoring these two contexts would give similar overall results.

These two types show some interesting differences, and the results of two separate GoldVarb runs are given in table 8. Here the dependent variable is whether the subject and verb are inverted or uninverted, and the percentages give the amount of inversion for each factor. Immediately striking is the huge disparity in inversion rates between the two contexts: 24 vs 84 percent.

One parameter shows a similar effect across all three word order types (see the first factor group under the heading *Properties of introductory element* in tables 7 and 8). It is whether the introductory element is subcategorized or is some type of adjunct, where a subcategorized initial element promotes internal inversion, final inversion and the late subject construction. In the case of subcategorized elements we can be confident that the initial position results from movement (in theories that have movement), and may hypothesize that the fronted element occurs in a position which might otherwise have been occupied by the subject, whereas initial adjuncts may also occupy other positions. Hence the higher rate of inversion after subcategorized elements.¹⁶

¹⁶ Note the related observations for English of various periods that complements introduce more inversion than adjuncts, or that NPs introduce more inversion than PPs, or that incidence of inversion depends on the class or the individual identity of an initial adverb, in, e.g. Jacobsson (1951), Kohonen (1978), Koopman (1988), Swan (1988), Kroch & Taylor (1997), Bækken (1998).

Table 8. *Inversion of a finite nonauxiliary verb and a nominal subject in two contexts*
 1. 'internal': finite verb is followed by its complement
 2. 'final': subject is final when inverted or immediately before final verb when not inverted (omitting BE, SAY, and SPEAK)

	'internal' V-S-X or S-V-X		'final' V-S # or S-V #	
	inverted %	coefficient	inverted %	coefficient
overall percentage	24		84	
input		0.204		0.908
<i>Properties of verb and subject</i>				
subject long (4+ words)	10	0.297	97	0.803
subject short (1-3 words)	28	0.552	74	0.254
		25		55
indef subject	24		78	
def subject	24		87	
transitive verb	15	0.353	79	
unaccusative verb	31	0.638	87	
other	35	0.606	83	
		29		
<i>Properties of introductory element</i>				
introducer subcategorized	37	[0.663]	91	0.638
introducer not subcategorized	23	[0.486]	78	0.382
		[18]		26
member of <i>then</i> group	35	0.692	76	
other	20	0.419	85	
		27		
introducer long (4+ words)	21		89	
introducer short (1-3 words)	25		83	
<i>Date</i>				
before 1400	31	0.623	90	0.639
after 1400	18	0.380	76	0.334
		24		30
n =	448		150	

In the heading to this table, S = subject and V = finite verb.

In the table, factor groups which are not significant are not assigned a coefficient, except for the first group under *Properties of introductory element* (whether or not the initial element is subcategorized for), which is close to significance.

Final contexts

There are three other ways in which inversion in a final context is like the late subject construction. Firstly, a longer subject has a stronger tendency to be inverted than a shorter one: where a long subject is one of 4 or more words, inversion in a final context is very high at 97 percent, against only 74 percent when the subject is of 1–3 words (see *Properties of the verb and subject* in table 8). In fact, for subjects of 5 or more words in length, inversion here is categorical. The placement of a late subject showed a similar preference, though at a lower percentage rate. In both cases final position shows the effect of the ‘Principle of End Weight’ in favouring weightier subjects. In two further cases (found under *Properties of introductory element* in tables 7 and 8) what final and late subjects share is the lack of an effect. In neither case is there any apparent effect of the length of the introductory element, despite the traditional statement that length is inimical to inversion (this will be further discussed below). And in neither case is there any apparent effect when the introductory element is a member of the *then* group. For late subjects, this seems appropriate, as noted above. But for final contexts, which may involve movement of V, the result is rather puzzling, and on the face of it, one would have expected a higher incidence of inversion after the *then* group. But perhaps the result here is essentially a reflection of the small number of instances for this factor.

In the case of late subjects there was an interesting interplay of factors involving unaccusative verbs and a definiteness effect, which I accounted for in part by following the suggestion that the subject could remain within the VP after an unaccusative verb. We should perhaps then expect to see some similar effect in final contexts. But although unaccusatives have overall a little more inversion than other verbs, the effect is not at all significant, and the distribution of definite and indefinite subjects gives the suggestion little support (see *Properties of the verb and subject* in table 8). There are, I think, two ways of understanding this. One is to take seriously Birner & Ward’s observation for present-day inversions (in which they included a wider class than I consider here, adding passives with an agentive *by*-phrase to the list since they invert underlying object and subject). They note (1998: 181) that both definite and indefinite subjects can supply ‘discourse-new’ information and may therefore equally well occur finally when the order of arguments is reversed. If we adopt this general position and assume that it may be relevant to Middle English, then we can see that the final context is behaving pretty much as expected, but that late subjects are unusual, in typically requiring an unaccusative as their warrant. This would mean that we see the effect of a grammatical filter on discourse requirements. The second consideration is that inversion in a final context may be derived with the verb in AgrS and the subject in SpecTP. This is presumably the unmarked option. If we suppose that it is the most frequently selected option, any definiteness effect dependent on the retention of a subject within VP after an unaccusative would be very difficult to observe. Indeed, if we pursue this line of thinking, we might reasonably suppose that the best place to find a clear effect would be in clauses with longer (weightier) subjects, since it was such subjects which were most likely to remain in VP in the late subject construction. But then in trying to interpret the situation we face the difficulty that inversion in final contexts is in fact categorical in

my database with subjects of 5 or more words, as noted above. With such subjects there is no contrast between inverted and uninverted order and no way of seeing what other factors may have been involved. A reasonable suggestion might be that unaccusatives could indeed have favoured the retention of a long and indefinite subject within VP, but that regrettably the most relevant data show categorical inversion, so the effect cannot be seen.

Internal contexts

Internal contexts are distinct from final contexts and the late subject construction in two major respects.¹⁷ The effects of the *then* group differ radically between the two contexts in table 8. In an ‘internal’ context an introductory member of the *then* group promotes inversion, with 35 percent inverted, vs 20 percent in other contexts. This is a reflection of the Old English situation with high inversion after *þa*, *þonne*, etc., and points to this group’s retention of its distinct status. Beyond this we find a very interesting reversal of the effects of the length of the subject. In final contexts and late subject constructions longer subjects are more liable to invert. But in internal contexts the effect is reversed, and there is more inversion with shorter subjects.

There is also a striking effect of transitivity: we see a major contrast between transitive verbs with a following object, which have low inversion (15 percent), and other verbs (overall 32 percent). This contrast is highly significant, and I will return to it in section 7. This is in sharp contrast with final contexts, where although transitives show an overall lower rate of inversion than other categories of verbs, this is far from significant. Unaccusative verbs, however, show no significant effect in internal contexts: they simply have the same level of inversion as other verbs outside the transitive group. In principle, if unaccusatives may motivate the retention of a subject within the VP, one might expect to see some higher incidence of internal inversion with unaccusatives, and some impact of a definiteness effect. The first of these effects is, however, apparently absent, and evidence for the second is very weak. But the kinds of consideration relevant in final contexts also hold here. We might suggest that inversions with the overt subject in SpecTP would be the unmarked and most frequent option, and that evidence for the special properties of unaccusatives would be found only among longer subjects. But here, as above, the configuration of the data is not kind to us. There is indeed a weak preponderance of inversions with indefinite subjects over definite subjects with unaccusative verbs. But the crucial fact is that longer subjects here are virtually never indefinite, while there is a good supply of long definite subjects. As a result the most important contrast is not available. The question: ‘Do unaccusatives with long indefinite subjects have a higher rate of inversion than unaccusatives with long definite subjects?’ cannot be clearly answered because of a lack of sufficient data for long indefinite subjects.

¹⁷ A further possible difference, involving a small proportion of examples, is that in internal contexts inversion is higher in some constructions with negatives, e.g. after an initial negative, and this does not seem to hold for final contexts. But this needs more detailed discussion than can be given here, and the pattern of results in table 8 (and table 10 below) is unaffected.

Table 9. *Factors promoting a higher level of inversion or late subject in different contexts*

	Internal contexts	Final contexts	Late subject order
Properties of subject	Short subject	Long subject	Long subject Indefinite subject with unaccusative
Properties of verb	Verb is not a transitive with following object		Verb group is aux+ unaccusative, or BE + passive participle
Properties of introductory element	Member of <i>then</i> group		
	Subcategorized	Subcategorized	Subcategorized

Altogether then, there are clear distributional differences between inversion in internal and final contexts, which seem likely to reflect differences of use and function between these types of inversion, and there are also some interesting parallels between inversion in final contexts and the occurrence of the late subject construction. In table 9 I give a short summary of the major similarities and differences between these contexts for the reader's convenience. It is also worth noting that inversion in internal and inversion in final contexts concur in showing a decline across time (see *Date* in table 8), in contrast to the stability of the late subject construction. This is consistent with a proportion of the inversions in internal and final contexts sharing abstract structural identities which are subject to the same changes.

7 The general distribution of nominal subjects

The discussion above was based on a subset of contexts for the sake of comparison, since the same items could potentially occur in inverted or uninverted constructions in either context. But the findings for internal contexts hold more generally, across a wider set of data, including auxiliaries with their subordinate infinitives, and verbs with complement clauses. The data are given in table 10.

The results shown in table 10 parallel those of table 8, as might be expected. The same factor groups are significant, and percentages of occurrence show the same ranking. In the first factor group under *Properties of verb and subject*, verbs have been grouped into broad classes based on surface contexts which are distinct from one another in their level of inversion. Transitives with a following nominal or pronominal object have the lowest rate of inversion. Verbs with other phrasal complements (including copula BE) invert twice as frequently. Auxiliaries are modals, BE used to form the passive or perfect, perfect HAVE and two instances of DO+infinitive. These have a high overall rate of inversion, exceeded only by the combination verb+clause.

Table 10. *Inversion of nominal subjects in contexts with a following complement*¹⁸

	‘internal’ V–S–X or S–V–X	
	inverted %	coefficient
overall percent input	36	0.331
<i>Properties of verb and subject</i>		
Finite verb with following complement is:		
non auxiliary + clause	60	0.715
auxiliary + VP	45	0.628
non auxiliary + any phrase except NP	32	0.467
non auxiliary + NP	15	0.220
		50
subject long (4+ words)	25	0.379
subject short (1–3 words)	39	0.529
		15
indefinite subject	39	
definite subject	35	
<i>Properties of introductory element</i>		
introducer subcategorized	46	0.614
introducer not subcategorized	35	0.487
		13
member of <i>then</i> group	49	0.725
other	33	0.432
		29
introducer long (4+ words)	28	
introducer short (1–3 words)	38	
<i>Date</i>		
before 1400	45	0.610
after 1400	25	0.373
		24
n =	969	

The overall percentage of inversion is higher here than in table 8 because of the inclusion of auxiliaries, which have a higher rate of inversion. Readers may note that there seems to be a rather large percentage difference between long and short introducers: how can it be that this does not translate into a significant difference, and

¹⁸ This table omits a minor (but significant) interaction which makes no difference of any importance to coefficients and their ranges.

does it none the less mean something? Recall the suggestion that long introducers are adverse to inversion (Bækken, 1998: 414–15; Jacobsson, 1951). Three points can be made here. Firstly, the table concerns only nominal subjects. Where the subject is a personal pronoun, there is indeed a substantial and systematic effect of the length of the introductory element on the likelihood of inversion. Secondly, I have not treated adverbial clauses as initial contexts; if they were so treated, they would imply a length effect, since they are uncommon with inversion (Bækken, 1998: 216ff.). Thirdly, the short contexts of table 10 include the *then* group (*then, now, thus*). If these are simply treated as short contexts, this also implies a length effect. But they are grammatically distinct in late Middle English because of their behaviour with pronouns (see table 3 above), and this implies that they motivate inversion by virtue of some special property. So they are not merely short contexts on a par with other short contexts, and their distinctness is corroborated by the significance of the factor group which opposes members of the *then* group to other contexts. Without the contribution of *then* group contexts, the percentage difference between long and short introducers becomes 28 vs 34 percent, which helps us to see why the length effect is not significant. But a lack of significance here does not necessarily mean that there is no effect: it may simply mean that the effect is a weak one. Outside my final contexts, and setting aside the *then* group, there is a steady tendency for short introducers to show more inversion, which is most marked with auxiliaries, weak with late subjects, and generally absent with other verbs in internal contexts. This appears to be a real but relatively weak effect.

The preference for a short subject is interesting in view of the apparent relevance of weight to inversion in the final type, where longer nominal subjects show more inversion. In internal positions, this is reversed: shorter nominal subjects show more inversion. If final contexts show a 'weight effect' then internal contexts show an 'anti-weight effect'. This may represent an effect of language processing, whether it involves parsing or production; since the inverted subject intervenes between the finite verb and its complements, a shorter subject permits the more rapid transition to the complement in the verb+subject+complement sequence, giving an earlier resolution of the structure and imposing less load on short-term memory (see here, e.g., Hawkins' (1994) theory of 'Early Immediate Constituents'). The distinctive position of transitives with a following object, in showing the smallest overall rate of inversion, could also follow from processing considerations, since the sequence V+subject would in principle be open to initial misinterpretation as V+object. It seems reasonable to assume that this was a possibility at least by the second half of the fourteenth century (cf. Fries, 1940). A particular testable prediction follows from this suggestion. Since personal pronouns retain marking for case as nominals do not, transitives with a following object should show a smaller tendency to avoid inversion when they have personal pronoun subjects than when they have nominal subjects. How can we see this, given that the ordering of pronouns (as of nominals) may depend on various principles, possibly including the relative information content or weight of subject and verb? What we need is a comparison within an appropriate group of verbs followed by their complements. There will be different overall proportions of inversion with nominal

Table 11. *Percentage of inversion in contexts with a following complement*

	Following object	Following PP, VP or other nonclausal complement	Overall
Nominal subject	11%	32%	19%
Pronominal subject	10%	8%	9%

and pronominal subjects, but if transitives with a following object avoid an inverted nominal subject more than they avoid an inverted pronominal subject, this should show up as a skewing of the figures. This is indeed exactly what we see in table 11, which shows figures for internal contexts, omitting *then*-group contexts, verbs taking a clausal complement or reported direct speech, BE, and clauses containing auxiliaries (which have a higher level of inversion with pronouns). Overall there is more inversion with nominal subjects than with pronominal subjects, as discussed above (19 vs 9 percent). This is very clear where the following complement is not an object (32 vs 8 percent). But where the following complement is an object, the difference between nominal and pronominal subjects disappears. Transitives with a following object show the same level of inversion as other verbs when the subject is a pronoun, but show a dramatically lower level when the subject is a nominal. This does not, of course, prove that this is the result of processing factors, but it does supply that position with some quite serious support.¹⁹

There may be a parallel of a kind to this in final contexts. I noted above that transitives had lower inversion than other categories of verb, but that this was far from significant (the overall percentages were 79 versus 85 percent). It is interesting, however, that there is a rather strong contrast in rates of inversion after a subcategorized, fronted element between transitives and other verbs. Transitives with a fronted object show 82 percent inversion; other verbs with a fronted, subcategorized element show 98 percent inversion. Moreover, this difference is significant. There is a rather obvious possible reason for the status of transitives: the syntactic ambiguity of the sequence NP Vf NP (SVO or OVS) alongside NP NP Vf. By the date of my corpus in main clauses outside verse this latter can only be OSV for objects which (as in the cases involved here) are neither negative nor quantified (Foster & van der Wurff, 1995; van der Wurff, 1999). But the suggestion that inversion after a fronted nominal object was constrained for processing reasons seems quite a plausible one. I do not, of course, mean to suggest that most examples will actually have been ambiguous in context; merely that the syntactic contribution to processing will not have been straightforward.

¹⁹ This holds equally for both nominal and pronominal objects. However, transitives with a nominal subject do not show the ‘anti-weight’ effect clearly, but have roughly equal proportions of long and short nominals in inversion before a following object. This is apparently a property of my sample, since comparison of a parallel but substantially larger dataset drawn from the PPCME (Kroch & Taylor, 2000) (texts for M3 and M4) showed a 2:1 short: long ratio.

8 Conclusions

Perhaps the most interesting conclusions here are the demonstration for a substantial late Middle English database of:

- the systematic importance of clause-final position;
- the distinctive nature of the combination auxiliary + unaccusative in motivating late occurrence of the subject, and the evidence for a definiteness effect with such unaccusatives;
- the continuing relevance of the contrast between nominal and pronominal subjects for levels of inversion;
- the continuing relevance of initial *then* and similar adverbs both for levels of inversion, and for the contrast between nominal and pronominal subjects;
- the contrasting impact of the length of the nominal subject in different types of construction, with length favouring the final placement of a subject, but disavouring inversion in internal contexts;
- the evidence that different construction types show different levels of inversion of nominal subjects in internal contexts, with modals and the auxiliaries *BE* and *HAVE* showing higher inversion than full verbs, and transitives with a following object showing the lowest level of inversion;
- the evidence that transitives behave distinctly in disavouring inversion of nominal (but not of pronominal) subjects in internal contexts, a distribution which suggests the relevance of processing factors;
- the evidence that after an introductory element which is subcategorized for by some clause member, nominal subjects show higher inversion or incidence of late subject than after other introductory elements; but
- the implication that the length of the introductory element is not of substantial importance for the position of nominal subjects.

Overall it is clear that considerations of weight (and probably therefore of degree of informativeness) are likely to play a considerable role in the patterning of inversions and late subjects, alongside considerations which are clearly syntactic. The fact that contexts allowing final inversion share properties with each of the other two major types (internal contexts and late subject constructions) is particularly striking. It is clear that a further stage of investigation should seek to integrate discourse properties into the analysis. More generally, it is clear that inversion is not a single phenomenon, though it has sometimes been treated as such, but needs to be broken down into a series of formal subcategories, involving both abstract and surface elements. The selection of different orders is sensitive to properties of the subject, the verb, and the context, and there may be a complex interaction between pragmatics and syntax, so that the incidence of inversion in subcategories seems likely to correlate with properties that we might call ‘functional’ in the broad sense, though the identity of such properties may be very hard to pin down, as Wasow (2002) has observed.

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