Tremble and tremor

Etymology, usage patterns, and sound symbolism in the history of English

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Human beings have been shaking for millennia, and among the tremor disorders, essential tremor is the most common.^{1,2} The original usage of the curious word essential in this particular disease context has been the focus of prior historical study.³ The word essential was used towards the end of the 19th century in order to indicate a medical diathesis that was often familial and occurred in isolation from other neurologic signs.³ However, the historical origins of the English word tremor and its related verb tremble are a different matter and, to our knowledge, have not been considered previously. Furthermore, earlier English speakers' choice of these particular words and sound combinations to describe shaking has not been explored. In this collaboration between a neurologist and a historical linguist, we study the etymology (i.e., origins and first recorded usages), historical usage patterns, and phonology (i.e., sounds) of the words tremor and tremble in English. Also, we thread into this discussion considerations of semantics (i.e., lexical meaning). Our goal is to enhance our understanding of the historical origins, development, and meaning of medical terminology commonly used in clinical practice.

METHODS To study the etymology, historical usage patterns, phonology, and semantics of tremor and tremble, we utilized historical linguistic methodologies. Collecting data on these words' origins required an examination of their meanings, their source languages, and their earliest citations as documented in the *Oxford English Dictionary* (OED), the most thorough historical record of the English language. To check broader usage alongside this dictionary evidence, we also investigated uses of tremor and tremble, and their related forms (i.e., tremors, tremor's, tremors' and trembles, trembled, trembling), in a variety of corpora—searchable databases of texts. These text collections were selected to fulfill several criteria: (1) representativeness of different historical periods, from the medieval to the modern; (2) representativeness of different text types, from spoken language to popular written genres to scientific and medical texts; (3) their status as standard collections commonly cited in historical linguistic studies.

Selected corpora for our investigation included the following:

1. Two collections of the earliest medical texts written in English: Middle English Medical Texts, containing 86 texts from 1375 to 1500 totaling a half million words; and Early Modern English Medical Texts (EMEMT), containing almost 230 texts from 1500 to 1700 totaling 2 million words.
2. Online searchable versions of the Bible (including the Wycliffite/Middle English and King James/Early Modern English versions).
3. The Corpus of Historical American English (COHA), a database of American newspapers, magazines, fiction, and nonfiction from the last 200 years, with 107,000 texts totaling over 400 million words.
4. The Corpus of Contemporary American English (COCA), a database of present-day American speech, fiction, popular periodicals, and academic writing, containing more than 520 million words in 220,225 texts from 1990 to 2015.

To consider phonologic characteristics, we examined the most frequent words in COHA and COCA that share phonologically similar endings with tremor and tremble. Finally, we analyzed semantic similarities among those words ending in -mor and -mble, considering data from prior studies on the relationship between sound sequences and meaning.

FIRST USAGES OF THE WORD TREMBLE Although medical texts over the past 400 years have increasingly used the more scientific word tremor rather than trembling,⁴ the latter term has had a somewhat longer history in English writing, appearing in a variety of religious, imaginative, and medical literature. Indeed, according to the OED, the word tremble, borrowed from the French trembler, was used by English writers as early as the

GLOSSARY

COCA = Corpus of Contemporary American English; **COHA** = Corpus of Historical American English; **EMEMT** = Early Modern English Medical Texts; **OED** = *Oxford English Dictionary*; **pmw** = per million words.

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beginning of the 14th century in order to denote shaking. Such shaking happened “involuntarily as with fear or other emotion, cold, or weakness” in a person’s or animal’s “body or a limb.”⁵ References to trembling abound in translations of the Old and New Testaments, for example. In one of the earliest vernacular versions to circulate in England—the Wycliffite Bible from the late 14th century—the verb tremble and its related forms appear 136 times.⁶ Often these references to tremble are associated both with shaking and with fear. In Exodus (19:16), for example, one finds the following passage: “...there were thunders and lightnings...and the voice of the trumpet exceeding loud; so that all the people that was in the camp trembled.”⁷ Samuel (28:5) similarly features an act of fearful shaking: “And when Saul saw the host of the Philistines, he was afraid, and his heart greatly trembled.”⁷

References to trembling more as a medical issue related to shaking movement—not necessarily connected to fear—occur much earlier than those for tremor, as far back as the 15th century. In the earliest medical treatises in English, trembling appears in descriptions of eye and eyelid movement,⁸ epilepsy,⁹ and paralysis and wounds.¹⁰

FIRST USAGES OF THE WORDS TREMOR AND TREMOUR In its earliest English uses, tremor (often spelled tremour, modeled on its French etymon) denoted terror. Even though the OED’s first definition of tremour does not imply a shaking motion, it is noteworthy that its first usage makes reference to quaking. The first recorded use can be found in the late 14th-century work of the English writer Geoffrey Chaucer, who describes his lovelorn hero Troilus growing fearful about the fate of his beloved Criseyde: “Swich a tremour fele aboute his herte That of the feer his body sholde quake [Such a tremor he would feel around his heart that from the fear his body would quake].”¹¹ Over time, the use of tremour to mean terror became obsolete, with tremor (spelled like its Latin etymon) coming into more frequent use with the meaning agitation or shaking (whether bodily or earthly) only from the 1600s onward.

Seventeenth-century medical writers seemed to be some of the earliest to connect the word tremor to movement of the body, and to trembling as a medical condition. The first identifiable medical usage of tremor can be seen in the OED’s 1615 citation of physician Helkiah Crooke’s *Microcosmographia: A Description of the Body of Man*. In this anatomy (the first one in English ever penned by a physician¹²), Crooke identified “The disease called Tremor.”¹¹ According to the EMEMT data, in 1695 another English physician, John Pechey, mentioned tremor when writing a medical description of trembling in

a brief chapter from his manual *Store-house of Physical Practice*: “Trembling, in Latin, Tremor, is a depraved Motion of the Members, whereby they are involuntarily moved.”¹³

Pechey also pointed to several possible etiologies for tremor and trembling, including not only fear but also nerve weakness, old age, illness, sexual practices, mercury exposure, and excessive drinking.

HISTORICAL TRENDS IN GENERAL, SCIENTIFIC, AND MEDICAL USES OF TREMOR AND TREMBLE

An examination of usage patterns provides us with a window into the evolution of our language over time, and this can offer insights into the development of scientific and linguistic concepts. Over the last 200 years in American English, there has been a notable development in the use of tremor and tremble: the general (nonspecialist) use of both of these words has been on the decline. According to the COHA data,¹⁴ which is drawn from a range of text types including fiction, nonfiction, magazines, and newspapers, tremor was used 6.8 times per million words (pmw) at its peak in the 1840s, whereas in the last 2 decades it has ranged from 2.5 (1990s) to 3.1 (2000s) uses pmw. The verb tremble has generally had much higher usage than tremor, in the 1810s appearing as much as 70.3 times pmw. However, it too has steadily dropped over the decades, to as low as 4.6 uses pmw (1990s) and 5.4 uses pmw (2000s).

Despite these trends, which show tremble to be more frequent than tremor in broader written English usage over the last 2 centuries, the data in COCA¹⁵ reveal a preference within present-day medical and scientific writing for tremor over tremble. The noun tremor occurs more frequently in both medical (3.4 occurrences pmw) and scientific (2.1 occurrences pmw) texts compared to the verb tremble (0.3 occurrences pmw in medical; 0.8 occurrences pmw in science). These corpus results from contemporary English corroborate prior studies that have noted a historical increase in the use of tremor over tremble within medical texts.⁴

TREMOR, TREMBLE: SOUND SYMBOLISM While above we consider the etymology and historical usage patterns of the words tremble and tremor, a more interesting question is why earlier English speakers chose these particular sounds to denote oscillatory movement. It is a common assumption among linguists that the relationship between the sounds and meanings of words is generally random and arbitrary.¹⁶ And yet, there are occasional documented examples of sound symbolism, when the sounds of a word echo its sense. To explore whether or not tremor and tremble exhibit such sound symbolism, we examined prior historical studies of the sound

symbolism of certain phonologic sequences as well as possible semantic similarities among words ending in -mor and -mble, i.e., words that share the phonologic endings of tremor and tremble, respectively. As discussed below, while there seems to be no clear evidence of sound symbolism in tremor, there is significant evidence for such in the sequence -mble (typically pronounced [mbəl]).

In the last 2 centuries of American English, the most frequently used words ending in -mor include humor, armor, rumor, clamor, tremor, tumor, and glamor.¹⁴

While some of these words are related to noise (clamor, rumor), and some historically related to medical diagnoses (humor, tumor, tremor), there is no overall shared sense of meaning among the -mor words. Furthermore, standard linguistic handbooks on sound symbolism do not list this sequence as having an association with a particular meaning.¹⁷ Thus, there is nothing in the sounds of tremor to suggest the

involuntary movement or shaking identified in its historical and present-day meanings.

By contrast, shaking and alternating movement is strongly suggested by the sounds embedded in the word tremble. The second part of the word includes the consonant sequence -mbl, which grammarians and linguists over the centuries have noted for its sound symbolism. In the seventeenth century, grammarian John Wallis described the sequence -mbl in words such as ramble and scramble as “consonarum congeries,” a heap or chaos of consonants that implies confusion (“confusam”).¹⁸ Present-day scholar Steven Connor emphasizes that the m in this sequence, especially in words such as mumble, conveys a sense of “ocular oscillation.”¹⁹ Twentieth-century linguist Hans Marchand, in his foundational account of English word-formation processes, devotes an entire chapter to phonetic symbolism, listing entries for -amble “expressive of unsteady to and fro movement” (in words such as amble, ramble, scramble)

Table “Vowel + -mble” combination words, their definitions, and their emphasis on features of alternation and backward and forward movement

Word	Definition ^a	Further interpretation of the meaning ^b
Tremble	To shake. To be affected with vibratory motion. To swing to and fro.	Liable to switch directions. Liable to take alternating pathways. In a constant movement backward and forward or from side to side.
Bumble	To move in an awkward or <i>confused</i> manner.	Confused = liable to switch directions; liable to take alternating pathways.
Crumble	To break or <i>disintegrate</i> into small fragments or crumbs over a period of time.	Disintegrate = to break or separate into constituent elements or parts.
Dumble	A wood-lined stream often in a small, steep-sided valley, forming an <i>undulating</i> landscape.	Undulating = moving in a wave-like motion.
Fumble	To drop something in a <i>stuttered</i> , staged way, with some level of back and forth. To move <i>clumsily</i> in various directions.	Stuttered, clumsy = movement along alternating paths; to and fro.
Grumble	To growl. To make a low <i>rumbling</i> sound.	Rumbling = vibrating, fluctuating, vacillating.
Jumble	To mix in a <i>confused</i> mass. To change the order.	Confused = liable to switch directions; liable to take alternating pathways.
Mumble	To utter words in a low, <i>confused</i> , indistinct manner.	Confused = liable to switch directions; liable to take alternating pathways.
Rumble	A deep, resonant, <i>reverberating</i> sound.	Reverberating = repeating several times as an echo.
Stumble	To proceed <i>unsteadily</i> or <i>falteringly</i> .	Unsteady, faltering = liable to switch directions; liable to take alternating pathways.
Tumble	To fall, roll, or move <i>end over end</i> .	End over end = liable to switch directions; liable to take alternating pathways.
Ambles	To walk at a smooth, easy pace by shifting weight evenly <i>side to side</i> , as a horse lifting 2 feet on one side, 2 feet on the other, and so on.	Side to side = alternating movement.
Ramble	To walk for pleasure, typically <i>without a definite route</i> . To take a course with many turns or windings, as a stream or path. Talking without a clear point or direction in mind. To discourse by taking many turns.	Without a definite route = liable to switch directions; liable to take alternating pathways.
Scramble	To perform an action or achieve a result <i>hurriedly</i> , <i>clumsily</i> , or with difficulty.	Hurried, clumsy = liable to switch directions; liable to take alternating pathways.
	To mix the elements of (a television signal) so that only subscribers with a decoding box can receive the signal.	

^a The italicized word in this column is further explored in the column to the right.

^b This column indicates the sense of alternating movement, which is the core feature of trembling and of tremor.

and -umble “symbolic of indistinct humming or rumbling noises” (in words such as jumble, mumble, rumble).¹⁷

Interestingly, no entry for -emble is provided in Marchand, but it should be noted that tremble reflects many of the above characteristics associated with other -mble words. In the table, one can see that the vowel + -mble combination (e.g., -amble, -emble, -umble) has been used in words to denote confused and sometimes chaotic movement (i.e., fluctuations, oscillations, and movements toward alternating extremes). It is important to note that to and fro and alternating movement is the core feature of trembling, and of tremor. Of course, there are exceptions: for example, words like preamble and resemble do not readily fit the same mold. Even so, the recurrence of such movement in the semantics of so many -mbl words suggests the presence of significant sound symbolism.

DISCUSSION This study was intentionally restricted in initial scope to target the noun tremor and its etymologically closest verb tremble and it focused on origins and first uses in the English language, with especial attention to earliest uses in scientific and medical contexts compared to the present day. Future studies could extend these investigations into the French, Latin, and broader continental history of these words, including earlier periods than English. A similar analysis could be applied to data in the centuries following the earliest medieval and Renaissance uses: additional synonyms (e.g., fit, shake) could be explored in additional databases (e.g., the Proceedings of the Royal Society of London) to determine how physicians’ and scientists’ linguistic descriptions and approaches to tremor have changed over the centuries. Also, in future work our methods could be productively applied to include a more involved study of specific English writers (e.g., Shakespeare) to gain a deeper understanding of historical changes in the cultural attitudes about tremor and related conditions.

Ultimately, our study illustrates the complexity of words, their origins, and their meanings: occasionally a group of words may contain a sound sequence that echoes and reinforces a particular meaning historically shared by that group. Although medical texts over the last 400 years have increasingly used the more scientific word tremor rather than trembling, the word trembling has had a much longer history in English medical writing. Indeed, the word tremble, used by English writers as early as the 14th century in order to denote shaking, seems to share features with a family of words that denote fluctuations, oscillations, and embodied movement toward alternating extremes. It seems possible that early clinicians observing such fluctuations in the human body adopted the English verb tremble from its French source—and continued

to use it in English writing in earlier centuries—precisely because of tremble’s sonic and semantic associations with such alternating movement.

AUTHOR CONTRIBUTIONS

Dr. Louis conceptualized the work, was involved in the collection of and interpretation of data, and prepared the initial manuscript. Dr. Palmer conceptualized the work, was involved in the collection of and interpretation of data, and co-prepared the initial manuscript. Both authors read and approved the final manuscript.

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REFERENCES

1. Louis ED, Ferreira JJ. How common is the most common adult movement disorder? Update on the worldwide prevalence of essential tremor. *Mov Disord* 2010;25:534–541.
2. Louis ED. Essential tremor. *Arch Neurol* 2000;57:1522–1524.
3. Louis ED, Broussolle E, Goetz CG, Krack P, Kaufmann P, Mazzoni P. Historical underpinnings of the term essential tremor in the late 19th century. *Neurology* 2008;71:856–859.
4. Koehler PJ, Keyser A. Tremor in Latin texts of Dutch physicians: 16th–18th centuries. *Mov Disord* 1997;12:798–806.
5. “tremble, v.” In: Oxford University Press [online]. OED Online; 2016. Available at: oed.com. Accessed March 25, 2016.
6. Wycliffe J. The Holy Bible, containing the Old and New Testaments, with the Apocryphal books. In: *Corpus of Middle English Prose and Verse* [online]. Available at: name.umdl.umich.edu/AFZ9170.0001.001. Accessed March 25, 2016.
7. Bible, King James Version. In: University of Michigan Library Digital Collections [online]. Available at: quod.lib.umich.edu/cgi/k/kjv/kjv-idx?type=simple&format=Long&q1=tremble&restrict=All&size=First+100. Accessed April 25, 2016.
8. Grassus B. The wonderful art of the eye: a critical edition of the Middle English translation of his *de probatissima arte oculorum*. In: Taavitsainen I, Pahta P, Mäkinen M, compilers. *Middle English Medical Texts (MENT) Corpus*. Amsterdam: John Benjamins; 2005.
9. Anglicus G. Compendium (epilepsy). In: Taavitsainen I, Pahta P, Mäkinen M, compilers. *Middle English Medical Texts (MENT) Corpus*. Amsterdam: John Benjamins; 2005.
10. de Chauliac G. Wounds. In: Taavitsainen I, Pahta P, Mäkinen M, compilers. *Middle English Medical Texts (MENT) Corpus*. Amsterdam: John Benjamins; 2005.
11. “tremor, n.” Oxford University Press [online]. OED Online; 2016. Available at: oed.com. Accessed March 25, 2016, and August 2, 2016.
12. “Crooke, Helkiah (1576–1648),” William Birken in *Oxford Dictionary of National Biography* [online]. Canadine D, ed. Oxford: OUP; 2004. Available at: oxforddnb.com/view/article/6775. Accessed August 3, 2016.

13. Pechey J. The store-house of physical practice: being a general treatise of the causes and signs of all diseases afflicting human bodies: together with the shortest, plainest and safest way of curing them, by method, medicine and diet: to which is added, for the benefit of young practisers, several choice forms of medicines used by the London physicians. 1695:28. In: Taavitsainen I, Pahta P, Hiltunen T, et al, compilers. *Early Modern English Medical Texts (EMEMT) Corpus*. Amsterdam: John Benjamins; 2010.
14. Davies M. The Corpus of Historical American English: 400 million words, 1810–2009. Available at: corpus.byu.edu/coha/. Accessed April 25, 2016, and July 31, 2016.
15. Davies M. The Corpus of Contemporary American English: 520 million words, 1990–present. Available at: corpus.byu.edu/coca/ and wordandphrase.info. Accessed July 31, 2016.
16. de Saussure F. *Course in General Linguistics*. New York: Columbia UP; 2011.
17. Marchand H. *The Categories and Types of Present-Day English Word-Formation: A Synchronic-Diachronic Approach*. 2nd ed. München: Beck; 1969:419, 424.
18. Wallis J. *Grammatica Linguae Anglicanae*. In: Google Books [online]. Available at: books.google.com/books?id=TXFJAAAaAAJ. Accessed March 26, 2016.
19. Connor S. *Beyond Words*. London: Reaktion; 2014:81.