Jan Kochanowski University Press

A historical study of English modal adverbs:
Evidence from a combination of diachronic corpora

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ABSTRACT

This study sheds light on the historical development of the modal adverbs *doubtless*, *indeed*, *maybe*, *no doubt*, *of course*, and *perhaps* from a functional perspective. By analyzing corpus data, I discuss, stage by stage, how these modal adverbs have changed in function over time. As a source of data for analysis, I selected the Penn-Helsinki Parsed Corpus of Early Modern English and the Penn Parsed Corpus of Modern British English, comparable corpora of Early Modern English and Late Modern English respectively, as well as the Corpus of Late Modern English Texts and the Corpus of Modern Scottish Writing. These corpora enable us to describe the long-term development of the modal adverbs over the course of the Modern English period. In order to explore the further development of the target expressions in Present-Day English, I also used the Lancaster-Oslo/Bergen Corpus of British English and the Freiburg-LOB Corpus of British English, which represent British English in 1961 and 1991, respectively. The results of the analysis demonstrate that the Late Modern English period can be viewed as a critical stage in the development of these expressions into modal adverbs and as a pre-stage to their further development in Present-Day English. Specifically, I show that these modal adverbs have continued to expand their pragmatic functions even in contemporary English. Finally, I provide an explanation of these changes in terms of modalization and pragmaticalization.

1. Introduction

This study examines various functional shifts of the modal adverbs *doubtless*, *indeed*, *maybe*, *no doubt*, *of course*, and *perhaps* in the history of English. As shown in (1a-c), in Present-Day English these expressions function as adverbs in sentences and express the speaker's judgment regarding a proposition[1]:

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[1]   In many studies items like *doubtless*, *indeed*, *no doubt*, and *of course* are discussed as modal adverbs, though others are excluded, as described below. On the semantic

(1) a. You have *doubtless* or *no doubt* heard the news. (Fowler 2004: 230)
     b. *Maybe/Perhaps* it'll stop raining soon. (Swan 2005: 348)
     c. It was *no doubt* clever of him to offer his resignation at that point
         in the proceedings. (Quirk et al. 1985: 622)

English modal adverbs are derived by means of a variety of word-formation processes. In addition to the regular adverbial form in *-ly*, modal adverbs also take compound form (e.g., *maybe*) and phrasal form (e.g., *no doubt*). The wide-spread use of the suffix *-ly* is the "most salient feature" in terms of the derivational nature of adverb formation and a "unifying characteristic" of the adverb category; thus, the formative *-ly* is "a marker of [adverb] category membership" (Payne et al. 2010: 73). In this view, modal adverbs can be classified into two types. The first type includes adverbs formed with the *-ly* suffix, called **central modal adverbs**, and the second type includes adverbs formed without the *-ly* suffix, called **peripheral modal adverbs**. In order to broaden our understanding of English modal adverbs, this study sheds light on the behavior of peripheral modal adverbs.

With respect to positioning, Table 1 shows that Biber et al. (1999: 872) identify a tendency for stance adverbials to occur clause-medially[2, 3].

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classification of "attitudinal disjuncts", Greenbaum (1969: 203) categorizes *indeed* as one of "those that express conviction" and *doubtless* as one of "those that express some degree of doubt". Hoye (1997: 184) adds *of course* to the category of "content disjuncts expressing conviction". In contrast, Biber et al. (1999: 854) classify *no doubt* and *of course* as members of a class of "doubt and certainty adverbials", one of the subclasses of "epistemic stance adverbials". Huddleston – Pullum (2002: 768) categorize modal adverbs into four levels of strength according to the speaker's commitment – (i) strong, (ii) quasi-strong, (iii) medium, and (iv) weak – and classify *doubtless* as quasi-strong. Taking into account this diversity of classificatory approaches, this study adopts a broad perspective and tries to explain why these modal adverbs are the ones undertaken for the present analysis.

[2] With regard to the positions in which modal adverbs can appear, Quirk et al. (1985) and Hoye (1997) provide more detail – see the following examples from Hoye (1997: 148):

I	(*initial*)	*Possibly* they may have been sent to London.
iM	(*initial-medial*)	They *possibly* may have been sent to London.
M	(*medial*)	They may *possibly* have been sent to London.
mM	(*medial-medial*)	They may have *possibly* been sent to London.
eM	(*end-medial*)	They may have been *possibly* sent to London.
iE	(*initial-end*)	They may have been sent *possibly* to London.
E	(*end*)	They may have been sent to London *possibly*.

[3] According to Biber et al. (1999: 854-857), stance adverbials can be classified into three categories: epistemic, attitude, and style adverbials. Epistemic adverbials include *no doubt, certainly, probably, definitely, I think, in fact, really, according to, mainly, generally, in my opinion, kind of,* and *so to speak*; attitude adverbials include *unfortunately, to my surprise,* and *hopefully*; and style adverbials include *frankly, honestly, truthfully,* and *in short*.

Table 1. Positioning of stance adverbials across registers (from Biber et al. 1999: 872)

	Initial position (%)	Medial position (%)	Final position (%)
CONVERSATION	• • •	• • • • • • • • •	• • • • • • •
FICTION	• • • • •	• • • • • • • • • •	• • • •
NEWSPAPER	• • • • • • •	• • • • • • • • • •	• •
ACADEMIC	• • • • • •	• • • • • • • • • • •	•

each • represents 5%

However, these adverbs are considered to function differently when actually used. The examples from the British National Corpus (BNC) below illustrate some such functions: (2a) shows *no doubt* functioning as a discourse marker in the clause-final position, (2b) shows *perhaps* as a discourse marker in clause-initial position, and (2c) shows *maybe* carrying out a pragmatic conversational function in final position:

(2)   a.   You'll get your chance again *no doubt*. (BNC, JAC)
        b.   *Perhaps*, the most appealing factor of a duvet is its apparent lightness which also retains a great deal of warmth. (BNC, AAY)
        c.   You wouldn't recognise us with our clothes on, *maybe*? (BNC, HTS)

This diversity implies that the positioning of peripheral modal adverbs will vary within and across actual texts. A look at the earlier history of these modal adverbs can explain their behavior in Present-Day English.

The purpose of this study is to discuss how the functions of these modal adverbs have changed over time. The analysis of corpus data will demonstrate that the evolution of these adverbs up to the present day can be characterized in terms of two processes of linguistic change, namely, modalization and pragmaticalization.

2. Previous studies

Previous research on English modal adverbs has characterized them within more general discussions of epistemicity, grammaticalization, and subjectification. In terms of epistemicity, Hanson (1987: 137) indicates that modal adverbs emerged during the Middle English period, but that none of

them had their present-day epistemic meanings at that time[4]. Example (3), which is from Hanson (1987: 137), illustrates the use of *probably* as a manner adverb:

(3)   You wrote so *probably* that hyt put me in a feare of daungerys to come.
        (1535 Starkey *Let. in England* (1871), *OED*)

In contrast, the epistemic use of these adverbs is not found until after this period, as shown in the example for *probably* by Hanson (1987: 137):

(4)   A source, from whence those waters of bitterness … have … *probably*
        flowed. (1647 Clarendon, *Hist.Reb.* 1 par.6, *OED*)

Table 2 shows the first recorded epistemic use of several modal adverbs, based on Terasawa (1997):

Table 2. The development of the main modal adverbs (from Terasawa 1997)

Modal adverbs	First appearance in English	First epistemic usage
certainly	c.1300	c.1303
surely	?c.1300	?c.1300
maybe	a.1325	a.1325
possibly	1391	1600
probably	c.1535	1613

Other examples of adverbials that have clearly developed an epistemic meaning are *indeed*, *no doubt*, and *of course*. Traugott – Dasher (2002: 159) illustrate the development of *indeed* as follows: *indeed* (*in dede*) had its origin in a clause-internal adverbial "in action/practice". By the mid-fourteenth century, it was endowed with an epistemic meaning, and by the end of the sixteenth century it had further developed to function as a discourse marker, with a subjective and procedural meaning. Traugott – Dasher regard these two paths of development of meaning as cases of "subjectification" and "increased subjectification" respectively (2002: 174)[5].

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4   See Swan (1988), Powel (1992) and Shibasaki (2004) for related issues.
5   On subjectification, whereby the speaker or writer constructs meanings "that encode
       or externalize their perspectives and attitudes as constrained by the communicative
       world of the speech event" (Traugott – Dasher 2002: 30), see Brinton (2008), Traugott
       (1989, 2010), and Traugott – Dasher (2002).

In contrast, Simon-Vandenbergen – Aijmer (2007: 127) show the possibility that *no doubt* developed as follows from the existential construction (e.g., *there is no doubt*) to the modal adverb:

(5) Existential   >   *no doubt about it*   >   *no doubt*
     + certain   + certain   + probable
     + objective   ± subjective   + subjective

(Simon-Vandenbergen – Aijmer 2007: 127)

In essence, then, the modal adverb *no doubt* is considered to have developed through the processes of grammaticalization and subjectification, during which its epistemic meaning has weakened[6]. Moreover, Poutsma (1929: 1130) mentions that *no doubt* can be found inserted parenthetically into the body of sentences in Late Modern English, giving the following example as an illustration:

(6) The Ulstermen, *no doubt*, greatly, dislike the idea of being compelled to submit to a Dublin Parliament. (Westm. Gaz., No. 6506, 2a)

Lenker (2010) labels adverbials including *of course*, *indeed*, and *in fact* as "transitional" connectors (p. 227). Her findings show that *of course* is attested from LModE2 (1780–1850) onward, and that reduced forms (*'course* and *course*) are then found from the beginning of the twentieth century (p. 104, 282).

With regard to *maybe* and *perhaps*, Poutsma (1929: 35-36) maintains that low probability is expressed by modal adverbs including not only these two but also *belike*, *haply*, *mayhap*, *possibly*, *perchance*, *peradventure*, and that unlike the modal verb *may*, *perhaps* carries the speaker or writer's desire as well, as in the following:

(7) Had he afterwards applied to dramatic poetry, he would, *perhaps*, not have had many superiors. (Johnson, Savage, 318)

While noting the fact of the development of these expressions into modal adverbs, previous studies have offered no detailed description of this shift,

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[6] With regard to this weakening of epistemic force, according to the *Merriam-Webster's Dictionary of English Usage*, *no doubt* in fact implies the existence of some small doubt, and is used to mean '(very) probably', despite its denotative form (p. 369). Quirk et al. (1985: 623), Fowler (2004: 230) and Swan (2005: 378) share similar analyses of *no doubt*.

nor any clear means of determining how these modal adverbs have (further) developed over time. This paper therefore tries to provide some new insights into the historical development of English peripheral modal adverbs.

3. Data and method

On grammatical change in nineteenth- and twentieth-century English, Denison (1998: 93) claims the following:

> Since relatively few categorical losses or innovations have occurred in the last two centuries, syntactic change has more often been statistical in nature, with a given construction occurring throughout the period and either becoming more or less common generally or in particular registers. The overall, rather elusive effect can seem more a matter of stylistic than of syntactic change, so it is useful to be able to track frequencies of occurrence from EModE through to the present day.

In view of this, systematic study of corpora is needed to describe the functional changes in peripheral modal adverbs during this period. The data adduced in this study are mainly from the Penn-Helsinki Parsed Corpus of Early Modern English (PPCEME) and the Penn Parsed Corpus of Modern British English (PPCMBE), because the large scale of these corpora and the wide range of genres represented in them provide many instances of peripheral modal adverbs, used for various purposes within diverse contexts. (Other corpora were later used to supplement these data, as will be described below.) The genre-division of these corpora is as follows:

> Bible; Biography (autobiography); Biography (other); Diary; Drama (comedy); Educational treatise; Fiction; Handbook; History; Law; Letters (non-private); Letters (private); Philosophy; Proceedings; Science (medicine); Science (other); Sermon; Travelogue

More importantly, PPCEME and PPCMBE are made up of a series of corpora of Early Modern English and Late Modern English texts, respectively, which allows us to get a clear picture of the long-term development of peripheral modal adverbs.

Data collection from these corpora was done as follows. I first extracted all occurrences of *doubtless*, *indeed*, *maybe*, and *perhaps* and of the nouns *course* and *doubt* from each of the two corpora. Table 3 shows variants in the spelling of these expressions found in PPCEME:

Table 3. Occurrences of the expressions in PPCEME

Expressions	Variants	Total
course	*course* (341), cowrse (13), corse (10)	364
doubt	*doubt* (248), *doubte* (49), *dought* (9), *doughte* (5), *dout* (20), *doute* (35), *dowt* (6), *dowte* (1)	373
doubtless	*doubtles* (3), *doubtless* (15), *doubtlesse* (28), *doutles* (2), *doutlesse* (1)	49
indeed	*in dede* (47), *in deed* (8), *in deede* (47), *in very dede* (5), *in very deede* (5), *in verie deede* (1), *yn ded* (1), *yn dede* (2), *indead* (1), *indeade* (3), *inded* (2), *indede* (5), *indeed* (360), *indeede* (85)	572
perhaps	*perhappes* (2), *perhaps* (156)	158

Next, I examined each occurrence to identify those in which the expression in question appears in a complete sentence[7]; these are presented in Table 4. All these processes were completed manually.

Table 4. Instances of the target expressions in PPCEME and PPCMBE

	PPCEME (EModE)	PPCMBE (LModE)
doubtless	46	16
indeed	518	347
maybe	**0**	**2**
no doubt	26	33
of course	**2**	110
perhaps	122	269

Because of the lack of data concerning *maybe* in both corpora, ancillary evidence was gleaned from different datasets, namely, the Corpus of Late Modern English Texts (CLMET) and the Corpus of Modern Scottish Writing

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[7] For this analysis, I excluded all examples of utterances that were one-word responses, such as "*Of course* (not)." and "*Perhaps*". Also excluded were examples that did not form a complete clause, such as "*Maybe*, Miss Clack." (CLMET3, Collins – *The Moonstone*). In addition, I excluded examples where the modal adverb occurred within the phrase structure (i) and where they modified not a clause but a phrase in which a comma (,) intensified the expressed meaning, as in (ii):

(i) You may well fancy, judging *no doubt* by yourself, that I am often, …. (PPCMBE, CARLYLE-1835)

(ii) She stayed in the doorway, *perhaps* because of the stench from the body, … (LOB, N).

(CMSW). CLMET is a historical corpus made up of a large number of texts ranging from personal letters to literary fiction to scientific writing. It contains about ten million words of running text, subdivided into the following three periods: CLMET1 (1710–1780), CLMET2 (1780–1850), and CLMET3 (1850–1920). CMSW, for its part, includes approximately 5.5 million words of written and printed text from the period 1700–1945, covering nine genres: administrative prose, expository prose, personal writing, instructional prose, religious prose, verse/drama, imaginative prose, journalism, and orthoepist. These two corpora provided sufficient supplementary data concerning the peripheral modal adverbs treated here. I collected occurrences of the six modal adverbs from both corpora, identified in the same way as for PPCEME and PPCMBE above, as follows[8]:

Table 5. Instances of the target expressions in CLMET

	CLMET1	CLMET2	CLMET3	Total
doubtless	44	116	175	335
indeed	1302	1566	1316	4184
maybe	**0**	50	69	119
no doubt	85	137	359	581
of course	28	392	1257	1677
perhaps	806	1295	1477	3578
Total	2265	3556	4653	10474

Table 6. Instances of the target expressions in CMSW

	CMSW
doubtless	132
indeed	1634
maybe	132
no doubt	318
of course	460
perhaps	1122

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[8]   The data in Table 6 include variants in spelling of *doubtless*, *indeed*, and *no doubt* in CMSW, as follows:

doubtless (60)	*doubtles* (1), *doutles* (53), *doubtless* (6)
indeed (3)	*in dede* (1), *indead* (1), *inded* (1)
no doubt (6)	*nae dout* (6)

The data for the further analysis (that is, in Present-Day English) of the development of peripheral modal adverbs were culled from the Lancaster-Oslo/Bergen Corpus of British English (LOB) and the Freiburg-LOB Corpus of British English (FLOB). These are, respectively, one million word corpora of standard British English collected in 1961 and 1991. They comprise a wide range of genres, as follows:

> Press (reportage); Press (editorial); Press (reviews); Religion; Skills, trades and hobbies; Popular lore; Belles lettres, biography and essays; Miscellaneous (government documents, foundation reports, industry reports, college catalogue, industry house organ); Learned and scientific writings; General fiction; Mystery and detective fiction; Science fiction; Adventure and western fiction; Romance and love story; Humor

These two corpora provide evidence of divergence in the use of the target modal adverbs over a thirty-year period. More importantly, both corpora were compiled according to the same principles of corpus design and selection of texts, ensuring their comparability. Thus, they provide good data on the basis of which to track the development of the use of the target expressions in Present-Day English. I identified all examples of the target expressions from LOB and FLOB in the same way as above; they are presented in Table 7. Finally, I conducted a quantitative analysis of these tokens in terms of frequency.

Table 7. Instances of the target expressions in LOB and FLOB

	LOB (1961)	FLOB (1991)	Total
doubtless	13	10	23
indeed	195	184	379
maybe	54	70	124
no doubt	71	39	110
of course	319	262	581
perhaps	264	269	533

In this analysis of peripheral modal adverbs, I focused on information provided by the context in which the tokens occurred. My primary consideration in the effort to uncover the relationships between the modal adverbs and their discursive surroundings was their occurrence patterns, namely, whether they occurred in clause-initial, -medial, or -final position. In order to illuminate

the functions of these peripheral modal adverbs in greater detail, I then qualitatively examined their behaviors, paying particular attention to initial and final uses as well as their discourse and interpersonal functions.

4. Results and discussion

4.1 Modalization in LModE

In order to explore the functional development of English peripheral modal adverbs, I focused on their position within a clause. Figure 1 gives a historical overview of *doubtless*, *no doubt*, and *perhaps* occurring in initial, medial or final position, based on the data from PPCEME and PPCMBE; the breakdown by position is illustrated in Examples (8)-(10)[9]:

(8)   Initial
    a.   And *doubtless* there is a kind of small Trout, which will never thrive to be big; (PPCEME, WALTON-E3-P1)
    b.   *Doubtless* that Divine goodness finds illustration everywhere; (PPCMBE, TALBOT-1901)
    c.   *No doubt* some are more horrible than other of the seuerall sortes of witches, …. (PPCEME, GIFFORD-E2-P2)
    d.   *No doubt* it was all the work of his great foe, Miss Rachel. (PPCMBE, YONGE-1865)
    e.   *Perhaps* it will be expected from me that I should give him some directions of physick to prevent diseases. (PPCEME, LOCKE-E3-H)
    f.   *Perhaps* the most striking experiment is with a tuning-fork. (PPCMBE, STRUTT-1890)

(9)   Medial
    a.   They are *doubtless* worthy of Reverence. (PPCEME, BOETHPR-E3-H)
    b.   And this is *doubtless* the case. (PPCMBE, VICTORIA-186X)
    c.   For they *no doubt*, driue deuilles out of some. (PPCEME, GIFFORD-E2-P1)
    d.   That is *no doubt* due to the effect of saponine or some analogous substance. (PPCMBE, STRUTT-1890)

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[9]   Data pertaining to Figures 1-5 are provided in the Appendix.

e. In my house he will *perhaps* be more innocent, but more ignorant too of the world, … (PPCEME, LOCKE-E3-P2)

f. I might *perhaps* be able to use them with effect. (PPCMBE, COLLIER-1835)

(10) Final

a. It is Roister Doister *doubtlesse*. (PPCEME, UDALL-E1-P2)

b. Yes, Madam, it would be a Satisfaction, *no doubt*. (PPCEME, FARQUHAR-E3-P2)

c. Had you known it, you had done right, *perhaps*. (PPCMBE, COLMAN-1805)

As shown in Figure 1, Early Modern English reveals a clear predominance of initial position for *no doubt* and *perhaps*, while the Late Modern English period shows a significant increase in the medial positioning of these three modal adverbs. In a similar vein, Figure 2 provides a survey of the development of the positioning of *indeed* and *of course*, as illustrated in Examples (11)-(13).
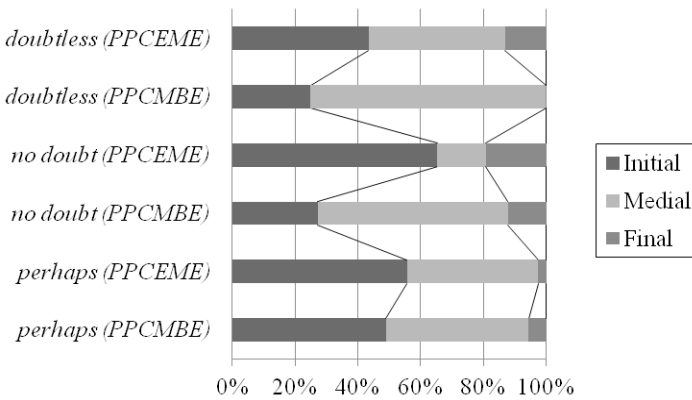

Figure 1. Positioning of *doubtless*, *no doubt*, and *perhaps* from EModE to LModE (PPCEME and PPCMBE)
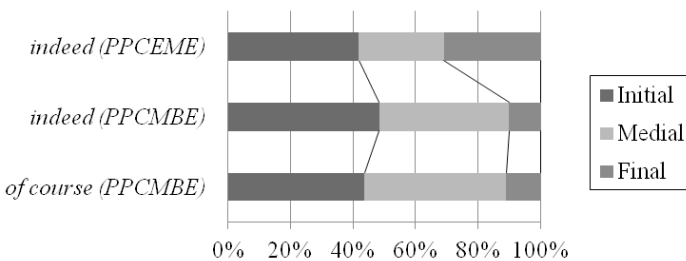

Figure 2. Positioning of *indeed* and *of course* from EModE to LModE (PPCEME and PPCMBE)

(11)　Initial

　　a.　*Indeed* an innocent person may come in at such a time: (PPCEME, GIFFORD-E2-P2)

　　b.　*Indeed*, they are often very grateful for it. (PPCMBE, BENSON-1908)

　　c.　*Of course* it should be natural and not elaborate. (PPCMBE, BENSON-1908)

(12)　Medial

　　a.　These things which thou urgest are *indeed* specious, being enriched with all the Charms of Rhetorick and Musick; (PPCEME, BOETHPR-E3-P1)

　　b.　The tree of language is *indeed* vast in our schools; (PPCMBE, BAIN-1878)

　　c.　Miss P. has *of course* given her a proper understanding of the Business; (PPCMBE, AUSTEN-180X)

(13)　Final

　　a.　My Lord, I think we do over-do our Business *indeed*. (PPCEME, OATES-E3-P2)

　　b.　But on the other hand, it may be one far off *indeed*. (PPCMBE, WOLLASTON-1793)

　　c.　Ponies and undersized horses do not require so much grain, *of course*; (PPCMBE, FLEMING-1886)

Figure 2 shows that the use of *indeed* and *of course* in the initial position has maintained a high relative frequency, while medial positioning of *indeed* is a strong runner-up and a significant increase in the relative frequency of this position is evident from Early Modern English to Late Modern English. In addition, medial *of course* is slightly dominant over other positions in Late Modern English. With these points in mind, I am going to discuss the results of the investigation of CMSW. These are presented in Figure 3, which is preceded by illustrative examples from the corpus.

(14)　a.　The peat, *doubtless*, owes its colour to this oxide of iron. (CMSW, 0100-y5-g4-Peat and Its Products_An Illustrated Tr)

　　b.　The Indian fabric, *indeed*, was more closely resembled than ever. (CMSW, 0044-y5-g2-Local Industries of Glasgow and the West)

　　c.　He'll *maybe* find out that a man can buy gold too dear. (CMSW, 0132-y5-g7-Gillespie)

<blockquote>
d. The pronunciation of the latter was *no doubt* less emphatic than that of the numeral. (CMSW, 0158-y4-g9-The Dialect of the Southern Counties of)

e. Jeffrey, *of course*, would not advocate your cause against Hunt. (CMSW, 0032-y4-g2-Annals of a Publishing House_William Bl)

f. These things are *perhaps* too often talked of. (CMSW, 0113-y3-g6-Rhymes and Recollections of a Hand-Loom)
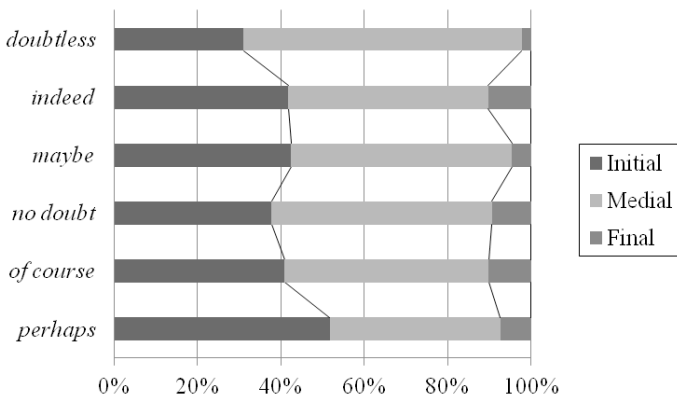</blockquote>

Figure 3. Positioning of the target modal adverbs from 1700 to 1945 (CMSW)

This finding, along with those concerning positioning in the Late Modern English period, indicates that the medial use of all the modal adverbs, except for *perhaps*, was more common than the initial use in this period.

The means by which modal adverbs come to appear in this position is called "interpolation" (Perkins 1983: 102-104; Hoye 1997: 196-199), and "modal environments tend to favour the interpolation of adverbs which express dubitative meanings" (Hoye 1997: 197)[10]. In fact, this position also preferentially supports the use of such modal adverbs as *probably* and *possibly* (Quirk et al. 1985: 627-628). Therefore, frequent medial positioning is circumstantial syntactic evidence that a given adverb is a modal adverb, and these peripheral modal adverbs underwent the process of modalization in the Late Modern English period – making it a critical stage in the development of these adverbs as expressions of modality.

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[10] This characteristic seems to be closely associated with the adjacency of the position in which the (epistemic) modal verbs (e.g. *must*, *may*, *will*) occur.

4.2 More detailed analysis of the LModE data

The overall picture sketched in the previous section gives the preliminary impression that *doubtless*, *indeed*, *maybe*, *no doubt*, *of course*, and *perhaps* developed as expressions of modality in Late Modern English and that the major change was completed at that point. A more detailed investigation, however, indicates that the six modal adverbs considered here show a further shift during the Late Modern English period. To illustrate this shift, I would like to use the data from CLMET. As seen in Table 5, CLMET contains no examples of *maybe* in the CLMET1 period (1710–1780); additionally, the transition in frequency of *of course* from CLMET1 to CLMET3 stands out. These are interesting facts in and of themselves that are worth thinking about. Figure 4 shows a diachronic overview of the positioning of the six modal adverbs from 1710 to 1920. The examples preceding the figure illustrate their use in different positions.

(15)   Initial
   a.   *Doubtless* they had deliquesced ages ago. (CLMET3, Wells – *The Time Machine*)
   b.   *Indeed*, she had little more to learn. (CLMET3, Forster – *A Room with a View*)
   c.   *Maybe* I shall hand it over to him. (CLMET3, Jerome – *They and I*)
   d.   Then *no doubt* I shall be gone when you come back. (CLMET3, Gissing – *New Grub Street*)
   e.   *Of course* it had to occur on a Thursday afternoon. (CLMET3, Bennett – *The Old Wives' Tale*)
   f.   *Perhaps* it was shedding its drizzle upon her. (CLMET3, Blackmore – *Lorna Doone*)

(16)   Medial
   a.   With all this my good reader will *doubtless* agree; (CLMET1, Fielding – *Tom Jones*)
   b.   I was, *indeed*, ashamed to look any one in the face. (CLMET1, Fielding – *Amelia*)
   c.   He'll *maybe* draw back, and think of a far truer bride. (CLMET2, Galt – *Annals of the Parish*)
   d.   Money, *no doubt*, makes always a part of the national capital; (CLMET1, Smith – *Wealth of Nations*)
   e.   The vanquished became *of course* the enemy of Rome. (CLMET1, Gibbon – *Decline and Fall of the Roman Empire 1*)
   f.   An endeavour to do this may *perhaps* be the subject of some future discourse. (CLMET1, Reynolds – *Seven Discourses on Art*)
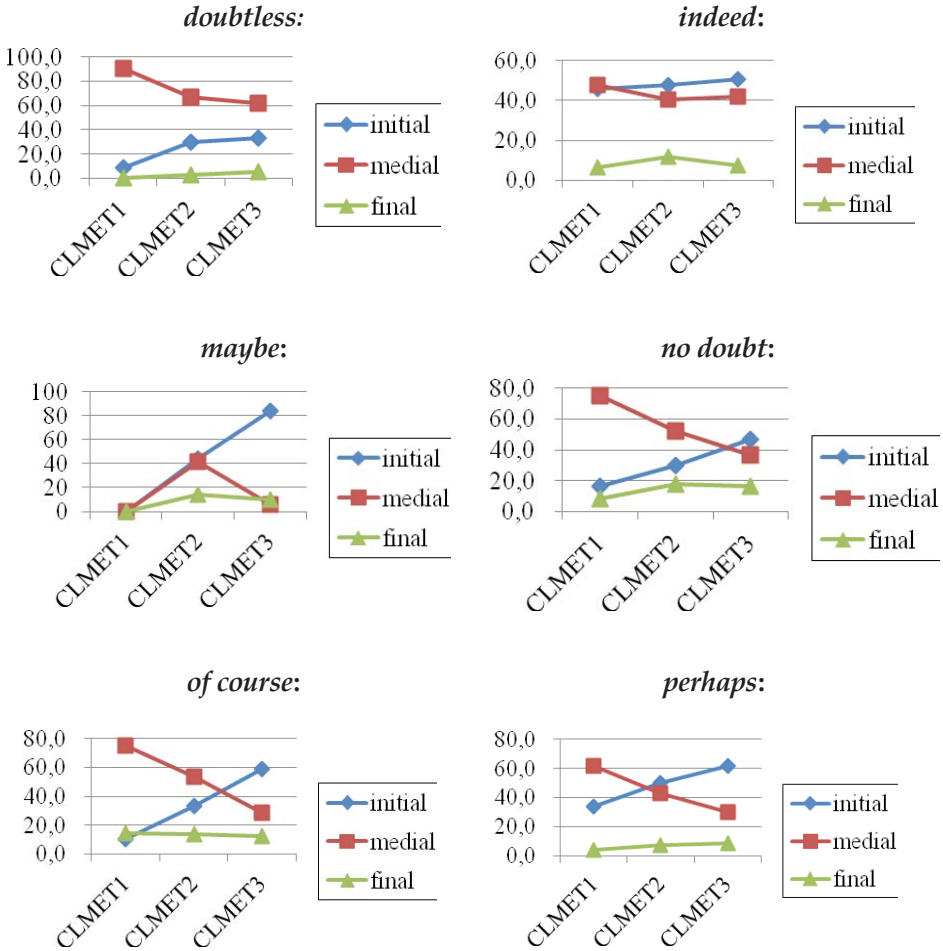
Figure 4. Positioning of the modal adverbs from 1710 to 1920 (CLMET)

The figure demonstrates that for *doubtless*, the medial was the dominant position throughout the Late Modern English period; in contrast, the use of the other five modal adverbs in the initial position was established either in CLMET2 (after 1780) or in CLMET3 (after 1850), and in particular, initial *maybe* accounts for 84% of all tokens of *maybe* in CLMET3. What is especially striking across all these results is that initial positioning of all the modal adverbs continues to spread at a steady rate from 1710 onward. As mentioned above, the use of all six modal adverbs in initial position seem fairly well established in Present-Day English. Thus, they can be considered in Late Modern English to be approaching the Present-Day English distribution, or, put another way, the development of the modal adverbs in the Late Modern English period

accounts for their behavior in contemporary English. In fact, the pragmatic use of the modal adverbs in initial and final position in conversation, just as in contemporary English, can be seen in Examples (2a-c). Examples (17a-e) illustrate this usage. The modal adverbs are syntactically more detached and flexible in terms of their position in a clause.

(17)   a.   *Maybe* you know that part? (CLMET3, Rutherford – *Clara Hopgood*)
       b.   "He prefers yours, *maybe*?" (CLMET3, Hope – *The Prisoner of Zenda*)
       c.   "We must change his name to Bruno, *of course*?" (CLMET3, Carroll – *Sylvie and Bruno*)
       d.   "Then your marriage must be put off, *of course*?" (CLMET3, Gissing – *New Grub Street*)
       e.   "Then you'll help me, *perhaps*?" (CLMET3, Hope – *Rupert of Hentzau*)

4.3 Pragmaticalization in PDE

In this section, I explore the possibility that the usage of peripheral modal adverbs has undergone further pragmatic development in Present-Day English. Figure 5 illustrates the proportion of total instances in initial, medial, and final positions, respectively, in 1961 and 1991. These positionings are illustrated in Examples (18)-(19).

(18)   Initial
       a.   *Doubtless* all has been overruled by Divine love. (LOB, D)
       b.   *Indeed* the French Mandate itself was doomed. (LOB, E)
       c.   *Maybe* they were going to land soon. (FLOB, K)
       d.   *No doubt* there was going to be a return journey. (LOB, L)
       e.   And *of course* politics can be very expensive. (FLOB, F)
       f.   *Perhaps* they would think he was an artist. (LOB, K)

(19)   Medial
       a.   This protest is *doubtless* closely associated with the realization of pain, … (LOB, J)
       b.   We are *indeed* privileged to have such wonderful buildings. (LOB, D)
       c.   I *maybe* lent it to someone and they haven't returned it. (LOB, L)

  d. Most of them would *no doubt* prefer their parents to stay together. (FLOB, G)

  e. Scotland was *of course* our first love. (LOB, G)

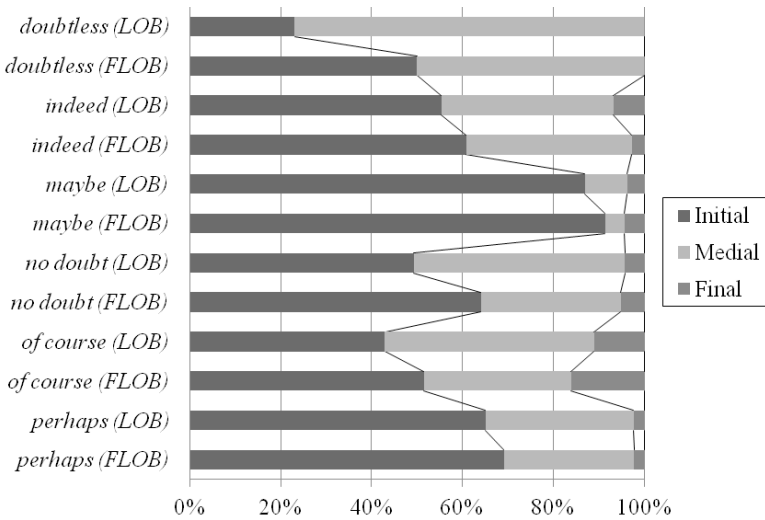 f. This was *perhaps* too naively imagined by some. (LOB, D)

Figure 5. Positioning of the target modal adverbs in 1961 and 1991 (LOB and FLOB)

A closer look at Figure 5 reveals that, despite the wide variations in the positioning of peripheral modal adverbs, initial position is preferred by these peripheral modal adverbs. As Halliday (1970: 335), Perkins (1983: 102-104), Hoye (1997: 148-152), and Halliday – Matthiessen (2004: 79-85) agree, a modal adverb occurring initially expresses the topic or theme of modality. Consider the following examples, which are comparable in meaning (that is, the same in terms of possibility):

(20) a. *Possibly* it was Wren.

   b. It *may* have been Wren. (Halliday 1970: 335)

In addition to expressing modality, *possibly* in Example (20a) also serves the discourse function of topic marking in initial position. Such a modal adverb can play a role as an indicator of the flow of discourse for the hearer or reader. There is a strong tendency for peripheral modal adverbs to function as topic markers in discourse in this way. The most striking finding of the present study is that there has been an increase in the proportion of all the peripheral modal adverbs found in initial position, and thus that their

use as discourse markers has increased over time. The rise in the case of *no doubt*, for instance, is from 49% of all occurrences in LOB to 64% in FLOB; similarly, initial *doubtless* accounts for 23% of the occurrences in LOB and 50% in FLOB.

This development in the use of these peripheral modal adverbs is best explained as the result of a process of pragmaticalization rather than one of grammaticalization. These two processes are not mutually exclusive or contradictory; however, since the English modal adverbs have become more syntactically independent over time, this change fails to comply with a traditional criterion of grammaticalization, namely an increase in dependency (cf. Bybee et al. 1994, Lehmann 1995, Haspelmath 2004, Fischer 2007). Viewing this change instead as a case of pragmaticalization can illuminate functional linguistic changes such as the development of discourse-pragmatic functions over time. Pragmaticalization is "a specific instance of grammaticalization" (Diewald 2011: 384), and a process by which spatial and temporal expressions come to serve "textual and discursive functions," or by which epistemic and manner adverbs become "subjective and intersubjective discourse markers" (Simon-Vandenbergen – Willems 2011: 358)[11]. Hence, pragmaticalization evidently accounts for the attested developments better than grammaticalization.

The clause-final use of modal adverbs also indicates that they are oriented toward an interpersonal function[12]. That is, (21a-d) show that these modal adverbs are used to mark shared familiarity of some information between the speaker and the hearer or to weaken the face-threatening force of the introduction of new information.

(21)   Final
    a.   Saturday afternoon is visiting-time, *of course*. (FLOB, N)
    b.   His face was shiny and sweating; so was mine, *no doubt*. (LOB, N)
    c.   As keeper of the Realm, he has come to meet the King on his return from Ireland, *no doubt*. (FLOB, P)

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[11]   Diewald further claims that a preference for the use of the term "pragmaticalization" derives from a different perspective on the grammar/pragmatics division, namely whether the notion of "grammatical function" also covers pragmatic and procedural functions (Diewald 2011: 384). On other cases of pragmaticalization in English, see, for example, Aijmer (1997), Arnovick (1999), and Erman (2001).

[12]   On the final position of other English expressions, see Haselow (2011, 2012, 2013) for details on final particles such as *actually*, *anyway*, *but*, *even*, *so*, *then*, and *though* and their functions in spoken English.

d.   You'd think he was a bank manager, *perhaps*; something responsible, but hardly someone important. (FLOB, L)

Moreover, the findings in LOB and FLOB show a noticeable use of these modal adverbs in interrogative forms. This is illustrated in the following examples, where *maybe* and *perhaps* are seen as meta-linguistic devices to confirm or emphasize information and understanding as part of the interactive process between speaker and hearer. In these cases, the adverbs fulfill an interpersonal function in the conversation.

(22) a.   Or *maybe* you've stolen them, Eh? (LOB, L)
      b.   You'll *maybe* be sick, will you? (LOB, N)
      c.   May we have tea and a piece of your shortbread, *perhaps*? (FLOB, P)

In sum, the results indicate that these peripheral modal adverbs show functional changes over time and that this dynamic status is related to the greater likelihood of their use as pragmatic markers in initial or final position. The overall evolution of these peripheral modal adverbs from Early Modern English to Present-Day English can be summarized as in Table 8.

Table 8. Summary of the development of the target peripheral modal adverbs

EModE	LModE	PDE
	"**modal adverb**"	(**discourse marker**)
-------------------->		-------------------->
Modalization		**Pragmaticalization**

5. Conclusion

This study investigated the stages of development of *doubtless*, *indeed*, *maybe*, *no doubt*, *of course*, and *perhaps* and discussed how their functioning has changed over time. By analyzing instances of these peripheral modal adverbs in terms of position and function, I have demonstrated that the Late Modern English period was a crucial stage for functional change in modal adverbs. In addition, though this period seems transient, it can be also viewed as a pre-stage to pragmaticalization in Present-Day English. Thus, the Late Modern English period is a very dynamic and significant period for the modal adverbs considered in this study. Moreover, I have elucidated the

fact the processes of modalization and pragmaticalization are key factors in the analysis of the functional development of these expressions.

Finally, we have seen that the use of a well-balanced collection of corpora of Modern English (PPCEME, PPCMBE, CLMET, and CMSW) enables us to fruitfully describe the long-term development of English peripheral modal adverbs. In addition, it has been very helpful to combine historical corpora with present-day ones, such as LOB and FLOB, in a systematic way.

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APPENDIX

Data for Figure 1

Modal adverb	Initial	Medial	Final	Total
doubtless (*PPCEME*)	20	20	6	46
doubtless (*PPCMBE*)	4	12	0	16
no doubt (*PPCEME*)	17	4	5	26
no doubt (*PPCMBE*)	9	20	4	33
perhaps (*PPCEME*)	68	51	3	122
perhaps (*PPCMBE*)	132	122	15	269

Data for Figure 2

Modal adverb	Initial	Medial	Final	Total
indeed (*PPCEME*)	217	141	160	518
indeed (*PPCMBE*)	168	144	35	347
of course (*PPCMBE*)	48	50	12	110

Data for Figure 3

Modal adverb	Initial	Medial	Final	Total
doubtless (*CMSW*)	41	88	3	132
indeed (*CMSW*)	682	784	168	1634
maybe (*CMSW*)	56	70	6	132
no doubt (*CMSW*)	120	168	30	318
of course (*CMSW*)	188	225	47	460
perhaps (*CMSW*)	581	458	83	1122

Data for Figure 4

Modal adverb	Initial	Medial	Final	Total
doubtless (CLMET1)	4	40	0	44
doubtless (CLMET2)	35	78	3	116
doubtless (CLMET3)	58	108	9	175
indeed (CLMET1)	597	619	86	1302
indeed (CLMET2)	749	634	183	1566
indeed (CLMET3)	665	554	97	1316
maybe (CLMET1)	0	0	0	0
maybe (CLMET2)	22	21	7	50
maybe (CLMET3)	58	4	7	69
no doubt (CLMET1)	14	64	7	85
no doubt (CLMET2)	41	72	24	137
no doubt (CLMET3)	167	133	59	359
of course (CLMET1)	3	21	4	28
of course (CLMET2)	130	209	53	392
of course (CLMET3)	737	363	157	1257
perhaps (CLMET1)	275	497	34	806
perhaps (CLMET2)	647	554	94	1295
perhaps (CLMET3)	909	442	126	1477

Data for Figure 5

Modal adverb	Initial	Medial	Final	Total
doubtless (LOB)	3	10	0	13
doubtless (FLOB)	5	5	0	10
indeed (LOB)	108	74	13	195
indeed (FLOB)	112	67	5	184
maybe (LOB)	47	5	2	54
maybe (FLOB)	64	3	3	70
no doubt (LOB)	35	33	3	71
no doubt (FLOB)	25	12	2	39
of course (LOB)	137	147	35	319
of course (FLOB)	135	85	42	262
perhaps (LOB)	172	86	6	264
perhaps (FLOB)	186	77	6	269