

John Eliot's *Logick Primer*: A Bilingual English-Massachusetts Logic Textbook

Sara L. Uckelman

To cite this article: Sara L. Uckelman (2023): John Eliot's *Logick Primer*: A Bilingual English-Massachusetts Logic Textbook, *History and Philosophy of Logic*, DOI: [10.1080/01445340.2023.2207244](https://doi.org/10.1080/01445340.2023.2207244)

To link to this article: <https://doi.org/10.1080/01445340.2023.2207244>



© 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 18 May 2023.



Submit your article to this journal [↗](#)



Article views: 318



View related articles [↗](#)



View Crossmark data [↗](#)

John Eliot's *Logick Primer*: A Bilingual English-Massachusetts Logic Textbook

Sara L. Uckelman 

Department of Philosophy, Durham University, Durham, UK

ABSTRACT

In 1672 John Eliot, English Puritan educator and missionary to New England, published *The Logick Primer: Some Logical Notions to initiate the INDIANS in the knowledge of the Rule of Reason; and to know how to make use thereof* (Eliot 1672) *The Logick Primer: Some Logical Notions to Initiate the INDIANS in the Knowledge of the Rule of Reason; and to Know How to Make Use Thereof*, Cambridge, MA: Marmaduke Johnson]. This roughly 80 page pamphlet introduces syllogistic vocabulary and reasoning so that syllogisms can be created from Biblical texts. The use of logic for proselytizing purposes is not distinctive: What is distinctive about Eliot's book is that it is bilingual, written in both English and Massachusetts (Wôpanâak), an Algonquian language spoken in eastern coastal and southeastern Massachusetts. It is one of the earliest bilingual logic textbooks and it is the first, and perhaps only, textbook in an indigenous American language.

In this paper, we (1) introduce John Eliot and the linguistic context he was working in; (2) introduce the contents of the *Logick Primer* – vocabulary, inference patterns, and applications; (3) discuss notions of 'Puritan' logic that inform this primer; and (4) address the importance of his work in documenting and expanding the Massachusetts language and the problems that accompany his colonial approach to this work.

ARTICLE HISTORY



Received 18 October 2022
Accepted 21 April 2023

KEYWORDS

John Eliot; syllogistic logic; Puritanism; Petrus Ramus; Wôpanâak

1. Introduction

In 1672 John Eliot, English Puritan educator and missionary, published *The Logick Primer: Some Logical Notions to initiate the INDIANS in the knowledge of the Rule of Reason; and to know how to make use thereof* (Eliot 1672). This roughly 80 page pamphlet focuses on introducing basic syllogistic vocabulary and reasoning so that syllogisms can be created from texts in the Psalms, the gospels, and other New Testament books. The use of logic for proselytizing purposes is not distinctive: What is distinctive about Eliot's book is that it is bilingual, written in both English and Massachusetts, an Eastern Algonquian language spoken in eastern coastal and southeastern Massachusetts. It is one of the earliest bilingual logic textbooks and it is the only textbook that I know of in an indigenous American language. One thousand copies were printed, funded by Hezekiah Usher under the direction

CONTACT Sara L. Uckelman  s.l.uckelman@durham.ac.uk  Department of Philosophy, Durham University, 50 Old Elvet, Durham DH1 3HN, UK

of the Commissioners of the United Colonies in New England (*Eliot 1904*, p. 10); most of these copies (as well as copies of Eliot's other works) were destroyed in the war with Metacom (or Metacomet, also known by his adopted English name King Philip), sachem of the Pauquunaukit, in 1675–76 (*Eliot 1904*, p. 11). When Eliot and the others returned to Natick, Massachusetts, after the war, new editions were printed of his translation of the Bible, and of some of his other works; but not of the *Primer*. As a result, only a handful of copies have survived, one of which is held in the British Museum (later the British Library), and one in the New York Public Library. The British Museum copy was photographed in 1889 and six copies reprinted from those photographs (*Eliot 1904*, p. 7). In 1903, the bibliographer Wilberforce Eames produced a newly type-set edition of the *Primer*, which was printed in an edition of 150 copies in 1904. For this paper, we have consulted digitized versions of both the British Museum copy (*Eliot 1672*) and copy no. 39 of Eames's reprint (*Eliot 1904*).

The remainder of this paper is divided into four sections. In §2, I introduce John Eliot and the linguistic context he was working in. Next, I present the contents of the *Logick Primer* – its vocabulary, inference patterns, and applications (§3). Following that, we consider conceptions of 'Puritan' logic that inform the primer (§4). Fourthly, we talk about the importance of Eliot's work in documenting and expanding the Massachusetts language and the problems that accompany his colonial approach to this work (§5).

2. Eliot and His Context

John Eliot was born in Widford, Hertfordshire, England, around 1604, and matriculated as a Pensioner in Jesus College, Cambridge, in 1618–19, where he studied languages and graduated in 1622. In 1629, he joined Rev. Thomas Hooker's school at Little Baddow, Chelmsford, as an usher, and it was because of the influence of Hooker that Eliot took orders in the English Church and eventually left for Boston, Massachusetts, in 1631 on the *Lyon*, accompanied by three brothers and three sisters (*Powicke 1931a*, p. 140). He settled in Roxbury, at the time still an independent town not yet annexed to Boston, and in 1645 founded a Latin school there.¹ In addition to his educational aspirations, Eliot was also a dedicated missionary to the local indigenous people, seeking to convert them to Christianity. In order to successfully do this, he needed to be able to produce sermons in a language that the local people would understand, and this provided the foundation for his linguistic activities. He began to study the indigenous languages in 1644, and preached 'his first sermon to the Indians in their own language' on 28 October 1646 (*Powicke 1931a*, p. 141). With the assistance of Cockenoe-de-Long Island,² a member of one of the Long Island tribes subjugated to the Pequots (*Tooker 1896*, pp. 9–10), Eliot began translating theological material from English into the local language, including the Ten Commandments, the Lord's Prayer, scriptures and other prayers, and – ultimately – the Bible. The New Testament was published in 1661, and the complete Bible in 1663, produced with the assistance of James Printer, a Nipmuc convert; Job Nesuton, a Praying Indian; and John Sassmon, a

¹ Eliot's basic biographical information can be found in ACAD, A Cambridge Alumni Database, <https://venn.lib.cam.ac.uk/>, accessed 24 January 2023. Note that (*Powicke 1931a*) errs in calling the town Hooker's school was in 'Little Haddo'.

² His name derives from the Massachusetts verb *kuhkinneau* 'he interprets', and the fact that he was from Long Island (*Gatschet 1896*, p. 217).

former student of Eliot's (*Harvey and Rivett 2017*, p. 443; *Rex 2011*), in a print run of one thousand copies.

This work led to the publication of his *The Indian Grammar Begun*, a treatise on the theoretical aspects of the Massachusetts language, in 1666 (*Eliot*),³ and the *Nehtuhpeh peisses ut mayut: A Primer on the Language of the Algonquian Indians* in 1684, his final work. In 1670, Eliot gave a series of lectures, funded by Robert Boyle (to whom his *Grammar* was dedicated) and Lady Mary Armine, on logic and theology at Natick which gave rise to the publication of the *Logick Primer* two years later (*Cogley 1999*, p. 124).

The importance of Eliot's translation work to the preservation of the language cannot be overstated (and we discuss that further in §5), but the central question we must first address is *which language is it?* Eliot himself, both in his published grammars and in correspondence (cf. *Powicke 1931a, 1931b*), often simply calls it an 'Indian language'. He recognized that there was more than one distinct such language but rarely went so far as to label or name them distinctly; one exception is in his discussion of phonology in the beginning of the *Grammar*, where he differentiates between what 'we *Massachusets*' pronounce, and what the Nipmuk and the Northern Indians pronounce (*Eliot 1666*, p. 2). It is relevant to note here a footnote in a letter from Richard Baxter to Eliot in 1668, which says: 'I pray tell me how farre y^t Indian language reacheth into w^{ch} you have translated the Bible and *how numerous their languages there are*' (*Powicke 1931b*, p. 446, emphasis added). In replying to this postscript in a letter from 1669, Eliot says that 'of the number and variety of the dialects, I am not able to give an account' (*Powicke 1931b*, p. 455), but accompanying this he gives an extremely detailed description of the extent of the various dialectal regions that comprise the language he has been studying and working in. Though it is detailed, it is worth quoting nearly in full (*Powicke 1931b*, pp. 453–454):

A(nswer). Here be 3 q(uestions) (1) for the extent of o(u)r Massachusetts or Narraganset language (for these are all one). By an eminent providence of God, the extent thereof is very large, though not w(i)thout some variation of dialect, yet not such as hindereth a ready understanding of each other[...] It is more yⁿ an hundred miles eastw(a)rd fro(m) us to Cape Cod, the utmost extent of o(u)r East(e)rn continent neere us. All these speake o(u)r dialect. The East-most Ilands, South East fro(m) us, are Nantuket and Martha's Vinyard. Their dialect a little varyeth, but they understand us and we y^m [...] [in the area] more so(u)therly in long Iland (as we call it) w(hi)ch reacheth to the Dutch Plantation called New York. They speake o(u)r language w(i)th some variation of dialect and some words[...] All the shore continent, as far as the Dutch, have also the same language but w(i)th some variation of dialect. This is more yⁿ 200 miles to the South. To returne to Conecticot[...] the neerest p(ar)t of it is about 90 miles (S.W. margin) fro(m) the Massachusetts; and recently (?) I have bene at sundry places, upon y^t river, where I taught the Indians and they did p(er)fectly understand the Bible, the Catechisme, and other discourse. They speake o(u)r dialect, or p(rett)y neare. To the northwest are a people called Pennywoof⁴ Indians about 60 or 70 miles fro(m) us. With them I did very lately this spring converse and they speake o(u)r language with some variation of dialect. To the North and N.E. I have not conversed far, not above 30 or 40 miles, and they use o(u)r language. Only, the furth(e)r North the more they vary. All this (?) I speake upon my owne knowledge. Only, of the most remote places I have the least knowledge. Our language is understood Northward as far as Canada. How far Southward I can(n)ot tell.

³ A new edition of this work was produced by Peter S. Du Ponceau and John Pickering in the early nineteenth century (*Eliot 1822*).

⁴ That is, the Pennacook.

Eliot outlines three reasons for the extent of the dispersal of the language, first, because ‘the Massachusetts and Narraganset Sachems have held a very vast imperiu(m) over all parts’ (*Powicke 1931b*, p. 454); second, because Narraganset Bay is ‘the principal, if not the only place in all this country, where y^t shellfish is found, of w(hi)ch shells they make their jewels and mony of great valewe’ (*Powicke 1931b*, p. 454); and third, the geographical location of the Massachusetts and Narraganset territories abutting the Narraganset Bay (*Powicke 1931b*, p. 455).

This is an extremely detailed and remarkably accurate description of the extent of the eastern branch of the Algonquian family of languages. The Eastern Algonquian sub-family covers languages whose extent goes from the Canadian Maritimes in the north to North Carolina in the south, and it is divided into Abenakian, Southern New England Algonquian, Delawaran, Nanticokan, Powhatan, and Carolina Algonquian. Southern New England Algonquian (SNEA) is itself subdivided into Massachusetts, Narragansett, Nipmuc, Quriipi-Naugatuck-Unquachog, and Mohegan-Pequot-Montauk. All of SNEA languages are to a large extent mutually intelligible, which is reflected in Eliot’s reports of his experiences in his letters, and the fact that his translations were accessible to so many people, though Massachusett shares most similarity with its closest geographical neighbors, Nipmuc and Narragansett (*Costa 2007*).

Modern commentators have given a variety of answers to the question ‘what language was it that Eliot was documenting?’ Gray calls the language ‘Algonquian’ (*2003*, passim), as does Kim (*2012*, passim), and Morgan names it ‘Algonkian’ (*1986a*, p. 106), despite this not naming a single language but rather a family of languages. Miner in (*1974*) calls the language ‘Natick’ or ‘Natick-Narragansett’, which would identify it with one of the branches of Algonquian that went extinct in the middle of the nineteenth century. Kennedy too describes the *Primer* as ‘written in English and Natick’ (*1995*, p. 34). However, this appears to be mistaken; instead, we should identify the language with one called ‘Massachusett’ by many modern commentators (*Cogley 1999*, p. 119; *Goddard 1981*, fn. 1; *Goddard and Bragdon 1988*, pp. 492–493), spoken by the several communities whose territories included Roxbury and Boston and spread up and down the eastern and southeastern coasts of Massachusetts. This language, like Natick-Narragansett, came close to extinction in the nineteenth century, but – thanks in part to the documentary material provided by Eliot – has survived and is now spoken by around five hundred or so people as an acquired language, currently called Wôpanâak or Wampanoag. Following Dippold, who notes that ‘Wampanoag, the Native American language once spoken from Provincetown, Massachusetts, to Narragansett Bay, Rhode Island, has gone by a number of names, including Natick, Massachussee and Massachusetts. I use the term *Wampanoag* because it is the name preferred by the Wampanoag Nation and its members who are trying to revive fluency in Wampanoag’ (*2013*, fn. 1, emphasis in the original), in this paper, I will use ‘Massachusett’ to refer to the language at the time of Eliot, and ‘Wôpanâak’ when referring to the language as it is spoken today by members of the Wampanoag tribe.

3. The Contents of the *Primer*

The primer opens with Eliot’s definition of ‘logick’ as a rule (*Eliot 1904*, p. 21):

where by every thing, every Speech is composed, analysed or opened to be known.

Table 1. Binding words.

and	<i>kah</i>
was	<i>mo</i>
or	<i>asuh</i>
again	<i>wonk</i>
but	<i>qut</i>
another	<i>onkatuk</i>
like	<i>netatup</i>
for	<i>newutche</i>
but	<i>webe</i>
as	<i>neane</i>
in	<i>ut</i>
so	<i>nemehkuh</i>
the	<i>ne</i>
for this cause	<i>newaj</i>
is it	<i>sun</i>

Anomayag ne kukkuhwheg, ne nashpe nishnoh teag, kah nishnoh keketw kaonk, moowamaw, kah kogáhkenaanumowaw, asuh woshwunumowaw wahtamunak.

This definition of logic illustrates why Eliot would think it important for the indigenous people to learn logic; for if it is the rule that teaches one how to know speech, then it is fundamental to understanding Christian theology (we return to this point in §§4 and 5).

Eliot then begins the text by dividing logic into three parts. The first comprises what Eliot calls ‘single notions’ (*siyeumæ wahittumowash*) (Eliot 1904, p. 22). Examples of the ‘single notions’ that he gives (Eliot 1904, p. 23–24) include ‘God’ (*God*), ‘created’ (*ayum*), ‘in beginning’ (*weskekutchissik*), ‘heaven’ (*kesuk*), ‘earth’ (*ohke*), ‘not formed’ (*matta kukkenauuneunkuttinno*), ‘nothing in it’ (*monteagwuninno*), ‘darkness’ (*pohkennum*), and so on.

The second part of logic is how ‘bindingly to compose Notions, to make every kinde of Proposition’ (*moappissue mochteauunat wahittumowukish, ayimunate nishnoh eiayne pakodtittumowonk*) (Eliot 1904, p. 22). Eliot gives as examples of ‘binding words’ the words in Table 1 (1904, p. 24); other conjunctives are outlined in the *Grammar* (1666, p. 22), including causatives, disjunctives, discretives, suppositives, exceptives, diversatives, and conjunctions of possibility and of place. What is most striking, from a logical point of view, about the list provided in the *Primer* isn’t even commented on there, but the eagle-eyed reader will note: *there is no copula*. But Eliot was familiar with this fact—‘a feature of Massachusetts which is different from Indo-European languages’ (Guice 1991, p. 129), for he had discussed it in his *Grammar* (1666, p 15):

We have no *compleat distinct word* for the *Verb Substantive*, as other *Learned Languages*, and our *English Tongue* have, but it is under a *regular composition*, whereby *many words* are made *Verb Substantive*.⁵

Considering the centrality of the copula in European languages for forming the sort of copular propositions that make up syllogisms, it is surprising that this lack is not mentioned at all in the primer; but then, Eliot is trying to give a *practical* rather than *theoretical* account

⁵ Eliot (1666, p. 16) identifies three types of composition. The first is ‘made by adding any of these Terminations to the word, yeuow, aow, oow’. This construction is used with nouns, adnouns [i.e. adjectives], and adverbs, and one example he gives is one that shows up in examples in the *Primer*: *mattayeuowutch* ‘let it be nay’. The second sort turns ‘animate Adnouns’ into third-person verbs and the third sort turns active verbs into passive verbs.

Table 2. Theoretical terms.

affirmative	<i>nōowae</i>
negative	<i>quenōowae</i>
true	<i>wunnomwae</i>
false	<i>pannōowae</i>
general	<i>wameyeue</i>
special	<i>nanasiyeue, nanahsiyeue</i>
single	<i>pasukōe</i>
compound	<i>neesepiskue</i>

of logic—a fact we do well to remember. If Massachusetts can form propositions without an explicit copula, then that’s good enough for him.

Using the basic notions he gave as examples and the binding words in Table 1, Eliot renders the beginning of Genesis in propositional format, translating four statements into the Massachusetts vocabulary he has defined and identifying properties of the resulting propositions (1904, pp. 25–26); the sentences are either (1) ‘affirmative general propositions’ (*nōowae wameyeue pakodtittumōonk*) or (2) ‘negative special compound propositions’ (*quenōowae nanasiyeue neesepiskue pakodtittumōonk*). Clearly these proposition types are not meant to be exhaustive; these are simply the two types that are exemplified in Genesis 1:1–2. But they do show that Eliot is conscious of the importance not only or merely of rendering Biblical propositions into Massachusetts, but of understanding the theoretical properties of these propositions, for that is what is relevant when understanding how individual propositions fit together into a wider discourse. The theoretical vocabulary he uses is summarized in Table 2.

The third component of logic is how to take the propositions resulting from combining basic notions with binding words and combine *them* into larger pieces of discourse or speech, that is, how ‘to compose Propositions, by bonds, binding words, to make a Speech’ (*moéhteauunat pakodtittumōongash, nashpe moappissuōngash, kah moappissue kuttōwōngash, ayimūnat keketō kontamōonk*) (Eliot 1904, p. 22). The types of speech that can be produced in this way are twofold. The first is ‘Syllogistical, arguing’ (*oggulanukōowae, wequohōonk*) (Eliot 1904, p. 23). The second is ‘Large, orderly discourse’ (*sepapwoaeu kohkōnumukish keketōkaōngash*) (Eliot 1904, p. 23). These two types are discussed in more detail in part 3 of Eliot’s text.

This concludes Eliot’s overview of the three parts; he then discusses each part in more detail, as we will too in the next section. A few notes before we do so:

This tripartite account of logic that Eliot uses is traditional, even if his verbiage isn’t exactly. The division of the discipline of logic into (1) the study of terms, (2) the study of propositions, and (3) the study of arguments is a historical trope that was already well established in the Middle Ages⁶ and gives us an insight into the logical milieu Eliot was educated in (more on this in §4), and Eliot’s division far more resembles this scholastic division than it does the Ramist tripartite division into argument, axioms, and disposition (contra *Kennedy and Knoles 1999*, p. 152).

On the other hand, his choice of ‘Basic Notions’ and ‘binding words’ is startlingly atypical, although explainable: As we noted above, it’s obvious that the basic notions he gives as examples were chosen because they are the vocabulary of the opening lines of Genesis;

⁶ Cf. the thirteenth-century textbooks of William of Sherwood (1966), Peter of Spain (2014), Lambert of Auxerre (2015), and Roger Bacon (2009).

these words would be both familiar with the Praying Indians who were the recipients of his earlier translation of the Bible into their language, and also relevant to his overall project of making Biblical truths known to them.

The same can be said of his choice of binding words, but here the matter is more complex: While logicians are generally happy to allow the so-called ‘non-logical’ vocabulary to vary according to specific context or application, it is much more problematic to vary the so-called ‘logical’ vocabulary. The words that Eliot has chosen are a strange collection; some of them are clearly typical logical connectives, such as the copulatives ‘and’ and ‘or’, and others fit within a broader logical vocabulary, such as the quantifier ‘another’ or the inference markers ‘for this cause’, ‘so’, etc. We discuss this further in §3.2.

3.1. Basic Notions

Eliot says that the basic or single notions come in pairs ‘which enlighten each other, & them only’ (*nish wequohtoadtumooash*, & *nish webe*) (1904, p. 26), and these pairs are divided into two types, those which ‘agree together’ (*weetooadtumooash*) and those which ‘dissent from each other’ (*chachaubooomooash*) (1904, p. 27). By way of illustration he gives twenty ‘notional pairs’.⁷ Examples of agreeing or consenting pairs include ‘subject’ (*noh wadchanuk*) and ‘adjunct’ (*nene wadchiik*), and ‘whole’ (*mamusseyeuooouk*) and ‘parts’ (*chaupag*). Sometimes what is paired is not two notions themselves but instead a pair of things picked out by the notion, e.g. ‘equals in quantity’ (*tatupukkukqunash*), ‘equals in number’ (*tatupehtashinash*), and ‘like in quality’ (*tatupinneunkquodtash*) (Eliot 1904, p. 28). Dissenting pairs are similar; sometimes they are pairs of dissenting notions, such as ‘more great’ (*nano mohsag*) and ‘then that less’ (*onk ne peasik*), and ‘lesser’ (*nano peasik*) and ‘then that greater’ (*onk ne mohsag*) (Eliot 1904, p. 30). And sometimes they are single notions that pick out pairs of opposing things, such as things that are ‘unlike’ (*mattatupinneunkquodtash*) or ‘diverse’ (*chippinneunkquodtash*) or pairs that are ‘contraries’ (*penooanittumooash*) or ‘contradicters’ (*pannoowohtoadtumooash*) (Eliot 1904, p. 30).⁸

Each pair of consenting or agreeing terms Eliot considers in turn, though it is only the pair ‘cause/effect’ that is given a thorough treatment, covering nearly 7 pages in Eames’s edition (1904, pp. 31–38). Eliot provides a typology of the different types of causes, each illustrated with various Biblical examples, mostly from Genesis or Exodus but some from the New Testament. The divisions he introduces, and the language he uses for each type, is given in Figure 1 (1904, pp. 31–38).⁹ Similar typological accounts are given of the other consenting pairs (Eliot 1904, pp. 40–44) but in much less detail and with fewer Biblical examples worked out.

The same approach is taken with the dissenting notions (Eliot 1904, pp. 44–47), unfortunately this time without *any* discussion, only examples given in the form of Biblical references – unfortunate because here is where we find the notions of ‘contraries, which argue with each other’ (*penooanittumooash*, *nish wequohtoadtumooash*) (Eliot 1904, p. 46) and ‘contradicters, which argue each other’ (*pannoowohtoadtumooash*,

⁷ By ‘notional pair’ we should understand ‘pairs of [basic/single] notions’ rather than ‘pairs in name only’.

⁸ At this point we might pause to marvel at Eliot who feels no compunction at introducing these highly technical pieces of logical vocabulary *without* definition and without even having introduced the concepts or vocabulary necessary to understand them, such as truth.

⁹ The first, fourfold division, is, of course, the four Aristotelian causes – formal, material, efficient, and final – under slightly different names.

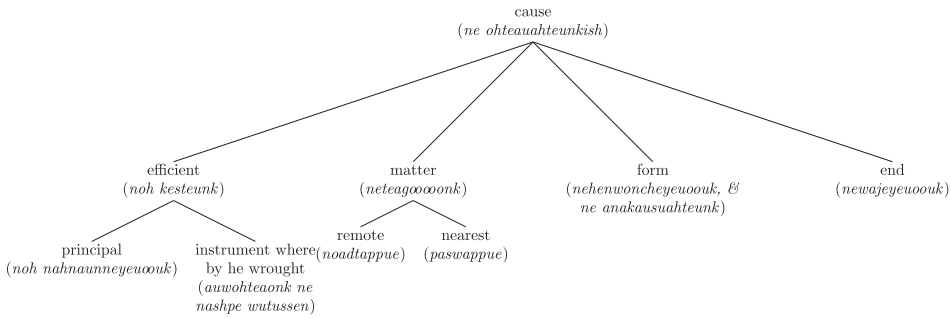


Figure 1. Typologies of causes.

nish wequohtoadtumooash) (Eliot 1904, p. 47), classic technical notions in logic which would have provided us with a clearer picture of how Eliot was using them and in what way he was trying to define them. Where we would have wanted commentary and explanation, we have only example. In fact, for the notion of ‘contradicters’, there is only a single Biblical references, to Acts 13:45, which only uses the word rather than defining it or illustrating it.¹⁰

3.2. Creating Propositions

Next, Eliot turns to the second part of logic which ‘teacheth us bindingly to compose Notions, to make every kinde of Propositions’ (*kukkuhkoo tomunkqun moappisue moehteauunat wahittumookish, ayimunat nishnoh eiyane pakodtittumooonk.*) (1904, p. 48). Propositions are ‘many fold’ (*moo cheke chippaiyeuash*) (Eliot 1904, p. 48), and can be divided into many types according to whether they are affirmed/negative, true/false, general/special, and single/compound (Eliot 1904, pp. 48–49). A summary of these terms and divisions is given in Table 2. These four pairs are all traditional and need little comment but this: Where Eliot uses ‘general’ we would modernly say ‘universal’ and where he uses ‘special’ we would modernly say ‘partial’ or (less accurately) ‘particular’; and the single/compound distinction makes it clear that Eliot is operating in a context beyond the pure Aristotelian syllogistic, allowing proposition combinations.

This is also clearly displayed when Eliot subdivides compound propositions into two categories: ‘conjunct propositions’ (*moehteau pakodtittumooonk*) which are bonded together with words such as *kah, wonk, netatup, newutch*, etc. (1904, p. 49), and ‘disjunct propositions’ (*chachaubenumooe pakodtittumooonk*) which are bounded together by ‘a disjoining word’ such as *asuh, qut, matta*, etc. (1904, p. 50). He gives John 9:3 ‘Neither he hath sinned nor his parents’ (*Matta yeuoh matchesu, asuh oohetuunguh*) as an example and provides an analysis of this proposition: It is a ‘negative, special, compound, disjunct proposition’ (*quenooae, nanasiyee, neesepiskue, chachaubenumooe pakodtittumooonk*) (Eliot 1904, p. 50). John 9:4–7 are analysed in a similar way.

¹⁰ ‘But when the lewes saw the multitudes, they were filled with enuie, and spake against those things which were spoken by Paul, *contradicting* and blaspheming’, King James Version (1611), emphasis added.

Despite having considered other binding words, such as quantifiers and causal or inferential markers, when he first introduced the three parts of logic (cf. Table 1), Eliot does not here discuss them any further.

3.3. Discourse

Instead, he turns his attention to the third part of logic, which is ‘bindingly to compose propositions to make a Discourse’ (*moappissue moehteauunat pakodtittumoongash ayimunnat keketoontamóonk*) (Eliot 1904, p. 54). As he noted earlier (Eliot 1904, p. 23), discourse or speech comes in two types: (1) ‘syllogistical’ (*oggusanukóowae*) and (2) ‘discursive’ (*sepapwoae*) (Eliot 1904, p. 55), also called (later) ‘methodicall’. We discuss each in turn, as Eliot does.

3.3.1. Syllogisms

Syllogistical discourse is made up out of three components: (1) ‘major proposition’ (*mohsag pakodtittumóonk*), (2) ‘minor proposition’ (*pawag pakodtittumóonk*), and (3) ‘conclusion inlightened, looked on’ (*wequossumóomóok, nauumóomóok*) (Eliot 1904, p. 55); this is orthodox, if perhaps a bit fanciful in the description of the conclusion. Furthermore, there can be at most three single notions contained in any syllogism: the ‘subject’ (*ne teag*), the ‘predicate’ (*ne kootnumuk*), and ‘the light, or Argument’ (*wequohtóonk, asuh ootsinnoóonk*) (Eliot 1904, pp. 56–57). The use here of ‘light’ and related concepts hearkens back to the Augustinian conception of divine illumination as expressed in the Thomist view that reason, ‘placed by nature in every man’ (Aquinas 1949, I.1), is the light which guides men towards knowledge. In this specific instance, the *wequohtóonk* is what would traditionally be called the *middle term*, that which links the major and the minor premise together, and which is missing from the conclusion. While it was not uncommon for Christian philosophers, especially in the Thomist tradition, and theologians to speak of the ‘light of reason’ (cf. Øhrstrøm et al. 2008, pp. 76), Eliot’s identification of this light with the middle term is atypical.

Syllogisms are divided into three forms: (1) ‘positive’ (*ponamoe*), (2) ‘suppositive’ (*channóowae*), and (3) ‘disjunctive’ (*chachaubóoe*) (Eliot 1904, p. 62) (see Figure 2).

3.3.2. Positive syllogisms

The positive syllogisms are further subdivided into three categories, depending on the arrangement of the terms (Eliot 1904, pp. 62–63):

(1) when the Propositions neither alike begin nor end, because the Argument is the Subject in the Major, Predicate in the Minor Proposition.

pakodtittumoongash matta netatuppe wajkutchissinuhhettit asuh wohkukquoshinuhettit newutche wequohtóonk teagóow ut mohsag ut, kah ne kootnumuk pawag pakodtittumoonganit.

This is what is otherwise known as the ‘First Figure’ (Eliot 1904, pp. 64–65).

(2) when both Propositions alike end; because the Argument is the Predicate in both Propositions.

naneeswe pakodtittumoongash netatuppe wohkukquoshinash, newutche wequohtóonk ne kootnumuk ut na neeswe pakodtittumóonganit.

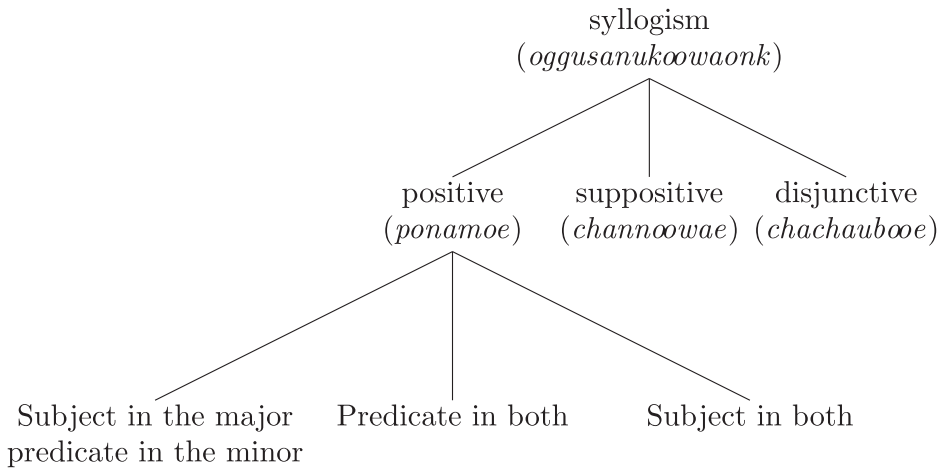


Figure 2. Types of syllogisms.

This is describing the traditional Second Figure (Eliot 1904, pp. 66–67).

- (3) when both Propositions alike begin, because the Argument is the Subject in both.
neeswe pakodtittumooongash netatuppe kutchissinuhettit, newutche wequohtoonk ne teagoo ut naneese pakodtittumoo onganit.

And this is, of course, the usual Third Figure.¹¹

Eliot illustrates the concept of syllogism through a series of four examples adduced in the service of giving an affirmative answer to the question ‘Their Infants Believers may they be Baptized?’ (*Uppeissesumoh wanamptogig, sun woh kutchessumóog?*) (1904, p. 56). An affirmative answer to this question is an affirmative general proposition, with ‘infants of believers’ (*uppeissesumoh wanamptogig*) as the subject and ‘may be baptized’ (*woh kutchessumóog*) as the predicate, and the ‘light or argument proceedeth from the Adjunct, Because the Promise belongeth unto them’ (Eliot 1904, pp. 56–57). In each syllogism, Eliot identifies the subject and predicate, and either refers to a Bible verse to support the truth of the premises or adduces another syllogism.

Another series of examples is given to illustrate John 9:16, where the Jews ‘falsely opposed Christ, saying, He came not from God, because he breaketh the Sabbath’ (*Jew-sog pannowae wutayeukkonouh Christoh, noo wahettit, Matta wutch oomoo Godut, newutche pohquenum Sabbath*) (Eliot 1904, p. 60). The syllogism given in support of this conclusion is (Eliot 1904, p. 61):

He that breaketh Sabbath-day cometh not from God. But this man Christ breaketh the Sabbath day. Therefore, &c.

Noh pohqunuk Sabbath-day matta wutch oomoo Godut. Qut yeuoh Christ pohquenum Sabbath day. Newaj, &c.

Eliot rejects this syllogism by denying the minor premise.

¹¹ In ignoring the so-called Fourth Figure, Eliot is following logical orthodoxy.

3.3.3. Suppositive syllogisms

Suppositive syllogisms are those where (Eliot 1904, pp. 68–69):

In the Major proposition the Argument is suppositively put to the thing proved. Then in the Minor Proposition the Argument is affirmed.

Ut mohsag pakodtittumwonganit wequohtoonk channowae ponamun ne woh wequohtauomook. Neit ut pawag pakodtittumwonganit wequohtoonk nowae ponamun.

There is no explanation of what is meant by putting the Argument suppositively to the thing proved; instead, he gives the following syllogism as an example (Eliot 1904, pp. 69–70):

- | | |
|--|---|
| (1) If Unbelief driveth us from God then we must beware of it. | (1') <i>Tohneit mat wunnamptamoo nk kutamaookunkqun wutch Godut, neit woh nutahqueteauun.</i> |
| (2) But Unbelief driveth us from God. | (2') <i>Qut mat wunnamptamoonk kutamaookunkqun wutch Godut.</i> |
| (3) Therefore we must beware of it. | (3') <i>Newaj woh nutahqueteauun.</i> |

From this, it is clear that suppositive ‘syllogisms’ are not syllogisms (in the narrow sense) at all but are instances of *modus ponens*.¹²

3.3.4. Disjunctive syllogisms

The description of disjunctive syllogisms that Eliot gives is readily familiar to modern logicians. A disjunctive syllogism is when (Eliot 1904, p. 71):

The Major Proposition disjunctively speaketh; then the Minor affirmeth one, denieth the other; or denieth one, affirmeth the other.

Mohsag pakodtittumwoonk chachaubowae kuttomook; neit pawag nowau pasuk, kah quenowau onkatuk; asuh quenowau pasuk, kah nowau onkatuk.

But what is fascinating here is that *none* of the examples that Eliot gives straightforwardly match his description; and in fact, on a superficial glance appear to involve fallacious affirmations of the consequent.

Consider the following example, drawing from Matthew 12:33¹³ (Eliot 1904, pp. 71–72):

- | | |
|---|---|
| Either make the tree good its fruit good, or make evil the tree his fruit evil. | <i>Asuh ayimook mehtug wunnegen kah ummeechummuonk wunnegen, asuh ayimook anit metug kah ummeechummuonk anit.</i> |
| But your fruit is evil. | <i>Qut kummeechummuonk anit.</i> |
| Therefore you are evil. | <i>Newaj kummatchetum.</i> |
| Or, But your fruit is good. | <i>Asuh, Qut kummeechummuonk wunnegen.</i> |
| Therefore you are good. | <i>Newaj koo eetum.</i> |

¹² Eliot’s use of ‘syllogism’ to broadly mean ‘type of argument’ is not uncommon for his period, however, so this is less a comment on his terminology and more a heads up to the reader that one shouldn’t necessarily think only of Aristotelian combinations of two categorical premises and a categorical conclusion when syllogisms are mentioned.

¹³ ‘Either make the tree good, and his fruit good; or else make the tree corrupt, and his fruit corrupt: for the tree is known by his fruit’, King James Version (1611).

On a superficial reading, it looks like this is of the form: ‘Either if your tree is good then your fruit is good or if your tree is bad then your fruit is bad; but your fruit is good, therefore your tree is good’, i.e.

$$\begin{array}{l} (Gt \rightarrow Gf) \vee (Bt \rightarrow Bf) \\ Gf \\ \therefore Gt \end{array}$$

which is both clearly not valid *and* doesn’t clearly involve any denial, which one would expect in typical instances of disjunctive syllogism. The two other examples that he gives (*Eliot 1904*, pp. 72–73; 73–74) show a similar pattern:

Either you are diligent, your field is clean,
or you are idle, your field with weeds
overgrown.

*Asuh kummenu kenitteáéinnu, kah
kutohteuk pahketeauun, asuh kussesegé-
namwaenin, kah kutohteuk mossonog
wuttittannekinneau.*

But your field is clean.
Therefore you are diligent.
Or, But your field with weeds over grown.

*Qut kutohteuk paketeauun.
Newaj kummenuhkinitteáenu.
Asuh, qut kutohteuk mossonog
wuttittannekineau.*

Therefore you are idle.

Newaj kussegenamwaenin.

and

Either you pray keep holy the Sabbath-day,
or you pray not, keep not holy the
Sabbath-day.

*Asuh kuppeantam kah kuppahketeauun
Sabbath-day, asuh matta kuppeantam, &
matta kuppahketeauun Sabbath-day.*

But you keep holy Sabbath-day.
Therefore you pray.
Or, but you keep not holy the Sabbath-day.

*Qut kupahkeateauun Sabath-day.
Newaj kuppeantam.
Asuh, qut matta kuppahketeauun
Sabbath-day.*

Therefore you pray not.

Newaj matta kuppeantam.

A closer look at these examples, as a collective rather than individually, though shows that the arguments are not nearly as bad as they may seem on the face. Each initial premise is structured not as a disjunction between two implications but rather between two conjunctions:

The tree is good and the fruit is good /

The tree is evil and the fruit is evil

(1)

You are diligent and your field is clean /

You are idle and your field is overgrown with weeds. (2)

You pray and keep the Sabbath holy /

You do not pray and do not keep the Sabbath holy. (3)

Importantly, in each of these pairs of conjunctions, each individual conjunct in one disjunction is the negation of one of the conjuncts in the other disjunction, giving something of this form:

$$(\varphi \wedge \psi) \vee (\neg\varphi \wedge \neg\psi)$$

The second premise then is affirming one of the conjuncts; but *because* each conjunct has a corresponding negation in the other disjunct, affirming one of the conjuncts is the same as denying another one of the conjuncts, so we *do* have a denial occurring in the second premise, even if the verbal structure of the argument makes it look like it's an affirmation.

But to deny one conjunct is to deny the whole conjunction, which forces the other disjunct to be true, which means *both* of the conjuncts must be true, leading to the seemingly problematic inference from one conjunct to another in a conjunction.

Put schematically, the argument form that all three of these examples instantiate is:

1	$(\varphi \wedge \psi) \vee (\neg\varphi \wedge \neg\psi)$	Assumption
2	ψ	Assumption
3	$\neg\varphi \wedge \neg\psi$	Assumption
4	$\neg\psi$	$\wedge E$, 3
5	ψ	Reiteration, 2
6	$\neg(\neg\varphi \wedge \neg\psi)$	$\neg I$, 3–5
7	$\varphi \wedge \psi$	DS, 1, 6
8	φ	$\wedge E$, 7

And this is valid.

3.3.5. 'Methodical' Discourse

The second type of discourse, methodical or discursive discourse, comes in two types: 'First orderly to lay together Notions & Propositions' (*Negonne kohkunumukish miyanumunat wahittumooash & pakodtittumooongash*) (Eliot 1904, pp. 74–75), and second, 'to analyse [and] open Propositions [and] Arguments. Also to open Propositions by single Notions, which by composed' (*kogahkenanumunat kah woshwunumunat pakodtittumooongash kah wequohtooongash. Wonk woshwunumunat pakodtittumooongash nashpe syeumoot wahittumooash, nish nashpe moehteauunash*) (Eliot 1904, pp. 75–76), and this, Eliot says, is what he most desires to teach the reader, 'whereby you may open the Word of God, [the] Bible' (*waj woh kooowshwunumwo wuttinnoo waongash Godut Bibleut*) 1904, p. 76.

What follows after this brief explanation is 17 pages (in Eames's reprint; in the original it is about 14 and a half pages) of such methodical discourse, entirely in Massachusett. Even without a translation, the structure of the discourse is clear: A Bible verse is cited, and then a first syllogism is extracted from the verse, followed by one, or sometimes two or three,

alternative syllogisms. The source verses cover a wide range across both the Old Testament (Psalms, Proverbs) and the New (Matthew, Romans, 1 Corinthians, 1 John, 1 Peter). With that, the text concludes.

4. 'Puritan Logic'

The logic primer is an extremely functional book, focusing on definitions and examples with very little in terms of explanation or theoretical background to provide context to the reader. Eliot in his introduction says that 'these few short *Logicall Notions* are onely for a Thrid [thread]' 1904, p. 19, and yet, even this one single thread leaves us with many questions: What (if anything) is distinctive about his text (beyond, of course, its linguistic distinctiveness)? How does it fit within the broader context that Eliot was educated and working in? Is it true, as some have claimed (*Miller 1939; Gray 2003*), that he was teaching the Indians 'Puritan logic'? What *is* Puritan logic – if it is anything at all?

To answer these questions, in this section, we begin with looking at the logical education Eliot himself likely received, whether as a grammar school student or after matriculating at Cambridge; it is only after we have answered this that we can compare what he learned with what he taught.

The dominant tradition in logic through the end of the fifteenth century was Scholasticism, typified by the thirteenth-century manuals of terminist logic of Peter of Spain, William of Sherwood, Roger Bacon, and Lambert of Auxerre (cf. fn. 6), and reaching its culmination in the works of such luminaries as William of Ockham, Jean Buridan, Marsilius of Inghen, and others of the fourteenth and early fifteenth centuries. The technical advances, often motivated by and directed at the solution of logical puzzles in the forms of sophisms and insolubles, which represented the pinnacle of the extra-Aristotelian developments of the Middle Ages, came under increasing scrutiny and ultimate rejection by the newly-bred Renaissance humanists. This rejection was motivated by at least two distinct factors. First, as Ashworth notes, Renaissance humanism 'turned attention away from those [advanced medieval] grammar and logic texts[...]. Late medieval logic texts struck humanists as clumsy, even barbaric, and far too technical in their approach' (2020, p. 312). The humanists instead preferred a return to the original Aristotle, as well as to newly discovered Greek commentators on Aristotle, who presented a more 'purified' approach, unsullied by Scholastic wranglings (*Ashworth 2020*, p. 312). The second factor was 'the idea that an argument need not be valid in its form to be psychologically persuasive' (*Sgarbi 2013*, p. 151), which allowed rhetoric to take up a more central place in the practice and teaching of logic—in a more negative characterization of humanism, 'the discipline of logic[...] was reduced to a mere rhetoric' (*Sgarbi 2013*, p. 152). By the middle of the sixteenth century, humanism had become 'the primary cultural movement in Britain' (*Sgarbi 2013*, p. 151).

The treatise that most typified this humanist approach to logic was Rudolph Agricola's *De inventione dialectica*, written around 1480 and published in 1515 (*Jardine 1988*, p. 181). This book focuses on what can be called 'applied argumentation', the invention (that is, discovery) of arguments for use in particular circumstances, rather than on the evaluation of abstract forms of arguments and 'gave wide currency to ancient theory that the two parts of dialectic are invention and disposition' (*Howell 1961*, pp. 49–50). Agricola's works were widely circulated and revised, especially in England. The earliest English response to Agricola (*Howell 1961*, pp. 49–50), John Seton's *Dialectica* of 1545, 'circulated in manuscript for

a long time among students and professors at Cambridge before its publication' and was 'entirely based on Agricola's logical system' (Sgarbi 2013, p. 152).

The importance of Agricola and his successors, in contradistinction to the earlier Scholastic logicians, is underscored by Henry VIII's Royal Injunction of 1535, which required (clause 7) that (Ashworth 2020, p. 317):

students in arts should be instructed in the elements of logic, rhetoric, arithmetic, geography, music, and philosophy, and should read Aristotle, Rodolphus Agricola, Philip Melancthon [sic], Trapezuntius, &c. and not the frivolous questions and obscure glosses of Scotus, Burleus, Anthony Trombet, Bricot, Bruliferius, &c.

We can also find Agricola's central placement in specific guidance in the statutes of individual Cambridge colleges, such as the 1551 statutes of Clare Hall which required the reading of one of Aristotle's *Topics*, *Analytics*, or *Sophistical Refutations*, or Sturm's *Dialecticae partitiones*, or Agricola's *De inventione* in one block of study and Porphyry's *Isagoge* or Aristotle's *Categories* or *On Interpretation* in the next. Similarly, the 1560 statutes of Trinity required the teaching of five different topics: (1) an elementary treatise in dialectic; (2) Porphyry, the *Categories*, or *On Interpretation*; (3) the *Topics*; (4) Agricola, the *Sophistical Refutations* or the *Analytics*; and (5) other Aristotelian texts (Ashworth 2020, p. 318). Elizabeth I's statutes of 1570 narrowed the curriculum further: Rhetoric was to be taught before dialectic, and dialectic should be taught through either the *Sophistical Refutations* or Cicero's *Topics* (Ashworth 2020, p. 318). The emphasis on the practical use of language and argumentation, and also on the use of *beautiful* or *persuasive* language and argumentation, is clear.

From these statutes and syllabuses, we can see that the logic curriculum was not *anti-Aristotelian* but rather *anti-Scholastic*, and in fact, 'for the most part, the logic studied at Cambridge was genuinely Aristotelian, as one gathers from the notebooks and from such manuals as Keckermann's *Systema Logicae*, Burgersdicius' *Institutionem Logicarum Libri Duo*, Heërebord's *Annotamenta*, and Eustachius of St. Paul's *Summa Philosophiae Quadripartia*. Still, it was Aristotle resystematized and simplified' (Costello 1958, p. 45).

Complementing this humanist wave was another wave of distinctly Protestant logic: the logic of the French Protestant Petrus Ramus (Pierre de la Ramée, 1515–1572). Ramus's work was deeply indebted to Agricola, and Agricola's predecessor and fellow humanist Lorenzo Valla, via the teachings of Johannes Sturm (Howell 1961, p. 149; Jardine 1988, pp. 184–185; Kennedy and Knoles 1999, pp. 148–149). But Ramus rejected the Agricolan entwining of logic and rhetoric (Howell 1961, p. 148; Ong 1953, p. 239), and also rejected the 'infra-logical, psychologically elusive play taken into account by the Aristotelian rhetoric' (Ong 1953, p. 239). Instead, his focus was on the simplification of logic to its barest bones.

According to Rechten, historians Howell and Ong 'helped establish the common contemporary view that Ramism impoverished logic and rhetoric as arts of communication' (1987, p. 188). According to Knoles and Kennedy, 'Ramist logic was not so much a distinctive way of thinking as it was a pedagogical strategy that was influential in a limited range of situations from the late sixteenth to the late seventeenth century' (Kennedy and Knoles 1999, p. 148). The basic idea is that of the five traditional parts of rhetoric (ornamentation; delivery; *inventio* 'the recovery and derivation of ideas'; *dispositio* 'their organization'; and memory), Ramus assigns only the first two to rhetoric, assigns the second two to logic alone, and replaces the fifth with 'mental space' (Rechten 1987, p. 188). This impoverished

both logic and rhetoric by stripping rhetoric of its connection to knowledge and truth, and removing logic from the contextual space in which it had previously been located: conversation. Further, on Ong's account, by removing logic from the realm of conversation, Ramus turned logic into a 'silent thought process' divorced from oral communication and tied to typography, what both Rechten and Ong call the 'hypervisual' way of thinking (Rechten 1987, p. 189).

This new approach to logic 'made its appearance in England in fifteen-seventies and ended the reign of scholastic logic as we see it' (Howell 1961, p. 29; Miller 1939, p. 118). Ramus's work was extremely influential, particularly in Cambridge (Ashworth 2020, p. 310). In the late 1560s or early 1570s, Laurence Chaderton lectured on Ramus's logical works at Cambridge (Rechten 1979, p. 241), and the translations into English of the *Dialecticae Libri Duo* by Roland MacIlmaine (1574) and Dudley Fenner (1584, White 2011, p. 33) helped to cement Ramus's popularity. (Fenner's translation was published anonymously in Middelburg, where he lived 'after being expelled from Cambridge for Puritanism' (Hill 1997, p. 30), and then died there in 1587, age 30 (Collinson 2006, p. 119)).

Which brings us to the final thread woven into the context in which Eliot was educated. The sixteenth and seventeenth centuries saw a shift not only in *what* was taught but *how* it was taught, at English and Scottish universities. Teaching at Oxford and Cambridge moved from being university-wide towards narrower, college-based teaching structures (Ashworth 2020, p. 309), meaning that the impact of a student's college became more significant in this period. Eliot, as we saw above, was an alumnus of Jesus College, Cambridge. After the English Reformation, Jesus College established itself as an important training site for Protestant clergy, and over the course of the sixteenth century the influence of the Puritans in the Cambridge colleges (with the exception of Caius) grew, so that by the end of the sixteenth century 'almost every college at Cambridge displayed some evidence of Puritan sentiment' (Bondos-Greene 1982, p. 198). In Jesus College in particular, by the time of the Civil War (after Eliot had already migrated to America), there was a strong Puritan contingent (Anonymous n.d.a). By the seventeenth century, Ramism in England was a well-established and respectable tradition of inquiry and pedagogy (Kennedy and Knoles 1999, p. 150).

The picture that we have, then, is of competing accounts of logic, the old Scholastic-Aristotelian, with its focus on terms, propositions, and arguments (or discourse), and the new logic—still 'Aristotelian' but with a shift in emphasis—witnessed in two forms, humanist and Ramist, with its focus on the division into invention and judgement. If we are to identify a peculiarly or distinctively 'Puritan logic' that is at the heart of Eliot's approach, it is going to be founded on either the humanist tradition (e.g. Agricola and his school) or Ramus. Commentators discussing Eliot's textbook locate the *Primer* squarely in the Ramist tradition, and often speak interchangeably of 'Puritan logic' and 'Ramist logic'.

There remains a question whether we should uniquely identify Ramist logic as *Puritan*, in a distinctive or exclusionary sense. Many times when scholars speak of 'Puritan logic' or, e.g. the 'binary logic of Puritanism' (cf. Gray 2003, p. 54) are not actually talking about logic as a formal discipline, but are rather using the term as a synonym for 'reasoning' or 'system of thought'. And while the Puritans certainly took up Ramist and post-Ramist ideas, especially those who went to the New World (Morgan 1986a; White 2011, p. 30), there

does not appear to be anything *doctrinally* to separate *Puritan-Ramism* from *Protestant-Ramism*, especially not at the time that Eliot was a student at Cambridge (White 2011, pp. 33, 35, 49). This is true even if Ramism was strongly connected to what Reid calls ‘radical Protestantism, be it Puritan or Presbyterian’ (2011, p. 6).

Even setting apart this question of whether there is anything distinctly Puritan (as opposed to Protestant) about the adoption of Ramist logic, we can still ask whether Eliot’s *Primer* displays any distinctively *Ramist* characteristics.

On the one hand, a significant number of historians have claimed that that the *Primer* is Ramist. Miller claims that the *Primer* is an abridged translation of one of Peter Ramus’s writings (Cogley 1999, pp. 123–124): ‘The book which Eliot translated for the Indians was Ramus’ *Dialecticae* reduced to a basic simplicity’ (1939, p. 120), while Gray argues that Eliot’s book ‘is a pared-down version of [Ramus’s] logical structure’, describing it as ‘a step-by-step approach to Ramean logical and syllogistical [sic] reasoning’ (2003, p. 136). Kennedy calls the *Primer* ‘a chopped-up Ramist logic [which] reveals the extent to which Puritans emphasized logic and favored its Ramist form before the mid 1680s’ (1995, p. 33, and in later work he (along with Knoles) identifies Eliot’s textbook as an example of ‘the new England penchant for humanistic reductionism’ (1999, p. 151). Salisbury joins such commentators when he describes the *Primer* as ‘based on the *Dialecticae* of Petrus Ramus’ and reconciling ‘Ramist logic with Puritan piety’ (1974, p. 45). Guice, when discussing Eliot’s *Grammar* (rather than the *Primer*), argues that Eliot’s definitions of ‘logic’ and ‘rhetoric’ in that text ‘show a strong Ramistic pattern’ (1991, p. 126), and argues that this works show Ramist influences, ‘for example, Eliot’s heavy reliance on a form of binary classification of features of grammar[...] in real contrast to Aristotelian practices’ (1991, pp. 127–128).

On the other hand, Cogley notes that ‘the linguists disagree as to how Ramist in influence the work is’ and that ‘Miner and Guice have explained that Eliot’s *Logick Primer* was an original composition’ (1999, pp. 123–124). The way to solve these competing claims is to take a closer look at the actual contents of the *Primer*. So let us take this closer look at the distinctive features of the *Primer*, to see how Ramist—or not—they are, and also at the distinctive features of Ramist logic, to see whether they are present in Eliot’s *Primer*. Doing so shows just how *un-Ramist* it is:

- (1) Miller’s claim that the book is a reduced version of the *Dialecticae* is simply false, and can only be explained by attribution to Miller of a fundamental ignorance of both the contents of the *Dialecticae* and the *Primer*. For even the most superficial review of both makes two things clear: First, that the contents of the two diverge radically; second, that if any part of the *Primer* is a translation, it is from Massachusetts into English and not vice versa (Miner 1974, fn. 16).
- (2) According to Morgan, Ramus sought ‘to reduce dependence on the syllogism’ (1986a, p. 106). Eliot, on the other hand, is focused almost exclusively in giving his students the tools they need to build syllogisms. This makes Eliot’s treatise very *un-Ramist* indeed.
- (3) As noted above, Guice sees clear Ramist influence in the *Grammar*, including in that work’s definitions of both logic and rhetoric: ‘The laying of Sentences together to make up a Speech is performed by Logick[...] The adorning of that Speech with Eloquence

- is performed by Rhetoric' (*Eliot 1666*, p. 5). But the definition of logic in the *Primer* diverges from this Ramist definition (cf. the definition quoted at the start of §3).
- (4) Given the emphasis that Rechten and others have given to the typographical elements of Ramist and/or Puritan thought (*Rechten 1979*, p. 236), we can clearly see one way that Eliot's work deviates from that 'norm'. The only typographically distinctive element of the original 1672 printing is the interlinear structure required by the bilinguality of the text. Most conspicuously, the binary classification strategy that is seen as the hallmark of Ramus's pedagogical strategy (*Kennedy and Knoles 1999*, p. 149; *Miller 1939*, p. 132; *Rechten 1979*, p. 239; *Rechten 1987*, p. 207; *White 2011*, ch. 2) is only rarely adhered to in the *Logick Primer*, as can be seen from the tree diagrams provided in the previous section.
 - (5) Supposing that Ong, Howell, and Rechten have the right of it, in their account of Ramus's effect on logic, this is further evidence that Eliot's *Logick* is not particularly Ramist, as there is little of silent reflection 'not intended to direct an inner struggle for truth' (*Rechten 1987*, p. 189) here; instead, the proselytizing, and hence essentially interpersonal and dialogical, purpose of the book is continually foregrounded.
 - (6) There is no trace at all of that most important sixteenth-century English division of logic into *inventio* 'invention' and *iudicium* 'judgement' or 'disposition' (cf. *Howell 1961*, p. 15). Both Agricola and Ramus emphasize the importance of 'invention', that is the study of the *Topics*: and yet, there is no trace of the *Topics* in Eliot's work (cf. *Miner 1974*, fn. 16).
 - (7) Further, there is nothing in Eliot's work of the Ramist *lex veritatis*, *lex justitiae*, or *lex sapientiae* (cf. *Howell 1961*, pp. 150–151), or is there any mention of 'Ramus' characteristic definition of logic as the art of 'disputing well' (*Miner 1974*, fn. 16).
 - (8) While it is true that Eliot's book is sparse and spare, focusing on examples rather than on precise definitions and details, this simplicity is the only thing it shares with Ramist treatises. One can certainly take the simplicity as evidence that this book belongs in the Ramist tradition, but given that this is pretty much the *only* shared characteristic, it might behoove us to consider an alternative explanation for the simplicity of his text, namely: The difficulty of expressing the complex ideas of Aristotelian logic in the Massachusetts language.
 - (9) Finally, there is nothing like the 'Puritan logic' that some authors locate in Puritan sermons of the time (*Rechten 1979*) in Eliot's work, either.

In addition to these points, Eliot's work is in stark contrast to the works of other New England Puritans, which *were* clearly and overtly Ramist. In many American Puritan works, 'the theses followed in the order of topics set forth by Ramus, employed his phrases and catchwords, used terminology in the peculiar senses he had given it, defended his most controversial positions' (*Miller 1939*, p. 121)—none of which is found in the *Primer*. As Kennedy and Knoles demonstrate, 'the American logics were overwhelmingly reduced to bare essentials. The most important quality was their simplicity. Increase Mather's *Catechismus Logicus* and the other Ramist logics written in new England are examples of a provincial partiality for these qualities of Ramist logic' (*Kennedy and Knoles 1999*, p. 151). There is also little overlap, in either content or style, between Eliot's *Primer* and the *Catechismus Logicus* (*Kennedy and Knoles 1999*; *Mather 1999*).

What we see instead is a picture of traditional Aristotelian logic, with its division of logic into three parts: Terms, propositions, and discourse (*Miller 1939*, p. 122). Discourse is separated into ordinary and syllogistic, a division which Miner describes ‘quite unlike a Ramist work’, and ‘the terminology of syllogistic forms is Aristotelian, not Ramist’ (*Miner 1974*, fn. 16). Additionally, distinctive features of the *Primer*, such as Eliot’s use of ‘the light’ (cf. §3.3.1), find no antecedent in Ramus. Instead, if we compare the contents of the *Primer* to the contents of one typical mid sixteenth-century student notebook found in a Cambridge manuscript, we see significant similarities (*Costello 1958*, p. 47):

The notebook is arranged according to the threefold operations of the mind: first, the simple idea or concept; second, judgment, where two concepts are joined to form a proposition; and third, reasoning, where two or more propositions are so linked as to arrive at a conclusion.

According to Costello’s descriptions of the content of this notebook, concepts are divided into *nomen* and *verbum*; judgment includes an emphasis on opposing, equipolating, and converting propositions; and argumentation is divided into two, *a priori*, or syllogism, and *a posteriori*, or induction or example (*1958*, pp. 47–49). While this is not a complete match for Eliot’s contents, the similarity is much, much stronger than with any Ramist text.

Despite all this, there is a broad sense in which Eliot’s program *is* thorough-goingly Protestant. Even if he has not adopted the specific logic favored by the Protestants, Puritans included, he did take up their distinct view of the utility of logic: ‘Protestantism was, in one sense, an appeal to logic for the arbitration of belief, since logic alone could interpret the Bible’ (*Miller 1939*, p. 113). This is pretty much the closest that Eliot comes to Ramism, in his logic: He, like Roland MacIlmaine (*Rechtien 1987*, p. 205), believed that that scriptural text is there to be interpreted, and logic is a tool for this interpretation. (Eliot was not alone in his belief in the utility of logic for scriptural exegesis, especially in New England where the intellectual cultural was ‘customarily described as “theological”, but in practice it was apt to be merely logical’ (*Miller 1939*, pp. 114–115).) This exegetical approach can also be seen in the other aspect in which Eliot’s work *is* clearly in the Ramean tradition, namely, in his extensive use of scriptural examples instead of non-scriptural ones. This use of Biblical examples is *not* found in Ramus’s work; but it *does* follow Dudley Fenner’s translation of Ramus, which replaced all of Ramus’s classical references with Biblical ones (*Morgan 1986b*, p. 109). This is part of what Ramist logic more palatable for Puritans – but one would also expect Eliot to have done this even if he wasn’t influenced by Fenner, given the application to which he intended his students to put their knowledge of logic.

5. Colonization and Linguistic Conservation

In the foregoing, we have focused on a narrow view of the contents of the *Primer* and how these contents related to Eliot’s wider context – predominantly English and Puritan.

In this section, we draw back and consider the larger picture. On the face of it, the *Primer* is one small part of a much, much larger endeavor, one designed to provide a written form to a language that had hitherto had none, and to organize it according to sensible grammatical rules, taking the empirical data at face value rather than trying to shoehorn the language into something familiar from Europe and the East; and a project which had a tremendous impact on the language’s subsequent history. Due in no small part to Eliot’s efforts, the Massachusetts language is one of the earliest and best documented languages

of the indigenous peoples of the east coast of North America, and one of the only eastern Algonquian languages whose descendant is still spoken today. Eliot's translation of the Bible into Massachusett was not only the first translation into an indigenous American language, but it was also the first one into a language which had hitherto had no written form. The introduction of an alphabet and orthography for the language allowed not only translations of English texts but also that language to be recorded by native speakers, through such works as the *Massachusetts Psalter* (1709) and documents collected in *Native Writings in Massachusett* (Goddard and Bragdon 1988). As a result, 'Wampanoag is in the enviable position of having some of the best early records in North America' (Ash et al. 2001, p. 29), and when Jessie Little Doe Baird [also, Fermino] began the Wôpanâak Language Reclamation Project, to 'return language fluency to the Wampanoag Nation as a principal means of expression' (Anonymous n.d.b.), there was a wealth of material for her to work with. Guice, writing only thirty years ago, confidently described Massachusett as 'a now-dead language from an almost-dead branch of a major Amerindian language family' (1991, p. 134); with the work of Baird and the WLRP, this description is no longer accurate. Seen from this angle, both Eliot's project and its results were an enormous success.

On the other hand, one cannot ignore the proselytizing and colonial context in which he was working. His goal, first and foremost, was to 'civilize' the local indigenous people, and then to Christianize them (Rex 2011; Salisbury 1974), and this goal was to be achieved through language. His linguistic work was wholly directed towards this end. As Eliot says in a letter to Baxter in 1669, 'And all p'ts w(hi)ch receive the word of God, and pray, doe readily understand the Bible, and catechisme, and other books; and these books will be a meanes to fix, and extend, this language' (Powicke 1931b, p. 454). The codification of theological and pedagogical material in Massachusett was not merely for the spiritual benefit of the indigenous peoples; language is also an incredibly strong imperial tool, imposing order and structure on the lands and people to be subjugated (Harvey and Rivett 2017, p. 449). One cannot separate the linguistic work from the imperial work, here: 'Eliot's evangelical approach to his religious translations, as well as his language and logic primers, reveals assumptions of cultural and religious superiority which are typical of New England missionary-colonisers' (Gray 2003, p. 119). Furthermore, the introduction of writing systems can also have a homogenizing effect – which was, no doubt, the aim of the early colonists who 'had hoped to impose a standardized alphabet on all Native peoples' (Harvey and Rivett 2017, p. 443) (this hope was dashed).

By many measures, these conversion efforts were extremely successful: 'By 1674, only one family of 300 or so Wampanoag families [on Martha's Vineyard] were not practicing the Christian religion' (though this significantly surpassed the number of converts on the mainland) (Bouck and Richardson III 2007, p. 12), and Eliot's linguistic project was also an extremely successful tool in a broader colonial project.

But fixing a language in this way was also to kill it. As Rivett notes, 'Eastern Algonquian languages [of which Massachusett is one] are commonly believed to be the language group most permanently destroyed through European contact[...]scholars have amply documented the catastrophic impact of linguistic colonialism in North America' (2014, p. 554); 'by 1823 only six Wampanoag could speak their language and in 1821 Zachariah Howwoswee (1736–1821), the last preacher using Wampanoag in his sermons, died. He was also the last Wampanoag who could read publications written in Wampanoag' (Bouck and

Richardson III 2007, p. 12). Language loss is itself an intrinsic evil (just as ‘language retention is a human rights issue’ (*Hinton 2001*, p. 5)); but languages are not lost in isolation from the rest of the culture of the speakers. It is ‘part of the loss of whole cultures and knowledge systems, including philosophical systems, oral literary and musical traditions, environmental knowledge systems, medical knowledge, and important cultural practices and artistic skills’ (*Hinton 2001*, p. 5).

As Hinton notes, ‘written documentation freezes and decontextualizes language and language arts’ (*2001*, p. 241), something that we see exceptionally clearly in the *Primer*. How many of these words did Eliot construct in an attempt to convey an unfamiliar concept? How many of the words were already common currency in the Massachusetts language? How could we even begin to answer these questions? We lack adequate context, both within the book itself, given the lack of self-reflective discussion in the text, and outside of it, as there is nothing comparable to compare it to (and even if there were, it would itself be written and hence face the same issues of fossilization).¹⁴ Any attempt to begin to answer these questions can only be undertaken in conjunction with the people who are closest not only to the language itself but also its cultural context, that is, members of the modern-day Wampanoag tribe; doing so is part of planned future work stemming from the current paper.

Written documentation also leaves us with nothing about the pragmatics of the language, or what we might call the language *in its use*, a crucial aspect of the deployment of logic in the seventeenth century. In the end, ‘we do not save a language by recording it; we preserve it, like a pickle’ (*Hinton 2001*, p. 241)–and pickling preserves precisely *because* it creates an environment where new growth cannot occur.

If we are to celebrate the survival of the Wôpanâak language through the efforts of the colonizer Eliot and his successors, we must at the same time recognize that the colonizers were also the cause of its doom. We cannot make the inference from ‘Wôpanâak can be reclaimed today because of the work of colonizers in the seventeenth century’ to ‘Without the work of colonizers in the seventeenth century, Wôpanâak could not have been reclaimed’: The correct inference is ‘Without the colonizers, there would have been no need for the language to be reclaimed’.

Acknowledgments

Thanks to Jo Edge and Ben Pope who helped me obtain the two articles from the *Bulletin of the John Rylands Library* and to Andrew Aberdein who alerted me to (*Kennedy 1995*). Earlier versions of this paper were presented at the CUNY Logic & Metaphysics Workshop, the Nordic Logic Colloquium, the Southern Illinois University Logic Seminar, the Durham Philosophy Seminar, the Philosophical Association of the Philippines World Logic Day, and the Australasian Association for Logic, and I’m grateful to the lively discussions that each of these audiences generated. Finally, I’d like to thank my disability support worker, Dan Hamilton, for his assistance in preparing the manuscript for final submission.

ORCID

Sara L. Uckelman  <http://orcid.org/0000-0002-0719-371X>

¹⁴ Some attempts to answer some of these questions with respect to the vocabulary necessary to translate the Bible can be found in *Silverman (2005, pp. 159–160)*.

References

- Anonymous. 1709. *The Massachuset Psalter Or, Psalms of David with the Gospel According to John*, Boston: B. Green and J. Printer.
- Anonymous. n.d.a. 'History of Jesus College in the University of Cambridge, 1559–1671', <https://www.jesus.cam.ac.uk/college/about-us/history/1559-1671>, Accessed 10 January 2023.
- Anonymous. n.d.b. 'Wópanâak Language Reclamation Project: Project History', <https://www.wlrp.org/project-history>, Accessed 10 January 2023.
- Aquinas, T. 1949. *De Regno (On Kingship)*, Toronto: Pontifical Institute of Mediaeval Studies. Edited by Joseph Kenny, transl. G. B. Phelan, Revised by I. T. Eschmann.
- Ash, A., Fermino, J. L. D., and Hale, K. 2001. 'Diversity in local language maintenance and restoration: a reason for optimism', in L. Hinton and K. Hale (eds.), *The Green Book of Language Revitalization in Practice*, Leiden: Brill, pp. 19–35.
- Ashworth, E. J. 2020. 'Changes in British logic teaching during the sixteenth and seventeenth centuries', *History and Philosophy of Logic*, 41 (4), 309–30.
- Bacon, R. 2009. *The Art and Science of Logic*, Toronto: Pontifical Institute of Medieval Studies. transl. T. S. Maloney.
- Bondos-Greene, S. A. 1982. 'The end of an era: Cambridge Puritanism and the Christ's college election of 1609', *The Historical Journal*, 25 (1), 197–208.
- Bouck, J., and Richardson III, J. B. 2007. 'Enduring icon: a Wampanoag thunderbird on an eighteenth century English manuscript from Martha's Vineyard', *Archaeology of Eastern North America*, 35, 11–19.
- Cogley, R. W. 1999. *John Eliot's Mission to the Indians Before King Philip's War*, Cambridge, MA: Harvard University Press.
- Collinson, P. 2006. 'What's in a name? Dudley Fenner and the peculiarities of Puritan nomenclature', in K. Fincham and P. Lake (eds.), *Religious Politics in Post-Reformation England*, Melton, UK: Boydell & Brewer, pp. 113–27.
- Copenhaver, B. P. 2014. *Peter of Spain: Summaries of Logic, Text, Translation, Introduction, and Notes*, Oxford: Oxford University Press. With Calvin Normore and Terence Parsons.
- Costa, D. J. 2007. 'The dialectology of Southern New England Algonquian', in H. C. Wolfart (ed.), *Papers of the 38th Algonquian Conference*, Winnipeg, Manitoba: University of Manitoba Press, pp. 81–127.
- Costello, W. T. 1958. *The Scholastic Curriculum at Early Seventeenth-Century Cambridge*, Cambridge, MA: Harvard University Press.
- Dippold, S. 2013. 'The Wampanoag word: John Eliot's "Indian grammar", the vernacular rebellion, and the elegancies of native speech', *Early American Literature*, 48 (3), 543–75.
- Eliot, J. 1666. *The Indian Grammar Begun: Or, an Essay to Bring the Indian Language into Rules, for the Help of Such as Desire to Learn the Same, for the Furtherance of the Gospel Among Them*, Cambridge, MA: Marmaduke Johnson.
- Eliot, J. 1672. *The Logick Primer: Some Logical Notions to Initiate the INDIANS in the Knowledge of the Rule of Reason; and to Know How to Make Use Thereof*, Cambridge, MA: Marmaduke Johnson.
- Eliot, J. 1822. *A Grammar of the Massachusetts Indian Language*, Boston: Phelps and Farnham. A New Edition: With Notes and Observations by Peter S. Du Ponceau, LL.D. and An Introduction and Supplementary Observations by John Pickering.
- Eliot, J. 1904. *The Logic Primer: Reprinted from the Unique Original of 1672 with Introduction by Wilberforce Eames*, Cleveland, OH: The Burrows Brothers Company.
- Fenner, D. 1584. *The Artes of Logike and Rethorike, plainlie set forth in the English tounge, easie to be learned and practised: together vvith examples for the practice of the same for methode, in the gouvernement of the familie, prescribed in the word of God*, Middelburg.
- Gatschet, A. S. 1896. 'John Eliot's first Indian teacher and interpreter. Cockenoe-de-Long Island and the story of his career from the early records by William Wallace Tooker', *American Anthropologist*, 9 (6), 2–17.
- Goddard, I. 1981. 'Massachusetts phonology: a preliminary look', in W. Cowan, *Papers of the Twelfth Algonquian Conference*, Ottawa: Carleton University, pp. 57–105.

- Goddard, I., and Bragdon, K. J. 1988. *Native Writings in Massachusetts*, Philadelphia: American Philosophical Society.
- Gray, K. N. 2003. 'Speech, text, and performance in John Eliot's writings', PhD diss., University of Glasgow.
- Guice, S. A. 1991. 'John Eliot and the Massachusetts language', in F. Ingemann (ed.), *1990 Mid-America Linguistics Conference Papers*, Lawrence: University of Kansas Press, pp. 120–37.
- Harvey, S. P., and Rivett, S. 2017. 'Colonial-indigenous language encounters in North America and the intellectual history of the Atlantic world', *Early American Studies*, 15 (3), 442–73.
- Hill, C. 1997. *Intellectual Origins of the English Revolution—Revisited*, Oxford: Oxford University Press.
- Hinton, L. 2001. 'Language revitalization: an overview', in L. Hinton and K. Hale (eds.), *The Green Book of Language Revitalization in Practice*, Leiden: Brill, pp. 3–18.
- Hinton, L. 2001. 'New writing systems', in L. Hinton and K. Hale (eds.), *The Green Book of Language Revitalization in Practice*, Leiden: Brill, pp. 239–50.
- Howell, W. S. 1961. *Logic and Rhetoric in England, 1500–1700*, New York: Russell & Russell.
- Jardine, L. 1988. 'Logic and language: humanistic logic', in C. B. Schmitt, Q. Skinner, E. Kessler, and J. Kraye (eds.), *Cambridge History of Renaissance Philosophy*, Cambridge: Cambridge University Press, pp. 173–98.
- Kennedy, R. 1995. 'Aristotelian and Cartesian logic at harvard: Charles Morton's *A Logick System* & William Brattle's *Compendium of Logick*', Vol. LXVII of *Publications of the Colonial Society of Massachusetts*, The Colonial Society of Massachusetts.
- Kennedy, R., and Knoles, T. 1999. 'Increase Mather's '*Catechismus Logicus*': a translation and an analysis of the role of a Ramist catechism at Harvard', *Proceedings of the American Antiquarian Society*, 109, 145–81.
- Kim, D. H. 2012. 'By prophesying to the wind, the wind came and the dry bones lived': John Eliot's Puritan ministry to New England Indians', PhD diss., University of Edinburgh.
- Lambert of Auxerre. 2015. *Logica Or Summa Lamberti*, Notre Dame, IN: University of Notre Dame Press. transl. T. S. Maloney.
- Makylmenæus, R. 1574. *The Logicke of the Moste Excellent Philosopher P. Ramus Martyr, Newly Translated, and in Diuers Places Corrected, After the Mynde of the Author*, London: Thomas Vautroullier dwelling in the Blackefrieres.
- Mather, I. 1999. 'Increase Mather's '*Catechismus Logicus*' (1675), Translated and edited by Rick Kennedy and Thomas Knoles', *Proceedings of the American Antiquarian Society*, 109, 183–223.
- Miller, P. 1939. *The New England Mind: The Seventeenth Century*, New York: The MacMillan Company.
- Miner, K. L. 1974. 'John Eliot of Massachusetts and the beginnings of American linguistics', *Historiographia Linguistica*, 1 (2), 169–83.
- Morgan, J. 1986a. *Godly Learning: Puritan Attitudes Towards Reason, Learning, and Education, 1560–1640*, Cambridge: Cambridge University Press.
- Morgan, J. 1986b. *Puritan Attitudes Towards Reason, Learning and Education, 1560–1640*, Cambridge: Cambridge University Press.
- Ong, W. J. 1953. 'Peter Ramus and the naming of methodism: medieval science through ramist homiletic', *Journal of the History of Ideas*, 14 (2), 235–48.
- Powicke, F. J. 1931a. 'Some unpublished correspondence of the Rev. Richard Baxter and the Rev. John Eliot, "The apostle to the American Indians", 1656–1682', *Bulletin of the John Rylands University Library*, 15 (1), 138–76.
- Powicke, F. J. 1931b. 'Some unpublished correspondence of the Rev. Richard Baxter and the Rev. John Eliot, "The apostle to the American Indians", 1656–1682 (Continued from p. 176)', *Bulletin of the John Rylands University Library*, 15 (2), 442–66.
- Rechtien, J. G. 1979. 'Logic in Puritan sermons in the late sixteenth century and plain style', *Style*, 13 (3), 237–58.
- Rechtien, J. G. 1987. 'The Ramist style of John Udall: audience and pictorial logic in puritan sermon and controversy', *Oral Tradition*, 2 (1), 188–213.

- Reid, S. J. 2011. 'Andrew Melville and Scottish Ramism: a re-interpretation', in S. J. Reid and E. A. Wilson (eds.), *Ramus, Pedagogy and the Liberal Arts: Ramism in Britain and the Wider World*, Abingdon, UK: Routledge, p. 21.
- Rex, C. 2011. 'Indians and images: the Massachusetts Bay colony seal, James Printer, and the anxiety of colonial identity', *American Quarterly*, **63** (1), 61–93.
- Rivett, S. 2014. 'Learning to write Algonquian letters: the indigenous place of language philosophy in the seventeenth-century Atlantic world', *William and Mary Quarterly*, **71** (4), 549–88.
- Salisbury, N. 1974. 'Red Puritans: the "Praying Indians" of Massachusetts Bay and John Eliot', *William and Mary Quarterly*, **31** (1), 277–54.
- Sgarbi, M. 2013. 'Ralph Lever's *Art of Reason, Rightly Termed Witcraft* (1573)', *Bruniana & Campanelliana*, **19** (1), 149–63.
- Silverman, D. J. 2005. 'Indians, missionaries, and religious translation: creating Wampanoag Christianity in seventeenth-century Martha's Vineyard', *William and Mary Quarterly*, **62** (2), 141–74.
- Tooker, W. W. 1896. *John Eliot's First Indian Teacher and Interpreter, Cockenoe-de-Long Island and the Story of His Career from the Early Records*, New York: Francis P. Harper.
- White, J. 2011. *The Invention of the Secondary Curriculum*, London, UK: Palgrave MacMillan.
- William of Sherwood. 1966. *William of Sherwood's: Introduction to Logic*, Minneapolis, MN: University of Minnesota Press. transl. N. Kretzmann.
- Øhrstrøm, P., Schärfe, H., and Uckelman, S. L. 2008. 'Jacob Lorhard's ontology: a seventeenth century hypertext on the reality and temporality of the world of intelligibles', in P. Eklund and O. Haemmerlé (eds.), *Conceptual Structures: Knowledge Visualization and Reasoning, Proceedings of the 16th International Conference on Conceptual Structures, ICCS 2008*, Vol. 5113 of *Lecture Notes in Computer Science*, Berlin: Springer, pp. 74–87.