Increase Mather's 'Catechismus Logicus'

Edited and Translated by
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A Logic Catechism

gathered for the first time out of the writings of

Peter Ramus, Alexander Richardson, and William Ames

by Increase Mather

which he most diligently collected

for the use of his students

In the year from Christ's Birth

1683

[2]

A Logic Catechism,

or the whole art of discoursing well

presented in the form of questions and responses[1]

1. Since most of the responses in this catechism are drawn directly from standard Ramist phrases and terms, this translation relies on a contemporary translation, *Questions Taken out of G. Downams exposition on P: Ramus: Logick*, which follows Mather's *Catechismus* in the student notebook of Walter Price, and two modern translations of John Milton's *Artis Logicae Plenior Institutio*: Allan H. Gilbert's, in vol. 11, *The Works of John Milton*, ed. Frank Allen Patterson (New York: Columbia University Press, 1935); and Walter J. Ong's and Charles J. Ermatinger's in vol. 8, *Complete Prose Works of John Milton*, ed. William Alfred, et al. (New Haven: Yale University Press, 1982).
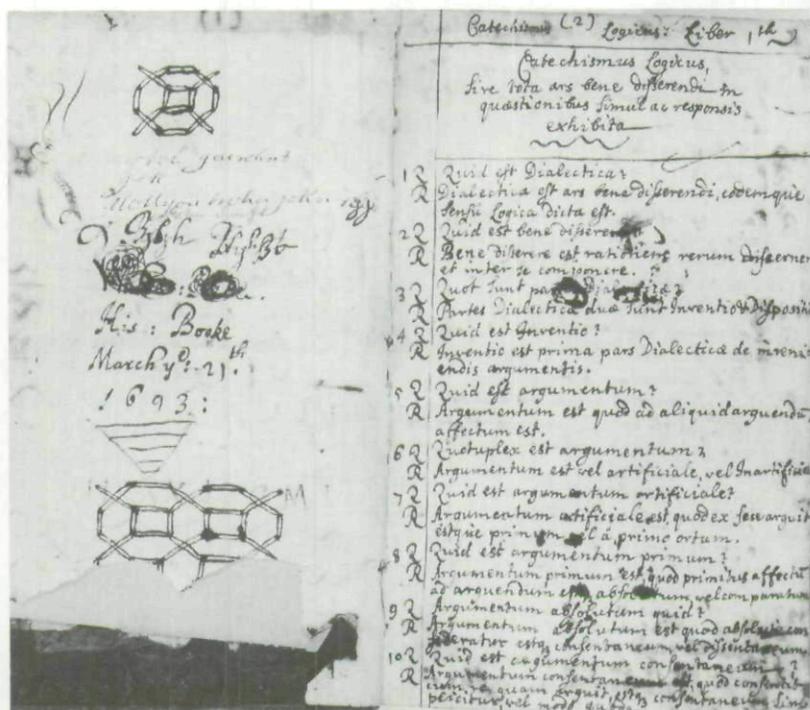
Fig. 1. Increase Mather, *Catechismus Logicus*, first page of text. Transcription by Walter Price (A.B. 1695). Knoles 15. Walter Price Notebook, American Antiquarian Society.

1.

Q. What is dialectic?

R. Dialectic is the art of discoursing well, and in the same sense is called logic.

2.

Q. What is discoursing well?

R. Discoursing well is to discern the relation of things and compose them together.[2]

2. Alexander Richardson in *The Logicians School-Master* (London: G. Dawson, 1657), offers a unique perspective on the term *disserendi* that he believed is misleadingly translated as 'discoursing': '*Dissero* comes of *dis* and *sero*, *sero* signifies first to sow and *dis* a sunder, or *dissero*, that makes *disserui* to sow asunder; whether it be so used I find not, I from my part ever read it in this Logical signification' (p. 38). This is important in that Richardson wanted clearly to distinguish logic from being merely about words and discourse (p. 41).

3.
Q. How many parts does dialectic have?
R. Dialectic has two parts: invention and disposition.

4.
Q. What is invention?
R. Invention is the first part of dialectic and deals with finding arguments.[3]

5.
Q. What is an argument?
R. An argument is that which is suited to arguing something.[4]

6.
Q. How is argument divided?
R. Arguments are either artificial or inartificial.[5]

7.
Q. What is an artificial argument?
R. An artificial argument is that which argues from itself and is either primary or derived from a primary argument.

8.
Q. What is a primary argument?
R. A primary argument is that which is dispersed for arguing from its sources, and is either simple or comparative.

9.
Q. What is a simple argument?
R. A simple argument is one that is considered simply and is either one of agreement or one of disagreement.

3. Invention here means 'uncovering' or 'finding.' There is no connotation of creating arguments.

4. Richardson's *The Logicians School-Master* explains that argument has nothing specifically to do with a type of speech. Arguments are the seeds sown asunder in his interpretation of *disserendi* (p. 38). Arguments are concrete things: 'we cannot sever the logical notion from the thing, because it is never but *in rei*, that is the reason why *argumentum* is always in the concrete (p. 59). The Ramists, Richardson reports, prefer the term argument because it is versatile and general (p. 60).

5. In the tradition of Aristotelian topics, 'artificial' is interchangeable with 'intrinsic' and 'inartificial' with 'extrinsic.' Richardson in *The Logicians School-Master* used a standard explanation for this basic epistemological dichotomy: 'all things cannot come under one man's eye of reason; therefore that he may be better furnished herein, God hath provided these two: the one whereby he may see by himself, the other whereby he may see by another man's eye' (p. 69).

10.

Q. What is an argument of agreement?

R. An argument of agreement is one that agrees with the thing it argues, and is either simply in agreement, or somewhat so.

[3]

11.

Q. What are arguments that are simply in agreement?

R. The arguments that are simply in agreement are cause and effect.

12.

Q. What is a cause?

R. A cause is that by the force of which a thing exists.

13.

Q. What are the types of causes?

R. The types are efficient cause, matter, form, and end.

14.

Q. What is efficient [cause]?[6]

R. An efficient is the cause by which a thing is brought about.

15.

Q. What are the species of efficient [causes]?

R. Although no true genera or species of the efficient cause suggest themselves to us, its great variety is distinguished in several ways.

16.

Q. What is the first mode of the efficient cause?

R. An efficient cause procreates or maintains, thus a father and mother procreate and a nurse nurtures.

17.

Q. What is the second mode?

R. An efficient cause works alone or with other efficient causes, and of all these sometimes one will be the principal cause and the other an assisting or helping cause. They are even instruments reckoned among the helping causes.

6. Question 14 and its response are not present in the Clark transcription.

18.

Q. What is the third mode?

R. An efficient cause effects by itself or by accidents.

19.

Q. What is cause by itself?

R. Cause by itself is that which effects by its own power, so that things occur by nature or according to a plan.

[4]

20.

Q. What does cause accomplish by accident?

R. Cause accomplishes things by accident when it accomplishes through an external power, by which things may be. Necessity or fortune.

21.

Q. What is a necessary cause?

R. A necessary cause is when the efficient cause is compelled by some force to produce an effect.

22.

Q. What is a fortuitous cause?

R. A fortuitous cause is an accidental cause that is beyond the scope of an efficient cause.[7]

23.

Q. What is the mode of fortune?

R. The mode of fortune is lack of design.

24.

Q. What is matter?

R. Matter is a cause out of which a thing is.

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7. Mather follows Ramus's classical use of 'fortuitous' and 'fortune' here and in the following question. Given the dominant Puritan view of God's sovereignty and human freedom, such terms would have to be explained to students in Puritan terms. Milton offers an extended commentary on them, writing that 'fortune' and 'fortuitously' indicate ignorance on the part of humans as to the true 'efficient cause'—God. 'Fortune surely is to be placed in heaven, but its name should be changed and it should be called 'divine providence.' He goes on to write that 'certainly theology will discuss providence better than logic will.' (Ong & Ermatinger translation, p. 229) This is one of many indicators that Increase Mather expected the use of his *Catechismus* to be closely overseen by a tutor or at least read in the context of Puritan theology.

25.

Q. What is form?

R. Form is a cause by which a thing is that which it is; therefore, by it a thing may be distinguished from other things. Form is produced in the thing simultaneously with the thing itself.

26.

Q. What is an end?

R. An end is the cause for the sake of which a thing is; or the goodness of a thing put to its best use.

27.

Q. What is an effect?

R. An effect is that which comes from the causes, most certainly by the efficient, from matter, through the form, for the sake of the end.

28.

Q. The effect has how many steps?

R. The effect has two steps, (1) motion as creative or conservative, (2) a thing made by motion, as created, or conserved, or action and work.

29.

Q. What are the arguments that agree only in a certain respect?

R. Subject and adjunct are the arguments that agree only in a certain respect.

30.

Q. What is a subject?

R. A subject is that to which anything has influentially adjoined.

31.

Q. What are the divisions[8] of subjects?

R. Subjects are reckoned to be simple and unique; therefore, they cannot be given as truly divided.

32.

Q. What are the modes of subjects?

R. Object is a mode of subjects, such as the sensation of senses.

8. Price uses the word *partes* here, while Clark uses *species*.

Also, the mode of subjects is a particular place, which is the subject of the located thing.

33.

Q. What is an adjunct?

R. An adjunct is that which has an affection for a subject, always corresponding to any (non-causal) subject, whether extrinsic or intrinsic, whether the adjunct is duration of things past, present, or future. They are qualities of adjuncts, whether they are common or are not καθ ολω προτον [generally first] or whether they are all things which are particular to the subject, and always related.

34.

Q. What should be the placement of the category of consensual [arguments]?

R. Consensual arguments should be placed with all the modes of unity, and should be referred to their sources, for those which are one and the same have causes with the [same form and place and the]⁹ same number of subjects and adjuncts at the same time.

[6]

35.

Q. What is a dissenting argument?

R. A dissenting argument is that which dissents from a thing.

36.

Q. In what way are dissenting arguments divided?

R. Dissenting arguments are diverse or opposite.

37.

Q. What are diverse dissenting arguments?

R. The diverse are those which disagree in a single reason. For example, 'Ulysses was not handsome but he was eloquent.'¹⁰ 'Socrates was not rich, but he was learned.'¹¹

9. These words are present only in Clark's transcription.
10. Virgil, *Aeneid* 2.533–34.
11. This sentence is present only in Clark's transcription. Both of these examples rely on alliteration: Ulysses was not *formosus* but was *facundus*; Socrates was not *dives* but was *doctus*.

38.

Q. What are opposite dissenting arguments?

R. Opposites are dissenting arguments that dissent in reason and fact. Opposites cannot be attributed to the same thing (that is, the same thing or subject), with respect to the same thing (that is, the same part), under the same relations (that is, from the same point of view).

39.

Q. What follows from the definition of an opposite?

R. From here it follows that when one thing is affirmed, another is denied, and, on the other hand, when things are affirmed or denied at the same time, they are not opposites.

40.

Q. What are the divisions of opposites?

R. Opposites are either disparates or contraries.

41.

Q. What are disparates?

R. Disparates are opposites one of which is equally opposed to many, and hence more distant than a genus, so that every individual, for example green, gray, and red are in the middle between white and black. As individuals they are disparate to the extremes and to each other. Thus man, tree, stone, and infinite things of this sort are disparate.

42.

Q. What are contraries?

R. Contraries are opposites, one of which opposed to one only, and are affirming and negating.

[7]

43.

Q. What are affirming contraries?

R. Affirming contraries are those that affirm each other, and are relatives or adversaries.

44.

Q. What are relatives?

R. Relatives are affirming contraries of which one exists from the mutual effect of the other. For example, I am your father, therefore you are my son; I am your father, therefore I am not your son.

45.

Q. What is said to be the cause of their mutual relation?

R. The cause of their mutual relation is relative, and at the same time natural, so that he who knows perfectly knows one, knows also the rest.

46.

Q. What are adversaries?[12]

R. Adversaries are affirming contraries which are opposed to each by direction (this distinguishes them from disparates) and they are always different from relatives. For example, peace and war, virtue and vice, white and black, hot and cold, are adversaries.

47.

Q. What are negating contraries?

R. Negating contraries are those one of which affirms, the other denies the same thing. For example, the nature of things that are affirmed by one and denied by another are called contraries or privatives.

48.

Q. What are contradictories?

R. Contradictories are negating contraries both of which universally deny, as just, not just, animal, not animal.

49.

Q. What are privatives?

R. Privatives are negating contraries, one of which denies only in that subject in which it is affirmed in its own nature. Therefore, drunkenness and sobriety, to be blind and to see, here what is affirmed is called condition and the thing denied, privation.

12. Here and in the response, Price uses the word *adversa* while Clark uses *diversa*.

50.

Q. What are comparatives?

R. Comparatives are things that are compared among themselves.

[8]

51.

Q. Are all comparatives indicated by signs?[13]

R. Often they are indicated briefly by signs, sometimes by no sign, but sometimes are distinguished fruitfully by their parts. [By this proposition and addition, they are called][14] for instance that which is compared and the things to which they are compared.

52.

Q. Do comparatives argue as fictives?

R. Comparisons argue as fictives, and even as fictives, they have truth and produce faith.

53.

Q. How are comparisons divided?

R. Comparisons are either in quantity or in quality.

54.

Q. What is comparison in quantity?

R. Comparison in quantity is that by which things compared are described in terms of size.

55.

Q. In what mode are such quantities?

R. Such quantities are logically equal. (Of course) so also inequality is a comparison in quantity. Of equals or unequals.

56.

Q. What are equals?

R. Equals are those things that have one quantity, or which are measured with one measurement.

13. Here and in the response, Price uses the word *notis* (by signs) while Clark uses *nobis* (to us). *Notis* appears to be the better reading because of the repetition of the word *nota* later in the sentence.

14. These words are present only in Clark's transcription.

57.

Q. What, therefore, is an equal argument?

R. Equal arguments are when an equal is explained (that is, argued) by an equal.

58.

Q. What are the signs of these?

R. The signs are *equal to*, *equal*, *to equate*, or for something to be *the same as* something else, or *as much*, or *as many*, and *not more* or *less*, such as that light breezes are exactly the same.

59.

Q. What are unequals?

R. Unequals are things of which the quantity is not the same.

60.

Q. How are unequals divided?

R. Unequals are either greater or less.

61.

Q. What is greater?

R. Greater is that of which the quantity exceeds.

[9]

62.

Q. What are the appropriate signs of this?

R. Logically, the appropriate signs are *not only*, *but also*, this *is worse than* that. Grammatically it is from comparison: thus not only is the loquacious orator spurned, but also the good orator.[15]

63.

Q. What is less?

R. Less is that the quantity of which is exceeded.

64.

Q. What is comparison in quality?

R. Comparison in quality is when the things compared are said to be of a certain sort, either similar or dissimilar.

15. This is directly from Ramus, and 'the orator' refers to Cicero in *Pro Murena* 14.30.

65.

Q. What are similar things?

R. Similar things are those that have the same quality. Similitude is called proportion; similars are called proportionals.

66.

Q. How is similitude divided?

R. Similitude is either disconnected or continuous.

67.

Q. What is disconnected similitude?

R. Disconnected similitude is, when four terms are disjoined from the thing itself. Therefore, 'Such are your verses to us, divine poet, /As sleep to the weary on the grass'[16] etc. *Verses, us, sleep, weary,* are four distinct terms.

68.

Q. What is continuous similitude?

R. Continuous similitude is, when as the first term is to the second, so the second is to the third. Therefore, 'As the laws do govern the magistrates, so the magistrates govern the people.'[17] In this the terms are *law, magistrates, people.*

[10]

69.

Q. What are dissimilars?

R. Dissimilars are comparatives in quality of which the quality is different. Therefore, as neither dogs are like puppies, nor mothers like their children, so Mantua is not like Rome.

70.

Q. Are arguments that are derived from that to which they argue just like those derived from primitives?

R. Arguments derived from primitives are related to that which they argue, just as are the primitives from which they are derived, when they have the force and affection but not when they have the mode.

16. Virgil, *Eclogues* 5.45–46.
17. Cicero, *De legibus* 3.iii.1.2.

71.

Q. How many types of sources do arguments have?

R. Sources of arguments are either those which have a simple source from some single beginning, or a composed source from a combination of many beginnings.

72.

Q. Which types have a simple source?

R. The type of sources which have a simple source are conjugates with respect to notation.

73.

Q. What are conjugates?

R. Conjugates are words variously derived from the same root, as *justice, just, justly*.

74.

Q. What follows from this definition of conjugates?

R. It follows from this definition of conjugates that they are a symbol of consensuals only, and are not from the roots of arguments, but instead are derived from the same root.

75.

Q. What is notation?

R. Notation is the interpretation of the name, names are fluid and are the notation of a thing, and a reason should be given for the notation; to which such thing, such a notation should be designated, for example *man* from *earth*.[18]

76.

Q. Of what are derived arguments composed?

[11]

R. Distribution and Definition are what compose derived arguments. In either of these there is an effect of reciprocation; in the first, of all parts with the whole, in the second, of definition with what is defined.

18. The Latin here is *homo ab humo*. The point being made here that is clearer in other Ramist logics is that names should be traceable to primitive sources. Milton writes in *Artis Logicae Plenior Institutio* (I.xxiv) that languages spoken in the Garden of Eden and received at the tower of Babel were from God, and thus the deepest source of names will remain unknown.

77.

Q. What is the whole?

R. The whole is that which contains the parts.

78.

Q. What is the part?

R. The part is that which is contained in the whole.

79.

Q. What is induction?[19]

R. Induction is universal distribution. As the division of the whole into parts is called distribution, so the collection of the parts into a whole is called induction.

80.

Q. From what arguments is distribution taken?

R. Distribution is taken from arguments in agreement with the whole but in disagreement among themselves. So the distribution will be the more accurate in proportion as the parts have more consent with the whole and more dissent among themselves.

81.

Q. Accordingly what follows from this?

R. Dichotomizing follows accordingly, which is the most accurate distribution when there is the greatest confession and dissent.[20]

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19. John Milton comments: 'Between this induction and distribution there is no difference except that distribution proceeds from the whole to the parts, while induction proceeds from the parts to the whole.' (Ong & Ermatinger translation, p. 298) Francis Bacon's work on induction was well known to Mather and was also discussed in William Ames's *Technometry*, trans. & ed. Lee W. Gibbs (Philadelphia: University of Pennsylvania Press, 1979), 105–6; however, Ramists did not see induction as any more dynamic than deduction/distribution.

20. Richardson in *The Logicians School-Master* was unusually succinct on this point also: 'Now the greatest dissention is of contraries, and the greatest of all is between something and nothing, *ergo*, to distribute into tricotomies, and quadricotomies, &c. is to skip over something that should be taught' (p. 203). On dichotomies, which was the Achilles' heel of Ramist logic, Milton in his logic added that Ramus was following Plato's advice: 'It is best to divide number in the closest possible way.' (Ong & Ermatinger translation, p. 298) Milton recommended that 'if we cannot find a dichotomy—for it is difficult always to find one—it is better to posit two pairs of species under one genera, though nameless ones, rather than four species under one genus' (p. 298).

82.

Q. What is distribution from the causes?

R. Distribution is by the causes when the parts are causes of the whole.

83.

Q. In what way is distribution here peculiarly praised?

R. Here distribution of the integer into its members is particularly praised.

[12]

84.

Q. What is an integer?

R. An integer is the whole to which the parts are essential, that is whose members tie together parts.

85.

Q. What is a member?

R. A member is a part of an integer.

86.

Q. When is this a principal distribution?

R. This is a principal distribution when the explanation is undertaken by longer things.

87.

Q. What is distribution from the effects?

R. Distribution from the effects is when the parts are effects.

88.

Q. What distribution exceeds this?

R. Distribution of genera into species exceeds this.

89.

Q. What is a genus?

R. A genus is a whole essential to the part.

90.

Q. Why is the genus said to be essential to a thing?

R. The genus is essential because it is a notion in essential causal communion, or because the genus brings together matter and form, which are essential causes of its parts or species.

91.

Q. What is supreme genus?

R. Supreme genus is one which belongs to no higher genus. For example, Being is such a genus.

92.

Q. What is a subordinate genus?

R. A subordinate genus, as also in subordinate species, is the species of one thing and the genus of another. For example, man belongs to the genus of animal, while animal is of the species of creature.

93.

Q. What is a species?

R. A species is part of a genus, and is subordinate or indivisible.

94.

Q. How does subordinate species differ from subordinate genus?

R. Subordinate species differs from subordinate genus by its reckoning.

95.

Q. What is an indivisible species?

R. Indivisible species are, those which are indivisible into other species, as single things.

96.

Q. What is distribution from subjects?

R. There is distribution from subjects when the parts are subjects, that is when there are many subjects at the same time in affection to one [adjunct,[21] as virginity is not entirely yours, but is also related to parenthood.

96a.

Q. What is distribution from adjuncts?

R. Distribution from adjuncts is when the parts are adjuncts, that is, when there are many adjuncts at the same time in affection to one] subject. For example, of men: some are healthy, others sick, some are rich, others poor.

21. The words in brackets in Questions 96 and 96a appear only in Clark's transcription. It seems likely that Price, or his source, accidentally conflated two questions with parallel structures.

97.

Q. What is definition?

R. We have a definition when it is explained what a thing is, and in turn it can be argued from the thing defined, and is perfect or imperfect.

98.

Q. What is a perfect definition?

R. A perfect definition is that which depends only on the causes constituting the essence of the thing defined. Such causes are comprehended in genus and form, and thus this mode will define *man, rational animal*; the genus rational animal comprehends man.

99.

Q. What follows from this?

R. It follows that a definition be nothing else than a universal symbol constituting the essence and nature of a thing.

100.

Q. What is an imperfect definition?

R. An imperfect definition is called description, which is defining a thing through other arguments. For example, man is mortal animal capable of being instructed. Here with some cause are mingled together circumstances in the same particular: such are the descriptions of planets in physics, rivers and the like in geography.

Inartificial arguments follow.

101.

Q. What is an inartificial argument?

R. An inartificial argument is that which argues not by its own nature, but by the force which it takes from some artificial argument.

102.

Q. This argument has faith from where?[22]

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22. *Fides* (faith) is a technical term in logic for the type of credibility derived from an inartificial or extrinsic source. According to the way this was usually described in the Renaissance, a faith resulting from a divine testimony will have a higher level of certainty than

R. This argument has faith, arguing from custom, that is, if prudence, virtue, and benevolence are present within it.

103.

Q. Inartificial argument is called what?

R. Inartificial argument is called by the one name, testimony, and is either divine or human.[23]

104.

Q. What is divine testimony?

R. Divine testimony is that which is from God, and is the strongest form of argument, not having its quality in respect to the testimony but the testifier who has the prudence, virtue, and benevolence of God on high.[24]

105.

Q. What are among the human testimonies?

R. Among the human testimonies are laws and famous maxims [such as proverbs and the sayings of wise men].[25]

106.

Q. To what else can they be referred?

[15]

R. They can also be referred to an obligation, pledge, and confession either freely given or extracted properly by torture, or trial, or oaths.[26]

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even a mathematical demonstration, while a faith resulting from a human authority could have a broad range of lesser or greater credibility.

23. Although Ramist logic is best characterized as a closed system in comparison to the dynamic systems of Cartesian method or Baconian induction, this section on *inartificial* or *extrinsic* arguments gained from God and other people has the potential to break open the closed system. Scholars of Ramism, however, are correct to note that this section on *inartificial arguments* was used by many to confirm a received dogmatic perspective. Alexander Richardson's *The Logicians School-Master* offers thirteen pages of comment on *inartificial arguments* (pp. 232–44).

24. Richardson offers an extensive commentary on divine testimony (pp. 232–44), making it clear that the Bible and 'the Creed, being generally received in all Churches' has divine testimony. He argues that the testimony of the Roman Catholic Church is not divine testimony, but the testimony of 'the Church' is to be given more authority than the testimony of a private man (p. 240).

25. The words in brackets occur only in Clark's transcription.

26. Richardson does not discuss testimony gathered by properly administered torture; however, Ramus, in the tradition of Aristotle and Cicero, allows for testimony extracted by torture.

107.

Q. What is reciprocation?

R. Reciprocation is when the thing argued artificially is applied to the testifier, and thereby argues for the veracity of the testimony.

Thus ends Invention, the first part of logic.

The Second Book of Logic

[Walter Price transcription]

What follows is the second part of logic concerning disposition[27]

1.

Q. What is disposition?

R. Disposition is the second part of logic where arguments are disposed, or judged to be this, or come from memory. Disposition is therefore judgment or method.

2.

Q. What is judgment?

R. Judgment is disposition to good judgment and is either axiomatic or dianoetic.[28]

3.

Q. What is an axiom?

R. An axiom is the disposition of one argument with another by which something is judged to be or not to be.[29]

27. Ramus, Ames, and Richardson—Mather's named sources—and most Ramists—use the term *iudicio* (judgment) instead of *dispositio* (disposition) as the title of the second book. Price's version of book 2 acts on Richardson's suggestion that Ramus's two books be distinguished as Invention and Disposition, with disposition understood as either judgment or method, and with judgment understood as either axiomatic or syllogistic (p. 246; see also note 27). Clark's book two, entitled '*Dialecticae* which is the art of Judgment,' seems to reflect Ramus's structure more closely.

28. With the term *dianoeticum*, Mather returns to the model of Ramus and Ames, abandoning Richardson's use of *syllogisticum*. Mather in II.50 affirms that *syllogismus est dianoia* (a syllogism is a dianoetic arrangement).

29. Richardson in *The Logicians School-Master* notes that Ramus was among a small

4.

Q. What should we consider in an axiom?

R. We should consider in an axiom its common affects and species.

[16]

5.

Q. What are affects of axioms?

R. Axiomatic affects are first those which are affirmed or denied, second those which are true (that is contingent or necessary) or false.

6.

Q. What is an affirmed axiom?

R. An axiom is affirmed when its connective is affirmed, denied when denied.[30]

7.

Q. What then arises?

R. Then arises the contradiction of axioms when the same axiom is affirmed and denied.

8.

Q. What is a true axiom? What is a false one?

R. A true axiom speaks as the thing is; false otherwise.

9.

Q. How do we know which axioms are true and which are false?

R. If a thing in nature compares with the parts of the axiom it is true. But if the thing in nature diverges, then it is false.

10.

Q. What is a contingent axiom?

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number of logicians who favored the use of *axiom (axioma)* instead of *proposition (propositio)* or *statement (ennunciatum)*. Richardson agreed with Ramus that *proposition* and *statement* 'have an adherencie of words' whereas, 'we know an axiome may be when it is not uttered' (pp. 255–56).

30. *Vinculum* is here translated as connective but is translated by Richardson in *The Logicians School-Master* as *bond* (p. 257). In the statement, man is an animal, the *vinculum* (connective) is 'is.'

R. A contingent axiom is true in such a way that sometimes it can be false.[31]

11.

Q. The judgment of a true axiom of this kind is called what?

R. The judgment of this contingent truth is called opinion, which in past and present things can be certain to humans. But it is not possible to know the future, however much all times are present to God and known to him.[32]

[17]

12.

Q. What is a necessary axiom?

R. A necessary axiom is one which is always true, unable to be false and therefore affirmed κατα παντος [in all cases]. On the other hand impossible axioms are those which are never able to be true.

13.

Q. What are axioms of the arts?

R. Axioms of the arts are likewise true κατα παντος [in all cases], but furthermore are homogenous and catholic.

14.

Q. What is a homogeneous axiom?

R. A homogeneous axiom is when the parts are essential to each other, thus form to that which is formed, member to the

31. Just as the allowance of *inartificial arguments* (testimony) is a wild card that tends to open up what seems closed in the Ramist system, so too this place for *contingent axioms* opens the structure to the probabilistic logic of opinions. Richardson answers the *objection* as to whether *inartificial arguments* and *contingent axioms* should be discussed as part of the 'art' of logic by noting that 'the doctrine of them is belonging to the Art' (p. 268). The Jansenist *Port-Royal Logic*, becoming popular when Mather compiled his *Catechismus*, would be the textbook that greatly advanced the probabilistic logic of testimony and opinions.

32. Richardson in *The Logicians School-Master* makes the sense of this more clear: 'See here that the *opinio*, and judgement of this axiom *praeteritorum* [past] & *praesentium* [present] may be *certa* [certain]: here we learn what our *opinio* may be of things past, present, and to come; so that *opinio* is here distributed into *certa* and *incerta*: *certa* is *duplex*, *praesentiam* and *praeteritorum*. *Incerta* [uncertain] onely *futurorum*' (p. 265). Mather closed by adding the line about divine revelation. Neither Ramus, Ames, nor Richardson discuss certain knowledge of the future.

whole, subject according to adjunct, genus to species. It is called καθ αυτο [in itself].

15.

Q. What is a catholic axiom?

R. A catholic axiom is when the consequent is true of the antecedent not only of the whole and of itself, but also reciprocally. It is called καθ ολω προτον [generally first].

16.

Q. The three laws of proper proofs in the arts, what are they called?

R. The first is called the law of truth, second the law of justice, third is the law of wisdom.

17.

Q. Of this sort of axioms, which are judgment of the catholic, what is the rule?

R. Axioms of this sort which are judgment of the catholic are the truest and the first knowledge.[33]

18.

Q. What are the species of axioms?

R. Axioms are either simple or compound.

[18]

19.

Q. What is a simple axiom?

R. A simple axiom is that which is held together by a verbal connective, and is affirmed or denied by the affirming or denying verb.

20.

Q. In simple axioms, what arguments are enunciated?

R. In simple axioms any arguments whatever are able to be enunciated, excepting full comparisons and distributions.

33. Questions 8 through 17 are from Ramus's *Dialecticae* II.iii, and the space devoted to this one chapter of the *Dialecticae* shows the importance Mather placed on it. The very important response 17 is more clear if we follow Ramus's use of *reciprocorum* rather than Mather's *Catholicorum*: 'So the judgment of axioms of this sort which are called reciprocal is the truest and first knowledge.'

21.

Q. What is a general [axiom]?[34]

R. An axiom is general when a consequent is generally attributed to a common antecedent.

22.

Q. For general axioms, what is required?

R. For general axioms there are three things required, a general consequent and antecedent and a general attribution.

23.

Q. What is a special axiom?

R. A special axiom is when the consequent is not attributed to every antecedent.

24.

Q. What is a particular axiom?

R. A particular axiom is when the consequent is attributed particularly to a common antecedent.

25.

Q. How is this axiom contradicted?

R. This axiom is contradicted in a general way. For example, something is to be forgiven; nothing is to be forgiven.

26.

Q. What is a proper axiom?

R. A proper axiom is when the consequent is attributed to proper [antecedent].[35]

[19]

27.

Q. What is a compound axiom?

R. A compound axiom is when the connective contains a conjunction. So from the affirmation or denial of the conjunction, the axiom is affirmed or denied. And it is, according to its own conjunction, either congregative or segregative.

34. Here Price wrote *argumentum generale* but should have written *axioma generale*. The response makes this clear.

35. It is evident from Clark's version of book 2 that the word *antecedenti* is missing from Price's transcription.

28.

Q. Which arguments in an axiom are held congregatively?

R. A congregative enunciate affirms all agreeing things and denies all disagreeing things.

29.

Q. How is a congregative axiom divided?

R. A congregative axiom is either copulative or connected.

30.

Q. What is a copulative axiom?

R. A copulative axiom is one whose conjunction is copulative.

31.

Q. What are the indicators of copulative axioms?

R. The indicators of copulative axioms are either copulative grammatical conjunctions such as *thus, and also, and, even, and not*; or adverbs such as *similar* and *like*.

32.

Q. On what depends the judgment of copulative enunciates?

R. Judgment of copulative enunciates depends on the truth of all the parts, so that the whole is false from one false part.

33.

Q. What axiom is akin to this genus?

[20]

R. Akin to this genus is the enunciate of relation, if it be related quantity or quality; for example, 'Such are your verses to us, divine poet, / As sleep to the weary on the grass.'[36]

34.

Q. What is a connected axiom?

R. A connected axiom is a congregative whose conjunction is connexive.

35.

Q. What are the indicators of connected [axioms]?

R. The indicators of connected axioms are *if, but if, with this, then also, it follows that.*

36. Virgil, *Eclogues*, 5.45–.46.

36.

Q. In what manner can these be plainly contradicted?

R. These can be plainly contradicted by denying the consequence.

37.

Q. What if I judge a connected axiom to be absolutely true?

R. When you judge a connected axiom to be absolutely true, you will also judge that it is necessary.

38.

Q. Whence does this necessity arise?

R. This necessity arises from the necessary connection of the parts which is also able to exist in false parts, thus if a man is a lion, he is also a quadruped, is a necessary connected axiom.

39.

Q. What if the connected axiom be contingent?

R. If a connected axiom be contingent, and proposed as true because of its probability, the judgment of it will be called opinion.

40.

Q. What is akin to a connected axiom?

R. Akin to a connected axiom is the relation of consequence.

41.

Q. What is a segregative axiom?

R. A segregative axiom is one whose conjunction is segregative and discrete or disjunct.

[21]

42.

Q. What is a discrete axiom?

R. A discrete axiom is one of which the conjunction is discretive. It states a difference based particularly on these disagreements.

43.

Q. What are the indicators of discrete axioms?

R. Indications of discrete axioms are *on the other hand, or, and how, nevertheless,* and *more than.*

44.

Q. When is a discrete axiom judged to be true and legitimate?

R. A discrete axiom is judged to be true and legitimate, if the parts are not only true but are also discrete; otherwise it is false or ridiculous. For example, to say that 'Although Ulysses was not eloquent, yet he was not ineloquent' is ridiculous since the parts are not discrete.[37]

45.

Q. What is a disjunct axiom?

R. A disjunct axiom is segregative and its conjunction is disjunctive. Therefore: every enunciation is either true or false: here it is indicated that one of the disjuncts is true.

46.

Q. Which arguments are laid out in a [disjunct][38] axiom?

R. A disjunct axiom lays them out in the opposite of the received or appropriate way.

47.

Q. What if the disjunction is absolutely true?

R. If the disjunction is absolutely true, it is also necessary and the parts are disjunct opposites without any intermediate.

[22]
48.

Q. Upon what depends the necessity of disjunction?

R. The necessity of disjunction depends on necessary opposition and disjunction, not on necessary truth.

49.

Q. What if disjunction be contingent?

R. If a disjunction be contingent, it is not absolutely true, and, as such, is an opinion.

---

37. This is a reference to the quotation from Virgil, *Aeneid*, 2.533–.334 in 1:37 above. The synonymous Latin terms that make this ridiculous, taken from Ramus *Dialecticae* II.vii, are *facundus* and *indisertus*.

38. Here Price wrote *connexo* but should have written *disjuncto*. The response makes this clear.

50.

Q. What is a syllogism?

R. A syllogism is a dianoetic arrangement by which a question is so arranged with its argument that if the antecedent is given, of necessity a conclusion is drawn.[39]

51.

Q. When does it become a question?

R. It becomes a question, when an axiom is doubtful, and to produce confidence [*fides*] in it, there is need of a third argument properly disposed with the question.[40]

52.

Q. What are the parts of a syllogism?

Q. The parts of a syllogism are antecedents and consequents.

53.

Q. Antecedents have how many parts?

R. Antecedents have two parts: proposition and assumption.

54.

Q. What is the proposition?

R. The proposition is the first part of the antecedent in which the consequent at least of the question is arranged with the argument.

55.

Q. What is the assumption?

R. Assumption is the second part of the antecedent which is taken out of the proposition.

39. Richardson in *The Logicians School-Master* offers at this point in his text: '*dianoia* is nothing, but the running about of our reason for the finding out of truth. Some Logicians have compared axiomatical judgement to a calm sea, for there our reason is quiet, being satisfied with the truth, and syllogistical judgement to a troubled sea, that is, full of storms, winds and tempests, for there our reason beats every corner to conclude that which is doubtful, and from this act is called *dianoia*; and the judgement of reason in such an Art is called *dianoeticum*, it running after this, or that: but our Author [Ramus] divides it afterward into *syllogismus* and *methodus*' (p. 295).

40. Richardson in *The Logicians School-Master* notes that 'question' here 'is a law term signifying a commission . . . so that this judgment is a Courtly kind of seeking our truth with two arguments before the judgment seat of a third' (p. 297). Richardson also discusses the term *fides* as 'properly belonging to the will, and to the resolution of the will, which is an extremity of reason, so that *fides* is in the will, *ergo*, belongs to Divinity; for when the Lord assures man by his Spirit, that he is reconciled unto him, his will saith presently *fiat dictum*'—this last being an emphatic 'Let it be said' (pp. 299–300).

56.

Q. What part of a syllogism is the consequent?

R. The consequent is the part of the syllogism which comprehends the parts of the question and concludes it and is called the complexion and conclusion.

[23]

57.

Q. How many are the species of syllogism?

R. There are two species of syllogism, simple and compound.

58.

Q. What is a simple syllogism?

R. It is simple when the consequent part of the question is placed in the proposition, the antecedent part in the assumption.

59.

Q. In what way is a simple syllogism distributed?

R. A simple syllogism is distributed in either adjunct or in species.

60.

Q. If from adjuncts, in what way is a syllogism distributed?

R. It is either affirmed or denied, and is either general or special or proper.

61.

Q. What is an affirmative syllogism?

R. An affirmative syllogism is affirmed by all its parts.

62.

Q. How is an affirmative syllogism produced?

R. An affirmative syllogism is produced when the three arguments agree each part with the other side of the question.

63.

Q. What is a negative syllogism?

R. A negative syllogism is when one part is negated by the conclusion, either if the argument is affirmed by the consequent alone, or by the proposition alone, or if with the antecedent alone then with the assumption alone, or denied in the conclusion by the one part left over.

64.

Q. What is a general syllogism?

R. A general syllogism is made up by a proposition and an assumption when both are general.

[24]

65.

Q. What is a special syllogism?

R. A special syllogism is when the proposition alone or the assumption alone is general.

66.

Q. What is a proper syllogism?

R. A proper syllogism has both the proposition and the assumption proper.

67.

Q. What are the species of simple syllogism?

R. A simple syllogism is either contracted or explicated.

68.

Q. What is a contracted syllogism?

R. A contracted syllogism is when an argument, for example, is so subjected to a particular question, that it is antecedent to the parts that follow, and it is understood as an affirmed assumption. For example, a degree of confidence is virtue because it is constancy.

69.

Q. Why is this species of syllogisms called contracted?

R. This syllogism is called contracted because a teacher uses it when speaking, it is refuted syllogistically in judgments, and rarely completely explained otherwise.

70.

Q. How many constituents are necessary for this mode of syllogism?

R. Three constituents are necessary for this mode of syllogism: (1) when argument is in the proposition, and then subjected in the assumption, (2) when there is an affirmative in the assumption, (3) when the conclusion is particular.

71.

Q. What is an explicated syllogism?

R. An explicated syllogism is that in which the proposition is general or proper and the conclusion similar to the antecedent or the weaker part.

[25]

72.

Q. What is the weaker part?

R. The part which is negative or particular, or properly called the weaker part.

73.

Q. How many species are there of explicated syllogisms?

R. There are two species of explicated syllogisms.

74.

Q. What is the first species?

R. The first species of explicated syllogism is where the argument always follows, being denied in one of the parts. Therefore: 'The bewildered man does not use reason well, the wise man uses reason well, therefore the wise man is not bewildered.'[41]

75.

Q. What is the second species of explicated syllogisms?

R. The second species of explicated syllogism is when the argument is antecedent in the proposition and follows affirmatively in the assumption.

Therefore: 'Every just thing is useful
Every honest thing is just
Therefore every honest thing is useful.'[42]

76.

Q. What is a composite syllogism?

R. A composite syllogism is a syllogism in which the whole question is one part of an affirmed and compound proposition; the argument is the other part.

41. Cicero, *Tusculan Disputations* 3.7.15.
42. Cicero, *De officiis* 2.3.10.

77.
Q. In what way does a composite syllogism differ from a simple one?
R. A composite syllogism differs from a simple one in this, that in a composite the whole question is laid in the proposition.

78.
Q. What are the species of composite syllogisms?
R. A composite syllogism is either connected or disjoined.

79.
Q. What is a connected syllogism?
R. A connected syllogism is a composite syllogism with a connected proposition, and has two modes.

80.
Q. What is the first mode?
R. The first mode of connected syllogisms assumes an antecedent (that is repeated in the assumption) and concludes the consequent. For example, if a being is human, it is rational; therefore something done by a human is rational.

81.
Q. What is the second mode?
R. The second mode of connected syllogism takes away the consequent that it may take away the antecedent. For example, if a wise man ever assents to anything it will be because he has an opinion, but if he does not have an opinion, he will assent to nothing.

82.
Q. What is to take away?
R. To take away is to place a special contradiction. That is when general axioms contradict particularly, and generally with respect to the particular.

83.
Q. What is a disjunct syllogism?
R. A disjunct syllogism is a compound syllogism with a disjunct proposition.

84.

Q. What is the first mode of a disjunct syllogism?

R. The first mode of a disjunct syllogism takes away one and concludes the other. For example:

> Either it is day or night.
> But it is not day.
> Therefore it is night.

85.

Q. What is the second disjunct?

R. The second disjunct syllogism from a proposition affirmed in all its parts assumes one and takes away the rest. For example:

> Either it is day or night
> But it is day.
> Therefore it is not night.

86.

Q. What axiom now has something of a disjunct axiom?

R. The negated copulative axiom has the force of a disjunct axiom, and from the same part makes up the one mode of disjunct syllogism. For example:

> It is not both day and night,
> But it is day;
> Therefore it is not night.

I come to a conclusion to affirm connected things, and I remove things to negate them.

I come to a conclusion to negate disjoined things, and I negate them to affirm them.

87.

Q. What is method?

R. Method is dianoetic disposition of various homogeneous axioms, clearly organized by their nature, retained in the memory.[43]

---

43. Here Mather shows no interest in following Richardson's criticism of Ramus's equation of *method* and *dianoia* in *The Logicians School-Master*. If he had done so, it would have been in keeping with following Richardson's recommendation of *disposition* in the title of the second part. Throughout his analysis, Richardson attempts to keep logic distinct from rhetoric. In this context, Richardson follows the classical equation of *dianoia* with *syllogistic reasoning*,

88.

Q. In method, what precedes?

R. In method, a notion clearer in itself

[28]

precedes, and what is obscure follows.

89.

Q. What are things known by nature?

R. Cause in respect to subject, subject in respect to adjunct, and the general in respect to the general.

<div style="text-align:center">

The End of the Logic Catechism
Written March 24th in the year of our Lord 1692
The end crowns the work.

</div>

<div style="text-align:center">

The Second Book of Peter Ramus's Dialectics,
which is of Judgement

[John Clark transcription]

</div>

Before this was the first part of dialectic concerning invention. The second part follows, dealing with judgment.

1. [cf. Price no. 2][44]

Q. What is judgment?

R. Judgment is the second part of logic where arguments are disposed for good judging.

2.

Q. How many types of judgment are there?

R. There are two types: axiomatic and dianoetic.

3.[3]

Q. What is an axiom?

---

with both tied to discourse. Method is not for discourse, but strictly memory (p. 333). Mather seems to have freely selected when and when not to follow Richardson's reasoning.

44. In Clark's transcription, the questions and responses are not numbered. We have added numbers for convenience. The bracketed numbers refer to Price's question numbers.

R. An axiom is the disposition of one argument by another, by which something is judged to be or not to be.

4.
Q. What is this called in Latin?
R. In Latin this is called *enuntiatum, enuntiatio, pronuntiatum, pronuntiatio, effatum.*[45]

5.
Q. How many types of axioms are there?
R. Two types: affirmed or negated.

6. [6]
Q. What is an affirmed [axiom]?
R. When its connective is affirmed.

7.
Q. What is a negated [axiom]?
R. When its connective is denied, and from here arises the contradiction of axioms, when the same axiom is affirmed and denied.

8.
Q. How many types of axiom are there?[46]
R. Two types: true or false.

9. [8]
Q. What is a true [axiom]?
R. When it speaks as the thing is.

10. [8]
Q. What is a false [axiom]?
R. When it does not speak as the thing is.

11.
Q. How many types of true axiom are there?
R. Two types: contingent or necessary.

12. [10]
Q. What is a contingent axiom?
R. That which is true in such a way that sometimes it can be false.

---

45. Enunciation, pronouncement, announcement.
46. This question repeats question number 5.

13. [11]

Q. The judgment of a true contingent axiom is called what?

R. The judgment of this contingent truth is called opinion.

14. [12]

Q. What is a necessary axiom?

R. One that is true and not able to be false.

15. [12]

Q. What is an affirmed [axiom] called, then?

R. It is called κατα παντος, 'in all cases.'

16. [13]

Q. How many axioms of the arts are there?

R. Two types: homogeneous and catholic.

17. [14]

Q. What is a homogeneous axiom?

R. When the parts are essential in themselves[47]

18. [14]

Q. What is this called?

R. This is called κατ αυτο, 'in itself.'

19. [15]

Q. What is a catholic axiom?

R. When the consequent is true of the antecedent not only of the whole and of itself, but also reciprocally.

20. [15]

Q. What is this called?

R. This is called καθ ολω προτον, 'generally first.'

21. [18]

Q. How many types of axioms are there?

R. Axioms are either simple or compound.

22. [19]

Q. What is a simple axiom?

R. That which is held together by a verbal connective.

23.

Q. How many types of simple axiom are there?

R. Simple axioms are general or special.

47. 'In themselves,' *in se*. Price has 'to each other,' *inter se*.

24. [21]

Q. What is a general axiom?

R. When a consequent is generally attributed to a common antecedent.

25. [23]

Q. What is a special axiom?

R. A special axiom is when the consequent is not attributed to every antecedent.

26.

Q. How many types of special axiom are there?

R. Particular or proper.

27. [24]

Q. What is a particular axiom?

R. When the consequent is attributed particularly to a common antecedent.

28. [26]

Q. What is a proper axiom?

R. When the consequent is attributed to proper antecedent.

29. [27]

Q. What is a compound axiom?

R. When the connective contains a conjunction.

30.

Q. How many types of proposition[48] are there according to its own conjunction?

R. Two types, congregative or segregative.

31. [28]

Q. What is a congregative axiom?

R. That which affirms all agreeing things and denies all disagreeing things.

32. [29]

Q. How many types of [congregative][49] axiom are there?

R. Two types: copulative or connected.

48. *Enuntiatum*. Price's transcription uses this description for compound axioms, and this would be expected here, based on the previous question.

49. Clark has written *copulativum*, but it is clear from the context (and from Price 2.29) that the word should be *congregativum*.

33. [30]
Q. What is a copulative axiom?
R. One whose conjunction is copulative.

34. [34]
Q. What is a connected axiom?
R. A connected axiom is a congregative whose conjunction is connective.

35. [41]
Q. What is a segregative axiom?
R. One whose conjunction is segregative.

36.
Q. Does it state disagreeing arguments?
R. Yes.

37. [41]
Q. How many types of segregative propositions are there?
R. Two types: discrete or disjunct.

38. [42]
Q. What is a discrete axiom?
R. One of which the conjunction is discretive.

39. [45]
Q. What is a disjunct axiom?
R. One of which the conjunction is disjunct.

40.
Q. What is dianoia?
R. Dianoia is when one axiom is deduced from another.

41.
Q. How many types of dianoia are there?
R. Two types: syllogism or method.

42. [50].
Q. What is a syllogism?
R. A syllogism is a dianoetic arrangement by which a question is so arranged with its argument that if the antecedent is given, of necessity a conclusion is drawn.

43. [53]
Q. How many parts do antecedents of syllogisms have?

R. Two parts: proposition and assumption.

44. [54]

Q. What is the proposition?

R. The first part of the antecedent in which the consequent at least of the question is arranged with the argument.

45. [55]

Q. What is the assumption?

R. The second part of the antecedent which is taken out of the proposition.

46. [56]

Q. What part of the syllogism is the consequence?

R. The part which comprehends the parts of the question and concludes it.

47. [56]

Q. What is it called?

R. Complexion and conclusion.

48.

Q. What is an enthymeme?[50]

R. When part of a syllogism is absent.

49.

Q. What is before a syllogism?

R. When something is added before the other three parts.

50.

Q. When things which are to be completed are absent, or incomplete things remain, are all the parts [of the syllogism] in place?

R. If this should be the case, it is doubtful on that account.

51.

Q. How many types of syllogism are there?

R. Two types: affirmative and negative.

52. [61]

Q. What is an affirmative syllogism?

R. When all the parts are affirmed.

---

50. This and the next question are not in Price's version of book 2.

53. [62]

Q. What is a negative syllogism?

R. When either antecedent part is negated by the conclusion.

54.

Q. How many types of this syllogism are there?

R. Three types: general, special, and proper.

55. [64]

Q. What is a general syllogism?

R. When the proposition and assumption are general.

56. [65]

Q. What is a special syllogism?

R. When either is general.

57. [66]

Q. What is a proper syllogism?

R. When both are proper.

58. [67]

Q. How many types of simple syllogism are there?

R. Two types: contracted in parts or explicated.

59. [68]

Q. What is a contracted syllogism?

R. When an argument, for example, is so subjected to a particu-
lar question, that it is antecedent to the parts that follow, and
it is understood as an affirmed assumption.

60. [71]

Q. What is required in an explicated syllogism?

R. That the proposition be general or proper, and the conclusion
similar to the antecedent or weaker part.

61. [73]

Q. How many species of this syllogism are there?

R. Two species, where the argument always follows, being de-
nied in one of the parts.[51]

---

51. This response includes the description of the first species of explicated syllogism.
Possibly Clark accidentally conflated two responses into this one when he made his tran-
scription.

62. [75]

Q. What is the second species of explicated syllogism?

R. When the argument is antecedent in the proposition and fol-
lows affirmatively in the assumption.

63. [76]

Q. What is a composite syllogism?

R. It is a syllogism in which the whole question is one part of an
affirmed and compound proposition; the argument is the
other part. To take away in a composite syllogism is to place a
special contradiction.

64. [78]

Q. How many types of composite syllogism are there?

R. Two types: connected or disjoined.

65. [79]

Q. What is a connected syllogism?

R. It is a composite syllogism with a connected proposition, and
has two modes.

66. [80]

Q. What is the first mode?

R. What assumes an antecedent and concludes the consequent.

67. [81]

Q. What is the second mode of the connected [syllogism]?

R. What takes away the consequent that it may take away the an-
tecedent.

68. [83]

Q. What is a disjunct syllogism?

R. A disjunct syllogism is a compound syllogism with a disjunct
proposition.

69.

Q. What are its modes?

R. Two: the first takes away and concludes the other.

70. [85]

Q. What is the second mode of disjunct syllogisms?

R. From a proposition affirmed in all its parts, it assumes one and
takes away the rest.

71. [87]

Q. What is method?

R. Method is dianoetic disposition of various homogeneous ax-
ioms, clearly organized by their nature, from which every-
thing is judged to be in agreement between them and is re-
tained in the memory.

72.

Q. What is to be looked for in method?

R. That a notion clearer in itself precedes, and what is obscure
follows.

73.

Q. How is method to be distributed?

R. From homogeneous axioms, first from the first place, second
from the second, third from the third, and so forth.

74.

Q. How does method proceed?

R. From the universal to the singular.

End, of the book.