The Origin and Development of Negation in Infinitival Clauses*

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This paper investigates the distribution of negative infinitives in the history of English based on the data from historical corpora, and explores the origin and development of negation in infinitival clauses. It is argued that its origin is traced back to the constituent negator *not* which is adjoined to the whole infinitival clause as PP in Old English. Then, with the rise of functional categories T and C in infinitival clauses in Late Middle English, it was reanalyzed as sentential negation and NegP came to be projected above and below TP by analogy with finite clauses. Finally, it is shown that verb movement to T was lost in infinitival clauses in Early Modern English, leading to the same distribution of negative infinitives as in Present-day English.

Keywords: functional category, infinitival clause, negation, verb movement

1. Introduction: Negation in Infinitival Clauses in PE[1]

This paper investigates the origin and development of negation in infinitival clauses in the history of English, based on the data collected from historical corpora, part of which were presented in Tanaka (2016a). It is argued that the negator *not* in infinitival clauses has constituent negation as its origin and the structural change of infinitival clauses played an important role in its development, as well as the analogy with finite clauses.

Let us begin with the distribution of negation in infinitival clauses in PE. As shown in (1), negative infinitives may have the negator *not* either before or after the infinitive marker *to*. For the sake of convenience, the two patterns are called "*not-to*-V order" and "*to-not*-V order", respectively.

(1) a. John wants {not to / to not} go.
     b. Peter expects his friends {not to / to not} object to his proposals.

(cf. Pollock (1989: 375))

In addition, it has been observed in the literature that the order in which *not* follows both *to* and the infinitive (henceforth, "*to*-V-*not* order") is possible when it involves the auxiliary *have* or *be*.

(2) a. (?)To have not had a happy childhood is a prerequisite for writing novels.
     b. ? To be not arrested under such circumstances is a miracle.   (ibid.: 376)

Pioneering work on clause structure and verb movement by Pollock (1989) presents a number of arguments that the sentential negator *not* constitutes NegP, arguing that finite auxiliaries move across NegP to the inflectional domain in negative sentences in PE. He extends this analysis to claim that *not* in the *to*-V-*not* order in examples like (2) instantiates sentential negation, and there

is movement of an auxiliary across NegP in infinitival clauses as well. However, Iatridou (1990) argues against his claim by pointing out the difference of interpretation between the following sentences.

(3) a. To not have played football for many years is a disadvantage in a major game.
         (*not > many*, *many > not*)
     b. To have not played football for many years is a disadvantage in a major game.
         (**not > many*, *many > not*)   (cf. Iatridou (1990: 574–5))

In (3a) with the *to-not*-V order, *not* can have either wide or narrow scope with regard to *many*, with the two interpretations that X started playing football only recently (*not > many*), and many years have passed since X played football last (*many > not*). On the other hand, (3b) with the *to-V-not* order only has the interpretation in which *many* takes scope over *not*. Based on this fact, Iatridou assigns different structures to the two orders with *not*: *not* in (3a) instantiates sentential negation projecting NegP above VP, while *not* in (3b) instantiates constituent negation adjoined to VP. Assuming that *for many years* is positioned between NegP and VP, the ambiguity of (3a) follows: it is interpreted *in situ* within the scope of negation, or it undergoes quantifier raising at LF to a position which c-commands and hence takes scope over negation. In contrast, since *not* is base-generated within VP below *for many years* in (3b), the sentence is unambiguous regardless of whether the latter moves by quantifier raising.

If this argument is correct, the *to-V-not* order will not involve sentential negation plus head movement across it, but constituent negation with the auxiliary base-generated above it. This leads to the following three patterns of negative infinitives in PE: (i) the *not-to-V* order (*not* = sentential negation), (ii) the *to-not-V* order (*not* = sentential negation), and (iii) the *to-V-not* order (*not* = constituent negation; V = auxiliary). Then, it seems plausible to postulate the structure of negative infinitives roughly schematized in (4), where there are two projections of Neg hosting *not* as sentential negation and *not* as constituent negation is adjoined to vP.[2, 3]

(4) … [$_{NegP}$ not [$_{TP}$ to [$_{NegP}$ not [$_{AuxP}$ Aux [$_{vP}$ not [$_{vP}$ V …]]]]]]]

2. Negation in Infinitival Clauses in Early English

This section first reviews the observations made by two previous studies on negative infinitives in early English, and then provides a corpus-based investigation of negation in infinitival clauses by employing historical corpora, in order to overcome the insufficiencies of the previous studies and get a comprehensive picture of the development of negation in infinitival clauses in the history of English.

2.1. Previous Studies

First, based on the survey using *The Penn-Helsinki Parsed Corpus of Middle English*, First Edition (PPCME1; Kroch and Taylor (1994)), Han (2000) observes that both the *not-to-V* and the *to-V-not* orders were attested in LME, and interestingly, the latter may involve a lexical verb as well as an auxiliary, as illustrated in (5) and (6).

(5)　*not-to*-V

    sche　wuld　　vwche-save　*nowth*　to　labowre　aȝens　ȝw　jn　þis　matere

    she　would　promise　　not　　to　labour　against　you　in　this　matter

    tyl　ȝe　kom　hom

    until　you　come　home　　　　　　　(Paston Letters 221.310 / Han (2000: 282))

(6)　*to*-V-*not*

    a.　monye　men　vson　　　　　wel　to　come　*not*　in　bedde　wiþ　schetis,

    　　many　men　are-accustomed　well　to　come　not　in　bed　　with　sheets

    　　but　be　hulude　aboue　þe　bed

    　　but　be　covered　above　the　bed　　　(Wycliffite Sermons I, 479.641 / ibid.)

    b.　and　said　mayster　parson,　I　praye　you　to　be　*not*　displeasyd

    　　and　said　masyer　parson　I　pray　you　to　be　not　displeased

    　　　　　　　　　　　　　　(Caxton's Prologues and Epilogues 88.176 / ibid.: 286)

He notes that there were no examples with the *not-to*-V order in EME, but it was indeed possible, as pointed out by Miyashita (2001) and as shown by the investigation in the next section. Moreover, he says nothing about the status of the *to-not*-V order in ME. After all, his investigation is limited to ME and hence deals with only a small facet of the development of negative infinitives in the history of English.

　　Second, Miyashita (2001) shows that all the three orders were available in ME and EModE, and the *to*-V-*not* order with a lexical verb was lost during the sixteenth century, by utilizing PPCME1 and the quotation search function of OED. Here follows an example of the *to-not*-V order cited from OED.

(7)　*to-not*-V

    It　is　good　for　to　*not*　ete　fleisch,　and　for　to　*not*　drynke　win

    it　is　good　for　to　not　eat　flesh　　and　for　to　not　drink　　wine

    　　　　　　　　　　　(1382 Wyclif Rom. xiv. 2 / Miyashita (2001: 133))

Miyashita does not deal with negative infinitives in OE and LModE. Although it would be the case that there have been no significant changes in negative infinitives since the loss of the *to*-V-*not* order with a lexical verb in EModE, OE had negative infinitives with *na* and this negative marker showed syntactic behavior parallel to *not*, which replaced it in ME, as argued by Kemenade (2011). To reveal the origin of negation in infinitival clauses, it is therefore necessary to examine the distribution of negation in infinitival clauses in OE. In addition, four historical corpora with syntactic annotations which altogether cover all the historical periods of English have been compiled since the early 2000s, which allows us to make a more comprehensive investigation of negative infinitives in the history of English than Han (2000) and Miyashita (2001).

2.2.　A Corpus-based Investigation of Negative Infinitives in the History of English

　　Tanaka (2016a) conducts an investigation of negation in infinitival clauses from OE to EModE, based on *The York-Toronto-Helsinki Parsed Corpus of Old English Prose* (Taylor, Warner, Pintzuk, and Beths (2003); YCOE), *The Penn-Helsinki Parsed Corpus of Middle English*, Second

Edition (Kroch and Taylor (2000); PPCME2), and *The Penn-Helsinki Parsed Corpus of Early Modern English* (Kroch, Santorini, and Delfs (2004); PPCEME). Table 1 summarizes the result of this investigation, combined with that of the investigation made for this paper by using *The Penn Parsed Corpus of Modern British English* (Kroch, Santorini, and Diertani (2010); PPCMBE).[4] These investigations collect examples of infinitives with negative markers: *na/nealles* and their variants for OE, *not* and its variants for ME and ModE. They count not only *to*-infinitives but also *for to*-infinitives which were productive especially in ME (cf. (7)). One of the difficulties is how to treat the second conjunct of a coordinated infinitive which does not have an overt infinitive marker but is tagged as involving the elided *to* or *for to* in the corpora. If it has the surface form of V-*not*, it will be reasonably judged to be an example of the *to*-V-*not* order; if it has the surface form of *not*-V, it will be ambiguous between the *not*-*to*-V order and the *to*-*not*-V order. In spite of this problem, this paper follows the tags assigned to the relevant cases; the numbers in the parentheses indicate those of such cases which are included in the total numbers of negative infinitives outside the parentheses.

Table 1: The distribution of negative infinitives (YCOE, PPCME2, PPCEME, and PPCMBE)

	EOE	LOE	M1	M2	M3	M4	E1	E2	E3	L1	L2	L3
not-to-V	3	4	6	2	28(6)	19(1)	48	107(1)	119(4)	60	77	45
to-not-V	0	0	0	0	0	0	0	0	2(2)	3(3)	1(1)	1(1)
to-V-*not*	0	0	0	0	16(8)	10(2)	2(1)	2	0	0	0	0

Here follow some examples of the *not-to*-V order and the *to*-V-*not* order.[5]

(8) *not-to*-V
   a. Hi   andwyrdon; We sind asende to gecigenne mancynn fram deaðe to
      they answered   we are sent to call   mankind from death to
      life. *na* to scufenne fram life to deaðe;
      life not to drive   from life to death
      'they answered, "we are sent to call mankind from death to life, not to drive from life to death"'   (cocathom2,ÆCHom_II,_38:283.127.6393 / O3)
   b. And so ayther promysed other of tho three knyghtes *nat* to de-parte
      and so either promised other of the three knights   not to depart
      whyle they were in that queste but if suddayne fortune caused hyt.
      while they were in that quest but if sudden   fortune caused it
                                                       (CMMALORY,650.4285 / M4)
   c. My dere beyond all expression, this is to desire Thee *not* to be troubled in the least
      Measure at that which joyes mee, which is our removal to thy red house;
                                                       (HOXINDEN-1660-E3-H,292.210 / E2)

(9)　*to*-V-*not*

    a.　the iiij.　　synne　is　to　do　*not*　penaunce　aftir　the　synne,　and　to

        the fourth sin　is　to　do　not　penance　after　the　sin　　　and to

        plese　himself　in　his　synne.

        please　himself　in　his　sin　　　　　　　　　　　(CMPURVEY,I,51.2086 / M3)

    b.　I pray you to teach me *not* how to answer or confess, because it is the first ground

        that you build upon against me:　　　　　(THOWARD2-E2-P1,1,89.173 / E2)

    Two features can be observed from Table 1 on the development of negative infinitives. First, the *not-to*-V order has been available throughout the history of English, albeit its low frequency from OE to M2. Second, examples of the *to*-V-*not* order were attested from M3 to E2 and many of them involve a lexical verb, as opposed to the situation in PE. (9b) is the last example from the text written in 1571; this roughly coincides with Miyashita's (2001) observation on the loss of the *to*-V-*not* order with a lexical verb. Unfortunately, genuine, non-coordinated cases of the *to-not*-V order are not found, so no firm conclusions can be drawn about the status of this order from the result in Table 1.

    It should be noticed in Table 1 that the periods from LME to EModE are crucial for the development of negative infinitives: their frequency radically increased in M3 with the appearance of the *to*-V-*not* order, and the order was lost sometime in EModE. In order to focus on aspects of negative infinitives in these periods, a supplementary investigation has been conducted on the distribution of negation in infinitival clauses by employing *The York-Helsinki Parsed Corpus of Early English Correspondence* (Taylor, Nurmi, Warner, Pintzuk, and Nevalainen (2006); PCEEC), with the same method as the above investigations based on the four corpora. The result of this investigation is summarized in Table 2.[6]

    Table 2: The distribution of negative infinitives (PCEEC)

	LME	E1	E2	E3
not-to-V	49	117(4)	278(5)	121(5)
to-not-V	0	1	1	0
to-V-*not*	5(2)	2	3(2)	0

Here follow some examples of the *to-not*-V order and the *to*-V-*not* order.[7]

(10)　*to-not*-V

    a.　An other is that thei affter ward myght pik a quarell to *not* delyuer hym, for my

        entreprise against the ordre of the tretye.　　　　(WYATT,112.018.550 / E1)

    b.　as though we should be cleare syghted to discerne thess false colors of our flattering

        promises from Fraunce and dimsyghted to *not* be able to beholde the trewe obiect of

        our honor and safety consisting in the welfayre of Denmarke and Germanye.

                            (WENTWOR,267.080.1228 / E2)

(11) *to*-V-*not*

    a. Not that he woll add one off his servantes to be logid, aboue the nombre that he first apoyntid; as we take it to be *not* bound vnto them in eny thing more then in that that thei of them sellffes do.   (WYATT,109.017.511 / E1)

    b. Espetially as longe as the Old woman liveth you neede to feare *not* any thing.

                      (FERRAR,288.027.539 / E2)

    c. I am purposed on the other side to open my eyes as wide as I can and dispaire *not* in time to be able to sounde the depthe they covett soe much to reserve from me.

                      (WESA,6.004.75 / E2)

Apart from the finding of genuine examples of the *to-not*-V order with an overt infinitive marker like (10), this investigation might shed light on the question of when the *to*-V-*not* order with a lexical verb was lost in EModE. The examples in (11b, c) are cited from the texts dated 1613?-59 and 1632–42, respectively, which would indicate that the *to*-V-*not* order had been available with a lexical verb until the middle of the seventeenth century.

    To sum up, this section has discussed the development of negative infinitives in the history of English, based on the investigations utilizing historical corpora as well as the observations made by the two previous studies. It has been shown that the *not-to*-V order, though not productive in OE and EME, has been attested and the most common form of negative infinitives throughout the history of English. The *to*-V-*not* order emerged in M3 and was observed with some frequency in LME, but it was lost during EModE (around the middle of the seventeenth century, to be more precise) except when it involves an auxiliary preceding *not* as constituent negation. Somewhat blurred in the investigations here is the status of the *to-not*-V order; only two genuine examples with an overt infinitive marker are found in EModE. However, it seems plausible to assume that the *to-not*-V order has been available since the fourteenth century, judging from the data in Miyashita (2001) (cf. (7)), as well as the observations by Visser (1966) and Gelderen (1993) that split infinitives with *not* began to appear in the fourteenth century, as illustrated in (12).

(12) Y   say   to   ʒou,   to   *nat*   swere   on   al   manere,

     I   say   to   you   to   not   swear   on   all   manners

                      (Wyclif, Matthew 5, 34 / Gelderen (1993: 41))

3. The Distribution of Negation in Infinitival Clauses

    This section attempts to account for the changing distribution of negation in infinitival clauses which has been revealed in the investigations above, by relating it to the structural change of infinitival clauses in the history of English.

3.1. The Structural Change of Infinitival Clauses in the History of English

    Along the lines of Tanaka (2007) and subsequent work (Tanaka (2009, 2013, 2016a, b) among others), this paper assumes the following structural change of infinitival clauses in the history of English.[8] Although the reader is referred to the relevant literature for detailed discussion

of their syntactic development, some comments are in order with regard to the structure(s) in each stage.

(13) OE-EME
    [$_{PP}$ to [$_{vP}$ V-INF(case, φ) [$_{VP}$ tv …]]]

(14) LME
    a. [$_{PP}$ to [$_{vP}$ V-INF(case, φ) [$_{VP}$ tv …]]]
    b. [$_{CP}$ C [$_{TP}$ PRO [$_{T'}$ to [$_{vP}$ tPRO [$_{v'}$ V [$_{VP}$ tv …]]]]]]
    c. [$_{CP}$ to [$_{TP}$ PRO [$_{T'}$ T [$_{vP}$ tPRO [$_{v'}$ V [$_{VP}$ tv …]]]]]]

(15) ModE-
    [$_{CP}$ C [$_{TP}$ PRO [$_{T'}$ to [$_{vP}$ tPRO [$_{v'}$ V [$_{VP}$ tv …]]]]]]

First, infinitival clauses in OE and EME are headed by the infinitive marker *to* as a preposition, which in turn takes a vP complement, as shown in (13). Since there was no evidence for the presence of functional categories T and C in infinitival clauses in these periods, PRO cannot be licensed as their subjects under the minimalist assumption that PRO is assigned null Case by the nonfinite T which has inherited φ-features from C (Chomsky (2008)). Instead, Tanaka (2007) argues that the infinitival morpheme, which was realized as *-enne* in OE and *-en/e* in EME, bears Case and φ-features and functions as the external argument of infinitives under Case assignment by *to* in the structure of (13).

Then, the infinitival morpheme weakened to the extent that it was sometimes not overtly realized in LME. Given that the infinitival morpheme represents the nominal properties of infinitives licensed by *to* as a preposition, its weakening will indicate that *to* began to be reanalyzed as a functional category. As observed by Gelderen (1993) and Tanaka (2007, 2016a, b), a number of infinitival constructions emerged in LME which suggest the rise of T and C (e.g. ECM infinitives, split infinitives, pro-infinitives, *wh*-infinitives, and so on), so it is reasonable to assume that these functional categories were introduced in infinitival clauses and PRO came to be licensed by being assigned null Case under feature inheritance from C to T. This led to the new structures in (14b, c), where *to* is merged in T and C, respectively; the old structure in (14a) was still available because the infinitival morpheme was alive though its realization became optional.

Finally, with the loss of the infinitival morpheme in the sixteenth century, the structure in (14a) became obsolete. Furthermore, as we will see below, there is reason to assume that *to* came to be merged only in T in EModE, yielding the same situation as in PE that (15) is the only structure of infinitival clauses.

3.2. The Development of Negative Infinitives

We are now in a position to account for the development of negative infinitives in the history of English, especially the changing distribution of negation from OE to EModE. First, since infinitival clauses in OE and EME lacked functional categories T and C, negators with which they appear should be regarded as constituent negation. As for the adjunction site of negation, there is evidence from examples like (16) that it is adjoined to the whole category of an infinitival clause,

namely PP, because it precedes the adverb modifying the infinitival clause which in turn precedes the infinitive marker *to*.

(16) Forðæm is sio tunge gemetlice   to midliganne, *nales* ungemetlice   to
      therefore is the tongue moderately to bridle,   not   immoderately to
      gebindanne
      bind
      'therefore, the tongue is to be moderately bridled, not to be bound immoderately'
                                                    (cocura,CP:38.275.10.1786 / O2)

Therefore, the structure of negative infinitives in OE and EME will be as follows.

(17) OE-EME
      [PP not [PP to [vP V-INF(case, φ) [VP tv …]]]]]

Recall that the infinitival morpheme functions as the external argument of infinitives under Case assignment by *to* in these periods. Thus, if *not* were to be adjoined to vP, it would prevent *to* from assigning Case to the infinitival morpheme in violation of the adjacency condition on Case assignment. The fact will follow that only the *not-to*-V order was possible in OE and EME; more generally, the absence of split infinitives is accounted for under the present analysis (Visser (1966) and Gelderen (1993)).

As we saw in (14), there was a structural change of infinitival clauses in LME: they came to have the structures with functional categories T and C, where *to* may be merged either in T or C. This would have given rise to the following new structures of negative infinitives, in addition to the old structure in (17).[9]

(18) LME
      a. [CP C [NegP not [Neg′ Neg [TP PRO [T′ to [vP tPRO [v′ V [VP tv …]]]]]]]]]
      b. [CP C [TP PRO [T′ to [NegP not [Neg′ Neg [vP tPRO [v′ V [VP tv …]]]]]]]]]
      c. [CP to [TP PRO [T′ T [NegP not [Neg′ Neg [vP tPRO [v′ V [VP tv …]]]]]]]]]

Two important changes, both of which are related to the rise of T and C in infinitival clauses, are argued to have occurred to yield the structures in (18). One is the reanalysis of the constituent negator *not* as sentential negation which appears in NegP between CP and TP, whereby the structure in (17) was reanalyzed as that in (18a). This means that the origin of the *not-to*-V order, the most common pattern of negative infinitives in PE, is the structure with constituent negation adjoined to the whole infinitival clause which was a category of PP. The other is that NegP came to be projected between TP and vP, giving rise to the entirely new structures in (18b, c). The former with *to* in T derives the *to-not*-V order, while the latter with *to* in C derives the *to*-V-*not* order by verb movement to T, along the lines of Miyashita (2001). The operation of verb movement in infinitival clauses will be discussed in more detail below.

The introduction of NegP in infinitival clauses would have been triggered by analogy with finite clauses. Kemenade (2011) argues for the presence of two positions of NegP in finite clauses, based on the asymmetry of word order between main clauses with subject-verb inversion and other types of clauses, which had been observed from OE to EModE.

(19) a. nule *nawt* þi leofmon þolo na leas þing ta lihe þe longe
 not-will not your beloved tolerate no false thing to deceive you long
 'your beloved will not allow any false thing to deceive you for long'

(Juliana.33.332 / Kemenade (2011: 80))

 b. Gif ðat hali writ ne wiðseið ðe *naht*
 if that holy text NEG prevents you not
 'if that holy text does not prevent you' (CMVICES1,101.1123 / ibid.: 81)

In the main clause with subject-verb inversion in (19a), *not* precedes the DP subject, while it follows the DP subject in the subordinate clause in (19b). This leads Kemenade to postulate two positions of NegP: one between CP and TP and the other between TP and vP, which are parallel to the two positions of NegP posited here for infinitival clauses. Thus, it would be suggested that the analogy with finite clauses played a role in the introduction of NegP in infinitival clauses, with their structural change resulting in the same architecture with T and C as finite clauses.

Returning to the possible patterns of negative infinitives in LME, it was suggested above that the *to*-V-*not* order is derived by verb movement to T, based on the structure of (18c) where *to* occupies C. Two pieces of evidence can be provided for the presence of verb movement in infinitival clauses in LME. One of them discussed by Tanaka (2016a) concerns examples like (20) where the infinitival clause exhibits the word order typical of Object Shift observed in the Scandinavian languages.

(20) a. if he have taken grace, to use it *noght* als hym aght, ne to kepe
 if he have taken grace to use it not as him ought nor to keep
 it noght;
 it not (CMROLLEP,99.569 / M24)

 b. I pray you to teach me *not* how to answer or confess,

(THOWARD2-E2-P1,1,89.173 / E2)

As is well known, Object Shift obeys so-called "Holmberg's generalization" (Holmberg (1986)), according to which it is possible only if a lexical verb moves out of vP (see Thráinsson (2001) for a good overview of the relevant data and some proposals to derive the generalization). If examples like (20) instantiate Object Shift of pronominal objects across negation, there must be verb movement out of vP in conformity with Holmberg's generalization.[10]

Another argument for the present analysis comes from adverb placement in infinitival clauses. Reconsidering adverb placement in relation to verb movement in finite clauses, Haeberli and Ihsane (2016) argue that only adverbs which are unambiguously left-adjoined to vP provide a diagnosis for verb movement, giving two configurations in which this is the case: one involving the type of adverbs which do not allow right adjunction, and the other with an adverb preceding a short nominal object which resists rightward movement and hence remains in its base position. According to them, if a finite lexical verb precedes an adverb in one of these configurations, it will indicate the presence of verb movement out of vP.

It is tempting to apply Haeberli and Ihsane's (2016) arguments to examine whether there was verb movement in infinitival clauses in the relevant periods. As for the first configuration, they

identify a small number of adverbs including *never* which usually appear in a left-adjoined position of vP. However, their frequency is low in infinitival clauses in the historical corpora employed here, so that these adverbs would not provide enough evidence; in fact, there are only two examples in PPCME2 in which a lexical verb precedes *never*, both of which belong to LME.

On the other hand, the second configuration lends support to the presence of verb movement in infinitival clauses. Table 3 summarizes the result of the investigation based on YCOE, PPCME2, and PPCEME, for tokens of infinitival clauses in which a lexical verb precedes an adverb followed by a short nominal object consisting of one to three words. It collapses O1-O4 as one period and shows the frequency of these tokens per 1,000,000 words.

Table 3: The distribution of the "*to*-V-adverb-short nominal object" order (YCOE, PPCME2, PPCEME)

OE	M1	M2	M3	M4	E1	E2	E3
2.7	14.5	10.6	42.4	17.4	20.8	6.1	3.5

Here follow some examples.

(21) a. þe   þridde cause is to ȝyuen vs ensaumple to take *mekely* baptem,
         the   third   cause is to give   us example   to take meekly   baptism
                                                          (CMWYCSER,352.2233 / M3)

    b. Also I gave commission to the lord chauncelour, tow archbishops, tow bishops, tow dukes, tow marqueses, tow erles, and tow barons to dissolve *holly* this parliement.
                                                          (EDWARD-E1-P2,409.386 / E1)

It is interesting to note that the frequency is higher in M3-E1 than the other periods.[11] As the reader can easily verify by checking Tables 1 and 2, this result roughly coincides with the distribution of the *to*-V-*not* order, which this paper has argued is derived by verb movement to T.

Finally, let us turn to the development of negative infinitives after LME. As we saw above, the *to*-V-*not* order with a lexical verb was lost during EModE (around the middle of the seventeenth century, according to the result in Table 2), which implies that the structure in (18c) became obsolete in which *to* is merged in C and there is verb movement to T. Tanaka (2016a) discusses two factors as triggers of this change. One is the decline and subsequent loss of movement of a lexical verb in finite clauses: it began to decline in the beginning of the sixteenth century and was finally lost during the seventeenth century, as observed by Roberts (2007). This would have affected infinitival clauses, leading to the loss of verb movement, which was manifested as that of the *to*-V-*not* order with a lexical verb. Another factor will be the development of the complementizer *for*. According to Fischer, et al. (2000), it has developed from a preposition heading a benefactive argument through the following reanalysis in the sixteenth century.

(22) It is bad for you to smoke.
    a. … [PP for DP] [CP [TP PRO to vP]]
→   b. … [CP [C for] [TP DP to vP]]   (cf. Fischer, et al. (2000: 217))

It might be conceivable that this change has made *for* the only overt element merged in C in infinitival clauses, with the result that the merger of *to* came to target only T thereafter. If this is on

the right track, the possible structures of negative infinitives after ModE will be as in (23a, b) based on the structure in (15), which derive the *not-to*-V order and the *to-not*-V order, respectively. This accounts for the loss of the *to*-V-*not* order except for cases which involve an auxiliary base-generated above *not* as constituent negation.

(23) ModE-
    a. [$_{CP}$ C [$_{NegP}$ not [$_{Neg'}$ Neg [$_{TP}$ PRO [$_{T'}$ to [$_{vP}$ t$_{PRO}$ [$_{v'}$ V [$_{VP}$ tv …]]]]]]]]]

    b. [$_{CP}$ C [$_{TP}$ PRO [$_{T'}$ to [$_{NegP}$ not [$_{Neg'}$ Neg [$_{vP}$ t$_{PRO}$ [$_{v'}$ V [$_{VP}$ tv …]]]]]]]]]

4. Concluding Remarks

    This paper has investigated the origin and development of negation in infinitival clauses in the history of English, based on the data collected from historical corpora. It was claimed that its origin was constituent negation adjoined to the whole infinitival clause whose category was PP, deriving the *not-to*-V order in OE and EME. Then, there was a structural change of infinitival clauses in LME, whereby functional categories T and C emerged and the constituent negator *not* was reanalyzed as sentential negation projecting NegP between CP and TP. At the same time, NegP came to be projected between TP and vP by analogy with finite clauses, giving rise to the *to-not*-V and *to*-V-*not* orders. The latter order was argued to be derived by verb movement to T with the possibility of merging *to* in C. Finally, it was shown that the decline and subsequent loss of verb movement in finite clauses and the development of the complementizer *for* triggered the loss of verb movement in infinitival clauses, so that the *to*-V-*not* order became obsolete in EModE except for cases involving an auxiliary.

Notes

1   Here are the historical periods of English generally assumed: Old English (OE: 700–1100), Middle English (ME: 1100–1500) (Early Middle English (EME: 1100–1300), Late Middle English (LME: 1300–1500)), Modern English (ModE: 1500–1900) (Early Modern English (EModE: 1500–1700), Late Modern English (LModE: 1700–1900)), and Present-day English (PE: 1900–).

2   Given that V-to-v movement is obligatory in infinitival clauses as well, this paper posits that *not* as constituent negation is adjoined to vP, but not to VP, because a lexical verb could otherwise appear in the *to*-V-*not* order in PE, contrary to fact.

3   It might be suggested that negative infinitives have one fixed position of NegP, and one of the *not-to*-V and *to-not*-V orders is derived from the other via upward or downward movement of *to* across NegP, along the lines of Pollock (1989) and Gelderen (2004). However, there is good reason from a historical perspective to postulate two separate projections of Neg, as we will see in section 3. See also Han (2000), who provides similar arguments and points out problems with the type of analysis assuming only one projection of Neg.

4   The texts in YCOE, PPCME2, PPCEME, and PPCMBE are distributed in the following periods: O1 (–850), O2 (850–950), O3 (950–1050), O4 (1050–1150), M1 (1150–1250), M2 (1250–1350), M3 (1350–1420), M4 (1420–1500), E1 (1500–1569), E2 (1570–1639), E3 (1640–1710), L1 (1710–1779), L2 (1780–1849), and L3 (1850–1920). Here, the periods of OE are collapsed as E(arly)OE (O1 and O2) and L(ate) OE (O3 and O4).

5   As for the *to*-V-*not* order, two examples in M3, one example in M4, and one example in E2 involve an auxiliary. Such cases are allowed in PE with *not* as constituent negation, as we saw in section 1.

6   Table 2 collapses M3 and M4 as LME, because the text size of M3 is too small to get any significant generalizations

by isolating this period.

7   Among the examples of the *to*-V-*not* order, two examples in LME and two examples in E1 involve an auxiliary.
8   (13)–(15) represent the structural change of control infinitives. Of course, there was a separate development giving rise to ECM infinitives whose subject is assigned accusative Case by the matrix verb. See Tanaka (2007, 2013) for relevant discussion.
9   Following Roberts (1993) among others, this paper assumes that *not* in LME occupies [Spec, NegP].
10 See Roberts (1995) and Wurff (1997) for the observation that finite clauses featured Object Shift of pronominal objects in LME and EModE.
11 A similar result has been obtained by the investigation based on PCEEC: the frequency of the relevant configuration is 18.2 in LME, 22.1 in E1, 6.6 in E2, and 1.8 in E3. Note in passing that the frequency never becomes zero after E2, because the possibility cannot be excluded that a short nominal object undergoes rightward movement across an adverb right-adjoined to vP, deriving the same surface order as investigated here.

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