A multivariate analysis of the Old English ACC+DAT double object alternation

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Abstract. In Old English, the ditransitive construction with an accusative (direct) object and a dative (indirect) object occurred with two alternating object orders: ACC-DAT vs. DAT-ACC. This study examines the motivations behind the OE speakers' choice for one of both orders. The effect of 16 factors was evaluated based on a corpus sample of N = 2409 sentences drawn from the York-Toronto-Helsinki Parsed Corpus of Old English Prose (Taylor et al. 2003). The data was analysed by means of a mixed-effects logistic regression analysis. The results indicate that the ACC+DAT alternation was largely driven by the same factors that motivate the dative alternation in later stages of British English. However, no evidence was found for specific verb preferences in Old English, which suggests that the OE object alternation was less driven by semantics than the dative alternation in PDE. It is argued that the results further substantiate Wolk et al.'s (2012) claim the cognitive mechanisms underlying present-day probabilistic patterns also underlie past variation.

1. Introduction

The ditransitive construction refers to a construction in which a ditransitive verb takes two objects: an object of transfer (Theme) and a participant receiving this object (Recipient). Sentence (1) is a prototypical example of a ditransitive construction in English.

(1)   John gives Mary a book.

The second object may also take another semantic role, such as Deprivee in (2) or Addressee in (3), depending on the meaning of the sentence verb.

(2)   That accident cost her a fortune.
(3)   She told them everything she knew.

Ditransitivity has become a popular topic of linguistic research during the last decade. One aspect that has received much attention is the cross-linguistic typology of ditransitive constructions (e.g., Malchukov, Haspelmath & Comrie 2010).

With respect to English, much empirical work has been done on the dative alternation, i.e., the alternation between the ditransitive construction illustrated in (1), often referred to as the double object construction (DOC), and the to-dative construction, illustrated in (4):

(4)   John gives a book to Mary.

As can be seen from the examples, the dative alternation features two opposite object orders. In the to-dative construction, the Recipient or, grammatically speaking, the indirect object (IO), precedes the Theme, or the direct object (DO). In the DOC, the Theme (DO) precedes the Recipient (the prepositional object, PrepO).[1] Both object orders also occur with two pronominal objects, as illustrated in (5) and (6):

(5)   John gave it to her.
(6)   John gives her it.

Accumulating evidence suggests that the speaker's choice of one of both constructions is largely motivated by a well-defined set of linguistic and extra-linguistic factors. These factors include: verbal semantics (Levin 1993; Lapata 1999; Gries 2005; Bresnan et al. 2007), the discourse status of the theme/recipient, i.e., whether the object introduces a new referent or refers to a given referent (Halliday 1970; Erteschik-Shir 1979; Smyth, Hogan & Prideaux 1979; Givón 1984; Thompson & Koide 1987;

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[1] Different views exist about the syntactic status of the English to-PP and the clause pattern Verb + NP + to-PP. Ozón (2009: 19–75) exhaustively discusses of this issue. Basically, three different analyses have been suggested. The to-PP (or just the incorporated noun phrase) may first of all be regarded as a particular formal realization of an IO (e.g., Biber et al. 1999). The apparent semantic similarity between the to-PP and the IO is the main argument for this analysis. The to-PP may syntactically also be analysed as a Complement (cf. Huddleston and Pullum 2002: 248). In this analysis, the to-dative construction is regarded as a monotransitive clause rather than as a ditransitive one. Huddleston and Pullum object to the semantic argument as this would imply that the Subject of a passive clause, which also acts as a Recipient (cf. *Mary was given a book*) could actually also be analysed as an IO. A third possible syntactic analysis is offered in the construction grammar approach by Goldberg (1995). Goldberg regards the to-PP as part of a larger construction, the (Tranfer)-Caused-Motion construction.

Thompson 1995; Bresnan et al. 2007; Ozón 2009); the pronominality and definiteness of the theme/recipient (Ransom 1979; Bresnan et al. 2007); the animacy and person of the recipient (Bresnan 2007; Bresnan & Nikitina 2007; Bresnan & Ford 2010); and the weight of the theme/recipient, either in terms of length or syntactic complexity (Bock & Irwin 1980; Bock, Loebell & Morey 1992; Hawkins 1994; Collins 1995; Arnold et al. 2000; Prat-Sala & Branigan 2000; Wasow 2002; Snyder 2003; Wasow & Arnold 2003; Ozón 2009). There is also evidence for the influence of macro-regional variety (Muhkerjee & Hoffman 2006; Bresnan & Hay 2008; Theijssen 2008; Wolk et al. 2012), modality (Bresnan et al. 2007), speaker age (Bresnan & Hay 2008; Theijssen et al. subm.), and speaker gender (Bresnan & Ford 2010; Theijssen et al. subm.). As regards the preferred ordering of two pronominal objects, different views exist about which order is the preferred one. Biber et al. (1999: 929) found that "the prepositional construction (e.g., *give it to me*) is by far the most frequent", while Hughes and Trudgill (1996:16), Koopman and van der Wurff (2000), Kirk (1985) and Chesire et al. (1993) maintain that the DOC (e.g., *give me it*) is preferred.

The diachronic evolution of ditransitive constructions has thus far received much less attention (Siewierska & Hollmann 2007, Colleman & De Clerck 2011). The present study deals with ditransitivity in Old English (OE, ca. 5th-11th century AD), more particularly with the DOC with an accusative object (ACC)(equivalent to the DO in PDE) and a dative object (DAT)(equivalent to the IO). An example of this construction is given in (7):

(7) God   betæhte [þone wineard]$_{ACC}$ [þam wisum bocerum]$_{DAT}$.
    God   showed the   vineyard   the   wise   scholars
    God showed the vineyard to the wise scholars.
    (coaelhom, ÆHom_3:89.461)[2]

The ACC+DAT construction could take two alternating object orders. the ACC could either precede the DAT, as in (7), or it could follow the DAT, as in (8).

(8) hwi God   wolde   forgifan [þam yfelum mannum]$_{DAT}$ [agenne
    why God   wanted to give   the   evil   men   own
    freodom]$_{ACC}$,
    freedom
    'why God wanted to give evil men their own freedom,'

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[2] All examples are given with their YCOE reference; see < http://www-users.york.ac.uk/~lang22/YCOE/YcoeHome.htm > for more information.

(coaelive, ÆLS_[Auguries]:257.3649)

The same alternation existed with two pronominal objects, as illustrated in (9) and (10):

(9)   he [hit]$_{ACC}$ [him]$_{DAT}$ ðeah   suigende   gesæde.
       he hit   them   nevertheless silently   said
       'he nevertheless said it to them silently.'
       (cocura, CP:21.151.23.1035)
(10)   Sele [him]$_{DAT}$ eac   neahtnestigum   [þis]$_{ACC}$,
       give   him   also   after a night's fast this
       'Give him also, after a night's fast this,'
       (colaece, Lch_II_[2]:7.1.3.2226)

The ACC-DAT order is still found in certain British dialects. For instance, examples (11) to (13) are perfectly accepted in the north of England (Hughes and Trudgill 1996: 16), while the pronominal DO-IO order, as in (14), is even preferred in Lancashire (Hollman and Siewierska 2007).

(11)   She gave it the man.
(12)   She gave a book the man.
(13)   She gave the book him.
(14)   She gave it him

In standard British English this DO-IO order has been replaced by the to-dative construction.

   This study aims to determine the factors that guided the OE speakers' choice of either the ACC-DAT or the DAT-ACC order. It is reasonable to hypothesize that the same discourse-pragmatic factors that motivate the dative alternation in PDE already motivated the ACC+DAT object ordering in OE. Evidence from previous studies on the OE argument ordering in general (Pintzuk & Taylor 2006; Seaone 2006) and on the OE ACC+DAT construction in particular suggests that the same factors that drive the dative alternation in PDE were indeed involved in the OE speakers' choice of object order. Several studies observed a general tendency to put pronominal objects before nominal ones (Smith 1893; Bacquet 1962; Shannon 1964; Brown 1970; Carlton 1970; Kohonen 1978; Mitchell 1985; Koopman 1990; De Cuypere 2010). The factor length was also found to influence the choice of object order, in that shorter objects tend to precede longer ones (Huchon 1923; Kohonen 1978; Koopman 1990). Koopman (1990: 196) further noted a possible influence of definiteness. De Cuypere (2010) additionally found

corpus evidence for the influence of discourse status (new and accessible objects tended to be placed after given ones) and definiteness (definite objects tended to be placed before indefinite ones. However, no multifactorial study exists that has actually examined the simultaneous influence of the said factors.

An important difference between the ACC+DAT object alternation in OE and the dative alternation in PDE is that the latter also involves two different constructions, rather than only a position switch of the two objects. The IO also alternates with the PrepO. It is generally acknowledged that the latter alternation is associated with a semantic difference; what this difference involves is a matter of discussion. The finding that that the choice of construction is partly motivated by verbal semantics supports this view. PDE speakers are intuitively aware, for instance, that example (15) is infrequent in standard PDE and only acceptable in certain specific contexts, such as to create a contrast:

(15)   I carried John the box. [and not Bill]

The verb *carry* seems to be more closely associated with a change of location than with a change of possessor, which can explain why this verb is more common with the to-dative construction.

Research on the OE ACC+DAT alternation suggests that similar verbal preferences existed in OE. Table 2 presents the distribution that Koopman (1990: 188) found for the six most common ditransitive verbs:

Table 1: The OE ACC+DAT object order distribution of the five most common OE ditransitive verbs in Koopman (1990).

	DAT-ACC	ACC-DAT
forgiefan 'to give'	60 (68%)	28 (32%)
sellan 'to give'	149 (61%)	95 (39%)
bodian 'to offer'	37 (60%)	25 (40%)
secgan 'to say'	41 (56%)	32 (44%)
betæcan 'to command'	10 (16%)	51 (84%)

These data suggest, for instance, that *forgiefan* preferred the DAT-ACC order, while *betæcan* the opposite ACC-DAT order. The question is, of course, whether verb these apparent distributional preferences remain in conjunction with other influencing factors. My hypothesis is that verbal semantics accounts for far less variability in OE than in

PDE, because the OE object alternation merely involves a change in the position of the objects rather than an alternation between two different constructions.

The present study is based on a corpus sample of $N = 2409$ instances of the ACC+DAT construction, taken from the *York-Toronto-Helsinki Parsed Corpus of Old English Prose* (YCOE)(Taylor et al. 2003). The influence of 16 factors – 13 linguistic and 3 extra-linguistic ones – was evaluated by means of mixed-effects logistic regression modelling. The linguistic factors include verbal semantics, animacy, pronominality, definiteness, person and number of both the ACC and the DAT, concreteness of the ACC and the difference in length (in number of words) between the ACC and the DAT. The extra-linguistic factors that were additionally controlled for are subperiod (early vs. late OE), translation status and dialect.

The paper is organised as follows. The next section outlines the various ditransitive constructions that are attested in OE. This includes DOCs with different case patterns as well as ditransitive constructions with a prepositional object. Section 3 discusses the data sample and the variables that the study examined. The results are discussed in section 4. The observed tendencies for the OE ACC+DAT ordering are compared with those for the dative alternation in PDE as well as with the DOC ordering in German and Icelandic, two germanic languages that still feature the alternating ACC+DAT DOC. The results for the DOC with two pronominal objects are additionally also discussed.

2. Ditransitivity in OE

This section outlines the various ditransitive constructions that were used in OE. OE displayed a morphological case marking system featuring four different cases: nominative, accusative, dative, genitive (a fifth case, the instrumental, was virtually obsolete). OE also featured grammatical gender (masculine, feminine or neuter) and different noun paradigms (weak vs. strong), reflecting the former Germanic stem-classes. Table 1 illustrates the noun declension for *stán* ('stone', strong masculine), *cild* ('child', irregular neuter) and *lufu* ('love', strong feminine).

Table 2: noun declensions of *stan*, *cild* and *lufu*

	stan		cild		lufu	
	SG	PL	SG	PL	SG	PL
Nom	stán	stánas	cild	cild	lufu	lufa
Acc	stán	stánas	cild	cild	lufe	lufa
Gen	stánes	stána	cildes	cilda	lufe	lufa
Dat	stáne	stánum	cilde	cildum	lufe	lufum

As can be seen from table 1, many morphological distinctions had already been lost in OE; for instance, the distinction between Nom and Acc had largely disappeared.

With respect to the ditransitive construction, OE had different case patterns to mark the two objects that the verb could take. These patterns included ACC+DAT, ACC+GEN, DAT+GEN, and ACC+ACC. So far, no clear-cut semantic distinctions have been found between these case patterns. Mitchell (1985: 453) warns: "anyone who tries to erect these tendencies into elaborate and rigid schemes of classification will not get far." I will also refrain from making such a classification. This section merely aims to illustrate the different ditransitive constructions that are found in OE.

The ACC+DAT ditransitive construction, by far the most common one, consisted of the ACC marking the Theme and the DAT the Recipient (sometimes also the Deprivee or another related semantic role). This particular case pattern is illustrated in examples (16) and (17).

(16) dældon   [heora æhta]$_{ACC}$ [ealle þearfum]$_{DAT}$,
      distributed   their belongings   all poor
      'ditributed their belongings to all the poor'
      (coaelive, ÆLS_[Basil]:54.479)

(17) for ðan ðe   he forgeaf   [his geleaffullum]$_{DAT}$ [þa gastlican gife]$_{ACC}$;
      for that   he gave   his faithful   the spiritual grace
      'because he gave his faithful the spiritual grace;'
      (cocathom2, ÆCHom_II,_43:319.44.7210)

Allen (1995: 29) found that this ACC+DAT case pattern could sometimes also be used with a DAT Theme and the ACC marking the human participant, as in (18).

(18) þa   het   he [hine]$_{ACC}$ [wædum]$_{DAT}$ bereafian
      then   ordered he him   clothes   bereave
      'then he ordered to strip him his clothes'
      (cocathom1, ÆCHom_I,_29:424.179.5781)

The pattern ACC+GEN, illustrated in (19) and (20), occurred with "verbs expressing a kind of taking away from (or more properly of making less burdened, less rich, etc.)" (Visser 1963: 621).

(19) & bereafode [Godes templ]$_{ACC}$ [goldes and seolfres]$_{GEN}$
      & robbed   God's temple   of gold and of silver
      '& stole gold and silver from God's temple'

(coaelive, ÆLS_[Maccabees]:6.4838)

(20) Ða   bæd he   [ðone halgan wer]~ACC~ [þæs feos]~GEN~.
     Then asked he   the holy man   of that money
     'Then he asked the holy many for that money'
     (cocathom2, ÆCHom_II,_11:103.398.2207)

Verbs of deprivation also occurred with the DAT+GEN pattern, as illustrated in (21) to (22).

(21)   & wolde   [his agenum fæder]~DAT~   [feores]~GEN~   benæman
       & wanted his own father   of fire   take from
       '& wanted to rob his own father of fire'
       (coaelive, ÆLS_[Alban]:215.4122)

(22)   & forwyrnde   [him]~DAT~   [inganges]~GEN~,
       & prevented   him   of entrance
       '& prevented him from entering,'
       (coaelive, ÆLS_[Maur]:304.1673)

Other verbs that are found with this DAT+GEN case pattern include *(ge)tiÞian* ('allow') and *(ge)unnan* ('grant')(Visser 1963: 607).

The ACC+ACC pattern was possible with a small collection of verbs (Visser 1963: 635–636). Two examples are offered in (23) and (24). The personal pronoun *him* in (23) is a typically used with *bæd* as a reflexive adjunct that co-refers to the Subject.

(23)   & he him þa   [þone eadigan wer]~ACC~   [forgifnesse]~ACC~   bæd.
        & he him then   the blessed man   forgiveness   begged
        '& then he begged the blessed man for forgiveness.'
        (coblick, LS_17.1_[MartinMor[BlHom_17]]:223.209.2854)

(24)   Se Halga Gast   [hie]~ACC~   [æghwylc god]~ACC~   lærde,
        The holy spirit   them   every good   learned
        'the holy spirit taught them every good thing,'
        (coblick, HomS_47_[BlHom_12]:13121.1613)

I did not find any examples of the ditransitive case patterns GEN+GEN or DAT+DAT. Clauses with two GENs and DATs exist, but only with one of the phrases functioning as an adjunct, as in (25) and (26), or, in the case of GEN+GEN, with the second GEN as part of a discontinuous noun phrase, as in (27).

(25)   se þe [þæs]GEN   [his wylles]GEN-ADJUNCT   gyrnð
         who this   with his will   yearns
         'who yearns for this with his will'
         (cochdrul, ChrodR_1:67.1.885)

(26)   ac   he æfre   [openum eagum, and upahafenum handum]DAT-ADJUNCT
         but he ever   open eyes, and uplifted hands
         [his gebeda]GEN   ne geswac.
         of his prayers   not rested
         'but he never rested from his prayers with open eyes and uplifted hands'
         (coaelive, ÆLS_[Martin]:1357.6868)

(27)   Ne scealt   þu   hwæþre [þæs andgites]GEN-PART-1 bedæled beon [þisses eadigan
         not shall   you however of this understanding   imparted be   of this blessed
         mannes lifes]GEN-PART-2 Equities.
         of man's of life's   Equity.
         'You shall not be imparted of the wisdom of the life of the blessed man Equity.'
         (cogregdC, GD_1_[C]:4.33.12.365)

Finally, OE also featured ditransitive constructions in which one of the objects was introduced by a preposition, such as ACC+*to*-DAT (c*wedan* 'say sth. to sb.'), ACC+*from*-DAT (*ætbregdan* 'take sth. from sb.', DAT+*wiÞ*-ACC (*beorgan* 'protect sb./sth. against sth). Although OE was an inflectional language, the use of this kind of prepositional ditransitives was not at all rare in comparison to the prepositionless alternatives. For instance, the prepositional ACC+to-DAT construction appears to have been more frequent than the ACC+DAT DOC with the verbs *lædan*, *sendan*, *asenden*, *beran* and *cweðan* (Cassidy 1938, De Cuypere to appear).

In the next sections, we focus our attention on the ACC+DAT DOC and the motivations behind the choice of one of both orders. Section 2 discusses the sample design and the specific operationalization of each factor.

2. Corpus sample and data annotation

Using *CorpusSearch2* (Randall 2003), a total of $N = 2409$ observations of the ACC+DAT DOC was retrieved from the *York-Toronto-Helsinki Parsed Corpus of Old English Prose*, a 1.5 million word syntactically-annotated corpus of OE prose texts. Poetic texts were excluded from the analysis to avoid interference of rhyme and metre and other poetic influences (e.g., chiastic structures or parallelism) as much as possible. Unfortunately, such kind of influences cannot fully be avoided, as the boundary between prose and poetry was often blurred; Ælfric's rhythmical prose in *Lives of Saints* is a case in point. My corpus sample contains 206 observations from this particular collection of texts, which approximately

accounts for 8.5% of the total corpus sample. Omitting 8.5% observations would imply a severe loss of data. I have therefore decided to keep them in my sample.

Further excluded from the sample were clauses with fronted objects, i.e. objects placed before the subject, whether ACC, as in example (28), or DAT, as in (29), because these objects take first position by definition:

(28) *stor*_{ACC} we *him*_{DAT} bringað
incense we him   bring
'incense we bring him'
(cocathom1, 7: 239, 235)

(29) *Ðam acennedan cyninge*_{DAT} we bringað *gold*_{ACC}
the newborn king   we bring gold
'To the newborn king we bring gold'
(cocathom1, 7: 239, 233)

ACCs or DATs functioning as Adjuncts (generally of Time, Place or Manner) were also excluded. The exclusion of these adjuncts is self-evident in the case of adjuncts of time (30) or manner (31).

(30) & þa englas [þa hwile]_{ACC-ADJUNCT} Heliodorum gespræcon,
& the angels meanwhile   Heliodorus addressed
'and meanwhile the angels addressed Heliodorus,'
(coaelive, ÆLS_[Maccabees]:789.5343)

(31) We habbað nu gesæd þis halige godspell [anfealdum andgyte]_{DAT-ADJUNCT},
We have now said this holy gospel   simple terms
'We have now said this gospel in simple terms,'
(coaelhom, ÆHom_19:270.2819)

I also excluded DATs used as reflexive adjuncts, illustrated in (32) and (33), and DATs indicating a beneficiary, as in (34) and (35).

(32) Þa awrat se hælend [him sylf]_{DAT-ADJUNCT} þis gewrit,
then wrote the holy man himself   this writing
Then the holy man wrote this writing by himself.
(coaelive, ÆLS_[Abdon_and_Sennes]:102.4787)

(33) Hi begeaton […] [him]_{DAT-ADJUNCT} ænne latteow ænne dumbne cnapan
They got   […] themselves   a   guide   a   dumb boy
They got for themselves a dumb boy as a guide

(coaelive, ÆLS_[Swithun]:159.4311)

(34) brec   [ðæm hyngriendum]_{DAT-ADJUNCT}   ðinne hlaf,

break   the hungry   your bread

'break your bread for the hungry,'

(cocura, CP:43.315.12.2109)

(35) bohte   [him]_{DAT-ADJUNCT}   win,

'bought   him   wine,'

(coeust, LS_8_[Eust]:257.266)

Finally, sentences with discontinuous objects, as in (27), were excluded because the object order of such sentences is ambiguous. Also omitted were instances of the ACC+DAT where the ACC marked the human participant and the DAT the Theme, as in example (18).

The next paragraphs discuss the annotation of the each factor under analysis.

Verb. Coded as the infinitive of the observed sentence verb. A large number of verbs occurred with the ACC+DAT construction. Visser (1963: 621) lists 235 different verbs that could be used with an ACC+DAT construction, while Koopman (1990: 140) found no less than 312 instances (Koopman does not provide a list). The present study includes 82 different verbs (see appendix 1). Although not exhaustive, this list study certainly contains the most frequently attested verbs that could occur with this particular construction.

As mentioned in the introduction, Koopman found that certain verbs seemed to prefer one of both object orders. This study investigates these preferences in combination with the factors discussed below. I expect that the preferences of the OE verbs for one of both object orders will be less outspoken than those in the PDE dative alternation, because the OE object alternation merely involves a change in object order and not a constructional change.

Animacy of Accusative Object and Dative Object. Animacy is known to play a role in the choice between various syntactic variants, including the English dative alternation. All else being equal, animate objects are expected to precede inanimate ones.

In this study, an object was coded as 'animate' when its referent was a living being (including animals, ghosts, spirits and Gods). Plants were excluded from this category, despite their biological status. Note, however, that a further distinction between two kinds of inanimates was made under the variable *concreteness* ('concrete' vs. 'abstract'); plants were accordingly distinguished from abstract inanimate entities.

It is to be expected that the large majority of DATs acting as recipients will have an animate referent, i.e., a referent that is actively capable of receiving something (Jespersen 1927; Haspelmath 2004). This was also the case in this sample. I found only 12 instances of an inanimate DATs. Inanimate DATs generally involve abstract acts of receiving that can only metaphorically be interpreted as a kind of transfer, as in (36):

(36)   & æteowiað   [his gesihþum]$_{DAT}$ [eall   þæt wita   tol]$_{DAT}$.
        & showed   his sight   all   the torture tools
        'and showed to his sight all the torture tools.'
        (cocathom1, ÆCHom_I,_29:422.129.5735)

Because of the very low number of inanimate DATs this variable was excluded from further analysis.

Pronominality of Accusative Object and Dative Object. The influence of pronominality on OE object ordering is well-observed; all else being equal, pronominal objects tend to precede nominal ones. Examples (37)(pronominal ACC) and (38)(pronominal DAT) illustrate the expected ordering:

(37)   þæt heo [hi]$_{ACC}$ dælde   [þearfum and wædlum]$_{DAT}$
        that she them   distributed to poor and needy
        'that she distributed them to the poor and needy'
        (coaelive, ÆLS_[Eugenia]:140.276)
(38)   þæt hi   [him]$_{DAT}$ [heora lac]$_{ACC}$ offrian   sceoldon
        that they him   their offering(s)   offer   should
        'that they should offer him their offering(s)'
        (cocathom1, ÆCHom_I,_31:439.11.6079)

Note here that phrases with a pronominal head, e.g., (39) to (41), were also regarded as pronominal objects. This also implies that pronominal objects could be longer than one word.

(39)   eall this,
        'all this,'
        (cootest,Josh:2.22.5224)
(40)   eall þæt he for us   þolode.
        all   that he for us   suffered
        'all that he suffered for us.'

(cowulf, WHom_6:193.369)

(41) þam   þe   hym gehyrsumedan,
     those who   him   obey
     'those who obey him,'
     (coaelhom, ÆHom_19:43.2697)

Definiteness of Accusative Object and Dative Object. Following Thompson (1995), Definiteness was understood in terms of specificity. On this analysis, a definite object has a specific (group of) referent(s), whereas an indefinite object has no specific object or refers to a general class of objects. Both objects in example (42) were accordingly considered definite, as both refer to a specific referent. Conversely, the objects in (43) were regarded as indefinite.

(42)   & he æteowð [þa   wunda]$_{ACC}$ gewislice [him]$_{DAT}$;
        & he showed the   wounds   truly   him
        'and he truly showed the wounds to him;'
        (coaelhom, ÆHom_11:290.1637)

(43)   þæt he sealde   [sum þing]$_{ACC}$ [þearfendum mannum]$_{DAT}$.
        that he gave   something   poor men
        that he give something to poor people
        (cowsgosp, Jn_[WSCp]:13.29.6924)

It is expected that definite objects will tend to precede indefinite ones.

Concreteness of the Accusative Object. This variable was included to draw a supplementary distinction between different types of inanimate accusatives. An ACC was considered as 'concrete' when its referent was "a prototypical concrete inanimate object or substance perceivable by one of the five senses" (Bresnan & Ford 2010: 10, following Garretson 2003). In contrast, an 'abstract' referent was regarded as a referent that was not physically perceivable. Examples such as 'love', 'knowledge' were accordingly coded as abstract inanimates, whereas 'plants', 'money', 'flesh' as concrete inanimates. An example of an abstract and a concrete ACC is given in (44) and (45) respectively:

(44)   & [him]$_{DAT}$ forgeaf   [ingehid ealra gereorda]$_{ACC}$
        & them   give   knowledge of all languages
        'and gave them knowledge of all the languages'
        (cocathom1, ÆCHom_I,_22:358.109.4414)

(45)   þæt hi   moston [him]$_{DAT}$ beran   [unforboden flæsc]$_{ACC}$,

> that they might   him   bring   unforbidden flesh
> 'that they might bring him unforbidden flesh,'
> (coaelive, ÆLS_[Maccabees]:90.4871)

All else being equal, concrete objects were expected to precede abstract ones. There were 195 cases of which the concreteness could not be determined. For instance, it was often unclear whether an offer (*lac*) was something concrete or whether it was merely a spiritual sacrifice. Unclear cases were marked as missing values (NA).

Person of Accusative Object and Dative Object. Following Bresnan and Ford (2010), this variable was coded as 'local' for first and second person, and as 'non-local' for third person. All else being equal, local objects were expected to precede non-local ones.

Nearly all objects found in this corpus sample were found to be 'non-local'. There were only 3 local ACCs, and 11 local DATs. Both variables were therefore excluded from further analysis. The reason for this shortness of local objects is probably due to the fact that the sample includes little to no dialogue; in contrast, Bresnan et al.'s (2007) dataset contains 2360 instances of exclusively spoken dialogue and so in this case the distinction between local and nonlocal objects is relevant.

Number of Accusative Object and Dative Object. Objects were coded as either 'singular' or 'plural' based on formal marking or on contextual clues. The ACC *þing* 'thing', for instance, was coded as 'plural' in example (46), even though the accusative singular and plural of *þing* are formally identical.

(46)   & [heom]_{DAT}   [fela þing]_{ACC}   sæde on his fundunge þa;
        & him   many things   said   on his departure then;
        'and said him many things upon his departure;'
        (coaelhom, ÆHom_8:20.1172)

Unfortunately, in many cases (166 ACCs and 829 DATs) it was impossible to exactly determine this feature, as only the extracted sentences were examined. For instance, the demonstrative pronoun *þa* may be both singular ACC ('the', 'that') or plural ACC ('those'). Similarly, the third person personal pronoun *him* may be both singular (masculine and neutral) or plural DAT. The cases were treated as missing values. It was expected that plural objects would precede singular ones. Because there were so many missing values, I dropped this variable from further investigation.

Relative Length. Following Bresnan and Ford (2010), relative length was measured as the difference between the logarithm of the length of the DAT minus the logarithm of the length of the ACC, with length measured as number of graphemic words. The difference in length captures the relative length rather than the separate lengths of the objects (Bresnan & Ford 2010: 174), while the logarithmic transformation reduces the effect of outliers (Bresnan et al 2007: 77). No other measurement (e.g., number of syllables or phonemes) was tested; different measurements of "end weight" are highly correlated (Wasow 1997) and the same results for the effect of the length difference between ACC and DAT may thus expected to be obtained irrespective of its measurement.

The role of length on argument ordering in general is well-documented. With regard to OE, Pintzuk & Taylor (2006: 254) found that there is an effect of length in the choice between OV and VO order. The effect has also been observed for the ditransitive object order in OE. Koopman (1990: 192) reports that "length seems to be a factor only when the objects differ considerably in length, in that the longer object usually follows the shorter object". This study aims to provide a more accurate evaluation of this effect.

The effect of three extra-linguistic factors was additionally examined: subperiod, dialect and translation status. The information for these three factors was retrieved from the YCOE text information.[3]

Subperiod. The YCOE provides information for the time of composition and time of manuscript and distinguishes between four subperiods. Table 3 presents the distribution of the data based on the YCOE information.

Table 3: number of observations per subperiod

Subperiod	Composition	Manuscript
o1 (-850)	21	7
o2 (850-950)	744	403
o3 (950-1050)	1232	1339
o4 (1050-1150)	1	260
missing	411	400

As can be seen from the table, o1 and o4 contain considerably less observations than o2 and o4. The sparse data also resulted in convergence problems for date of composition. I have therefore decided to merge the categories (for both the date of composition and the date of manuscript) into two groups: 'early' (o1 and o2) vs. 'late' (o3 and o4). The

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[3] http://www-users.york.ac.uk/~lang22/YCOE/info/YcoeTextInfo.htm. Last date of access 10 February 2014.

classification between early (-950) and late OE (950-). This classification is also in line with OE scholarship, e.g., Taylor (2008) and Alcorn (2011).

The new categories together with the number of observations are given in Table 4. The cut-off date of 950 AD is somewhat arbitrary, but the binning and the balanced distribution that results from it have the advantage of adding power to the analysis.

Table 4: Merged subperiods

Subperiod	Composition	Manuscript
early	765	410
late	1233	1599
missing	411	400

Koopman (1990: 187) found that there was a tendency towards late OE to use the DAT-ACC. This study thus controls for this possible effect. The date of composition and the date of manuscript were both separately tested.

Dialect. Four dialects of OE are traditionally distinguished: West-Saxon, Kentish, Mercian, and Northumbrian (see Figure 1); Mercian and Northumbrian are also referred to as Anglian.

Figure 1: Old English dialects

The study of OE syntactic dialect variation is hampered by the fact that the OE texts are mostly from the Southern area and particularly from West-Saxon. Moreover, the Mercian

and Northumbrian data are mainly from interlineal glosses found in Latin texts (Hogg 2006: 409). As indicated in Table 5, the data collected for this study are nearly all (99%) associated with West-Saxon.

Table 5: Observations by Dialect

Dialect	
West-Saxon	1440
West-Saxon-Anglian	328
West-Saxon-Anglian-Mercian	180
West-Saxon-Unknown	128
Kentish	21
Unknown	312

Translation. The sample includes 1023 (43%) observations taken from translated texts (from Latin), and 1035 (42%) observations from non-translated ones; the translation status of 351 (15%) was unknown.

Contact induced influences may also be indirect. We know, for instance, that Aelfric relied on Latin sources to write his homilies. Although these homilies are not direct translations from Latin, there is possible influence of the syntactic orders found in the source texts. This indirect contact effect was not evaluated in this study.

3. Results

A mixed-effects logistic regression model was used to evaluate the effect of the predictor variables on the choice of object order. Table 6 presents the estimates for the fitted model, including only those variables that are significant at the 5% significance level (based on the Wald test).[4] The data sample for this model contains $N = 1832$ observations (missing values were dropped), with ACC-DAT = 695 (38%) and DAT-ACC = 1137 (62%).

Table 6: Model estimates. The DAT-ACC order is treated as the success.

	Est. Coeff. (s.e.)	z-value	p-value
Intercept	1.061 (0.185)		
Pronominality ACC			
pronominal	-1.268 (0.205)	-6.19	< 0.0001

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[4] The mixed-effects logistic regression models were fitted with the lmer function of the lme4 package (Bates, Maechler & Bolker 2011) in R (R Development Core Team 2010).

Definiteness ACC			
definite	-1.522 (0.152)	-10.01	< 0.0001
Concreteness ACC			
concrete	-0.317 (0.144)	-2.21	< 0.05
Pronominality DAT			
pronominal	1.432 (0.156)	9.17	< 0.0001
Relative length	-2.605 (0.223)	-11.66	< 0.0001
Completion			
late	-0.352 (0.139)	-2.54	< 0.05
Random Intercept			
Verb (81 groups)	0.365 (0.604)[*]		< 0.0001[†]

[*]Variance and (Standard deviation).

[†] *P*-value is based on the Likelihood Ratio Test

Model diagnostics indicate a very good model fit. The model correctly predicts 80% of the observations (baseline = 63%). The improvement against the baseline is highly significant (Binomial test, *p*-value = 0.0001). Moreover, the average concordance index after 100-fold cross-validation equals 0.86, which is indicative of a very good classification rate. Evaluating collinearity further suggests that this is not a problem: $\varkappa$ = 4.636, max VIF = 1.284.[5]

Based on this model, there is evidence for the influence of seven factors: Pronominality, Definiteness and Concreteness of ACC, Pronominality of DAT, Relative Length, Completion, and Verb. The direction of their influence was in line with the hypotheses put forward in section 2. Figure 3 graphically represents the effects associated with each significant predictor.[6]

[5] $\varkappa$ and VIF were calculated with Austin Frank's code posted on Florian Jaeger's blog: http://hlplab.wordpress.com/2011/02/24/diagnosing-collinearity-in-lme4/ (DOA: 11 February 2014).

[6] The effect plots were created with the effect function from the effects package in R (Fox et al. 2012).
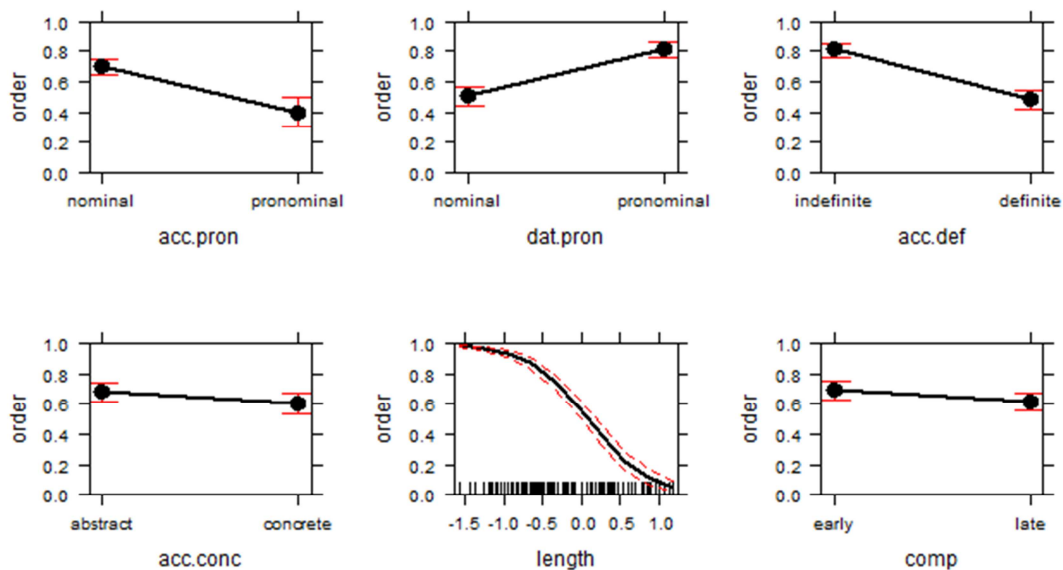
Figure 2: The predicted probabilities and 95% confidence intervals of the significant predictors

The effect plots illustrate the opposite effects that the same feature yields for the two objects. Thus, while a nominal ACC is more likely to be used with the DAT-ACC order than a pronominal ACC, a nominal DAT is less likely to be used with the DAT-ACC order than a pronominal DAT. The slopes further indicate the effect size associated with the predictors; steeper slopes indicate stronger effects. Thus the effect of Pronominality of ACC is stronger than that of Completion.

The effect of length Relative further corroborates the hypothesis that longer arguments tend to be placed after shorter ones. Thus, the longer the ACC with respect to the DAT (negative values indicate that the ACC is longer than the DAT), the higher the preference of the DAT-ACC order and vice versa. Notice that the probability of the ACC-DAT is about 0.5 when both objects are of equal length (i.e., with length = 0).

The results further indicate that the DAT-ACC order was significantly more likely in early OE than in late OE, or, conversely, that the ACC-DAT order was more likely in late OE. This finding supports Koopman's observation there was no decline in the use of the ACC-DAT order during OE and that the ACC+DAT object ordering remained flexible until the end of OE. Examples (47) and (48), both with the ACC-DAT order, are found in Wulfstan's homilies (ca. late 10th to early 11th century AD, late OE).

(47)   & hefenware   cæga eac him befæste
       & heaven-dweller   keys also him entrusted
       '& also entrusted the heaven-dweller's keys to him'

(cowulf, WHom_17:28.1383)

(48) & þær   georne   his gebedu   Gode   ælmihtigum   to lacum sende,
     & there   eagerly   his prayers   God   almighty   as offers sent
     '& sent there eagerly his prayers to God almighty as offers,'
     (cowulf, WHom_18:100.1482)

To verify whether the ACC-DAT was not particularly associated with pronominal objects (cf. *give it him*, which is still grammatical in PDE), I fitted the same model to the subset with two nominal objects only. The effect for Completion remained: ACC-DAT was still more probable in late than in early OE, which additionally confirms that there was no decline in the use of the ACC-DAT order towards the end of OE. In other words, both orders remained fully productive throughout OE.

Finally, there is also evidence that there was some variability associated with the particular ditransitive verbs. This random effect significantly improved model log-likelihood ($\chi^2 = 22$, df $= 1$, *p*-value < 0.0001). However, the estimated variance associated with the verb was rather low (0.365), which indicates that there were no large differences between the preferences of the verbs for one of both object orders. This is further indicated by the confidence intervals of the predicted random intercepts (cf. the caterpillar plot in Figure 4). The interval of all but three verbs overlapped 0: *agifan* (0.74) and *bringan* (0.64), which are biased towards the DAT-ACC order and *dælan* (-0.95), which is biased towards the ACC-DAT order. Moreover, these results do not corroborate Koopman's observations given in Table 1.
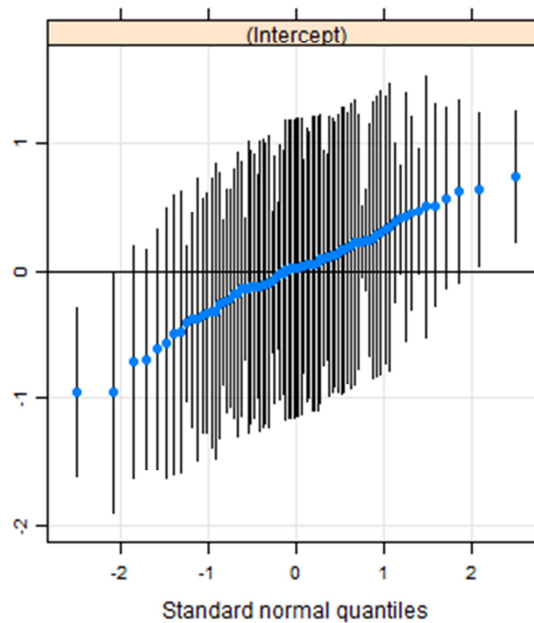
Figure 3: Predicted random intercepts for Verb and their 95% CI.

4. Discussion and concluding remarks

The results of this study mostly corroborate the tendencies that I hypothesized based on the large body of research findings for the dative alternation in PDE. The results of this study are in line with those observed for the dative alternation in Present Day English and Late Modern English. The regularity of the observed patterning thus qualifies as a case of "harmonic alignment", defined by Bresnan and Ford (2010: 183) as "the tendency for linguistic elements that are more or less prominent on a scale (such as the animacy or nominal-expression type scales) to be disproportionately distributed in respectively more or less prominent syntactic positions (such as preceding in word order or occupying a superordinate syntactic position)".

Wolk et al. (2012) found that the same general tendencies also applied to the dative alternation in Late Modern English (ca. AD 1650 to AD 1999). However, in contrast to Wolk et al. (2012), this study found no evidence that the impact effects associated with certain variables changed during OE. Wolk et al. (2012) found more particularly that inanimate recipients were more likely to occur with the DOC after 1900. My corpus data indicate that there was a higher probability of the ACC-DAT order in late OE, but no interactions with time differences were found.

Possibly, certain factors are more sensitive to change over time than others. Gries and Hilpert (2010) thus found that certain factors do not interact with time while others

do. More specifically, they found that factors such as gender (women using an incoming variant more frequently) or collocate frequency (the old variant holds out longer in heavily entrenched lexical contexts) changed over time in terms of their effect strengths, whereas the effect of end weight remained stable (Gries and Hilpert 2010). The latter effect is possibly a general processing constraint rather than a language specific effect.

There were two other differences between the results of this study and previous findings on the English dative alternation. First, animacy did not appear to yield a significant effect on the ACC+DAT alternation. Animacy of DAT was left out of the analysis because of the very low number of animate DATs. With respect to animacy of ACC, it is possible that the number of animate ACCs (337 animate vs. 2090 inanimate) was also too low to find any significant effects. I have no other explanation for this result.

Second, it appeared that the variability accounted for by the sentence verb was rather low. Moreover, as there were many verbs with only a few observations, it proved impossible to estimate their associated effect with much precision. The caterpillar plots aptly visualized this: all the confidence intervals of the intercepts were large and all but three overlapped 0. The overall variance associated with the verb found in my model was also much lower than the variation observed in PDE; the variance in my reduced model was 0.365, whereas 2.52 in Bresnan and Ford's (2010: 177). This finding qualifies my initial assumption that the ACC+DAT alternation was solely motivated by discourse-pragmatic factors, and not by verbal semantics as is the case in the dative alternation in PDE. It seems to me, then, that the observed variability merely reflects random fluctuation. This is in itself not so remarkable (it would be more surprising if each verb displayed a perfectly balanced object order). Importantly, however, by including this verb as a random factor, I ensured that this nuissance parameter was controlled for when estimating the fixed effects.

With respect to the ACC+DAT construction with two pronominal objects, my results nuance earlier claims about the strong preference for the ACC-DAT order. Koopman (1990: 175) thus found that the order ACC-DAT "was almost universal" when both objects were pronominal. In his sample, 74 cases displayed the ACC-DAT order, but only 10 the DAT-ACC order. Gerwin (2013) found the same historical preference based on data from ARCHER, a corpus covering data from 1650 to 1999. Gerwin goes as far as to claim that "[t]he canonical double-object construction is a recent innovation in British English" (Gerwin 2013: 448).

In my sample, there were 87 instances of the double pronominal ACC-DAT order: 49 (56%) with the ACC-DAT order vs. 38 (44%) with the DAT-ACC order (for this comparison, I omit cases where the pronoun takes a modifying phrase, e.g., examples (39), (40) and (41); in other words, only pronominal objects of one word are examined here). This indicates that the canonical DAT-ACC DOC with two pronominal objects

already existed in OE and that there was a preference for the ACC-DAT order, but not one that was "almost universal". The results also falsify the claim that the canonical order is a recent innovation.

My data further shows that the choice of object order with two pronominal objects was strongly associated with the kind of pronominal object. Table 7 outlines the object orders with *it*, *þæt* and *þis*, which together account for 68% of all double pronoun constructions in my sample. With *it*, the object order was always ACC-DAT. However, with *þæt* and *þis*, the DAT-ACC order was strongly favoured (χ^2 = 56, df =1, *p*-value < 0.0001).

Table 7: use of ACC *hyt/hit* (it) vs. *þæt/þis/þet/þone/þa/ða* (that, this) with the ACC+DAT construction with a pronominal DAT

	ACC-DAT	DAT-ACC
'it'	41	0
'that, this'	8	38

The preferred orders are illustrated in examples (49) and (50):

(49) & þu [hit]_{ACC} [him]_{DAT} of þinum handum sealdest;
    & you it him of your hands gave
    and you gave it to him out of your hands;'
    (cosevensl, LS_34_[SevenSleepers]:607.476)

(50) se halga gast [him]_{DAT} [þæt]_{ACC} sæde
    the holy ghost him that said
    'the Holy Ghost told him that'
    (coaelive, ÆLS[Peter's_Chair]:113.2348)

The same ordering is, for instance, observed in standard Dutch, where the pronominal double object orderings in (51) and (52) are grammatically determined (the opposite DOC orders are ungrammatical in standard Dutch).

(51) Ik heb [het]_{DO} [hem]_{IO} gezegd. (*Ik heb hem het gezegd)
    I have it him told
    'I have told him it.'

(52) Ik heb [hem]_{IO} [dat]_{DO} gezegd. (*Ik heb dat hem gezegd)
    I have him that told
    'I have told him that.'

The (proximate) explanation for the observed Dutch ordering is that the speaker is simply following a grammatical rule; the opposite ordering is ungrammatical. But what explains the OE ordering preference (which may also be the ultimate explanation of how the standard order in Dutch emerged)?

There may be two complementary motivations. The first one is that *it* is phonologically more reduced and less stressed in comparison to *him* than *that* is (cf. Jespersen 1927:288). Following the short before long principle, *it* would have been more likely to precede *him* than *that*. The second explanation is that *this* and *that* appear to have often been used as a way to cataphorically introduce new information. Thus, *that* in (50) is followed by a story, and *this* in (10) by an explanation of a recipe; the order of (50) and (10) thus follows that given-before-new principle. In contrast, *it* was in all examples used anaphorically and thus referred to given information. Given that *it* is shorter than *him*, the ACC-DAT is likely to be the preferred order.

Finally, what do the findings of this study tell us about the linguistic competence of the OE speakers? Wolk et al. (2012) argue that their findings for the dative and genitive alternation in Late Modern English shed light on the underlying intuitions of the speakers: "Having no access to past speakers' intuitions we can still apply the uniformitarian principle and may reasonably assume that the cognitive mechanisms underlying present-day probabilistic patterns also underlie past variation". The "present-day probabilistic patterns" refer to the factors and their associated impact effects that influence the dative alternation. Bresnan and Ford's (2010) psycholinguistic findings suggest that their corpus results accurately capture the English speakers' intuition. They found, for instance, that speakers of American and Australian English are sensitive to differences associated with their particular language variety. Such psycholinguistic findings suggest that the observed corpus tendencies are intuitively known by the speaker and are thus part of their linguistic competence.

Of course, the intuition of past speakers cannot be tested directly. However, the findings of this study indicate that the factors that drive the dative alternation in PDE were already operational in OE and that the direction of their effect has remained stable since the emergence of the English language.

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Appendix 1: Observed verb frequencies and cumulative percentages

sellan	509	21%	asendan	11	90%	andwyrdan	3	98%
secgan	183	29%	forgieldan	11	91%	areccan	3	98%
forgiefan	161	35%	iewan	11	91%	deman	3	98%
offrian	133	41%	ætbredan	10	91%	dihtan	3	98%
cyðan	121	46%	beran	10	92%	fedan	3	99%
agifan	99	50%	gearwian	10	92%	findan	3	99%
bringan	93	54%	læran	10	93%	gearcian	3	99%
don	85	57%	aræran	9	93%	gemetan	3	99%
betæcan	78	61%	læstan	9	93%	ryman	3	99%
æteowan	75	64%	cweðan	8	94%	þafian	3	99%
beodan	65	66%	gehalgian	8	94%	asettan	2	99%
bodian	62	69%	geteon	8	94%	awrittan	2	99%
sendan	61	72%	niman	7	95%	begitan	2	99%
giefan	55	74%	witan	7	95%	bycgan	2	100%
dælan	51	76%	aferran	6	95%	forlætan	2	100%
reccan	44	78%	aliefan	6	96%	writan	2	100%
behatan	35	79%	forstelan	6	96%	arnian	1	100%
tæcan	32	81%	læfan	6	96%	bicnian	1	100%
gieldan	27	82%	openian	6	96%	biddan	1	100%
swutelian	24	83%	gebetan	5	96%	geðeodan	1	100%
swerian	23	84%	geðafian	5	97%	lædan	1	100%
befæstan	19	85%	geleanian	5	97%	sprecan	1	100%
forbeodan	20	84%	singan	5	97%	tacnian	1	100%
settan	19	86%	wyrcan	5	97%	timbran	1	100%
gestrinan	16	88%	forberan	4	97%			
bebeodan	15	89%	geahnian	4	98%			
agildan	13	89%	tellan	4	98%			
asecgan	12	90%	abiddan	3	98%			

Appendix 2: Bivariate distributions of the predictors in relation to object order

	ACC-DAT 958 (40%)	DAT-ACC 1451 (60%)	Total
Animacy ACC (missing = 0)			
animate	216 (65%)	117 (35%)	333
inanimate	742 (36%)	1334 (64%)	2076
Animacy DAT (missing = 0)			
animate	953 (40%)	1444 (60%)	2397
inanimate	5 (42%)	7 (58%)	12
Concreteness ACC (missing = 195)			
concrete	405 (34%)	778 (66%)	1183
abstract	420 (41%)	611 (59%)	1031
Pronominality ACC (missing = 0)			
nominal	558 (29%)	1350 (71%)	1908
pronominal	400 (80%)	101 (20%)	501
Pronominality DAT (missing = 0)			
nominal	796 (56%)	616 (44%)	1412
pronominal	162 (16%)	835 (84%)	997
Definiteness ACC (missing = 0)			
definite	735 (55%)	599 (45%)	1334
indefinite	223 (21%)	852 (79%)	1075
Definiteness DAT (missing = 0)			
definite	773 (37%)	1312 (63%)	285
indefinite	185 (57%)	139 (43%)	324
Person ACC (missing = 0)			
local	2 (67%)	1 (33%)	3
non local	956 (40%)	1450 (60%)	2406
Person DAT (missing = 0)			
local	4 (36%)	7 (64%)	11
non local	954 (40%)	1444 (60%)	2398
Number ACC (missing = 166)			
singular	674 (42%)	947 (58%)	1621
plural	214 (34%)	408 (66%)	622
Number DAT (missing = 829)			
singular	476 (51%)	451 (49%)	925
plural	371 (57%)	284 (43%)	655
Completion (missing = 411)			

early	279 (36%)	486 (64%)	765
late	529 (43%)	704 (57%)	1233
Manuscripts (missing = 400)			
early	127 (31%)	283 (69%)	410
late	685 (43%)	914 (57%)	1599
Dialect (missing = 312)			
West-Saxon	607 (42%)	833 (58%)	1440
West-Saxon-Anglian	104 (32%)	224 (68%)	328
West-Saxon-Anglian-Mercian	83 (46%)	97 (54%)	180
West-Saxon-Unknown	49 (38%)	79 (62%)	128
Kentish	9 (43%)	12 (57%)	21
Translation (missing = 351)			
Yes	396 (39%)	627 (61%)	1023
No	451 (44%)	584 (56%)	1035