NEW RULES FOR SORITES

MUCH confusion prevails concerning what constitutes a categorical sorites. A survey of some twenty current texts employing the term reveals definitions varying from extreme generality (e. g., " simply a chain of syllogisms " [1]) to extreme specificity (e. g., " all sorites are in the first figure " [2]). One purpose of this article is to present a body of fact pertaining to sorites and to examine various definitions in light of it. Furthermore, many texts [3] leave the impression that there are two and only two types of sorites, namely " Aristotelian " and " Goclenian," that all sorites are governed by the two sets of rules commonly associated with these types, and that a sorites of one type may be transformed into one of the other type by reversing the order of the premises. Another purpose of this article is to correct the above impression by tabulating additional types of sorites and by stating new rules for some of these types.

If a sorites is a set of syllogisms such that the conclusion of one is a premise in another and in which all conclusions except the last one are unexpressed, then the number of possible types of sorites is determined by the number of ways in which a conclusion of one can become a premise of another. Basically there are two main types, namely, those in which the conclusion of one becomes the major premise of the next (hereafter called Type I) and those in which the conclusion of one is the minor premise of the next (hereafter called Type II). While these are not the only types (for some sorites consist of three syllogisms such that the conclusion of the first is the major premise of the second while the conclusion of the second is the minor

[1] F. M. Chapman and P. Henle, *The Fundamentals of Logic*, p. 99.

[2] G. D. Walcott, *An Elementary Logic*, p. 211.

[3] *Cf.* C. H. Patterson, *Principles of Correct Thinking*, pp. 114-15; D. L. Evans and W. S. Gamertsfelder, *Logic, Theoretical and Applied*, pp. 211-13; J. E. Creighton and H. E. Smart, *An Introductory Logic*, pp. 183-6.

premise of the third), they are the only types to be considered in this article. Furthermore, for sake of simplicity, consideration will be limited largely to sorites consisting of two syllogisms.

For convenience of reference, as well as thoroughness, all possible kinds of valid sorites of two syllogisms may be summarized in tables and numbered. Seventy-seven kinds of Type I and eighty-three kinds of Type II can be derived, in order, by combining each valid mood-figure with itself and every other valid mood-figure as many times as possible. It may be recalled that the valid mood-figures, including those with " weakened " conclusions, are AAA 1, AAI 1, AAI 3, AAI 4, AEE 2, AEE 4, AEO 2, AEO 4, AII 1, AII 3, AOO 2, EAE 1, EAE 2, EAO 1, EAO 2, EAO 3, EAO 4, EIO 1, EIO 2, EIO 3, EIO 4, IAI 4, OAO 3. See Tables I and II.

While all " Goclenian " sorites are of Type I and all " Aristotelian " sorites are of Type II, most texts leave unclear whether all sorites of Type I are " Goclenian " and all of Type II are " Aristotelian." If they are, then it is easy to show that the rules usually associated with " Goclenian " and " Aristotelian " sorites are not valid for all sorites of Types I and II respectively.

One " rule for Goclenian sorites " is that " if a premise is negative, it must be the first." This rule is violated by twenty-eight kinds. The second premise is negative in kinds 18-39 and 44, while the third premise is negative in kinds 5-8 and 11. Another " rule for Goclenian sorites " is that " if a premise is particular, it must be the last." This rule is violated by fourteen kinds. The first premise is particular in kinds 73-77, the second in kinds 40-44 and 69-72. Kind 44 violates both rules.

Two " rules for Aristotelian sorites " are that " if a premise is negative, it must be the last," and " if a premise is particular, it must be the first." The first rule is violated by twenty-eight kinds. The first premise is negative in kinds 32-41 and 54, the second in 55-70 and 83. The second rule is violated by sixteen

TABLE I

Valid Sorites of Two Syllogisms, Type I

1. AAA 1 + AAA 1 = AAAA
2. AAA 1 + AAI 1 = AAAI
3. AAA 1 + AAI 3 = AAAI
4. AAA 1 + AAI 4 = AAAI
5. AAA 1 + AEE 2 = AAEE
6. AAA 1 + AEE 4 = AAEE
7. AAA 1 + AEO 2 = AAEO
8. AAA 1 + AEO 4 = AAEO
9. AAA 1 + AII 1 = AAII
10. AAA 1 + AII 3 = AAII
11. AAA 1 + AOO 2 = AAOO

12. AAI 1 + IAI 3 = AAAI
13. AAI 1 + IAI 4 = AAAI
14. AAI 3 + IAI 3 = AAAI
15. AAI 3 + IAI 4 = AAAI
16. AAI 4 + IAI 3 = AAAI
17. AAI 4 + IAI 4 = AAAI

18. AEE 2 + EAE 1 = AEAE
19. AEE 2 + EAE 2 = AEAE
20. AEE 2 + EAO 1 = AEAO
21. AEE 2 + EAO 2 = AEAO
22. AEE 2 + EAO 3 = AEAO
23. AEE 2 + EAO 4 = AEAO
24. AEE 2 + EIO 1 = AEIO
25. AEE 2 + EIO 2 = AEIO
26. AEE 2 + EIO 3 = AEIO
27. AEE 2 + EIO 4 = AEIO
28. AEE 4 + EAE 1 = AEAE
29. AEE 4 + EAE 2 = AEAE
30. AEE 4 + EAO 1 = AEAO
31. AEE 4 + EAO 2 = AEAO
32. AEE 4 + EAO 3 = AEAO
33. AEE 4 + EAO 4 = AEAO
34. AEE 4 + EIO 1 = AEIO
35. AEE 4 + EIO 2 = AEIO
36. AEE 4 + EIO 3 = AEIO
37. AEE 4 + EIO 4 = AEIO

38. AEO 2 + OAO 3 = AEAO
39. AEO 4 + OAO 3 = AEAO

40. AII 1 + IAI 3 = AIAI
41. AII 1 + IAI 4 = AIAI
42. AII 3 + IAI 3 = AIAI
43. AII 3 + IAI 4 = AIAI

44. AOO 2 + OAO 3 = AOAO

45. EAE 1 + EAE 1 = EAAE
46. EAE 1 + EAE 2 = EAAE
47. EAE 1 + EAO 1 = EAAO
48. EAE 1 + EAO 2 = EAAO
49. EAE 1 + EAO 3 = EAAO
50. EAE 1 + EAO 4 = EAAO
51. EAE 1 + EIO 1 = EAIO
52. EAE 1 + EIO 2 = EAIO
53. EAE 1 + EIO 3 = EAIO
54. EAE 1 + EIO 4 = EAIO
55. EAE 2 + EAE 1 = EAAE
56. EAE 2 + EAE 2 = EAAE
57. EAE 2 + EAO 1 = EAAO
58. EAE 2 + EAO 2 = EAAO
59. EAE 2 + EAO 3 = EAAO
60. EAE 2 + EAO 4 = EAAO
61. EAE 2 + EIO 1 = EAIO
62. EAE 2 + EIO 2 = EAIO
63. EAE 2 + EIO 3 = EAIO
64. EAE 2 + EIO 4 = EAIO

65. EAO 1 + OAO 3 = EAAO
66. EAO 2 + OAO 3 = EAAO
67. EAO 3 + OAO 3 = EAAO
68. EAO 4 + OAO 3 = EAAO

69. EIO 1 + OAO 3 = EIAO
70. EIO 2 + OAO 3 = EIAO
71. EIO 3 + OAO 3 = EIAO
72. EIO 4 + OAO 3 = EIAO

73. IAI 3 + IAI 3 = IAAI
74. IAI 3 + IAI 4 = IAAI
75. IAI 4 + IAI 3 = IAAI
76. IAI 4 + IAI 4 = IAAI

77. OAO 3 + OAO 3 = OAAO

TABLE II

VALID SORITES OF TWO SYLLOGISMS, TYPE II

1. AAA 1 + AAA 1 = AAAA
2. AAA 1 + AAI 1 = AAAI
3. AAA 1 + AAI 3 = AAAI
4. AAA 1 + AAI 4 = AAAI
5. AAA 1 + EAE 1 = AAEE
6. AAA 1 + EAE 2 = AAEE
7. AAA 1 + EAO 1 = AAEO
8. AAA 1 + EAO 2 = AAEO
9. AAA 1 + EAO 3 = AAEO
10. AAA 1 + EAO 4 = AAEO
11. AAA 1 + IAI 3 = AAII
12. AAA 1 + IAI 4 = AAII
13. AAA 1 + OAO 3 = AAOO

14. AAI 1 + AII 1 = AAAI
15. AAI 1 + AII 3 = AAAI
16. AAI 1 + EIO 1 = AAEO
17. AAI 1 + EIO 2 = AAEO
18. AAI 1 + EIO 3 = AAEO
19. AAI 1 + EIO 4 = AAEO
20. AAI 3 + AII 1 = AAAI
21. AAI 3 + AII 3 = AAAI
22. AAI 3 + EIO 1 = AAEO
23. AAI 3 + EIO 2 = AAEO
24. AAI 3 + EIO 3 = AAEO
25. AAI 3 + EIO 4 = AAEO
26. AAI 4 + AII 1 = AAAI
27. AAI 4 + AII 3 = AAAI
28. AAI 4 + EIO 1 = AAEO
29. AAI 4 + EIO 2 = AAEO
30. AAI 4 + EIO 3 = AAEO
31. AAI 4 + EIO 4 = AAEO

32. AEE 2 + AEE 2 = EAAE
33. AEE 2 + AEE 4 = EAAE
34. AEE 2 + AEO 2 = EAAO
35. AEE 2 + AEO 4 = EAAO
35. AEE 4 + AEE 2 = EAAE
37. AEE 4 + AEE 4 = EAAE
38. AEE 4 + AEO 2 = EAAO
39. AEE 4 + AEO 4 = EAAO

40. AEO 2 + AOO 2 = EAAO
41. AEO 4 + AOO 2 = EAAO

42. AII 1 + AII 1 = IAAI
43. AII 1 + AII 3 = IAAI
44. AII 1 + EIO 1 = IAEO
45. AII 1 + EIO 2 = IAEO
46. AII 1 + EIO 3 = IAEO
47. AII 1 + EIO 4 = IAEO
48. AII 3 + AII 1 = IAAI
49. AII 3 + AII 3 = IAAI
50. AII 3 + EIO 1 = IAEO
51. AII 3 + EIO 2 = IAEO
52. AII 3 + EIO 3 = IAEO
53. AII 3 + EIO 4 = IAEO

54. AOO 2 + AOO 2 = OAAO

55. EAE 1 + AEE 2 = AEAE
56. EAE 1 + AEE 4 = AEAE
57. EAE 1 + AEO 2 = AEAO
58. EAE 1 + AEO 4 = AEAO
59. EAE 2 + AEE 2 = AEAE
60. EAE 2 + AEE 4 = AEAE
61. EAE 2 + AEO 2 = AEAO
62. EAE 2 + AEO 4 = AEAO

63. EAO 1 + AOO 2 = AEAO
64. EAO 2 + AOO 2 = AEAO
65. EAO 3 + AOO 2 = AEAO
66. EAO 4 + AOO 2 = AEAO

67. EIO 1 + AOO 2 = IEAO
68. EIO 2 + AOO 2 = IEAO
69. EIO 3 + AOO 2 = IEAO
70. EIO 4 + AOO 2 = IEAO

71. IAI 3 + AII 1 = AIAI
72. IAI 3 + AII 3 = AIAI
73. IAI 3 + EIO 1 = AIEO
74. IAI 3 + EIO 2 = AIEO
75. IAI 3 + EIO 3 = AIEO
76. IAI 3 + EIO 4 = AIEO
77. IAI 4 + AII 1 = AIAI
78. IAI 4 + AII 3 = AIAI
79. IAI 4 + EIO 1 = AIEO
80. IAI 4 + EIO 2 = AIEO
81. IAI 4 + EIO 3 = AIEO
82. IAI 4 + EIO 4 = AIEO

83. OAO 3 + AOO 2 = AOAO

kinds. The second premise is particular in 71-83, the last in 11-13. Both rules are violated by 83.

If, on the other hand, not all sorites of Type I are "Goclenian" and not all of Type II are "Aristotelian," then how shall "Goclenian" and "Aristotelian" sorites be distinguished from others? Some authors [4] state that all sorites are composed of syllogisms in the first figure. The above-cited rules do in fact hold for all sorites of Types I and II composed entirely of syllogisms in the first figure. But this number includes only kinds 1, 2, 9, 45, 47, and 51 of Type I and 1, 2, 5, 7, 14, 16, 42, and 44 of Type II, or only fourteen out of a total of one hundred and sixty kinds. What about the remainder?

Only two of those authors who recognized that these rules apply only to first-figure sorites mentioned that there might be sorites compised of syllogisms in other figures. Crumley[5] says that "in rare cases they may be in the second and third" while Keynes [6] raises the question of "the possibility of a sorites in a figure other than the first" and says that "for such sorites as are possible in figures 2, 3, and 4, other rules might be framed . . . ," but he does not pursue the matter.

Such rules are easy to formulate. Selecting from Tables I and II all sorites composed entirely of syllogisms in the second, third, and fourth figures, respectively we can observe what rules hold—for sorites composed of two syllogisms.

Type I sorites composed entirely of second-figure syllogisms are numbered 19, 21, 25, 56, 58, and 62. Rules: "If a premise is negative, it must be first or second. If a premise is particular, it must be last. All conclusions are negative." Type II sorites composed entirely of second-figure syllogisms: 32, 34, 40, 54,

[4] D. S. Robinson, *The Principles of Reasoning*, p. 150; O. L. Reiser, *Humanistic Logic for the Mind in Action*, p. 170; G. D. Walcott, *op. cit.*, p. 211.

[5] T. Crumley, *Logic, Deductive and Inductive*, p. 242.

[6] J. N. Keynes, *Studies and Exercises in Formal Logic, Fourth Edition*, pp. 373-6.

59, 61, 64, 68. Rules: "If a premise is negative, it must be first or second. If a premise is particular, it must be first. All conclusions are negative." Note that the rules for negative premises and for conclusions are the same for both Types, while the rule for particular premises is reversed.

Type I sorites composed entirely of third-figure syllogisms: 14, 42, 67, 71, 73, 77. Rules: "If a premise is negative, it must be first. If a premise is particular, it must be first or second." Type II third-figure sorites: 21, 24, 49, 52, 72, 75. Rules: "If a premise is negative, it must be last. If a premise is particular, it must be first or second." Note that rules for negatives are reversed, and that rules for particulars are the same.

Type I fourth-figure sorites: 17, 33, 37, 76. Rules: "If a premise is negative, it must be second. If a premise is particular, it must be first or last." Type II fourth-figure sorites: 31, 37, 39, 82. Rules: "If a premise is negative, it must be first or last. If a premise is particular, it must be second." Note that rules for negative and particular premises are interchanged.

Although above data warrant rules for sorites composed of two syllogisms only, the writer has ascertained that they hold for all possible sorites composed entirely of syllogisms in a single figure. Most of the possibilities are exhausted by combinations of three syllogisms, except the following which form indefinite series (the numbers correspond to numbers in Tables I and II for sorites of two syllogisms which serve as bases for the series):

SECOND FIGURE, TYPE I

19. AEE + EAE + EAE + EAE . . . = AEAAA . . . .
56. EAE + EAE + EAE + EAE . . . = EAAAA . . . .

SECOND FIGURE, TYPE II

32. AEE + AEE + AEE + AEE . . . = EAAAA . . . .
32. AEE + AEE + AEO + AOO + AOO . . . = EAAAAA . . . .
34. AEE + AEO + AOO + AOO . . . = EAAAA . . . .
40. AEO + AOO + AOO + AOO . . . = EAAAA . . . .
54. AOO + AOO + AOO + AOO . . . = OAAAA . . . .
59. EAE + AEE + AEE + AEE . . . = AEAAA . . . .
59. EAE + AEE + AEO + AOO + AOO . . . = AEAAAA . . . .
61. EAE + AEO + AOO + AOO . . . = AEAAA . . . .
64. EAO + AOO + AOO + AOO . . . = AEAAA . . . .
68. EIO + AOO + AOO + AOO . . . = IEAAA . . . .

THIRD FIGURE, TYPE I

14. AAI + IAI + IAI + IAI . . . = AAAAA . . . .
42. AII + IAI + IAI + IAI . . . = AIAAA . . . .
67. EAO + OAO + OAO + OAO . . . = EAAAA . . . .
71. EIO + OAO + OAO + OAO . . . = EIAAA . . . .
73. IAI + IAI + IAI + IAI . . . = IAAAA . . . .
77. OAO + OAO + OAO + OAO . . . = OAAAA . . . .

THIRD FIGURE, TYPE II

21. AAI + AII + AII + AII . . . = AAAAA . . . .
49. AII + AII + AII + AII . . . = IAAAA . . . .
72. IAI + AII + AII + AII . . . = AIAAA . . . .

FOURTH FIGURE, TYPE I

17. AAI + IAI + IAI + IAI . . . = AAAAA . . . .
76. IAI + IAI + IAI + IAI . . . = IAAAA . . . .

FOURTH FIGURE, TYPE II

37. AEE + AEE + AEE + AEE . . . = EAAAA . . . .[7]

Formulation of rules for sets of sorites composed entirely of syllogisms in the same figures covers forty-eight of the one hundred and sixty kinds of sorites listed in Tables I and II.

[7] The last three of these series (numbered 17, 76, and 37) stand as evidence contradictory to Keynes' statement, "It will be found that a sorites of figure 4 cannot have more than a limited number of premises." *Op. cit.*, p. 376, footnote.

What about the other one hundred and twelve kinds? Rules similar to those above could be derived for each of the following valid mixed-figure combinations. Type I: figures one and two, one and three, one and four, two an done, two and three, two and four, three and four, four and one, four and two, four and three. Type II: figures one and two, one and three, one and four, two and four, three and one, three and two, three and four, four and one, four and two, four and three. Other rules could be derived for three-syllogism mixed-figure combinations. No further rules of this sort are derived here.

Positions of terms in sorites are stated variously by different definers. Crumley [8] specifies that, in a Goclenian sorites, "the first proposition is a major premise; all the rest are minors, except the conclusion." Failure to specify further seems significant since he recognizes sorites in figures other than the first. Other definers [9] specify not only that the major term of a Goclerian sorites is in the first premise, but also that it is the predicate of the first premise, and that the minor term is the subject of the last premise. Others [10] add further that "the term common to two successive premises occurs first as subject and then as predicate." These statements properly apply, with increasing specificity, to sorites of Types I (reversed for Type II) in the first figure. Can similar rules be stated for sorites in figures two, three, and four, and for the one hundred and twelve other kinds tabulated above? Yes, quite easily. For convenience, they have been summarized in Table III.

[8] *Op. cit.*, p. 242.

[9] Patterson, *op. cit.*, p. 115; Creighton and Smart, *op. cit.*, p. 186; Reiser, *op. cit.*, p. 171; Walcott, *op. cit.*, p. 214.

[10] Keynes, *op. cit.*, p. 370; L. S. Stebbing, *A Modern Introduction to Logic*, p. 109; M. R. Cohen and E. Nagel, *An Introduction to Logic and Scientific Method*, p. 95.

TABLE III

TYPE I

1				9					
M1	P		1, 2,	M1	M2		29, 31,		
M2	M1		9, 45,	M2	P		35.		
S	M2		47, 51.	S	M1				
S	P			S	P				
2				10					
P	M1		18, 20,	M1	M2		19, 21,		
M2	M1		55, 57,	P	M2		25, 56,		
S	M2		61.	S	M1		58, 62.		
S	P			S	P				
3				11					
M1	P			M1	M2				
M1	M2			M1	P				
S	M2			S	M2				
S	P			S	P				
4				12					
P	M1		28, 30,	M1	M2		5, 7,		
M1	M2		34.	P	M1		11, 46,		
S	M2			S	M2		48, 52.		
S	P			S	P				
5				13					
M1	P		3, 10,	M1	M2		17, 33,		
M2	M1		12, 40,	M2	P		37, 76.		
M2	S		49, 53,	M1	S				
S	P		65, 69.	S	P				
6				14					
P	M1		22, 26,	M1	M2		23, 24,		
M2	M1		38, 44,	P	M2		27, 60,		
M2	S		59, 63,	M1	S		64.		
S	P		66, 70.	S	P				
7				15					
M1	P		14, 42,	M1	M2		15, 43,		
M1	M2		67, 71,	M1	P		74.		
M2	S		73, 77.	M2	S				
S	P			S	P				
8				16					
P	M1		16, 32,	M1	M2		4, 6,		
M1	M2		36, 39,	P	M1		8, 13,		
M2	S		68, 72,	M2	S		41, 50,		
S	P		75.	S	P		54.		

TYPE II

1				9					
S	M1		1, 2,	M1	M2		27, 30,		
M1	M2		5, 7,	S	M1		78, 81.		
M2	P		14, 16,	M2	P				
S	P		42, 44.	S	P				
2				10					
S	M1		6, 8,	M1	M2		31, 37,		
M1	M2		45, 55,	S	M1		39, 82.		
P	M2		57, 63,	P	M2				
S	P		67.	S	P				
3				11					
S	M1			M1	M2				
M2	M1			S	M2				
M2	P			M1	P				
S	P			S	P				
4				12					
S	M1		32, 34,	M1	M2		33, 35,		
M2	M1		40, 54,	S	M2		60, 62.		
P	M2		59, 61,	P	M1				
S	P		64, 68.	S	P				
5				13					
M1	S		20, 22,	M1	M2		21, 24,		
M1	M2		48, 50,	M1	S		49, 52,		
M2	P		71, 73.	M2	P		72, 75.		
S	P			S	P				
6				14					
M1	S		23, 51,	M1	M2		25, 53,		
M1	M2		65, 69,	M1	S		76.		
P	M2		74, 83.	P	M2				
S	P			S	P				
7				15					
M1	S		26, 28,	M1	M2		3, 9,		
M2	M1		77, 79.	M2	S		11, 13,		
M2	P			M1	P		15, 18,		
S	P			S	P		43, 46.		
8				16					
M1	S		29, 36,	M1	M2		4, 10,		
M2	M1		38, 41,	M2	S		12, 17,		
P	M2		66, 70,	P	M1		19, 47.		
S	P		80.	S	P		56, 58,		

This table consists of thirty-two " patterns " (the term " figures " is reserved here for syllogisms)—sixteen for each Type. It was derived by calculating all possible patterns and arranging them so that the premises in the first column of Type II are the reverse of those in the first column of Type I and so that the first two premises of each pattern in the first column are reversed in the second column—for both Types. When Tables I and II were checked for exemplifications, all patterns except 3 and 11 for each Type were found to be exemplified. The number of times each pattern is exemplified may be noted by counting the numbers, representing sorites in Tables I and II, listed beside each pattern. Rules with respect to positions of terms for all kinds of sorites (of two syllogisms, not including mixed types) may be stated simply by observing these patterns. If " Goclenian " sorites consist entirely of syllogisms in the first figure, the rules stated above may be observed to be merely a description of pattern 1, Type I. If " Aristotelian " sorites consist entirely of first-figure sorites, its rules describe pattern 1, Type II. Similarly, term-position rules for other single-figure sorites may be noted by observing the relevant patterns of Types I and II. Second-figure sorites have patterns 10 and 4, respectively; third-figure sorites 7 and 13; fourth-figure sorites 13 and 10. These eight sets of rules covering single-figure sorites leave twenty sets to cover the remaining one hundred and twelve kinds of sorites.

The notion that the symmetry suggested by certain pairs of first-figure sorites is essential to the nature of sorites needs to be dispelled. The common practice of calling " Aristotelian " and " Goclenian " sorites " progressive " and " regressive," respectively, and of pointing out that the rules regarding both kinds of premises and positions of terms are the reverse of each other, promotes this notion. That sorites of Types I and II cannot be transformed into each other by reversal of premises should be evident from certain contrary data: The number of

kinds of sorites of Type I (seventy-seven) is different from the number of Type II (eighty-three). Rules for kinds of premises cited above are not always the reverse of each other, even for single-figure sorites. Rules for positions of terms (patterns) are not always the reverse of each other, even for single-figure sorites. The numbers of kinds of sorites exemplifying each reversed pattern are almost always different. Even the numbers of kinds of sorites exemplifying pairs of single-figure patterns are different for first- and second-figure sets. There are six kinds of first-figure sorites of Type I (pattern 1) as compared with eight of Type II (pattern 1), and six kinds of second-figure sorites of Type I (pattern 10) as compared with eight of Type II (pattern 4).

Another characteristics of sorites suggested by several definers, and stated as essential by one,[11] namely, they should be "arranged so that any two successive premises contain a common term," needs some consideration. If limited to first-figure sorites, the rule holds. But if applied to all sorites, it would eliminate all kinds of sorites listed in the second columns for both Types in Table III, including all second- and fourth-figure sorites of Type I and all third- and fourth-figure sorites of Type II. All others listed in Table III conform to this rule. Thus it seems unwise to state this rule, which undoubtedly was framed with only first-figure sorites in mind, as essential to all sorites.

The purposes of this article have been achieved. No conclusion has been stated, however, with respect to the proper meanings of the terms "Goclenian" and "Aristotelian." But it may be suggested either that they be discarded or that they be used in ways which make clear that they are intended to apply only to first-figure sorites.

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[11] Stebbing, *op. cit.*, p. 109.