English Language and Linguistics, 27.2: 241–269.

doi:10.1017/S136067432200034X

Epistemic space and key concepts in early and late modern medical discourse: an exploration of two genres[1]

RICHARD J. WHITT
The University of Nottingham

(Received 5 October 2021; revised 5 October 2022)

This article provides a corpus-driven overview of the 'epistemic space' surrounding the use of two lockwords of Early and Late Modern English writings on midwifery and childbirth, *child* and *uterus*. Rather than searching for epistemic stance markers themselves, this study employs the 'bottom-up' approach by examining the propositions containing these lockwords, and then seeing what particular epistemic meanings are signalled by the surrounding discourse context. Both treatises and periodicals representative of medical writing from the sixteenth through the eighteenth centuries are examined, thus allowing any diachronic trends characteristic of a period that witnessed much change in midwifery practices, and medicine more broadly, to be uncovered. Data are drawn from the *Early Modern English Medical Texts* (EMEMT) and *Late Modern English Medical Texts* (LMEMT) corpora.

Keywords: lockwords, epistemic stance, medical writing, Early Modern English, Late Modern English

1 Introduction

This article provides an examination of the degree to which authors of Early and Late Modern English medical texts epistemologically position themselves in relation to the key concepts they discuss in their writings. That is, to what extent do the authors of these texts link knowledge, their own and others' sources of knowledge and their confidence in their assertions, to the matters which they discuss? Consider the following:

(1) Therefore, in a subject, where there is no heart, or even liver, that vein ought to communicate immediately with the aorta inferior. In this manner **one conceives how** this subject could do without a heart, the umbilical blood being a continuation of that from the arteries of the

[1] I would like to thank Laurel Brinton and two anonymous reviewers for their immensely helpful comments on various drafts of the article. I must also thank one of my colleagues, Daniel Hunt, and a stellar undergraduate student, Xinmei Sun, for introducing me to the concept of lockwords in the first place. All errors are, of course, my own.

> placenta, the uterus, and in short of the mother . . . (LMEMT, 1767_SC-PER-PT-Vol57_0001-0020: Claude Nicholas Le Cat, 'A monstrous human Foetus . . .', *PT*, vol. 57, p. 12)[2]

In this passage, Le Cat is discussing the survival of a foetus that is missing a heart (among other vital organs and body parts), and through known facts about how normal embryos function, he infers how it's possible that this foetus would survive because the umbilical blood is a 'continuation of that from the arteries . . .', and he expresses his deduction through the phrase *one conceives how*. In other words, he signals that his stance towards his claims about the foetus' survival is one of inference.

Since the status of knowledge itself came into play during changes in medicine from the sixteenth through the eighteenth centuries, one can expect the linguistic manifestations of knowledge in medical writing to reflect the constant and shifting values given to knowledge and its sources during this period. The focus here will be on texts related to midwifery and human reproduction more generally, and the genres under examination are the scientific report (predecessor of the modern journal article) and the medical treatise (precursor to the textbook). Both these genres involve the transmission of knowledge, although the former generally involves communicating new knowledge to one's colleagues or fellow specialists, whereas the latter serves a more didactic function of knowledge instruction to those considered less knowledgeable by the author. These genres allow us to take a multifaceted, in-depth look at a specific field of medicine during a time when substantial changes were underway in the discipline, thus allowing us to see how writers' linguistic and textual practices diverge from previous times as well as point the way forwards towards the present day. The findings can then be linked into the developments underway in medical writing more broadly, hence highlighting both discipline-specific and more general tendencies regarding the textual-linguistic realisation of epistemic stance. A bottom-up, corpus-driven (function-to-form) approach is taken to data collection and analysis, provided by the relevant subsections of the *Early Modern English Medical Texts* (EMEMT) and *Late Modern English Medical Texts* (LMEMT) corpora. This ensures that few presuppositions about both key themes in the texts, as well as the linguistic forms that signal epistemic stance (the author's relation to the status of the knowledge they communicate, i.e. (un)certainty, source of knowledge, etc.), are made about the period and genres under investigation. In addition, the use of lockwords – words that corpora have in common – and a focus on what stance expressions are used in the context of prominent lexical items, rather than a focus on the stance expressions themselves, have implications for the study of epistemic stance well beyond (historical) medical discourse, as it displays a novel way in which to locate and study stance expressions in both diachronic and synchronic contexts.

The article is organised as follows: section 2 provides the relevant sociohistorical background surrounding early and late modern medicine, particularly as it relates to midwifery, human reproduction and medical writing; section 3 outlines the parameters

[2] Discussion of the corpora used in this study can be found in section 4.

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

related to the linguistic expression of epistemic stance adopted in the current study; section 4 details the methods of data collection and analysis; results are discussed in section 5; and section 6 provides some final thoughts on what the study has revealed.

2 Medicine and medical writing in early and late modern England

Early modern medicine retained many of the hallmarks of medieval medicine, namely humoral theory as the basis of explaining human health and illness and a continuing reliance – in the tradition of medieval Scholasticism – on the authority of classical, learned authors such as Galen, Hippocrates and Avicenna. But already from Late Middle English, medical writing witnessed a vernacularisation boom, seeing Latin being gradually displaced as the sole language of learning (particularly in print) in favour of texts capable of reaching a broader, (literate) monolingual English audience (Pahta & Taavitsainen 2010). In addition, converging phenomena such as exploration, periodic outbreaks of the plague and the Reformation led to a gradual distrust in the purported infallibility of classical models of medicine and learning. Indeed, the Royal Society was founded in 1660 (chartered 1662) to pursue and promote the newer, more empirically based mode of discovery promoted by natural philosophers such as Francis Bacon and Robert Boyle (good historical overviews are provided in Siraisi 1990; Grafton, Shelford & Siraisi 1992; Shapin 1996; Wear 2000; French 2003; Cook 2006; Lindemann 2010; Mikkeli & Marttila 2010).

The practice of midwifery – women assisting women in normal childbirth (i.e. childbirth with no or only minor complications, not even considered a medical phenomenon until recently) – remained fairly unchanged throughout most of the early modern period, although the sixteenth century did witness the publication of the first vernacular midwifery treatises (Green 2008; Lindemann 2010: 124–8). All sixteenth-century and most seventeenth-century treatises, however, were written either by (male) learned physicians who never once set foot in the birthing chamber, or by (male) surgeons who only intervened in a medical emergency, such as when a baby died *in utero* (Evenden 2000: 1–13). It was not until the seventeenth century that (female) midwives penned their own treatises, basing their discussions not on the writings of antiquity but on their own extensive experience as practising midwives. In the late seventeenth century, some male surgeons became increasingly involved in normal childbirth, sometimes even replacing the midwife entirely during the early stages of prenatal care. This coincided with the introduction of surgical instruments such as the forceps into the toolkit of the 'man-midwife'. These two phenomena led to an ever-increasing male presence in prenatal care and normal birthing contexts, so much so that by the end of the eighteenth century, the medicalisation of normal childbirth was in full swing (Wilson 1995). Consequently, the eighteenth century witnessed a substantial increase in the publication of midwifery treatises penned by men who now had extensive first-hand experience in normal childbirth (Lieske 2007–9), guided by empirical scientific knowledge rather than the lesser-valued empathetic, experiential knowledge of female midwives (good overviews

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

of midwifery in early modern England are provided by Fissell 2004; Hanson 2004: 16–50; Keller 2007; King 2012; Allison 2021).

Whereas the scientific/medical treatise or manual – the precursor to the modern-day textbook – has been a hallmark of printed vernacular scientific writing since its inception, and it was not unknown to medieval scientific writing either, the scientific report (precursor to the modern-day journal article) found its genesis in the Royal Society's hallmark publication, the *Philosophical Transactions* (hereafter *PT*), first published in 1665. From the start, reports appearing in *PT* were reflective of the Society's orientation towards Baconian natural philosophy and its emphasis on empirical observation and discovery, whereas many of the early modern medical treatises reflect the enduring afterlife of medieval scholasticism with frequent references to the learned authors of antiquity and the Middle Ages (for a discussion of the competing 'thought-styles' of the period, see Bates 1995, Crombie 1995 or Taavitsainen 2001). Several of the contributions of *PT* had a medical focus, often reporting on observations of the human body, sicknesses, experiments on blood transfusion, or medical remedies. Although potential contributions to the *PT* underwent a process of editorial oversight and possible abridgement, there was no peer review in any modern sense of the concept; if a potential contribution fell within the remit of the Royal Society's interest, it was published (Atkinson 1998: 33–50; see also Andrade 1965; Hall 1971; Valle 1999; Hiltunen 2010). The first comparable publication devoted exclusively to medical matters was what is labelled here as the *Edinburgh Medical Journal* (hereafter *EMJ*), first appearing in 1733, although this actually includes a number of publications emanating from the Edinburgh Medical Faculty, a centre of medical theory during the Scottish Enlightenment (Shapin 1974; Emerson 2004; Hiltunen 2019). Finally, the inclusion of medical material in the more general periodical *The Gentleman's Magazine* (hereafter *GM*) from 1731 reflects a further step in the vernacularisation of medical writing by focusing on a non-specialist audience, albeit an elite and male one (Porter 1985; Taavitsainen 2019; Taavitsainen & Whitt 2023). Even if not the most prominent topic, matters related to childbirth and human reproduction were discussed in all of the above publications.

Taken together, the reports found in periodicals and the treatises represent the diverse range of voices involved in midwifery and childbirth during the early and late modern periods: learned physicians, surgeons who intervened only in emergencies, and both female and male midwives. The scientific periodicals admittedly involve only the latter group, as well as other learned gentlemen who had a general interest in human reproduction and might have some relevant observations to report. Hence these two genres provide optimal material for tracing the epistemic stance in early and late modern midwifery, allowing us to examine not only any potential changes over time, but also what – if any – differences might exist among the various groups in question, or between different generic conventions. However, this study is unfortunately limited to printed material. There is little doubt that extensive handwritten material devoted to this topic – just as historically relevant to the field of midwifery and childbirth – existed during the early and late modern periods, but there is yet no corpus devoted to such

material, which no doubt is more difficult to track down and probably scattered throughout various archives. The printed material represented here, on the other hand, exists in multiple copies and enjoyed a higher degree of dissemination (see, for example, Lieske 2007–9).

3 Language and knowledge in medical writing

One of the ever-present issues involved in changes in midwifery practice from the sixteenth through the eighteenth centuries, or even in medicine and medical writing more broadly, is the status of knowledge: what types of knowledge are prioritised over other types? Whose knowledge is most valued and accepted? What sources of knowledge are the most reliable? Whereas scholastic medicine, as well as later texts written in the tradition of Scholasticism, placed a heavy value on the claims made by classical authors like Aristotle, Hippocrates and Galen, as well as sacred texts such as the Bible, the newer empirical models favoured first-hand observation and reasoning (Siraisi 1990; Bates 1995; Crombie 1995). In midwifery, the earliest authors of midwifery manuals (learned physicians and surgeons, all male) continued in the tradition of resorting to classical authorities as favoured sources of knowledge. Female midwives, on the other hand, placed a primacy on first-hand knowledge and experience (i.e. in being a woman and often in having given birth themselves) and the empathy this can encapsulate, whereas the 'man-midwives' placed value in the newer scientific knowledge of empiricism and the first-hand knowledge gained from practical experience (King 1993; Wilson 1995; Lieske 2007–9).

The linguistic realisation of such epistemological values falls within the broad category of STANCE, a speaker or writer's expression of some (inter)subjective position taken in relation to the content of the proposition (for overviews of the notion of stance, see Thompson & Hunston 2000; Englebretson 2007b; Jaffe 2009; Keisanen & Kärkkäinen 2014; and most recently, Kaltenböck, López-Couso & Méndez-Naya 2020). Terms for the concept vary greatly throughout the literature, but those markers concerned with the status of knowledge can broadly be considered to constitute the category of EPISTEMIC STANCE. This generally involves, on the one hand, markers devoted to marking a speaker's certainty (or lack thereof) over whether a proposition is true or not, commonly known as EPISTEMIC MODALITY; in addition, epistemic stance also covers items that allow speakers to express their source of information (report, hearsay, perception, inference), a phenomenon known as EVIDENTIALITY. Simple expressions of knowledge or belief without recourse to certainty or source also constitute part of epistemic stance. Early typological work in the area often conflated these notions (Anderson 1986; Chafe 1986; Chafe & Nichols 1986; Willett 1988), although more recent work makes the distinction more clearly (especially Aikhenvald 2004, but also Palmer 2001 or Boye 2012). Bednarek (2006) finds the term 'epistemological positioning' a suitable umbrella term to capture a range of linguistic expressions dealing with knowledge itself, sources of knowledge, and the (un)certainty with which claims are made, whereas van Dijk (2014) views all such expressions of knowledge through the lens of critical discourse analysis, reflecting broader sociocultural

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

beliefs and ideologies as embedded in linguistic-textual-generic practices (see also Jaffe 2009: 7). Linguistic studies of Early and Late Modern English medical writing have tended to focus on notions of evidentiality, as the types of and values associated with knowledge underwent tremendous change during this period; of course, conceptions of evidentiality have ranged from broad (Taavitsainen 2001, 2009) definitions that include things like epistemic modality (see above) to those narrow approaches that exclude it (Whitt 2016a, b). There has also been some work on expressions of knowledge itself involving verbs such as *know* (Hiltunen & Tyrkkö 2009, 2011), as well as on stance expressions (Gray, Biber & Hiltunen 2011; Hiltunen 2012; see also Bromhead 2009). The current study adopts a broad approach to epistemic stance, similar to the work of Bednarek (2006), Landert (2019) and Grund (2021), involving general expressions of knowledge (including knowledge itself and related concepts like belief and assumption), (un)certainty surrounding knowledge (epistemic modality) and source of information (evidentiality).[3]

To better contextualise how things worked during the early and late modern periods, consider the following examples:

(2) But that which **seem'd** most remarkable to me, and indeed occasioned me to **take Notice of the Case**, was, That the Child was very full of the Small Pox, so full, that **the Midwife said**, hardly a Pins head could be put between the Blisters . . . (LMEMT, 1712–1713_SC-PER_PT_Vol28_0165-0166.txt: W. Derham, 'The Case of a Woman big with Child . . .', *PT*, vol. 28 (1713), pp. 165–6)

(3) **Where he inserts a very odd History of the force of Imagination in breeding Women, which is this**: That a woman at Utrecht in such a condition, being surprised with the sight of a Negro, and so exceedingly frighten'd as to become speechless for the time, **had a strong fancy** she **should** bring forth a black child . . . (EMEMT, 1672_pt7_4098-5001.txt: Anonymous, 'Johannis Swammerdami M. D. UTERI MULIEBRIS . . .', *PT*, vol. 7 (1672), p. 5000)[4]

(4) It happened that in the very same year that Swammerdam announced his discovery in the spawn of the frog, **that a case was published in the Ephem. rerum. nat. curios. delivered to the society by a celebrated court-physician of those times Dr. Claudius**, which exactly suited as a confirmation of Swammerdam's opinion.—A miller's wife was delivered of a little girl whose belly seemed of an unusual size . . . (LMEMT, 1792_SP-MW_Blumenbach_AnEssayOnGeneration.txt: Johann Friedrich Blumenbach, *An essay on generation* (1792), pp. 43–4)

In (2), Derham points to the fact that both physical attention (through ocular observation) and inference inform the proposition *the Child was very full of the Small Pox*; the verb

[3] Contemporary notions of evidentiality (Aikhenvald 2004; Boye 2012; Whitt 2010, 2016a, b) posit this as the *speaker's* (or writer's) source of information. This is naturally included in the current discussion, but so are cases where the source of knowledge may belong to a third party rather than the writer, as seen in example (3) with the woman 'who had a strong fancy'. Such differences will be made in section 5, where distinctions along the lines of source/base and attribution/averral will be taken up (see also Bednarek 2006).

[4] This passage understandably appears problematic in terms of both its racial and sexist overtones, yet such reports on the power of the 'maternal imagination' were not uncommon during the early modern period, and they are far from exclusive to reports published in *PT* (see Fissell 2004: 206ff.).

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

seem'd and phrase *take Notice of* denotes both physical perception and more metaphorical mental attention (cf. Sweetser 1990: 32–4). Further information (i.e. knowledge) is provided to Derham through a midwife's report (*the Midwife said*). So here we see that a combination of first-hand observation and inference couple with a second-hand report to inform the thematic content of the passage; in this instance, all cases of epistemic stance are of an evidential nature. Example (3) provides a particularly interesting scenario, for here, multiple types of knowledge (Report > Inference > Prediction) are involved in the simple proposition of a woman *bring*[*ing*] *forth a black child*. On the one hand, this is a prediction (indicated by *should*) on the part of the woman, which itself is based on an inference (*had a strong fancy*) – informed by her emotional reaction (surprise and fear) to seeing a person of African descent. Yet all of this falls within the broader textual scope of Swammerdam's account of the potential 'force of Imagination in breeding Women', indicated both by the phrase *he inserts a very odd History* and the cataphoric *this*, which marks all subsequent propositions – including their concomitant relations to knowledge – as falling within the scope of these reportative markers (see Boye 2012 for a discussion of epistemicity and propositional scope).[5] In this instance, the epistemic stance consists of evidential (i.e. the author's) source marking as well as other parties' relation to knowledge sources (non-evidential); that is, the pregnant woman's mental processes and information sources are also signalled in this passage. The connection between knowledge source and proposition is even less explicit in example (4), whereby *a case was published . . . by . . . Dr. Claudius* serves as the information source for the following story – consisting of a number of propositions – about the woes of a miller's wife giving birth to a baby girl (both of whom eventually die). However, aside from the sequencing of sentences in the text, and arguably the presence of the em dash, there are no overt *linguistic* markers that the propositions that comprise this story fall within the scope of Dr Claudius' publication; in fact, there is an intervening proposition commenting on its confirmation of Swammerdam's assertions.

These examples raise a number of issues relating to the expression of epistemic meaning, both in general as well as in the context of early and late modern medical discourse. For one, they demonstrate that there is not necessarily a straightforward connection between singular linguistic forms and epistemic meaning. Although some verbs found above like *seemed* or *said* do explicitly signal an evidential meaning (marking the speaker's or writer's information source), other verbs such as *take*, *have*, *insert* and *publish* assume such a function only in their broader collocational, syntactic or discursive context, i.e. *to take Notice of* or *had a strong fancy*. However, almost all studies focusing on some form of epistemicity in scientific discourse to date – whether

[5] The quantitative angle of this research will focus on no more than double-scoped epistemic meaning, for as the data in section 5 (tables 7 and 8) show, expressions of more than two types of epistemic meaning expressed in regards to a proposition containing a lockword are low-frequency occurrences. The addition of triple scoping categories would simply provide an excess number of categories, all with only one or two attestations. So for purposes of this study, example (3) would be classed as Report + Inference.

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

diachronically oriented or not, and regardless of whether taking a top-down or bottom-up approach (Pahta & Taavitsainen 2010: 563) – have ultimately homed in on particular word categories like modal verbs or grammatical constructions such as complement clauses (see, for example, Hyland 1998; Taavitsainen 2001; Hiltunen & Tyrkkö 2009, 2011; Gray, Biber & Hiltunen 2011; Hiltunen 2012; Whitt 2019). These studies have certainly made valuable contributions to the history of scientific discourse, but the more nuanced role played by particular phrases and collocations in the expression of epistemic meaning has generally been overlooked (even though Susan Hunston has long stressed the multifaceted nature of epistemic stance and the myriad forms it can take; see, e.g., Hunston & Sinclair 2000, Hunston 2007, 2011; see also Englebretson 2007b, Jaffe 2009). Two exceptions to this trend in historical stance research are the work of Grund (2012, 2013, 2017, 2021) and Landert (2019), both of whom adopt a function-to-form approach (Taavitsainen & Jucker 2010: 16–18) to their data – seeking all relevant expressions of stance they can find, whatever form they may take. Neither Grund nor Landert, however, concentrate on medical discourse. The current study takes things a step further, starting not with stance markers themselves, but rather with the prominent (lexical) concepts under discussion and then seeing what, if any, epistemic stance expressions occur in these contexts (even Hunston's work begins with stance expressions themselves).

Another issue raised by example (3) and particularly example (4) is determining the relationship between the stance markers and the proposition(s) over which they scope. Discussion of the status of the proposition is a hallmark of work focusing on evidentiality and modality (see, for example, Anderson 1986; Chafe 1986; Palmer 2001), perhaps most extensively in Boye's (2010, 2012) studies on the connection between epistemic meaning and propositional scope. However, these discussions appear restricted to scope within the immediate linguistic environment of the propositions in question (usually at the level of the sentence). Boye's main concern, for instance, is differentiating the proposition from 'states-of-affairs' (or verifiable/falsifiable facts from events that are said to occur),[6] and broader questions of scope on a textual scale – evidenced in examples (3) and (4) – lie beyond the confines of his discussion. Both Grund (2017, 2021: 145ff.) and Whitt (2018) have noted that work such as Boye's (2010, 2012) tends to be based on decontextualised examples and they provide data that reveal more discursive-level scoping between epistemic stance markers and their respective propositions. Grund, in particular, conceives of the notion of pragmatic scope to cover such cases. This study continues in such a vein by examining the epistemic contexts, or space, occupied by key concepts (as manifested in lockwords) in Early and Late Modern English medical writing, within and beyond the propositions in which they are found. But whereas Grund focuses on the epistemic markers themselves, the current study begins with lexical items and then explores what

[6] Propositions are thus subject to epistemic qualification and states-of-affairs are not. Consider, for example, *I heard that he was probably yelling* (proposition involving the verb *yell*) vs **I heard him probably yell* (the state-of-affair of *yelling*, not subject to epistemic qualification) (Boye 2010: 293).

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

sort of epistemic stance is expressed within their vicinity. Hence the term epistemic space rather than the adoption of Grund's concept of pragmatic scope.

Finally, Bednarek (2006: 639ff.) makes further distinctions with the cases of epistemic stance she investigates, all related to information source (evidentiality). For one, she distinguishes between the *source* and *basis* of the proposition, the former being the source of knowledge (to whom or what can the knowledge be attributed?) and the latter being the basis (or evidence) for the source's knowledge (perception, hearsay, inference, etc.). Thus in *hardly a Pins head could be put between the Blisters* from example (2), the source of this information is the midwife, and the basis of knowledge is her first-hand observation. This leads to Bednarek's other distinction, particularly germane for reported information: *attribution* versus *averral*, the latter indicating the writer's own words and the former pointing to someone other than the writer as information source. So in this instance, the author attributes the information to someone else rather than claiming that he himself is the ultimate source of knowledge. These distinctions allow a fine-grained analysis where evidential meaning is concerned, and they will be further discussed in section 5.2.

4 Data and methodology

In order to create a corpus of midwifery treatises, on the one hand, and a corpus of periodicals on the other hand, data for this study were drawn from two larger corpora of medical writing: *Early Modern English Medical Texts* (EMEMT; Taavitsainen *et al.* 2010), covering the sixteenth and seventeenth centuries, and *Late Modern English Medical Texts* (LMEMT; Taavitsainen *et al.* 2019), covering the eighteenth century. In particular, the relevant EMEMT sections devoted to midwifery and children's diseases (Pahta & Ratia 2010: 89–95), covering the treatises, and the *PT* (Hiltunen 2010), the only periodical in print during the seventeenth century, were explored; in addition, the LMEMT sections on midwifery (Pahta 2019), for treatises, and the *PT*/*EMJ* (Hiltunen 2019) and *GM* (Taavitsainen 2019), for periodicals, were consulted. Both the EMEMT and LMEMT subcorpora devoted to the scientific periodicals were further searched to extract only the texts focusing on matters related to childbirth and human reproduction to create an *ad hoc* periodicals subcorpus. Information on the size (wordcount) and number of texts in each corpus can be found in tables 1 and 2.

The Treatises corpus is nearly four times the size of the Periodicals corpus, so where relevant, quantitative measures such as normalised frequencies and proportional figures will be provided.[7] For detailed bibliographic information on the texts found in the Treatises corpus, see Taavitsainen & Pahta (2010: 291–343) for EMEMT texts and Taavitsainen & Hiltunen (2019: 376–8) for LMEMT. For information on the particular texts found in the Periodicals corpus, see appendix 1.

[7] Eight of the ten EMEMT texts in the Treatises corpus pre-date the first representative *PT* publication from 1667, and two date from the sixteenth century. Distinctions between sixteenth- and seventeenth-, and eighteenth-century frequencies will be made in section 5.

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

Table 1. *Details on the Treatises corpus used in this study*

Publication	Number of texts	Wordcount
EMEMT Midwifery Texts	10	102,923
LMEMT Midwifery Texts	14	136,309
Total	**24**	**239,232**

Table 2. *Details of the Periodicals corpus used in this study*

Publication	Number of texts	Wordcount
Philosophical Transactions, 1665–94 (EMEMT)	11	10,729
Philosophical Transactions, 1700–1800 (LMEMT)	19	33,914
The Edinburgh Medical Journal (LMEMT)	11	8,007
The Gentleman's Magazine (LMEMT)	3	2,432
Total	**44**	**55,082**

This article follows the 'bottom-up', specifically the function-to-form, approach to corpus studies (Taavitsainen & Jucker 2010: 16–18; Pahta & Taavitsainen 2010: 563), i.e. inductively approaching the data with as few preconceptions as possible and finding what forms are linguistically realised by a particular concept – epistemic stance in this instance. A wordlist was generated for each respective corpus using the *WordSmith 8.0* concordancer (Scott 2020). Then, in order to see what topics these two corpora had most in common, a keyword list was generated, and those lexical keywords with log ratio values closest to 0 were selected; these are known as LOCKWORDS, items that occur at relatively the same frequency in multiple corpora (see Baker 2011 or Taylor 2013);[8] in this case, *uterus* (log ratio -0.37) and *child* (log ratio -0.58) were the two (lexical) items, or lexical lockwords, whose respective frequencies were most similar within both corpora. Table 3 presents the raw and normalised frequencies of the two lockwords in each of the corpora.

Aside from *child* in the Treatises corpus, the dispersion rates for the EMEMT (see footnotes 9–12) show that these lockwords appear to be concentrated in only a small number of texts; the rate is noticeably higher in the LMEMT. These figures and the current focus are exclusively on the lexical item, rather than the lemma, found to be the lockword; other forms of the word (e.g. *children*, *child's*) were not examined. The function-to-form approach to epistemicity in scientific writing partly shares an affinity with the topic-driven approach adopted by philosophers of science interested in the status of knowledge (see, for example, Kuhn 1970; Latour & Woolgar 1979; Snyder

[8] This also involved pre-setting the minimum log ratio and BIC values to 0 in *WordSmith* before generating the list of keywords.

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

Table 3. *Raw and normalised frequencies of the lockwords* child *and* uterus *in the corpora*

Corpus/Lockword	Raw frequency	Normalised frequency (per 10,000 words)
Treatises		
child[9]	995	41.59
uterus[10]	400	16.72
Periodicals		
child[11]	143	25.96
uterus[12]	70	12.71

1994; cf. Plappert 2017, 2019). That is, rather than being concerned with specific types of knowledge (and particular linguistic items), the current study commences with the most comparable keywords (lockwords) used – or topics discussed – in the two corpora and sees what sort of 'epistemic space' they occupy. That is, markers of epistemic stance are not searched for directly but are rather located in the immediate or near-immediate textual vicinity of the lockwords in question. A similar approach to speech descriptors in witness depositions from the Salem witch trials is taken by Grund (2017), who locates these speech descriptors in the immediate vicinity of overt markers of speech acts, while Landert (2019) – by initially searching for well-known stance markers – attempts to uncover lesser-known stance markers, knowing that such markers tend to cluster together in texts (as is also seen in the examples above).

Initially, a search for frequent clusters or collocates was conducted (following Plappert's (2017, 2019) bottom-up approach to epistemic implicature), but this turned up only a number of low-frequency grammatical constructions (*of the uterus*, *the child and*), nothing comparable to the kinds of lexical clusters uncovered in Plappert's work (admittedly based on a much larger dataset). Therefore, a simple concordance was generated for each word and a close reading of the immediate linguistic context surrounding each word was conducted to search for epistemic markers; a range of roughly 500 characters within the KWIC (key word in context) line was deemed sufficient to capture a number of sentences (vis-à-vis propositions) preceding, including and following the keyword (cf. Landert 2019). Consider the following example of *child* from Sarah Stone's midwifery treatise of 1737:

(5) **The reason she gave me for it was**, That all the Woman's Pains, instead of Bearing down, every Pain rose up the Child, and straiten'd her Belly, round her Navel, as tho' it **would** have broke thro'. I laid my hand on her Belly, and it **seem'd** to me, that all the substance

[9] Dispersion: 8 of the 10 EMEMT texts, all 14 of the LMEMT texts.
[10] Dispersion: 1 of the 10 EMEMT texts, 10 of the 14 LMEMT texts.
[11] Dispersion: 3 of the 11 EMEMT texts, 26 of the 33 LMEMT texts.
[12] Dispersion: 3 of the 11 EMEMT texts, 12 of the 33 LMEMT texts.

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

> between the Child's Head and my hand, was not thicker than fine paper. **The Woman told me**, That after her Waters were gone, she never had one . . . (LMEMT, 1737_SP-MW_Stone_ACompletePracticeOfMidwifery.txt: Sarah Stone, *A Complete Practice of Midwifery* (1737), pp. 19–20)

The lockword *child* (underlined) is contained within the proposition *every Pain rose up the child*. This proposition, in turn, falls within the scope of a phrase indicating the content of the report (*the reason she gave me for it was, that . . .*), so here we see Stone utilising an evidential marker indicating that the proposition about pain and the movement of the child are sourced from the pregnant woman's own report. There are also other epistemic stance markers present here as well (*would*, *seem'd*, *the Woman told me*): *the Woman told me* involves a proposition that does not immediately concern the *child* here. On the other hand, *would* and *seem'd* do concern the very same *child* in question (consider, especially, the anaphoric *it* preceding *would*), albeit in neighbouring propositions. In this instance, the epistemic space surrounding *child* contains three stance markers: one reportative evidential (*the reason . . .*) with immediate propositional scope, plus one inferential (*seem'd*) and one contrafactual prediction (*would*) in neighbouring propositions with *child* still constituting part of the topical content of these propositions. Quantitative results, however, will be restricted to only single and double types of stance; triple epistemic marking, such as the Report > Inference > Prediction in example (3) above, is relatively infrequent and I want to avoid creating an unwieldly number of categories often resulting in five or fewer occurrences (cf. tables 6 and 7). Thus the above example (5) would be classed simply as a Report because that is the epistemic stance that is more proximal to the proposition concerning the lockword *child*; the other epistemic markers scope over neighbouring propositions.

Both Hunston (2002) and Sinclair (2003) have noted the diminishing returns – as well as excessive mental strain – involved in analysing a large number of concordance lines (about 100 lines being sufficient for general patterns, 30 lines for detailed patterns to emerge). Since the current investigation relies on a detailed analysis of the immediate textual environment, i.e. 500 characters, of each instantiation of the lockwords, it was decided to take a representative sample of anything far in excess of 100; however, the analysis of 143 instances of *child* in the Periodicals was still tolerable. The Select Sample Size Calculator was used for these purposes, with a .05 margin of error, a .95 level of confidence and the likely sample proportion kept at .50.[13] So for the Treatises corpus, a sample of 197 (of 400) instances of *uterus* and 280 (of 995) cases of *child* formed the basis of analysis. Samples taken from individual texts were kept in proportion to the overall frequency of attested items in the corpus.[14] This still exceeds the recommendations of Hunston and Sinclair, but the extra time and effort (and screen

[13] URL: https://select-statistics.co.uk/calculators/sample-size-calculator-population-proportion/

[14] So, for example, in Nathanael St André's *A short narrative of an extraordinary delivery of rabbets* (1727), there were 8 uses of *uterus*. This constitutes 2 per cent of the 400 attestations in the entire corpus, which translates into 3.94 (i.e. 4) cases appearing in the representative sample of 197.

breaks) simply had to be taken to ensure an analysis based on a representative amount of data.

I also distinguish between explicit (syntactic; see Boye 2010, 2012) and implicit (pragmatic; see Grund 2021) scope, in an effort to examine as much epistemic space as possible, but also to account for the nuanced manner in which this space can be occupied. In the former, the relevant proposition must fall within the immediate sentential or syntactic environment of the epistemic stance marker, as is the case with the complement clauses (both with and without the *that*-complementiser) in examples (2) and (3). Other explicit linguistic markers that link some propositions with others, or certain parts of the text with other parts – as can be seen with the textual-cataphoric *this* in example (3) – also enable an explicit signalling of epistemic stance. However, when readers must rely on the conventions of text structure (like simple sentential sequencing) to infer that the stance marker scopes above and beyond its immediate syntactic or propositional context, as seen in the report indicated in example (4), the epistemic scope is considered pragmatic.

As for the categories of epistemic meaning, the bottom-up approach adopted in this study meant that no *a priori* categories were established before the data were analysed, but were rather established as part of the data analysis, albeit in line with categories already suggested in the literature on evidentiality and epistemic modality (Anderson 1986; Chafe 1986; Willett 1988; Palmer 2001; Aikhenvald 2004; Bednarek 2006; Boye 2012), and on the history of scientific writing (Taavitsainen 2001; Gray *et al.* 2011; Hiltunen & Tyrkkö 2009, 2011; Whitt 2016a, b) and scientific knowledge (Kuhn 1970; Latour & Woolgar 1979; Snyder 1994; Bates 1995; Crombie 1995). They include Sensory Perception (visual or otherwise; see (6)), Inference (7), Possibility (8), Mental Processes (assumption, belief; see (9)) and Reports (10):

(6) But **I found**, on Examination, that her Womb was of no Bulk to contain a Child near its Time; and that its Neck, of an uncommon Hardness, was also clos'd so straitly, as to refuse the least Admission, even of a small Probe or knitting Needle. (LMEMT, 1722–1723_SC-PER_PT_Vol32_0387-0390.txt: Robert Houston, 'An Account of an Extra-Uterine Foetus . . .', *PT*, vol. 32 (1723), p. 387)

(7) If it was the Consequence of the violent Accidents which happen'd about the Time of the natural Birth, the Child then **must** have continued alive some considerable Time afterwards, during which these bony Excrescences were formed . . . (LMEMET, 1748_SC-PER_PT_Vol45_0131-0137.txt: James Mounsey, 'An Abstract of the remarkable Case and Cure of a Woman . . .', *PT*, vol. 45 (1748), pp. 136–7)

(8) . . . in this you must be cautious, for if you bind them too hard, it **may** cause an inflammation of the uterus. (LMEMT, 1795_SP-MW_Stephen_DomesticMidwife.txt: Margaret Stephen, *Domestic Midwife* (1795), p. 95)

(9) It is commonly believed to be muscular motion, and the fibres peculiar to the substance of the uterus **are believed to be** muscles. (LMEMT, 1794_SP-MW_Hunter_AnAnatomical DescriptionOfTheHumanGravidUterus.txt: William Hunter, *An Anatomical Description of the Human Gravid Uterus, and its Contents* (1794), p. 26)

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

(10) **Mr Portal remarks**, that the cellular sheaths of those vessels are sometimes loaded with fat; and, in certain dropsies of the uterus, they are filled with water. (LMEMT, 1775_SC-PER_EMJ3_Vol3_0351-0358.txt: Anon., 'Observations sur la Structure des Parties de la Génération de la Femme', *EMJ*, vol. 3 (1775), p. 355)

Example (6) constitutes a marker of visual perception, and items signalling sensory perception are well known to signal evidentiality in certain contexts (Aikhenvald 2004; Whitt 2010; Grund 2012, 2013, 2021),[15] although only visual and tactile perception appear in the current dataset. Authors sometimes signal they have arrived at a conclusion via inference in cases such as (7), whereas the claim is more tentative when a possibility or prediction is expressed, as in (8). The notions of certainty and possibility traditionally constitute the domain of epistemic modality (Palmer 2001; Boye 2012), although here, markers of certainty or near certainty are classified as expressions of inference since they signal a conclusion is being drawn by the author, whereas a mere possibility is expressed in cases such as (8). There are also cases where authors indicate their information results from other mental processes such as assumption, belief or already existing knowledge, as in (9). Such a distinction between inferential and more general epistemic stance is also made by Grund (2021: 148ff.), and it is made here as well. Finally, when the information expressed by the relevant propositions is mediated through sources other than the author him/herself, as it is in (10), we find cases of reportative or quotative stance.

5 Results and discussion

5.1 Quantitative results

Tables 4 through 7 provide an overview of the quantitative behaviour of *child* and *uterus* in the two corpora. These figures reveal quite a bit of similarity in the data. Both the treatises and periodicals display a strong preference for explicit marking of epistemic stance (via syntactic scope); implicit (pragmatic) marking is a low-frequency phenomenon across all corpora and time periods, and it is nearly absent from all seventeenth-century data.[16]

The proportion of epistemic marking – at least surrounding the two lockwords under investigation – also increases notably post-1700, although this can be at least partly explained by the fact that the eighteenth-century sample sizes are larger (constituting 56.98 per cent of the Treatises corpus and 80.52 per cent of the Periodicals corpus). It might also be due to the fact that, as discussed in section 2, it was only in the late seventeenth century that normal childbirth and reproduction moved from being an exclusively gynocentric affair to capturing the interest of medical men; this is especially clear with the figures for *uterus*, a more specialised term than the general *child*.

[15] Markers of sensory perception are generally considered evidential when they mark the speaker's (or writer's) perception serving as the basis of knowledge (Whitt 2010). Simply indicating some third party's sensory experience wouldn't be considered evidential (e.g. *I heard that Karen was singing* vs *Laurie heard that Karen was singing*), but see section 5.2.

[16] All figures from the Treatises corpus are based on the representative samples rather than the overall frequencies.

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

Table 4. *Raw and normalised frequencies (per 10,000 words) of* child *in the Treatises (T) and Periodicals (P) corpora*

Type of frequency	1600s	1700s	Total
Overall	T: 85 (8.23)	T: 195 (14.31)	T: 280
	P: 12 (11.18)	P: 131 (29.54)	P: 143
Explicit Epistemicity	T: 36 (3.50)	T: 81 (5.94)	T: 117
	P: 5 (4.66)	P: 64 (14.43)	P: 69
Implicit Epistemicity	T: 1 (0.10)	T: 9 (0.66)	T: 10
	P: 1 (0.93)	P: 5 (1.13)	P: 6

Table 5. *Raw and normalised frequencies (per 10,000 words) of* uterus *in the Treatises (T) and Periodicals (P) corpora*

Type of frequency	1600s	1700s	Total
Overall	T: 1 (0.10)	T: 196 (14.38)	T: 197
	P: 7 (6.52)	P: 63 (14.20)	P: 70
Explicit Epistemicity	T: 0	T: 94 (6.90)	T: 94
	P: 3 (2.80)	P: 26 (5.86)	P: 29
Implicit Epistemicity	T: 0	T: 12 (0.88)	T: 12
	P: 0	P: 5 (1.13)	P: 5

Table 6. *Total number of hits of lockwords sampled plus proportion found to occur with epistemic stance markers in both corpora*

Corpus/Lockword	Total sampled	Total epistemic
Treatises		
child	280	127 (45.35%)
uterus	197	106 (53.81%)
Periodicals		
child	143	75 (52.45%)
uterus	70	34 (48.57%)

Table 7. *Proportion of explicit (syntactic) versus implicit (pragmatic) stance marking in both corpora*

Corpus/Lockword	Total epistemic	Explicit stance marking	Implicit stance marking
Treatises			
child	127	117 (92.13%)	10 (7.87%)
uterus	106	94 (88.68%)	12 (11.32%)
Periodicals			
child	75	69 (92%)	6 (8%)
uterus	34	29 (85.29%)	5 (14.71%)

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

Table 8. *Epistemic meanings associated with* child *and* uterus *in the Treatises corpus*

Epistemic meaning	*child*	*uterus*	Total
Sensory Perception	46 (6)	41 (5)	87 (11)
Sensory Perception+	4	4 (2)	8 (2)
Inference	10	13 (1)	23 (1)
Possibility	18 (1)	4	22 (1)
Mental Processes	10	18 (1)	28 (1)
Mental Processes+	1	1	2
Report	34 (3)	22 (3)	56 (6)
Report+	4	3	7
Total	127 (10)	106 (12)	233 (22)

Table 9. *Epistemic meanings associated with* child *and* uterus *in the Periodicals corpus*

Epistemic meaning	*child*	*uterus*	Total
Sensory Perception	27 (2)	16 (2)	43 (4)
Sensory Perception+	7		
Inference	9	6	15
Possibility	2		2
Mental Processes	5	1	6
Mental Processes+	3		3
Report	18 (6)	8 (2)	26 (4)
Report+	4	3 (1)	7 (1)
Total	75 (8)	34 (5)	109 (13)

The types of epistemic meaning associated with each of the lockwords can be found in tables 8 and 9. Where multiple types of stance markers occur in the epistemic space of a single instantiation of the lockword, this is indicated by a '+', although further distinctions (e.g. Report + Inference, Sensory Perception + Mental Process, etc.) are not made due to the very low frequency (< 5) of any particular combination.[17] Again, the data reveal much similarity across the genres and time periods: in both corpora, sensory dominates as the type of epistemic stance surrounding the propositions containing *child* and *uterus*. Reporting of information from other sources – mediated knowledge – comes second in both corpora. Finally, markers of inference are the third most frequently appearing type of stance markers in the Periodicals corpus, whereas more general mental processes feature third in the Treatises corpus. Regarding *PT*, this at least partly confirms Atkinson's claim that the Royal Society placed primacy on knowledge or results

[17] Brackets are used to indicate the number of instances that result from implicit epistemic marking (i.e. propositions within the pragmatic scope of epistemic stance markers). For example, of the 13 cases of Inference surrounding *uterus*, only one is signalled implicitly.

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

acquired via ocular observation (1998: 23), although it should be noted that tactile perception – present in the current dataset as well, albeit to a lesser degree – also played a role in providing information to midwives and others involved with body-internal medicine (see Whitt 2023). These results are also further confirmation of earlier studies on evidentiality in Early Modern English medical writing (Taavitsainen 2001; Whitt 2016a, b), where it was discovered that expressions of first-hand knowledge (acquired via observation and mental processes such as inference) and the reports of others served as the primary evidential markers in the medical texts of the early modern period.

5.2 *Further specifications of epistemicity*

We will now take a closer look at the data, in part to differentiate the evidential uses, or those expressions indicating the writer's source of information from the non-evidential epistemic uses – generally an indication of someone other than the writer's knowledge or information source. This will also provide an opportunity to inspect the explicit vs implicit epistemic stance marking in a bit more detail. This combination of features allows us a multifaceted view of the semantics of epistemic stance, which is more extensive than previously discussed. The focus here is not narrowly on speaker/writer knowledge, without regard to how these speakers/writers use others' knowledge in establishing their own epistemic stance, nor is the focus solely on items that exhibit only immediate syntactic scope over the propositions they modify (see Bednarek 2006; Gray *et al.* 2011; Hiltunen & Tyrkkö 2011; Taavitsainen 2001, 2009; Whitt 2016a, b). Instead, we will follow Bednarek (2006) in distinguishing between source and basis on the one hand, and attribution and averral on the other hand (see section 3). And although a precise account of the formal structure of these stance expressions falls beyond the purview of the current study, a list of the precise words and phrases involved in the signalling of epistemic meaning is presented in appendix 2.

Regarding sensory perception, most cases found in the current dataset involved the writer as source of the proposition – as well as the sensory act – by pointing to visual perception (and tactile, to a lesser degree) as the basis of knowledge. The observations of others were indicated less frequently, as were statements signalling generally perceivable phenomena without regard to any specific individual (i.e. no clear source). In the Periodicals corpus, observable attributes of *child* and *uterus* that serve as the basis of knowledge were also found. Some concrete examples best illustrate these trends:

(11) On the 12th, I **saw** him, and found his breathing bad, great stuffing, shrill voice, and a swelling externally on the superior part of the trachea. Pulse 140. Every thing **looked** ill. Steams, external fomentation, poultices, and several leeches were applied to the throat. 13th, the child greatly relieved, more chearful, and voice more natural. 14th, pulse much better, and the peculiarity of voice and the swelling almost gone. (LMEMT, 1765_SP-MW_Home_AnInquiryInto

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

TheNatureCauseAndCureOfTheCroup.txt: Francis Home, *An inquiry into the nature, Cause, and Cure of the croup* (1765), p. 13)

(12) On opening the body, the child and placenta **were found** in the cavity of the abdomen, entirely out of the uterus, which was of the size of a child's head of five years old, and was the round body which had been felt per vaginam. (LMEMT, 1787_SP-MW_Goldson_AnExtraordinaryCaseOfLaceratedVagina.txt: William Goldson, *An extraordinary case of lacerated vagina, at the full period of gestation* (1787), p. 47)

Example (11) is a straightforward case of evidentiality, whereby the author points to his own visual observation as their source of information. The child's state on August 13th (and 14th, in fact) is also due to the author's direct first-hand observation; however, this is made explicit only in previous propositions concerning the child's state on August 12th, but the pragmatic scope is fairly transparent due to the standard sequencing of the narrative: all of Home's comments about the child stem from his direct contact with and visual perception of the child (with auditory and tactile perception suggested here as well). Visual perception is also at play in example (12), but here, the author is simply reporting on what others perceived, rather than what he himself perceived, as his source of information. Generally perceivable phenomena are occasionally indicated as well (*it will not be amiss to observe that*),[18] and sometimes the perceived object serves as the stimulus necessary to make requisite observations about various attributes (*the child demonstrates*).[19] These distinctions show that evidential meaning involving the senses need not be immediately anchored in the speaker's/writer's act of perception, but in certain discursive contexts, others' sensory perception can still serve as the basis (evidence) for a speaker or writer's knowledge (contra Whitt 2010). The precise breakdown of these uses can be found in table 10.

First-hand perception dominates throughout the data, while others' perceptions serve as the author's source of knowledge as well. Information that is generally accessible via the senses occurs almost as frequently in the treatises, but it is all but absent in the periodicals. This is presumably due to the nature of the writings found in the periodicals: authors generally sought to emphasise their own findings in these publications, rather than reiterate the observations of others. Treatises, on the other hand, focused more on synthesising existing information rather than showcasing novel observations. Finally, the attributive use of sensory perception features in the Periodicals corpus as well, but it is absent in the Treatises, likely for the same reason: these perceived attributes constitute novel observations rather than existing knowledge.

[18] LMEMT, 1784_SP-MW_Smellie_ATreatiseOnTheTheoryAndPracticeOfMidwifery.txt: William Smellie, *A treatise on the theory and practice of Midwifery* (1784), p. 90.

[19] LMEMT, 1767_SC-PER_PT_Vol57_0001-0020.txt: Claude Nicholas Le Cat, 'A monstrous human Foetus, having neither Head, Heart, Lungs, Stomach, Spleen, Pancreas, Liver, nor Kidnies', *PT*, vol. 57 (1767), p. 16.

Table 10. *Breakdown of the types of evidential meaning surrounding sensory perception in the two corpora*

Corpus	*child*	*uterus*	Total
Treatises	24 first-hand perception 10 general 12 others' perception	20 first-hand perception 12 general 9 others' perception	44 first-hand perception 22 general 21 other's perception
Periodicals	15 first-hand perception 8 others' perception 4 attributive	5 first-hand perception 4 others' perception 5 attributive 2 general	20 first-hand perception 12 others' perception 9 attributive 2 general
Total	35 first-hand perception 10 general 12 others' perception 4 attributive	24 first-hand perception 14 general 10 others' perception 5 attributive	64 first-hand perception (49.23%) 33 others' perception (25.39%) 24 general (18.46%) 9 attributive (6.92%)

The same general trends apply to Inference. Evidentiality, with authors indicating their own acts of inferencing, is the most dominant type of marking (*I conceive*),[20] but there are also some references to the reasoning processes of others:

(13) This last labour, in which she was attended by the widow Mauger, a midwife of the same town, began with so considerable a discharge of water, that **it was judged, not without reason**, that her pregnancy was attended with a dropsy of the uterus. (LMEMT, 1767_SC-PER_PT_Vol57_0001-0020.txt: Claude Nicholas Le Cat, 'A monstrous human Foetus, having neither Head, Heart, Lungs, Stomach, Spleen, Pancreas, Liver, nor Kidnies', *PT*, vol. 57 (1767), p. 2)

Here, Le Cat ascribes these mental processes to someone other than himself, namely those who were present at the actual labour in question. Unlike with non-authorial sensory perception discussed above, one could argue a case such as this is non-evidential because the author is simply reporting on what others believe or have concluded rather than necessarily taking a position on the matter themselves. Even so, it is the author who chooses to deploy these epistemic markers in the first place, thereby indicating that a mental process (basis) of someone else (source) serves as the *basis* of their own knowledge. This may or may not constitute evidentiality in the strictest sense of the term, but it is certainly a case of epistemic stance because the author positions their claim – about a uterus, in this instance – in some sort of epistemic space where the inference process is both explicit and prominent. There are also a few indications of conclusions that anyone in possession of certain information should and would be able

[20] LMEMT, 1712–1713_SC-PER_PT_Vol28_0165-0166.txt: W. Derham, 'The Case of a Woman big with Child . . .', *PT*, vol. 28 (1713), p. 165.

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

Table 11. *Breakdown of the types of meaning surrounding inference in the two corpora*

Corpus	*child*	*uterus*	Total
Treatises	8 evidential	11 evidential	19 evidential
	1 others	2 others	3 others
Periodicals	5 evidential	3 evidential	8 evidential
	2 others	2 others	4 others
	2 general	1 general	3 general
Total	13 evidential	14 evidential	27 evidential (72.97%)
	3 others	4 others	7 others (18.92%)
	2 general	1 general	3 general (8.11%)

to make (*X gives Reason to believe*);[21] that is, the author indicates that the presence of certain facts should lead anyone (himself included) to arrive at a specified conclusion. As this involves the author's inference, it is unambiguously evidential. Table 11 illustrates that the quantitative trends are almost parallel in both corpora.

Evidentiality is also the most dominant epistemic use of cases of the Report category, that is, the authors point to someone else's work as their source of information (attribution).[22] Interestingly, similar formulations involving authors pointing to their own writings (averral; see Bednarek 2006: 642ff.) – either elsewhere in the same text or to another text entirely – are also found in the data:

(14) And first of all, yong women commonly are with child rather of a boy then of a wench, because they be hoter then the elder women, **which was obserued by Aristotle, who saith farther**, that if an aged woman which neuer had children before, chance to conceiue, one may be sure it will be a wench. (EMEMT, 1612_Guillemeau_Childbirth.txt: Jacque Guillemeau, *CHILD-BIRTH OR, THE HAPPY DELIVERIE OF VVOMEN* (1612), p. 9)

(15) **In the cases of Mrs. Wilkins, and the others which I have related** as lacerations of the vagina, the hemorrhage was not very great, and the uterus was found contracted to the usual size it would have been . . . (LMEMT, 1787_SP-MW_Goldson_AnExtraordinaryCase OfLaceratedVagina.txt: William Goldson, *An extraordinary case of lacerated vagina, at the full period of gestation* (1787), p. 73)

Example (14) is evidential, allowing the author to cite other texts as their information source. Interestingly, the attribution to a classical source (Aristotle) was found only in the seventeenth-century data; this is no doubt a continuation of the scholastic tradition, whereby the texts of antiquity were authoritative above any other information source, even direct observation (see Whitt 2016a, b; Taavitsainen 2018). There is a change of

[21] LMEMT, 1748_SC-PER_PT_Vol45_0131-0137.txt: James Mounsey, 'An Abstract of the remarkable Case and Cure of a Woman . . .', *PT*, vol. 45 (1748), p. 136.

[22] Although these are not oral reports (of interest to typologists; see Anderson 1986; Willett 1988), referring to someone else's writings as evidence serves a near equivalent function, for mediated information forms the basis of the speaker's/author's knowledge (see Whitt 2016a, b).

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

Table 12. *Breakdown of the types of meaning surrounding reports in the two corpora*

Corpus	*child*	*uterus*	Total
Treatises	26 evidential	20 evidential	46 evidential
	7 averral	2 averral	9 averral
	1 speech		1 speech
Periodicals	14 evidential	8 evidential	22 evidential
	3 averral		3 averral
	1 speech		1 speech
Total	40 evidential	28 evidential	68 evidential (82.93%)
	10 averral	2 averral	12 averral (14.63%)
	2 speech		2 speech (2.44%)

focus in (15), whereby Goldson points to himself as the source of information, discussed in greater detail elsewhere in his writings (*which I have related*). There are also a few rare cases where knowledge about *child* finds itself expressed in an actual conversational exchange. Table 12 provides the frequencies and distribution of these uses.

6 Final remarks

This study has provided an overview of epistemic space in Early Modern English texts on midwifery and childhood, as a representative snapshot of Early and Late Modern English medical writing more broadly. Evidential meaning is most prominent throughout the major categories of epistemic stance markers, although there are a number of other related meanings that involve the knowledge of someone other than the writer. By focusing on the most common items shared between two corpora (the lockwords *child* and *uterus*), this study has been able to uncover a wide range of epistemic meanings expressed in the early days of printed vernacular medical writing, as well as a range of already widely discussed items such as perception verbs and markers of inference (the full range of markers can be found in appendix 2). Despite their different functions (didactic vs informative), the treatises and periodicals display remarkably similar behaviour: both favour explicit (syntactic) marking of epistemic stance and generally favour the same types of epistemic meanings in regards to propositions involving the two lockwords under investigation.

Evidentiality dominates in both genres and with both lockwords, and aside from an increase in the general use of epistemic stance markers, no diachronic trends could be found. Previous research on Early Modern English medical writing (Taavitsainen 2001, 2009, 2018; Hiltunen & Tyrkkö 2009; Whitt 2016a) has uncovered diachronic developments regarding epistemicity during the period under investigation here. Perhaps by focusing only on specific forms, other forms of epistemic stance marking (particularly multi-word expressions) are missed (cf. Kohnen's 2007 concept of 'hidden manifestations'). By starting with lockwords, one can uncover *all* forms of epistemic stance marking within range of particular key concepts, so maybe the

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

diachronic change is not as stark or clear-cut as previously suggested. This investigation has also shown how such meaning can be pragmatically indicated or implied through scoping not restricted to the immediate syntactic context of the proposition in question (see also Grund 2017, 2021). Even though this phenomenon is nowhere near as frequent as the oft discussed explicit marking of epistemic stance, it does show how general textual conventions and the broader discourse context play just as significant a role as the immediate syntactic or sentential environment (as found, for example, with matrix clauses). Again, taking these uses into account might well paint a different picture of alleged changes in epistemic stance marking through time. This might also explain why few generic differences could be found; when one takes a full swathe of single- and multi-word epistemic stance markers into consideration, differences are perhaps not as stark as once believed.

An obvious drawback here is that an epistemic marker scoping over the proposition may occur much earlier in the discourse, well beyond what can be shown in a KWIC concordance line. Consider the following from Dr Douglas' contribution to *PT*:

(16) (a) I Lately opened the Body of a Woman, aged 27, who dyed the third day after Delivery, on which I made the following remarks.

(b) Having carried home this large Bag, with the Uterus appendant, cut off below the Orifice of the Meatus Urinarius, and viewed it at leisure, **I observed** . . . (LMEMT, 1706–1707_SC-PER_PT_Vol25_3217–2327: Dr. Douglas, 'An Account of a Hydrops Ovarii', *PT*, vol. 25 (1706–7), p. 2317 (a), p. 2320 (b))

Each of these statements either implicitly or explicitly suggests that ocular observation serves as Douglas' source of knowledge, and both are followed by lengthy lists of the various observations made. However, the textual distance between these propositions and the mention of information source can range from a few sentences to several paragraphs. Yet these statements necessarily scope over each and every enumerated item (and the attendant propositions) on their respective lists. That is, almost every proposition appearing within these lists falls within the scope of visually acquired evidence on the part of Douglas. Such uses have not been picked up in the current study, partly due to the focus on lockwords rather than on the epistemic markers themselves; at the same time, the bottom-up approach employed here has allowed us to uncover a broader range of items and meanings possible than with conventional searches for 'the usual suspects' (Plappert 2017: 425; see also Landert 2019). Such text- or discourse-level use of epistemic stance has remained fairly unaddressed in the literature on the subject, whether in more general typological overviews or those focused on scientific or medical writing in particular. The wide range of nuanced meanings expressed in broad categories such as perception and inference has also been explored.

This study has hopefully paved the way for further investigations along these lines, combining the bird's-eye view provided by corpus techniques with close reading and sociohistorical contextualisation. One obvious place to start would be to look at the particular syntactic configurations involving stance markers that tend to occur in the

epistemic space of certain lockwords (such as complement clauses), thus establishing a 'local grammar' (Hunston & Sinclair 2000) of this space. And how similar or different are these grammars among different lockwords (and in different genres)? This study has hopefully served as first step into this new avenue of exploring medical writing, and epistemic stance more broadly.

Author's address:

School of English
The University of Nottingham
University Park
Nottingham NG7 2RD
United Kingdom
richard.whitt@nottingham.ac.uk

References

Aikhenvald, Alexandra Y. 2004. *Evidentiality.* Oxford: Oxford University Press.
Allison, Julia. 2021. *Midwifery from the Tudors to the 21st century: History, politics and safe practice in England*. London: Routledge.
Anderson, Lloyd B. 1986. Evidentials, paths of change, and mental maps: Typologically regular asymmetries. In Chafe & Nichols (eds.), 273–312.
Andrade, Edward Neville da Costa. 1965. The birth and early days of the *Philosophical Transactions*. *Notes and Records of the Royal Society of London* 20(1), 9–27.
Atkinson, Dwight. 1998. *Scientific discourse in sociohistorical context: The Philosophical Transactions of the Royal Society of London, 1675–1975*. London: Routledge.
Baker, Paul. 2011. Times may change, but we will always have money: Diachronic variation in recent British English. *Journal of English Linguistics* 39(1), 65–88.
Bates, Don. 1995. Scholarly ways of knowing: An introduction. In Don Bates (ed.), *Knowledge and the scholarly medical traditions*, 1–22. Cambridge: Cambridge University Press.
Bednarek, Monika. 2006. Epistemological positioning and evidentiality in English news discourse: A text-driven approach. *Text & Talk* 26(6), 635–60.
Boye, Kasper. 2010. Evidence for what? Evidentiality and scope. *Language Typology and Universals* 63(4), 290–307.
Boye, Kasper. 2012. *Epistemic meaning: A crosslinguistic and functional-cognitive study.* Berlin: de Gruyter.
Bromhead, Helen. 2009. *The reign of truth and faith: Epistemic expressions in 16th and 17th century English*. Berlin: de Gruyter.
Chafe, Wallace. 1986. Evidentiality in English conversation and academic writing. In Chafe & Nichols (eds.), 261–72.
Chafe, Wallace & Johanna Nichols (eds.). 1986. *Evidentiality: The linguistic coding of epistemology.* Norwood, NJ: Ablex.
Cook, Harold J. 2006. Medicine. In Katharine Park & Lorraine Daston (eds.), *The Cambridge history of science*, vol. III: *Early modern science*, 407–34. Cambridge: Cambridge University Press.
Crombie, A. C. 1995. Commitments and styles of European scientific thinking. *History of Science* 33, 225–38.
van Dijk, Teun A. 2014. *Discourse and knowledge: A sociocognitive approach*. Cambridge: Cambridge University Press.

Emerson, Roger. 2004. The founding of the Edinburgh Medical School. *Journal of the History of Medicine and Allied Sciences* 59(2), 183–218.
Englebretson, Robert (ed.). 2007a. *Stancetaking in discourse: Subjectivity, evaluation, interaction*. Amsterdam: John Benjamins.
Englebretson, Robert. 2007b. Stancetaking in discourse: An introduction. In Englebretson (ed.), 1–25.
Evenden, Doreen. 2000. *The midwives of seventeenth-century London*. Cambridge: Cambridge University Press.
Fissell, Mary E. 2004. *Vernacular bodies: The politics of reproduction in early modern England*. Oxford: Oxford University Press.
French, Roger. 2003. *Medicine before science: The rational and learned doctor from the Middle Ages to the Enlightenment*. Cambridge: Cambridge University Press.
Grafton, Anthony, April Shelford & Nancy Siraisi. 1992. *New worlds, ancient texts: The power of tradition and the shock of discovery*. Cambridge, MA: The Belknap Press of Harvard University Press.
Gray, Bethany, Douglas Biber & Turo Hiltunen. 2011. The expression of stance in early (1665–1712) publications of the *Philosophical Transactions* and other contemporary medical prose: Innovations in a pioneering discourse. In Taavitsainen & Pahta (eds.), 221–63.
Green, Monica H. 2008. *Making women's medicine masculine: The rise of male authority in pre-modern gynaecology*. Oxford: Oxford University Press.
Grund, Peter J. 2012. The nature of knowledge: Evidence and evidentiality in the witness depositions from the Salem witch trials. *American Speech* 87(1), 7–38.
Grund, Peter J. 2013. 'I saw y^{e} Child burning in y^{e} fire': Evidentiality in Early Modern English witness depositions. In Andreas H. Jucker, Daniela Landert, Annina Seiler & Nicole Studer-Joho (eds.), *Meaning in the history of English: Words and texts in context*, 319–41. Amsterdam: John Benjamins.
Grund, Peter J. 2017. Description, evaluation and stance: Exploring the forms and functions of speech descriptors in Early Modern English. *Nordic Journal of English Studies* 16(1), 41–73.
Grund, Peter J. 2021. *The sociopragmatics of stance: Community, language, and the witness depositions from the Salem witch trials*. Amsterdam: John Benjamins.
Hall, A. Rupert. 1971. English medicine in the Royal Society's correspondence, 1660–1677. *Medical History* 15(2), 111–25.
Hanson, Clare. 2004. *A cultural history of pregnancy: Pregnancy, medicine and culture, 1750–2000*. Basingstoke: Palgrave.
Hiltunen, Turo. 2010. Category 6: *Philosophical Transactions*. In Taavitsainen & Pahta (eds.), 127–31.
Hiltunen, Turo. 2012. *So* adj/adv *that* clause patterns in Early Modern English medical writing. *Journal of Historical Pragmatics* 13(2), 313–35.
Hiltunen, Turo. 2019. Scientific periodicals: The *Philosophical Transactions* and the *Edinburgh Medical Journal*. In Taavitsainen & Hiltunen (eds.), 317–26.
Hiltunen, Turo & Jukka Tyrkkö. 2009. 'Tis well known to barbers and laundresses': Overt references to knowledge in English medical writing from the Middle Ages to the present day. In Antoinette Renouf & Andrew Kehoe (eds.), *Corpus linguistics: Refinements and reassessments*, 67–86. Amsterdam: Rodopi.
Hiltunen, Turo & Jukka Tyrkkö. 2011. Verbs of knowing: Discursive practices in early modern vernacular medicine. In Taavitsainen & Pahta (eds.), 44–73.
Hunston, Susan. 2002. *Corpora in applied linguistics*. Cambridge: Cambridge University Press.
Hunston, Susan. 2007. Using a corpus to investigate stance quantitatively and qualitatively. In Englebretson (ed.), 27–48.
Hunston, Susan. 2011. *Corpus approaches to evaluation: Phraseology and evaluative language*. London: Routledge.

Hunston, Susan & Geoff Thompson (eds.). 2000. *Evaluation in text: Authorial stance and the construction of discourse*. Oxford: Oxford University Press.
Hunston, Susan & John Sinclair. 2000. A local grammar of evaluation. In Hunston & Thompson (eds.), 74–101.
Hyland, Ken. 1998. *Hedging in scientific research articles*. Amsterdam: John Benjamins.
Jaffe, Alexandra. 2009. Introduction: The sociolinguistics of stance. In Alexandra Jaffe (ed.), *Stance: Sociolinguistic perspectives*, 1–28. Oxford: Oxford University Press.
Jucker, Andreas H. & Irma Taavitsainen (eds.). 2010. *Historical pragmatics*. Berlin: de Gruyter.
Kaltenböck, Gunther, María López-Couso & Belén Méndez-Naya. 2020. The dynamics of stance constructions. *Language Sciences* 82, 1–11.
Keisanen, Tiina & Elise Kärkkäinen. 2014. Stance. In Klaus P. Schneider & Anne Barron (eds.), *Pragmatics of discourse*, 295–322. Berlin: de Gruyter.
Keller, Eve. 2007. *Generating bodies and gendered selves: The rhetoric of reproduction in early modern England*. Seattle: University of Washington Press.
King, Helen. 1993. The politick midwife: Models of midwifery in the work of Elizabeth Cellier. In Hilary Marland (ed.), *The art of midwifery: Early modern midwives in Europe*, 115–30. London: Routledge.
King, Helen. 2012. Midwifery, 1700–1800: The man-midwife as competitor. In Anne Borsay & Billie Hunter (eds.), *Nursing and midwifery in Britain since 1700*, 107–27. Basingstoke: Palgrave Macmillan.
Kohnen, Thomas. 2007. Text types and the methodology of diachronic speech act analysis. In Susan Fitzmaurice & Irma Taavitsainen (eds.), *Methods in historical pragmatics*, 139–66. Berlin: de Gruyter.
Kuhn, Thomas S. 1970. Logic of discovery or psychology of research? In Imre Lakatos & Alan Musgrave (eds.), *Criticism and the growth of knowledge*, 1–23. Cambridge: Cambridge University Press.
Landert, Daniela. 2019. Function-to-form mapping in corpora: Historical corpus pragmatics and the study of stance expressions. In Carla Suhr, Terttu Nevalainen & Irma Taavitsainen (eds.), *From data to evidence in English language research*, 169–90. Leiden: Brill.
Latour, Bruno & Steve Woolgar. 1979. *Laboratory life: The social construction of scientific facts*. London: Sage.
Lieske, Pam. 2007–9. *Eighteenth-century British midwifery*, 12 vols. London: Pickering & Chatto.
Lindemann, Mary. 2010. *Medicine and society in early modern Europe*, 2nd edn. Cambridge: Cambridge University Press.
Mikkeli, Heikki & Ville Marttila. 2010. Change and continuity in early modern medicine (1500–1700). In Taavitsainen & Pahta (eds.), 13–27.
Pahta, Päivi. 2019. Midwifery. In Taavitsainen & Hiltunen (eds.), 271–8.
Pahta, Päivi & Maura Ratia. 2010. Category 2: Treatises on specific topics. In Taavitsainen & Pahta (eds.), 73–99.
Pahta, Päivi & Irma Taavitsainen. 2010. Scientific discourse. In Jucker & Taavitsainen (eds.), 549–86. Berlin: de Gruyter.
Palmer, Frank R. 2001. *Mood and modality*, 2nd edn. Cambridge: Cambridge University Press.
Plappert, Garry. 2017. Candidate knowledge? Exploring epistemic claims in scientific writing: A corpus-driven approach. *Corpora* 12(3), 425–57.
Plappert, Garry. 2019. Not hedging but implying: Identifying epistemic implicature through a corpus-driven approach to scientific discourse. *Journal of Pragmatics* 139, 163–74.
Porter, Roy. 1985. Lay medical knowledge in the eighteenth century: The evidence of *The Gentleman's Magazine*. *Medical History* 29, 138–68.
Scott, Mike. 2020. *WordSmith Tools*, version 8. Stroud: Lexical Analysis Software.

Shapin, Steven. 1974. The audience for science in eighteenth century Edinburgh. *History of Science* 12, 95–121.
Shapin, Steven. 1996. *The scientific revolution*. Chicago: University of Chicago Press.
Sinclair, John M. 2003. *Reading concordances*. London: Pearson Longman.
Snyder, Laura J. 1994. Is evidence historical? In Peter Achinstein & Laura J. Snyder (eds.), *Scientific methods: Conceptual and historical problems*, 95–117. Malabar, FL: Krieger.
Siraisi, Nancy G. 1990. *Medieval and early Renaissance medicine: An introduction to knowledge and practice*. Chicago: University of Chicago Press.
Sweetser, Eve E. 1990. *From etymology to pragmatics: Metaphorical and cultural aspects of semantic structure*. Cambridge: Cambridge University Press.
Taavitsainen, Irma. 2001. Evidentiality and scientific thought-styles: English medical writing in Late Middle English and Early Modern English. In Maurizio Gotti & Marina Dossena (eds.), *Modality in specialized texts: Selected papers of the 1st CERLIS conference*, 21–52. Bern: Peter Lang.
Taavitsainen, Irma. 2009. The pragmatics of knowledge and meaning: Corpus linguistic approaches to changing thought-styles in early modern medical discourse. In Andreas H. Jucker, Daniel Schreier & Marianne Hundt (eds.), *Corpora: Pragmatics and discourse. Papers from the 29th International Conference on English Language Research on Computerized Corpora (ICAME 29)*, 37–62. Amsterdam: Rodopi.
Taavitsainen, Irma. 2018. Scholastic genre scripts in English medical writing 1375–1800. In Richard J. Whitt (ed.), *Diachronic corpora, genre, and language change*, 95–115. Amsterdam: John Benjamins.
Taavitsainen, Irma. 2019. General periodical: *The Gentleman's Magazine*. In Taavitsainen & Hiltunen (eds.), 327–36.
Taavitsainen, Irma & Turo Hiltunen (eds.). 2019. *Late Modern English medical texts: Writing medicine in the eighteenth century.* Amsterdam: John Benjamins.
Taavitsainen, Irma, Turo Hiltunen, Anu Lehto, Ville Marttila, Päivi Pahta, Maura Ratia, Carla Suhr & Jukka Tyrkkö (compilers). 2019. *Late Modern English Medical Texts Corpus*. Amsterdam: John Benjamins.
Taavitsainen, Irma & Andreas H. Jucker. 2010. Trends and developments in historical pragmatics. In Jucker & Taavitsainen (eds.), 3–30.
Taavitsainen, Irma & Päivi Pahta (eds.). 2010. *Early Modern English Medical Texts: Corpus description and studies*. Amsterdam: John Benjamins.
Taavitsainen, Irma & Päivi Pahta (eds.). 2011. *Medical writing in Early Modern English*. Cambridge: Cambridge University Press.
Taavitsainen, Irma, Päivi Pahta, Turo Hiltunen, Martti Mäkinen, Ville Marttila, Maura Ratia, Carla Suhr & Jukka Tyrkkö (compilers). 2010. *Early Modern English Medical Texts Corpus*. Amsterdam: John Benjamins.
Taavitsainen, Irma & Richard J. Whitt. 2023. The medical press. In Nicholas Brownlees (ed.), *The Edinburgh history of the British and Irish press*, vol. I: *Beginnings and consolidation 1640–1800*, 423–50. Edinburgh: Edinburgh University Press.
Taylor, Charlotte. 2013. Searching for similarity using corpus-assisted discourse studies. *Corpora* 8(1), 81–113.
Thompson, Geoff & Susan Hunston. 2000. Evaluation: An introduction. In Hunston & Thompson (eds.), 1–27.
Valle, Ellen. 1999. *A collective intelligence: The life sciences in the Royal Society as a scientific discourse community, 1665–1965*. Turku: The University of Turku.
Wear, Andrew. 2000. *Knowledge and practice in English medicine, 1550–1680*. Cambridge: Cambridge University Press.
Whitt, Richard J. 2010. *Evidentiality and perception verbs in English and German*. Oxford: Peter Lang.

Whitt, Richard J. 2016a. Evidentiality in Early Modern English medical treatises (1500–1700). *Journal of Historical Sociolinguistics* 2(2), 235–63.
Whitt, Richard J. 2016b. Using corpora to track changing thought styles: Evidentiality, epistemology, and early modern scientific discourse in English and German. *Kalbotyra* 69, 265–91.
Whitt, Richard J. 2018. Evidentiality and propositional scope in Early Modern German. *Journal of Historical Pragmatics* 19(1), 122–49.
Whitt, Richard J. 2019. Expressions of knowledge in Early Modern English- and German-language midwifery and gynaecological texts (ca. 1500–1700): On the use of pronominal subjects and *that*-complement clauses. *Neuphilologische Mitteilungen* 120, 83–111.
Whitt, Richard J. 2023 (forthcoming). Language as a gateway to knowledge and evidence in Early Modern English midwifery writing (1540–1800): On the verbs of tactile perception. In Richard J. Whitt (ed.), *Born yesterday: Cross-disciplinary investigations into the history of childbirth, midwifery and maternity care in the United Kingdom and Ireland*. Liverpool: Liverpool University Press.
Willett, Thomas. 1988. A cross-linguistic survey of the grammaticalization of evidentiality. *Studies in Language* 12(1), 51–97.
Wilson, Adrian. 1995. *The making of man-midwifery: Childbirth in England, 1660–1770*. Cambridge, MA: Harvard University Press.

Appendix 1

List of EMEMT and LMEMT texts used in the Periodicals corpus

The following list features the filenames of the specific EMEMT and LMEMT texts that comprise the *ad hoc* Periodicals corpus created for this study. As can be seen, the filename contains the year of publication, the abbreviation of the periodical (*PT*, *EMJ* or *GM*), the volume and page range of the contribution. Information concerning matters such as author and title can be found in the metadata of each file.

EMEMT (all *PT*)

1667_pt2_576-9
1668_pt3_663-4
1668_pt3_750-2
1669_pt4_969-70
1669_pt4_1043-7
1669_pt4_1047-50
1672_pt7_4098-5001
1693_pt17_817-24
1694_pt18_020-3
1694_pt18_103-4
1694_pt18_111-2

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press

LMEMT

PT
1706–1707_SC-PER_PT_Vol25_2317-2327
1706–1707_SC-PER_PT_Vol25_2387-2392
1708–1709_SC-PER_PT_Vol26_0420-0423
1712–1713_SC-PER_PT_Vol28_0165-0166
1712–1713_SC-PER_PT_Vol28_0236-0237
1722–1723_SC-PER_PT_Vol32_0387-0390
1724–1725_SC-PER_PT_Vol33_0008-0015
1731–1732_SC-PER_PT_Vol37_0279-0284
1735–1736_SC-PER_PT_Vol39_0049-0053
1739–1741_SC-PER_PT_Vol41_0294-0307
1739–1741_SC-PER_PT_Vol41_0814-0819
1746_SC-PER_PT_Vol44_0617-0621
1748_SC-PER_PT_Vol45_0131-0137
1751_SC-PER_PT_Vol47_0092-0095
1755_SC-PER_PT_Vol49_0254-0264
1767_SC-PER_PT_Vol57_0001-0020
1770_SC-PER_PT_Vol60_0451-0453
1775_SC-PER_PT_Vol65_0311-0321
1781_SC-PER_PT_Vol71_0372-0373

EMJ
1747_SC-PER_EMJ1_Vol1_0269-0270
1747_SC-PER_EMJ1_Vol3_0220-0222
1756_SC-PER_EMJ2_Vol2_0338-0341
1774_SC-PER_EMJ3_Vol2_0072-0077
1774_SC-PER_EMJ3_Vol2_0077-0079
1774_SC-PER_EMJ3_Vol2_0300-0302
1775_SC-PER_EMJ3_Vol3_0351-0358
1779_SC-PER_EMJ3_Vol6_0217-0218
1779_SC-PER_EMJ3_Vol6_0258-0262
1781–1782_SC-PER_EMJ3_Vol8_0329-0332
1785_SC-PER_EMJ3_Vol10_0102-0107

GM
1743_GEN-PER_GM_Vol13_0484
1792_GEN-PER_GM_Vol62_0937
1792_GEN-PER_GM_Vol62_1024

Appendix 2

Words and phrases used in the expression of epistemic meaning

Epistemic category	Words and phrases
Sensory Perception	*appear, appearance, attend, be a sufficient index, demonstrate, demonstration, discover, examine, feel, find, illustration, met with, observe, observation, perceive, presented itself, proof, search, see, seem, shew, take notice of, touch, view, visible to abundance, which I was very sensible of*
Inference	*agree, apprehend, best supported with, be sure, by reason, certainly, conclude, conceive, could not perswade my self, could not possibly, evidently, form an opinion, the great probability, had a strong fancy, had not the least suspicion, I am confident, I shall draw some inferences, I think I may venture to draw the following conclusions, inclined to think, judge, must, must put it beyond all doubt, reason to believe, remark, seem, suffice to prove, suppose, suspecting*
Possibility	*in all probability, may / might, must, should, supposed to be, will*
Mental Processes	*fear of, imagine, it is a well-known fact, it may be taken for granted, suppose, know, think, understand, she was ignorant, you need not expect*
Report	*according to, account, acquaint, advance some reasons, affirm, allege, attribute, confirmation, describe, description, express, find, from X, hear, inform, makes this triall, mention, observe, of X, the opinion of X, the reason she gave me was, relate, say, set down, some will have us to allow, speak, tell, that hypothesis*

https://doi.org/10.1017/S136067432200034X Published online by Cambridge University Press