

A Matter of Method

Lambert ten Kate's New Methods in the Study of Language and the Natural Philosophical Method of Isaac Newton

STEFFEN DUCHEYNE

The Amsterdam-based self-educated polymath Lambert ten Kate (1674-1731) was well versed in different subjects. His contributions to the study of language and the new methods he employed to pursue it are the focus of this article. Ten Kate was well in tune with the natural philosophical developments of his day. Unsurprisingly, it has been argued that the methods he developed in the study of language were inspired by Isaac Newton's (1643-1727) natural philosophical approach. I argue that a more nuanced understanding of the relation between Ten Kate's methods in the study of language and Newton's natural philosophical approach is called for.

De Amsterdamse autodidact Lambert ten Kate (1674-1731) was bedreven in verschillende disciplines. In dit artikel staan zijn bijdragen aan de studie van de taal en de nieuwe methodes die hij daartoe ontwikkelde centraal. Ten Kate volgde de ontwikkelingen binnen de natuurfilosofie op de voet. In de literatuur wordt betoogd dat de methodes die hij aanwendde bij het bestuderen van de taal geïnspireerd waren door Isaac Newtons (1643-1727) natuurfilosofische aanpak. Ik argumenteer echter dat de relatie tussen de door Ten Kate gebruikte methodes bij de studie van de taal en de natuurfilosofische benadering van Newton genuanceerder ligt.

'An ingenious and tireless prier of all arts and sciences'¹

The main character of this article, Lambert ten Kate Hermansz., henceforth addressed as Lambert ten Kate, was born in Amsterdam on 23 January 1674.² His father Herman (1644-1706), who was born in Deventer and settled in

Amsterdam in the early 1660s, seems to have been a grain broker. Like his older brother Herman (1670-1747), Lambert joined his father's company when he reached adulthood in 1696. After his father's death on 18 February 1706³, Ten Kate appears to have left the company which, together with what must have been a substantial inheritance, provided him with the opportunity to dedicate his time to scholarly matters.⁴ In one of the elegies on the death of Lambert ten Kate, one unidentified 'O. H. F. D. R.' wrote that he could not get used to the 'troublesome turmoil of commerce'.⁵ When Lambert left his father's company, the path was cleared to become, in the words of the poet Arnold Hoogvliet (1687-1763), a 'merchant of truth'.⁶ Shortly after doing so, on 18 April 1706, Lambert was baptised in the *doopsgezinde* or Mennonite congregation *Lam en Toren* (*Lamb and Tower*).⁷ One of his contemporaries characterised Ten Kate as 'an ingenious and tireless prier of all arts and sciences'⁸, and indeed he was a versatile *curioso* who delved into different subjects.⁹

Ten Kate was a typical product of the Mennonite elite in the Dutch Republic that from the second half of the seventeenth century vigorously consumed art and natural philosophy, became increasingly prosperous and engaged in worldly affairs.¹⁰ Not only did our self-educated polymath contribute to the study of language, which is the focus of the present

1 *Maendelyke uittreksels, of boekzael der geleerde werelt* 34 (July 1732) 13: 'den vernuftigen en onvermoeiden doorsnuffelaer van alle konsten en wetenschappen'.

2 Amsterdam City Archives (henceforth ACA), Doop-, trouw- en begraafregisters (Baptism, marriage and burial records, henceforth DTB) 298, 4.

3 ACA, DTB 1075, 51.

4 C.L. ten Cate, *Lambert ten Kate Hermansz. (1674-1731). Taalgeleerde en konst-minnaar* (Utrecht 1987) 16-21.

5 Isaac Tirion, *Lyk- en grafdichten voor den godvruchtigen en zeer geleerde heere Lambert ten Kate, Hermansz.* (Amsterdam 1731) [34]: 'Aan 't lastige koopgewoel kon hy zig niet gewinnen'.

6 Tirion, *Lyk- en grafdichten*, [2]: 'Koopman van de Waarheid'.

7 ACA, Archive 1120, inventory no. 213, 168.

8 *Maendelyke uittreksels, of boekzael der geleerde werelt* 34 (July 1732) 13.

9 Throughout this article, I deliberately use the term 'study of language' to signal to the reader

that in Ten Kate's time language research did not yet constitute 'an independent academic discipline'. See Toon Van Hal, 'Linguistics "ante litteram": Compiling and Transmitting Views on the Diversity and Kinship of Languages before the Nineteenth Century', in: Rens Bod, Jaap Maat and Thijs Weststeijn (eds.), *The Making of the Humanities. Volume II: From Early Modern to Modern Disciplines* (Amsterdam 2012) 45. DOI: <https://doi.org/10.1017/9789048517336.003>.

10 For example Piet Visser, 'De artes als zinnebeeld. Over doopsgezinden en hun relatie tot kunst en wetenschap', *De Zeventiende Eeuw* 5:1 (1989) 92-100 and, more generally, Piet Visser, 'Mennonites and Doopsgezinden in the Netherlands, 1535-1700', in: John D. Roth and James M. Stayer (eds.), *A Companion to Anabaptism and Spiritualism, 1521-1700*. Brill's Companions to the Christian Tradition 6 (Leiden/Boston 2006) 299-345. DOI: <https://doi.org/10.1163/ej.9789004154025.i-574.60>.

article, he also developed a theory on beauty and ideal bodily proportions, investigated how red, yellow and blue paint could be mixed with black and white without affecting the hue, and owned an art collection that mainly consisted of drawings.¹¹ Near the end of his life, he published a religious work and an evangelical harmony.¹² Ten Kate thus was a typical example of a Dutch autodidact who contributed to scholarly debates and his case shows, as historian Maarten Prak argued, that, like in the seventeenth century, ‘non-academic factors played an important role in the development of new ideas’.¹³ Moreover, he occupied a unique position in the study of language, because he was responsible for reviving the comparative study of old Germanic languages which had almost completely disappeared in the second half of the seventeenth century.¹⁴

Because the range of Ten Kate’s work is so diverse, it has been studied in a highly fragmented way. Few attempts have been made to determine the relations between the different areas of his oeuvre.¹⁵ In this article, I investigate whether and to what extent his interest in natural philosophy shaped his work on the study of language. It has been argued that the new methods which Ten Kate introduced in the study of language, namely his physical approach to Dutch letter sounds and his historical-comparative method, were indebted to Newton’s natural philosophical methods. Whereas ‘Adriaen Verwer introduced Newton’s views into his own linguistic works’, the Dutch linguist Jan Noordegraaf noted, ‘he left it to his younger friend Lambert ten Kate to apply this new approach to a major linguistic research

11 Hessel Miedema (ed.), *Denkbeeldig schoon. Lambert ten Kates opvattingen over beeldende kunst* (Leiden 2006); Fokko Jan Dijksterhuis, “‘Will the eye be the sole judge?’: ‘Science’ and ‘Art’ in the optical inquiries of Lambert ten Kate and Hendrik van Limborch around 1710”, *Netherlands Yearbook for History of Art/Nederlands Kunsthistorisch Jaarboek* 61:1 (2011) 309-330. DOI: <https://doi.org/10.1163/22145966-90000776>; Hessel Miedema, ‘Lambert ten Kate in correspondence with Hendrik van Limborch: color harmony and chiaroscuro’, *Simiolus: Netherlands Quarterly for the History of Art* 35:3/4 (2011) 174-187; and Hessel Miedema, *Kennerchap en de ideale schoonheid. Lambert ten Kate over de tekeningen in zijn verzameling* (Amsterdam 2012).

12 Lambert ten Kate and Herman ten Kate Jr., *Drie gewigtige bedenkingen des gemoeds; benevens Den weg tot Heil; alsmede eenige zededichten door H.T.K.*

Jr. (Amsterdam 1728); Lambert ten Kate and Herman ten Kate Jr., *Het leven van onzen heiland Jezus Christus; in-een-getrokken uit eene nieuwlyks onderzochte schikking van overeenstemming der vier Evangelisten* (Amsterdam 1732).

13 Maarten Prak, *The Dutch Republic in the Seventeenth Century: The Golden Age*, translated by Diane Webb (Cambridge 2005) 233. DOI: <https://doi.org/10.1017/CBO9780511817311>.

14 Kees Dekker, *The Origins of Old Germanic Studies in the Low Countries*. Brill’s Studies in Intellectual History 92 (Leiden/Boston/Cologne 1999) 338, 342. DOI: <https://doi.org/10.1163/9789004247468>.

15 A notable exception is Henk van Veen, ‘Devotie en esthetiek bij Lambert ten Kate’, *Doopsgezinde Bijdragen, nieuwe reeks* 21 (1995) 63-96, he argues that Ten Kate’s ideas on beauty fit hand in glove with the doopsgezind ideas voiced in *Drie gewigtige bedenkingen des gemoeds*.

project'.¹⁶ In the study of language, Ten Kate, as Noordgraaf maintained elsewhere, fell 'under the spell of the Newtonian method'.¹⁷ Moreover, '[i]nspired by Newton', the Dutch linguist Reinier Salverda stated, Ten Kate 'developed a solid empirical approach of careful observation and systematic comparison, and on this new foundation he made major contributions to phonetics, to the historical-comparative study of the Germanic languages, and the etymology of Dutch'.¹⁸ As a result, both Ten Kate and his friend Verwer (1654/5-1717) have been portrayed as 'Newtonian linguists' who 'were looking for the system that underlies concrete language phenomena, and seeking to demonstrate, as in the case of Ten Kate, the regularity of language with the help of historical-grammatical language data'.¹⁹ In this article, I reconsider these statements.

The case of Ten Kate's 'Newtonian linguistics' is an important chapter in the spread of Newton's ideas in the Dutch Republic. Dutch natural philosophers in their turn played a pivotal role in the diffusion of Newton's ideas around Europe, which became an important factor in Enlightenment culture.²⁰ Recent scholarship has shown that Dutch 'Newtonianism' does not refer to, as Eric Jorink and Huib Zuidervaart put it, a 'fixed and clearly defined set of scientific concepts'. Dutch scholars who used Newton's work did so 'in a selective and even defective manner and were far from dogmatic

- 16 Jan Noordegraaf, 'Lambert ten Kate and the "Logos": Religion and Linguistics in the Eighteenth Century', in: Pascale Hummel (ed.), *Metaphilology: Histories and Languages of Philology* (Paris 2009) 70. This claim was first made in Léopold Peeters, 'Lambert ten Kate (1674-1731) en de achttiende-eeuwse taalwetenschap', in: Ton Anbeek van der Meijden et al. (eds.), *Traditie en Progressie. Handelingen van het 40ste filologencongres* (The Hague 1990) 153.
- 17 Jan Noordegraaf, 'A matter of time: Dutch philosophy of language in the eighteenth century', in: Thomas Shannon and Johan Snapper (eds.), *Janus at the Millennium: Perspectives on Time in the Culture of the Netherlands*. Publications of the American Association for Netherlandic Studies 15 (Lanham 2004) 214.
- 18 Reinier Salverda, 'Newtonian Linguistics: The contribution of Lambert ten Kate (1674-1731) to the study of language', in: Máire Davies, John Flood and David Yeandle (eds.), *Proper Words in Proper Places: Studies in Lexicology and Lexicography in Honour of William Jervis Jones* (Stuttgart 2001) 127.
- 19 Jan Noordegraaf, 'Lambert ten Kate and the "Logos"', 71. Newton's influence on Verwer's study of language has been nuanced in Steffen Ducheyne, 'Adriaen Verwer (1654/5-1717) and the First Edition of Isaac Newton's *Principia* in the Dutch Republic', *Notes and Records: The Royal Society Journal of the History of Science* 74:3 (2020) 486-487. DOI: <https://doi.org/10.1098/rsnr.2019.0008>.
- 20 Klaas van Berkel, 'Newton in the Netherlands', *The Low Countries: Arts and Society in Flanders and the Netherlands: A Yearbook* 1 (1993-1994) 186; Eric Jorink and Huib Zuidervaart, "'The Miracle of Our Time": How Isaac Newton was fashioned in the Netherlands', in: Eric Jorink and Ad Maas (eds.), *Newton and the Netherlands: How Isaac Newton was Fashioned in the Dutch Republic* (Amsterdam 2012) 13-65; Mordechai Feingold, *The Newtonian Moment: Isaac Newton and the Making of Modern Culture* (New York/Oxford 2004).



The Mennonite church Bij 't Lam (At the Lamb, today known as Singelkerk) in Amsterdam, where Ten Kate was baptised in 1706. The print is dated in 1693-1694, the maker is unknown. Rijksmuseum Amsterdam, <http://hdl.handle.net/10934/RM0001.COLLECT.234059>.

in their adherence to his work'.²¹ In addition, Newton's oeuvre turned out to be considerably fictile so that it could fit different agendas, even agendas diverging from Newton's.²² His ideas also impacted on disciplines other than natural philosophy. According to historian of science Mordechai Feingold, Newton's natural philosophy set 'an example of so-called superior knowledge for other disciplines to emulate'.²³ If Noordegraaf and Salverda are correct, then Ten Kate's study of language is an extremely interesting case in which Newton's natural philosophical methods migrated to a different discipline. It is therefore vital to scrutinise their claims.

In the next section, I provide a bird's eye view on Ten Kate's main contributions to the study of language which sets the stage for the section thereafter, in which I examine Noordegraaf's and Salverda's claims. I argue that a more nuanced understanding of the relation between Ten Kate's methods in the study of language and Newton's natural philosophical approach is called for that takes into account earlier developments within the study of language in the Low Countries, on the one hand, and Ten Kate's endeavour to establish the study of language as a legitimate scientific discipline, on the other.

Ten Kate's study of language

Ten Kate started working on the study of language before he left his father's company in 1706.²⁴ In 1699, he composed a manuscript entitled 'Verhandeling over de klankkunde' ('Treatise on the Study of Sound').²⁵ In 1710, he published the relatively short *Gemeenschap tussen de Gottische spraeke*

21 Jorink and Zuidervaart, "'The Miracle of Our Time'", 8.

22 Steffen Ducheyne, 'Different shades of Newton: Herman Boerhaave on Newton *mathematicus*, *philosophus*, and *optico-chemicus*', *Annals of Science* 74:2 (2017) 108-125. DOI: <https://doi.org/10.1080/00033790.2017.1304574>.

23 Feingold, *The Newtonian Moment*, xi.

24 For a general discussion of Ten Kate's study of language, see Cornelis de Vooy, 'De taalbeschouwing van Lambert ten Kate', *De Nieuwe Taalgids* 17 (1923) 65-81; Jan Knol, 'De grammatica in de achttiende eeuw', in: Dick Bakker and Geert Dibbets (eds.), *Geschiedenis van de Nederlandse taalkunde* ('s Hertogenbosch 1977) 72-73, 75-76, 89-90, 92-93, 100-101, 103-105; Marijke van der Wal, 'Lambert ten Kate and Eighteenth-

Century Dutch Linguistics', *Beiträge zur Geschichte der Sprachwissenschaft* 12:1 (2002) 49-63;

Noordegraaf, 'A matter of time'; and Igor van de Bilt, *Landskaartschrijvers en landverdelers. Adriaen Verwer (ca.1655-1717), Adriaan Kluit (1736-1807) en de Nederlandse taalkunde van de achttiende eeuw* (PhD dissertation; Vrije Universiteit Amsterdam 2009) 69-86.

25 The transcript of the now lost original of 'Verhandeling over de klankkunde' is preserved at Amsterdam University Library, Special Collections, OTM, 1 c 21. For discussion, see Adrianus van der Hoeven, *Lambert ten Kate (De 'Gemeenschap tussen de Gottische spraeke en de Nederduytsche' en zijne onuitgegeven geschriften over klankkunde en versbouw)* (The Hague 1896) 56-118.

en de Nederduytsche (*Correspondence between the Gothic and Dutch Language*)²⁶, which was, as one of the few books in Dutch, reviewed in the *Bibliothèque choisie* (1703-1718) by his close acquaintance Jean Le Clerc (1657-1736), the Swiss polyhistor, theologian and professor of philosophy, Hebrew, classics and ecclesiastic history at the Remonstrant Seminary in Amsterdam.²⁷ Parts of his ‘Verhandeling’ made their way into the section on Dutch letter sounds in his monumental *Aenleiding tot de kennisse van het verhevene deel der Nederduytsche spraek* (*Introduction to the Knowledge of the Lofty Part of the Dutch Language*) (1723)²⁸, in which Ten Kate amongst other things generalised results obtained in *Gemeenschap*. The ‘lofty part’ in the title of *Aenleiding* refers to etymology, which was Ten Kate’s greatest interest in the study of language.²⁹

Ten Kate carried out important work in the study of Germanic language, as a consequence of which he has been called with some flair for drama one of ‘the founding fathers of Germanic linguistics’ by Noordegraaf and Marijke van der Wal.³⁰ The study of the Gothic language more or less started with Johannes Goropius Becanus’ (1519-1573) *Origines Antwerpianae* (1569), which contained excerpts of the *Codex argenteus*, a sixth-century manuscript that contains a fourth-century translation of the four gospels into Gothic, traditionally ascribed to the early Christian bishop Ulfilas (ca. 311-383).³¹ The *Codex argenteus* is the oldest known writing in Gothic handed

26 Lambert ten Kate, *Gemeenschap tussen de Gottische spraek en de Nederduytsche* (Amsterdam 1710). For more background, see Van der Hoeven, *Lambert ten Kate*, 15-55; Roger van de Velde, *De studie van het Gotisch in de Nederlanden. Bijdrage tot een status quaestionis over de studie van het Gotisch en Krimgotisch* (Ghent 1966) 219-274; and Igor van de Bilt and Jan Noordegraaf, “‘En zie daer ‘t begeerde’”. Ten Kate, Verwer en de studie van het Gotisch’, in: Igor van de Bilt and Jan Noordegraaf (eds.), *Gemeenschap tussen de Gottische spraek en de Nederduytsche* (Amsterdam/Münster 2002) 21-24.

27 *Bibliothèque choisie* 20:2 (1710) 303-314.

28 Lambert ten Kate, *Aenleiding tot de kennisse van het verhevene deel der Nederduytsche spraek* (Amsterdam 1723) vol. 1, 132-151. For discussion, see Ton Rompelman, *Lambert ten Kate als germanist*. Mededelingen der Koninklijke Nederlandse Akademie van Wetenschappen, Afd. Letterkunde (nieuwe reeks) 15:9 (Amsterdam 1952) 245-274, 259ff; Van de Velde, *De studie van*

het Gotisch in de Nederlanden, 275-288; Gerrit Meinsma, *The Phonetics of Lambert ten Kate*. Institute of Phonetic Sciences of the University of Amsterdam. Publication 69 (Amsterdam 1981); Edgar C. Polomé, ‘Lambert ten Kate’s significance for the history of the Dutch language’, *Tijdschrift voor Nederlands en Afrikaans* 1:2 (1983) 2-14; and Jan Noordegraaf and Marijke van der Wal, ‘Lambert ten Kate (1674-1717) en de taalwetenschap/Lambert ten Kate (1674-1731) and linguistics’, in: Jan Noordegraaf and Marijke van der Wal (eds.), *Aenleiding tot de kennisse van het verheven deel der Nederduytsche spraek* 1 (Alphen aan den Rijn 2001) 2-32.

29 Jan Noordegraaf, ‘Lambert ten Kate schrijft naar Dantsig. Brieven aan Johann Philipp Breyne’, *De Achttiende Eeuw* 39:2 (2007) 100.

30 Noordegraaf and Van der Wal, ‘Lambert ten Kate’, 11.

31 Van de Velde, *De studie van het Gotisch in de Nederlanden*, 24; Dekker, *The Origins of Old Germanic Studies in the Low Countries*, 46-47.

down to us. In 1707, Ten Kate's friend Verwer published a grammar of the Dutch language, in which he underscored that it is important to 'know our language from its origin'.³² According to Verwer, the Dutch language descended directly from Gothic, a discovery he attributed to Franciscus Junius (1591-1677) who published the *editio princeps* of the *Codex argenteus*³³, to which he subjoined a Gothic glossary.³⁴ In a 1708 letter addressed to 'A.V.' (i.e. Adriaen Verwer), with which *Gemeenschap* opens, Ten Kate stated that Verwer's endeavour to uncover the origins of the Dutch language inspired him 'to compile a Dutch-Gothic list of the words that are consonant ['gelyklydig'] to ours and that are to be found in the glossary of Franciscus Junius which is appended to the Gothic gospel'.³⁵ Through detailed comparison, Ten Kate concluded in *Gemeenschap* that Dutch and the Nordic languages, including Gothic, derive 'from one and the same mother'³⁶, a result which proved wrong Verwer's contention that Dutch descended directly from Gothic. Ten Kate was one of the first to recognise regularity in the conjugation of Germanic strong verbs ('ongelykvloeyende *verba*'), that is verbs whose past tenses are marked by a change in the stem vowel, a phenomenon which later became known as apophony or *Ablaut* as it was called by Jacob Grimm (1785-1863).³⁷

32 Anonymus Batavus [=Adriaen Verwer], *Linguae Belgicae idea grammatica, poetica, rhetorica* (Amsterdam 1707) [*8]: 'linguam nostram ex origine nosse'. For explanation of the signature marks used in this article, see Ronald McKerrow, *An introduction to bibliography for literary students* (Oxford 1927) 25-26, 73-81, 188-194; On Verwer, see Emma Mojet, 'Early Modern Mathematics in a Letter: Adriaen Verwer to David Gregory on Mathematics and Natural Philosophy', *Lias: Journal of Early Modern Intellectual Culture and its Sources* 44:2 (2017) 117-142. DOI: <https://doi.org/10.2143/lia.44.2.3275323>; and Ducheyne, 'Adriaen Verwer (1654/5-1717)'.

33 Franciscus Junius F.F., *Quatuor D.N. Jesu Christi Evangeliorum versiones perantiquae duae, Gothica scil. et Anglo-Saxonica* (Dordrecht 1665). For in-depth discussion, see Van de Velde, *De studie van het Gotisch in de Nederlanden*, 166-208. On Junius, see Rolf H. Bremmer Jr. (ed.), *Franciscus Junius F.F. and His Circle* (Amsterdam/Atlanta 1998).

34 Verwer, *Linguae Belgicae idea*, viii-iv. For discussion, see Van de Bilt and Noordegraaf, "'En

zie daer 't begeerde'", 16-21 and Kees Dekker, 'Lambert ten Kate Hermansz. en Franciscus Junius. "Sporzoekers in dit groote Woordenwoud"', *Voortgang: Jaarboek voor de Neerlandistiek* 21 (2002) 143-167.

35 Ten Kate, *Gemeenschap tussen de Gottische spraeke en de Nederduytsche*, 3: 'Uwe zucht om den grond der zaeken, zoo veel doenlyk tot in den éérsten oorspronk te doorsnuffelen, heeft ook my aengenóópt om eene Belgico-Gothike Lyste op te stelen van de woorden, die met de onze gelyklydig zyn, en gevonden worden in 't *Glossarium* van Fr. Junius F.F. het welk agter 't *Gothicum Evangelium* [...] gevoegt staat [...]'.

36 Ten Kate, *Gemeenschap tussen de Gottische spraeke en de Nederduytsche*, 6: 'uyt eene en dezelfde moeder ontsproten zyn'.

37 Rompelman, 'Lambert ten Kate als germanist', 263; Noordegraaf and Van der Wal, 'Lambert ten Kate', 11.



Portrait of Lambert ten Kate by the Dutch drawer Cornelis Pronk (1701-1759). Date unknown. Rijksmuseum Amsterdam, <http://hdl.handle.net/10934/RM0001.COLLECT.241120>.

After the publication of *Gemeenschap*, Ten Kate continued his study of language, and in 1723 his second study, the approximately 1,500 pages long *Aenleiding*, fell from the press.³⁸ He extended his classification of Gothic verbs, as proposed in *Gemeenschap*, to other Germanic languages which he compared methodically, namely Old High German, Anglo-Saxon, Modern High German, Frisian, and Icelandic, and he argued that the conjugation of Dutch verbs showed regular patterns that occur in all these languages.³⁹ Determined to reveal such patterns, he took delight in reducing the number of *prima facie* linguistic exceptions.⁴⁰ Tellingly, one of the cherubs on the frontispiece of *Aenleiding* is tearing up a paper which contains the adage ‘there is no rule without exception [Daer is g[een] regel zonder ex[ce]ptie]’.⁴¹ For Ten Kate, regularity is ‘the crown of a language’.⁴² Because language is characterised by regularity, an important objective of the study of language is according to Ten Kate ‘to determine the laws’, to which language is subject. This should be done ‘not by forging new laws at one’s own discretion’, but *a posteriori* ‘from its use’.⁴³

The first volume of *Aenleiding*, which consists of fourteen dialogues, a cornucopia of essays and accompanying appendices on related aspects of the study of languages, deals with topics such as the dissemination of language and nations across Europe illustrated by a language tree of the three European language families⁴⁴, Dutch letter sounds⁴⁵, the declination of pronouns, adjectives, substantives, and verbs⁴⁶, and, finally, the regularity and classification of verbs in Germanic languages.⁴⁷ The second volume contains

38 Noordegraaf and Van der Wal, ‘Lambert ten Kate’, 7. This work steadily grew out of a set of extensive notes in his own copy of Cornelis Kiliaan’s (ca. 1529-1607) *Kilianus auctus. seu dictionarium Teutonico-Latino-Gallicum* (Amsterdam 1642). Ten Kate’s heavily annotated copy is to be found in Leiden University Library, Special Collections, LTK 92.

39 Ten Kate, *Aenleiding*, vol. 1, *2-[*2^v], **2; Noordegraaf and Van der Wal, ‘Lambert ten Kate’, 7, 9.

40 Ten Kate, *Aenleiding*, vol. 1, [*2^v]: ‘In the meanwhile, it was not unpleasant to notice that the general saying *there is no rule without exception* does not hold for our language, since the exceptions have become so rare’ (‘Ondertusschen is het mij niet onaengenaem geweest, [...], te bevinden, dat het gemeene

zeggen van *daer is geen Regel zonder exceptie* bij onze Tael geene proef meer kan houden, alzoo de Uitzonderingen zo schaers zijn geworden’.)

41 Cf. Ten Kate, *Aenleiding*, vol. 1, [*2^v].

42 Ten Kate, *Aenleiding*, vol. 1, 543: ‘Regelmatigheid is de kroone eener Tale’.

43 Ten Kate, *Aenleiding*, vol. 1, [*3^v]: ‘dat men in ’t behandelen der Taelgeleertheit de Wetten uit de Gebruiken moet vinden, en niet nieuwe naer eigen goeddenken smeden’. In similar vein, Verwer stated: ‘*ut neque hic ferri leges* [i.e. the laws of language] *è cerebro* [...] *sed è penitissimâ linguæ veritate, rectoque item usu, referri videas*’ (Verwer, *Linguae Belgicae idea*, vi).

44 Ten Kate, *Aenleiding*, vol. 1, 2off, 60-62.

45 Ten Kate, *Aenleiding*, vol. 1, 109ff.

46 Ten Kate, *Aenleiding*, vol. 1, 333ff.

47 Ten Kate, *Aenleiding*, vol. 1, 543ff.

AENLEIDING
Tot de Kennisse van het
VERHEVENE DEEL
D E R
NEDERDUITSCH E
S P R A K E.

W A E R I N

Hare zekerste Grondslag, edelste Kragt, nuttelijkste Onderscheiding,
en geregeldste Afleiding overwogen en naegespoort, en tegen het
Allervoornaemste der Verouderde en Nog-levende Taelver-
wanten, als 't Oude MOESO-GOTTHISCH, FRANK-
DUITSCH, en ANGEL-SAXISCH, beneffens het
Hedendaegsche HOOG-DUITSCH en
YSLANDSCH, vergeleken word.

D O O R

LAMBERT TEN KATE Hermanfz.

E E R S T E D E E L.



Tot A M S T E R D A M,
By **RUDOLPH EN GERARD WETSTEIN,**
M D C C X I I I.



an etymological dictionary, consisting of roughly 20,000 Dutch words and again another 20,000 words in cognate languages.⁴⁸

Ten Kate's dictionary was compiled according to two carefully crafted rules that are explicated in the introduction to the volume.⁴⁹ According to his first rule, one should 'never change a letter in the root of a word without there being a sound rule' that instructs one to do so.⁵⁰ With this rule he sought to put a stop to the practice of certain etymologists who arbitrarily invoked 'all sorts of metaplasm [i.e. changes in the pronunciation or orthography of words] and illegitimate mutilations' and to pave the way for 'a more natural or less artificial and at the same time more careful' treatment of etymology.⁵¹

The second rule instructs one 'to take all stressed syllables for radical syllables and to keep the stress on that syllable, when conjugating verbs or declining nouns'.⁵² Here it is important to note that Ten Kate discovered that stress in the Germanic languages is on the root syllable, which he mistakenly considered to be a heritage from pre-Germanic times rather than as a typical Germanic characteristic.⁵³ The second rule states that one should preserve root stress when searching for etymological relations between Germanic words. Both rules exemplify that Ten Kate, like other scholars before him, used phonological agreement as a guiding principle for etymology.⁵⁴ This implies that he concentrated on the phonological agreement between the roots of words and that he neglected affixes, which is an important feature of his work to which we will return in the next section.⁵⁵

A 'Newtonian linguist'?

Noordegraaf has suggested that a 'Newtonian' reading of Ten Kate's methods in the study of language gains plausibility from the fact that he was part of

48 Ten Kate, *Aenleiding*, vol. 1, ***.

49 Noordegraaf and Van der Wal, 'Lambert ten Kate', 7; Ten Kate, *Aenleiding*, vol. 2, 3-96.

50 Ten Kate, *Aenleiding*, vol. 2, 6: 'Geen eene Zakelijke Letter te veranderen, zonder daer toe een Overtuiglijke Regel [...] te hebben'.

51 Ten Kate, *Aenleiding*, vol. 2, 4: 'allerhande Metaplasmata of onwettige Verminkingen'; Ten Kate, *Aenleiding*, vol. 2, 5: 'natuurlijker of minder gewrongen en tevens voorzigtiger'. For discussion, see Roland de Bonth, 'A Black Sheep and a White Crow: Carolus Tuinman (1659-1728) and Lambert ten Kate (1674-1731) on Etymology', in: Klaus Dutz and Kjell-Åke Forsgren (eds.),

History and Rationality: The Skövde Papers in the Historiography of Linguistics (Münster 1995) 107-132.

52 Ten Kate, *Aenleiding*, vol. 2, 6: 'Alle Accent-silben voor zakelijke Silben aen te zien, en den nadruk op die lettergreep in al de Afleiding en verbuiging te laten blijven [...]'.
53 Van der Wal, 'Lambert ten Kate and Eighteenth-Century Dutch Linguistics', 54.

54 Van de Velde, *De studie van het Gotisch in de Nederlanden*, 232-234; Noordegraaf and Van der Wal, 'Lambert ten Kate', 9-10.

55 De Bonth, 'A Black Sheep and a White Crow', 117.

an informal circle of what Rienk Vermij has called ‘Amsterdam mathematical amateurs’.⁵⁶ Its members engaged with Newton’s natural philosophy before it was taught at the University of Leiden by Herman Boerhaave (1688-1742) and Willem Jacob ’s Gravesande (1688-1742).⁵⁷ Apart from Ten Kate, also Verwer, Le Clerc, the physician and local politician from Purmerend Bernard Nieuwentijt (1654-1718), the enigmatic broker Jan Makreel (?-1717), and the young ’s Gravesande belonged to this circle. Despite pertaining to different religious backgrounds, these men were united in their desire to respond to the philosophy of Descartes and Spinoza which they considered detrimental to religion.⁵⁸ To this end, they mobilised Newton’s natural philosophy. Ten Kate saw Newton’s work as providing physico-theological arguments against René Descartes (1596-1650) who, according to Ten Kate, in his *Principia philosophiae* (1644) contended that once God put matter into motion the universe is eternally maintained in motion by ‘*mechanismus*’, i.e. by direct contact, which he considered as the foundation ‘on which alone all atheism is built’.⁵⁹

Ten Kate was indeed knowledgeable of Newton’s contributions to natural philosophy as can be seen from an essay and a book he completed in 1716. The essay ‘Proef-ondervinding over de scheidung der coleuren, bevonden, door een prisma, in de volgorde der musyk-toonen, in navolging

56 Jan Noordegraaf, ‘From “Radical Enlightenment” to Comparative Historical Linguistics: The study of language in the Netherlands around 1700’, in: Gerda Haßler and Gesina Volkman (eds.), *The History of Linguistics in Text and Concepts – Geschichte der Sprachwissenschaft in Texten und Konzepten 1* (Münster 2004) 155-168; Rienk Vermij, ‘The formation of the Newtonian philosophy: the case of the Amsterdam mathematical amateurs’, *The British Journal for the History of Science* 36:2 (2003) 183-200. DOI: <https://doi.org/10.1017/S0007087403004990>.

57 See Edward Ruestow, *Physics at Seventeenth- and Eighteenth-Century Leiden: Philosophy and the New Science in the University*. Archives Internationales D’Histoire des Idées / International Archives of the History of Ideas 11 (The Hague 1973) 113-139. DOI: https://doi.org/10.1007/978-94-010-2463-1_7; Gerhard Wiesenfeldt, *Leerer Raum in Minervas Haus. Experimentelle Naturlehre an der Universität Leiden, 1675-1715* (Amsterdam/Berlin 2002) 229-234; and Jorink and Zuidervaart, “‘The Miracle of Our Time’”, 32-36, 45-48. That Boerhaave introduced key concepts of Newton’s *Principia* in

his teaching before ’s Gravesande did has recently been uncovered in Ducheyne, ‘Different shades of Newton’, 108-125.

58 Vermij, ‘The formation of the Newtonian philosophy’, 189.

59 Lambert ten Kate, *Den Schepper en Zyn bestier te kennen in Zyne schepselen; volgens het licht der reden en wiskonst. Tot opbouw van eerbiedigen Godsdienst en Vernietiging van alle grondslag van atheistery: als mede tot een regtzinnig gebruyk van de philosophie* (*The Creator and his Governing Revealed from his Creations according to the Light of Reason and Mathematics for the Instalment of an Honourable Religion and the Abolition of all Foundations of Atheism, and also for a Proper Use of Philosophy*) (Amsterdam 1716) **2: ‘waer op dog eeniglyk alle Atheistery gebouwt word’. On the Dutch physico-theological tradition, see for instance Eric Jorink, *Reading the Book of Nature in the Dutch Golden Age, 1575-1715*, translated by Peter Mason. Brill’s Studies in Intellectual History 191 (Leiden/Boston 2010). DOI: <https://doi.org/10.1163/ej.9789004186712.i-472>.

eener proef-ondervindinge in Newtons gezigt-kunde' was finalised in 1716 but only published in 1757.⁶⁰ The completed book was published in 1716 as *Den Schepper en Zyn bestier te kennen in Zyne schepselen; volgens het licht der reden en wiskonst. Tot opbouw van eerbiedigen Godsdienst en Vernietiging van alle grondslag van atheistery: als mede tot een regtzinnig gebruyk van de filosofie*.⁶¹

It needs to be emphasised that Ten Kate finished these works at a time when a significant number of his compatriots became interested in Newton's natural philosophy. A major reason for the increased popularity of Newton's natural philosophy was the appearance of the second edition of the *Philosophia naturalis principia mathematica* in 1713.⁶² The new edition contained several technical additions and improvements. More importantly for our present purpose, it includes an editorial introduction by Roger Cotes (1682-1716), the Plumian Professor of Astronomy and Experimental Philosophy at the University of Cambridge, and Newton's famous concluding 'General Scholium'.

In the introduction, Cotes explicated Newton's methodology in a comprehensible way and positioned it vis-à-vis Descartes' hypothetical approach.⁶³ In addition, he urged that in Newton's account of the *systema mundi* traces can be found 'of the highest wisdom and counsel', as a result of which 'Newton's excellent treatise' stands 'as a mighty fortress against the attacks of atheists'.⁶⁴ In the 'General Scholium', Newton declared that the solar system 'could not have arisen without the design and dominion of an intelligent and powerful being'. Furthermore, he explained that he did not feign hypotheses and he cautioned that 'hypotheses whether metaphysical or physical, or based on occult qualities, or mechanical, have no place in experimental philosophy'.⁶⁵ Through Cotes' introduction and the 'General Scholium', Dutch readers could more easily discern the religious ramifications and the methodological singularity of the *Principia*.⁶⁶ Demand for the second

60 Lambert ten Kate, 'Proef-ondervinding over de scheidende der kleuren, bevonden, door een prisma, in de volgorde der musyk-toonen, in navolginge eener proef-ondervindinge in Newtons gezigt-kunde' ('Experiment with a Prism on the Separation of Colours Ordered in Musical Tones, in Imitation of an Experiment in Newton's Opticks'), *Verhandelingen uitgegeven door de Hollandse Maatschappij der Weetenschappen te Haarlem* (Haarlem 1757) vol. 3, 17-30.

61 Ten Kate, *Den Schepper en Zyn bestier te kennen in Zyne schepselen*.

62 Huib Zuidervaat, *Van 'konstgenoten' en hemelse fenomenen. Nederlandse sterrenkunde in de achttiende eeuw* (Rotterdam 1999) 23; Ernestine

van der Wall, 'Newtonianism and religion in the Netherlands', *Studies in History and Philosophy of Science* 35:3 (2004) 495. DOI: <https://doi.org/10.1016/j.shpsa.2004.06.016>.

63 Isaac Newton, *The Principia, Mathematical Principles of Natural Philosophy, A New Translation by I. Bernard Cohen and Anne Whitman* (Berkeley 1999) 385-386.

64 Newton, *The Principia*, 397-398.

65 Newton, *The Principia*, 940, 943.

66 The first edition contained a small number of short methodological statements and only a single sentence in which God is mentioned, namely in Corollary 5 to Proposition 8 in Book III (Newton, *The Principia*, 814, variant c).

edition of the *Principia* was so high that in 1714 a pirated version appeared in Amsterdam.⁶⁷

Ten Kate's work from 1716 demonstrates that he was well-acquainted with the work of the famous Cantabrigian. In his essay 'Proef-ondervinding over de scheidende der kleuren', Ten Kate suggested a correction to Newton's musical division of the colours of the spectrum, which provides a mathematical relation between the distances between musical tones and the distances between the colours when light is refracted by a prism.⁶⁸ Ten Kate's *Den Schepper en Zyn bestier te kennen in Zyne schepselen* contains a Dutch rendition of the second edition of George Cheyne's *Philosophical Principles of Natural Religion* (1715) which was based on Le Clerc's lengthy summary in the *Bibliothèque ancienne et moderne*.⁶⁹ Significant for our present purpose is that Ten Kate included several explanatory notes in his rendition of Cheyne's work, which show that he was familiar with key concepts of Newton's *Principia* and even with a number of technical results established in Books I to III in the *Principia*.

Let us now turn to Ten Kate's new physical approach to speech production and Dutch letter sounds. It has been argued that in his 'Verhandeling over de klankkunde' and the corresponding section in *Aenleiding* Ten Kate took 'a decisive step towards making linguistics an empirical science' by adopting 'Newton's new philosophy as the corner stone of his investigations'.⁷⁰ Both the 'Verhandeling over de klankkunde' and the corresponding section in *Aenleiding* contain a treatment of the sound propagation and speech production which he characterised as 'physical' ('natuerkundig').⁷¹ His aim was to determine 'how letter sounds physically differ from all other sound'.⁷² According to Ten Kate, sound is propagated when spherical air particles are pounded in such a way that the side being hit is compressed inwards and the others are expanded. As a result, the

67 Isabella Henriette van Eeghen, *De Amsterdamse boekhandel 1680-1725* 5 (Amsterdam 1960-1978) 326-331.

68 Specifically, Ten Kate proposed a correction to Experiment 7 to Proposition 3 in Part I of Book I in Newton's *Opticks*. See Ten Kate, 'Proef-ondervinding over de scheidende der kleuren', 20; Isaac Newton, *Opticks: or, a Treatise of the Reflections, Refractions, Inflections & Colours of Light* (New York 1979) 125-129. For discussion, see Fokko Jan Dijksterhuis, 'Low Country Opticks: The optical pursuits of Lambert ten Kate and Daniel Fahrenheit in early Dutch "Newtonianism"', in: Jorink and Maas (eds.), *Newton and the Netherlands*, 160-161.

69 George Cheyne, *Philosophical Principles of Natural Religion* (London 1715); [Jean Le Clerc], Review of George Cheyne's *Philosophical Principles of Natural Religion*, *Bibliothèque ancienne et moderne* 3:1 (1715) 41-157.

70 Salverda, 'Newtonian Linguistics', 119-120.

71 Ten Kate, *Aenleiding*, vol. 1, 132. See furthermore Geert Dibbets, 'Lambert ten Kates *Aenleiding* (1723) tiende dialoog: over de woordsoorten', *Tijdschrift voor Nederlandse Taal- en Letterkunde* 119:1 (2003) 6 and Meinsma, *The Phonetics of Lambert ten Kate*, 120-126.

72 Ten Kate, *Aenleiding*, vol. 1, 132: 'waer in Physicè onze Letterklanken verschillen van alle ander Geluid.'

expanded parts impact the neighbouring air particles which in their turn are compressed at the side of impact and expanded at the others, and so on.⁷³ In this way, sound is propagated in all directions.

Ten Kate, by the way, pointed out that capacity of the air to propagate sound in this way cannot be produced by blind fate.⁷⁴ The stronger air particles are hit the louder the sound is, and the faster the impact is renewed the higher the tone of the sound.⁷⁵ Ten Kate compared speech production to the sound produced by an oboe or a flute. When sound is produced by an oboe or a flute, it is not produced in the mouth, but between the reed of an oboe or the tongue of the flute. Likewise, human speech is not produced in the lungs or the trachea, but according to him in the cartilaginous lips below the epiglottis. Once sound is produced there, it moves on to the pharynx and then enters the mouth where the rear end of the tongue produces higher or lower tones by means of its muscles.⁷⁶ Each letter corresponds to a different positioning of the tongue and lips, according to Ten Kate.⁷⁷

Although Ten Kate's account of sound propagation is rather sketchy and technical details are lacking, *prima facie* there are some parallels with the propagation of vibrations in elastic media, which Newton describes in Case 1 of Proposition 43 in Book II of the *Principia*.⁷⁸ Although his own originality should not be dismissed, it should be underscored that Ten Kate's physical account of human speech was predominantly informed by the work on sound and musical sound undertaken by a host of scholars, including Jean-Pierre de Crousaz (1663-1750) and Joseph Sauveur (1653-1716), to both of whom Ten Kate referred⁷⁹, and likely other well-known scholars such as Marin Mersenne (1588-1648), who pertained to different experimental and mathematical traditions.⁸⁰ In addition, according to Gerrit Jongeneelen, Ten

73 Ten Kate, *Aenleiding*, vol. 1, 136; Amsterdam University Library, Special Collections, OTM, I C 21, pt. 1, 4 (here I follow Cornelis Ploos van Amstel's pagination).

74 Ten Kate, *Aenleiding*, vol. 1, 7-9. On pages 143-144, Ten Kate stated that 'He, who knows how sound is propagated, and ascribes it to mere accident or blind and ignorant fate must be more foolish than foolish'. ('Dwazer dan dwaes moest hij zijn, die dit [i.e. the propagation of sound] kennende, zulks aen een los geval, of aen een blind en weteloos Noodlot zou toeschrijven')

75 Ten Kate, *Aenleiding*, vol. 1, 137.

76 Ten Kate, *Aenleiding*, vol. 1, 141-142.

77 Ten Kate, *Aenleiding*, vol. 1, 146.

78 Newton, *The Principia*, 765-766. For background, see Sigalia Dostrovsky, 'Early vibration theory:

Physics and music in the seventeenth century', *Archive for History of Exact Sciences* 14:3 (1975) 209-217. DOI: <https://doi.org/10.1007/BF00327447>.

Given the lack of technical details in Ten Kate's account of sound propagation, it is far from straightforward to determine whether and to what extent it is based on Newton's. Nevertheless, I do not want to dismiss the possibility that Ten Kate's account of sound propagation was inspired by Case 1 in Proposition 43 in Book II of the *Principia*.

79 Ten Kate, *Aenleiding*, vol. 1, 140-141.

80 Ten Kate, *Aenleiding*, vol. 1, 137-143. For further discussion, see for example Benjamin Wardhaugh, *Music, Experiment and Mathematics in England, 1653-1705* (London 2008); Penelope Gouk, 'Music and the emergence of experimental

Kate was influenced by a lecture titled ‘Redeneringh over de talen’ (‘Discourse on Languages’) by the Haarlem-based pharmacist Jan Trioen (1657-1721), which was likely delivered in the early 1690s before an informal group of natural philosophy aficionados who were members of the *Collegium physicum Harlemense*.⁸¹ More precisely, Jongeneelen has argued that the ‘synthesis of phonetics and early eighteenth-century written language’ provided in Trioen’s lecture served as an example for Ten Kate’s ‘Verhandeling over de klankkunde’ and is continued in *Aenleiding*.⁸²

Seen from this perspective, it cannot be maintained that Ten Kate’s writings on sound propagation and speech production were exclusively shaped by Newton’s natural philosophy, nor that the latter was the cornerstone of his investigations in these areas. Ten Kate was one of the first to physically investigate sound propagation and speech production to inform the study of letter sounds.⁸³ He was also one of the first to present such ‘physical’ investigations as the ‘foundation’ (‘Grondslag’) of certain topics in the study of language.⁸⁴ His *Aenleiding* thus testifies of how the natural sciences of his day permeated the study of language.

Are there indications that natural philosophical methods, including Newton’s, shaped Ten Kate’s etymological research and his historical-comparative method? Taking a cue from Kees Dekker’s work, it can be argued that Ten Kate’s historical-comparative method was not indebted to contemporary natural philosophical methods, but rather to practices that were employed in seventeenth-century language research, most notably those of the aforementioned Junius, on whose Gothic glossary Ten Kate heavily drew in *Gemeenschap*.⁸⁵ Figures like Junius, who is said to have been ‘the first [who] implemented the ideas of the English empiricist tradition [i.e. predominantly Bacon’s ideas] in Old Germanic scholarship’, and his follower Jan van Vliet (1622-1666) used empirical and comparative methods in the study of language.⁸⁶

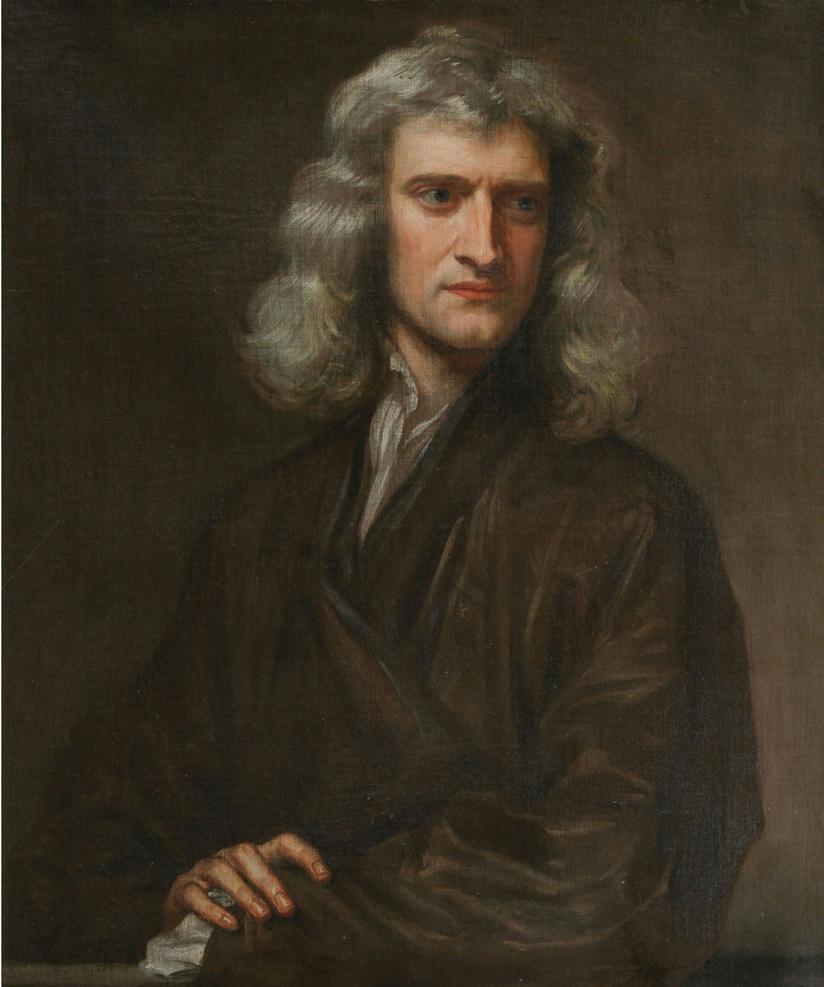
Furthermore, according to Dekker, Junius’ and Kiliaan’s work formed ‘the culmination of the first hey-day of comparative Germanic scholarship

science in early modern Europe’, *SoundEffects – An Interdisciplinary Journal of Sound and Sound Experience* 2:1 (2012) 5-21. DOI: <https://doi.org/10.7146/se.v2i1.5183>. Because Ten Kate virtually provided no references, one will have a hard time figuring out the exact sources on which he drew and determining his originality. This is an exercise that exceeds the bounds of this article.

81 On the *Collegium*, see Bert Sliggers, ‘Honderd jaar natuurkundige amateurs te Haarlem’, in: Lodewijk Palm and Anton Wiechmann (eds.), *Een*

elektriserend geleerde: Martinus van Marum, 1750-1837 (Haarlem 1987) 67-102.

- 82 Gerrit Jongeneelen, *Fonetiek en verlichting: De Redeneringh over de talen van Jan Trioen* (1692). *Cahiers voor Taalkunde* 12 (Amsterdam 1994) 12.
- 83 Meinsma, *The Phonetics of Lambert ten Kate*, 2.
- 84 Ten Kate, *Aenleiding*, vol. 1, 133.
- 85 Van de Velde, *De studie van het Gotisch in de Nederlanden*, 232-234.
- 86 Dekker, *The Origins*, 293-294, 335-356.



Portrait of Isaac Newton by painter Geoffrey Kneller (1646-1723), dated in 1689. Wikimedia Commons, https://commons.wikimedia.org/wiki/File:Portrait_of_Sir_Isaac_Newton,_1689.jpg.

in the Low Countries'.⁸⁷ Congruent to wider European developments in the study of language⁸⁸, there already was a strong empirical tradition in the Low Countries that promoted the comparative method before Newton entered the scene.⁸⁹ Junius endorsed the belief that in order to determine the origin of words one needs to study the oldest language forms which are the ancestors of contemporary languages – an idea with which Ten Kate fully agreed.⁹⁰ This very notion necessitated a historical and comparative approach towards the study of language. As Dekker has shown, Ten Kate's method in etymology resulted from 'a systematic analysis of Junius's etymological method'. More precisely, the idea that etymological relations are to be derived from phonological agreement between the root form of words while discarding affixes was 'based on principles applied by Junius', which, as Dekker argues, 'he himself never made explicit, but took for granted'. Not Newton, but Junius' work formed the starting point for 'further investigations into the nature of the interrelation of the Germanic languages, which pushed etymological studies towards a more systematic approach'.⁹¹ Ten Kate's historical-comparative method, which he applied systematically, is an explication and systematisation of extant practices to be found in Junius' work. Yet, Ten Kate made a methodologically innovative contribution by putting the historical-comparative method at the centre-stage of language research.

Nevertheless, natural philosophy did play a role in Ten Kate's work, albeit a different one than that has hitherto been suggested. In *Aenleiding*, Ten Kate introduced natural philosophical terminology in the study of language. For instance, he emphasised that he based his study of language on 'observations' ('waernemingen') and that he provided 'demonstrations' ('proeven') to establish certain conclusions concerning language.⁹² As we have seen, he also made it clear that he sought to uncover the 'laws' to which language is subjected. Laws (of nature) were a crucial notion in the natural philosophy of his day, including Newton's.⁹³ Newton used the term 'law(s) of nature (*leges/lex naturae*)' for the first time in print in the 1706 *Optice*⁹⁴, and

87 Dekker, *The Origins*, 50.

88 George Arthur Padley, *Grammatical Theory in Western Europe, 1500-1700. Trends in Vernacular Grammar I* (Cambridge 1985) 325-381.

89 Kees Dekker, "'Hinc Gothus exorti, Nos quoque Belgas sumus': A gothic imaginary in a Dutch perspective", in: Alasdair MacDonald and Arend Huussen (eds.), *Scholarly Environments: Centres of Learning and Institutional Contexts, 1560-1960. Groningen studies in cultural change 7* (Leuven 2004) 85.

90 Dekker, *The Origins*, 224, 266. See furthermore, Sophie van Romburgh, 'For my Worthy Friend MR Franciscus Junius': *An Edition of the Correspondence*

of Francis Junius F.F. (1591-1677) (Leiden/Boston 2004) 26-27, 922-923, note 9.

91 Dekker, *The Origins*, 344-345.

92 For example Ten Kate, *Aenleiding*, vol. 1, 176, 266 and *Aenleiding*, vol. 2, 99, 581.

93 See for instance Peter Harrison, 'The Development of the Concept of Laws of Nature', in: Fraser Watts (ed.), *Creation: Law and Probability* (Aldershot 2008) 13-36. DOI: <https://doi.org/10.4324/9780429463525>.

94 Isaac Newton, *Optice: sive de reflectionibus, refractionibus, inflexionibus & coloribus lucis* (London 1706) 344-345, 347.

it also features markedly in Cotes' editorial introduction to the *Principia*.⁹⁵ By incorporating these terms into *Aenleiding*, Ten Kate signalled that he wanted to reorient the study of language by rendering it more empirical. The introduction of natural philosophical terminology in the study of language also allowed him to present it as a legitimate scientific discipline. Ten Kate used natural philosophical terminology to give the study of language the same scientific standing as the natural philosophy of his day which increasingly became an important and dominant form of knowledge.

Fazit

In the course of this article, I have argued that Ten Kate's new physical approach to speech production and Dutch letter sounds and his novel historical-comparative method were not or not exclusively inspired by the natural philosophy of, among others, Newton. However, it cannot be denied that he introduced natural philosophical terminology into the study of language. Ten Kate did so to establish this study as a legitimate scientific discipline on par with the natural philosophy of his time that was increasingly seen as a dominant discipline for others to imitate. This case study of Ten Kate contributes to a better understanding of the impact of Newton's ideas on early eighteenth-century scholars in the Dutch Republic and especially on disciplines other than natural philosophy.

Because of his methodological sophistication and his familiarity with natural philosophy, in literature Ten Kate has been portrayed as a key figure in the shift from the pre-scientific study of language to historical-comparative linguistics.⁹⁶ However, Ten Kate's religious views also shaped his study of language and ultimately affected how he conceived the goal of his historical-comparative method. For example, he endorsed the view that the European languages find their origin in the language spoken by the descendants of Japheth, one of the three sons of Noah.⁹⁷ He was convinced that the 'earliest forefathers and language planters [i.e. those who first introduced language]' only used verbs and that all other words derived from them, which explains why he devoted so much attention to verbs. The earliest words, according to Ten Kate, were monosyllabic and consisted of the root.⁹⁸ Each root, moreover,

95 Newton, *The Principia*, 387, 397.

96 Van de Velde, *De studie van het Gotisch in de Nederlanden*, 213, 230; Dan Brink, 'Lambert ten Kate as Indo-europeanist', in: Jeanne van Oosten and Johan P. Snapper (eds.), *Dutch linguistics at Berkeley: papers presented at the Dutch Linguistics Colloquium held at the University of California, Berkeley on November 9th, 1985* (Berkeley 1986) 127, 133; Gerrit Jongeneelen, 'Lambert ten Kate and the

Origin of 19th-century Historical Linguistics', in: Jan Noordegraaf, Kees Versteegh and Konrad Koerner (eds.), *The History of Linguistics in the Low Countries* (Amsterdam/Philadelphia 1992) 213. DOI: <https://doi.org/10.1075/sihols.64.09jon>; Noordegraaf and Van der Wal, 'Lambert ten Kate', 11.

97 Ten Kate, *Aenleiding*, vol. 1, 22, 60.

98 Monosyllabicity was considered a distinct feature of the primeval language by scholars like Becanus

had a single meaning.⁹⁹ He presupposed, furthermore, that the primeval language spoken by ‘the earliest forefathers’ was perfect, clear and regular. Therefore, the older a language is the more it is characterised by perfection, clarity and regularity. According to him, ‘without knowledge of antiquity’ it is impossible ‘to lay a safe and certain foundation for the construction of our language’.¹⁰⁰ His historical-comparative investigations served the purpose of uncovering a prescriptive ideal in older languages that contemporary language was to emulate.¹⁰¹ It has been remarked by Gijsbert Rutten that Ten Kate considered old linguistic material ‘as an historical mirror, a very old and therefore authoritative reflection of what language ought to be’.¹⁰² Ten Kate was not the modern linguist as he often has been portrayed. Although he introduced methods in the study of language that have been assessed as typically modern, his ideas on language still bore traces of a religious outlook on the world. Ten Kate remained a man of his time.

Steffen Ducheyne is a Professor of Philosophy at the Vrije Universiteit Brussel. His research deals with Isaac Newton’s natural philosophy and its diffusion in Europe, the history of scientific methods and the history and philosophy of science. He is the author of *‘The Main Business of Natural Philosophy’: Isaac Newton’s Natural Philosophical Methodology*. Archimedes, New studies in the History and Philosophy of Science and Technology (Dordrecht 2012) and the editor of *Reassessing the Radical Enlightenment* (Abington/New York 2017). He currently prepares a monograph on the diffusion of Newton’s natural philosophy at Leiden University. This article was funded by the Special Research Fund of the Vrije Universiteit Brussel (project SRP61). He can be contacted at Vrije Universiteit Brussel, Faculty of Languages and Humanities, Department of History, Archeology, Arts, Philosophy and Ethics, Pleinlaan 2, room 5B447, 1050 Brussels. E-mail: steffen.ducheyne@vub.be.

and Junius. See Marijke van der Wal, ‘Early Language Typology: Attitudes towards Languages in the 16th and 17th Centuries’, in: Dutz and Forsgren (eds.), *History and Rationality*, 104.

99 Ten Kate, *Aenleiding*, vol. 2, 11-13, 64, 106-107. For discussion, see Jan Noordegraaf, “‘De geboorte en aenwasch der sprake’”. Lambert ten Kate over de redelijke mens’, in: Els Ruijsendaal, Gijsbert Rutten and Frank Vonk (eds.), *Bon jours Neef, ghoeiden dagh Cozyn! Opstellen voor Geert Dibbets* (Münster 2003) 309-321.

100 Lambert ten Kate, *Gemeenschap*, 3: ‘dat zonder kennis van de oudheid géén geruste en welverzekerde grondslag tot opbouw van onze spraek te leggen was’.

101 Gijsbert Rutten, ‘Lambert ten Kate and Justus-Georg Schottelius: Theoretical similarities between Dutch and German early modern linguistics’, *Historiographia Linguistica* 31:2/3 (2004) 286. DOI: <https://doi.org/10.1075/hl.31.2.04rut>. See furthermore Andreas Gardt, *Sprachreflexion in Barock und Frühaufklärung: Entwürfe von Böhm bis Leibniz*. Quellen und Forschungen zur Sprach- und Kulturgeschichte der germanischen Völker 108 (Berlin/New York 1994) 139-145.

102 Rutten, ‘Lambert ten Kate and Justus-Georg Schottelius’, 286.