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# XII\*—CHRYSIPPUS AND THE EPISTEMIC THEORY OF VAGUENESS

by Susanne Bobzien

**ABSTRACT** Recently a bold and admirable interpretation of Chrysippus's position on the Sorites has been presented, suggesting that Chrysippus offered a solution to the Sorites by (i) taking an epistemicist position<sup>1</sup> which (ii) made allowances for higher-order vagueness.<sup>2</sup> In this paper I argue (i) that Chrysippus did not take an epistemicist position, but—if any—a non-epistemic one which denies truth-values to some cases in a Sorites-series, and (ii) that it is uncertain whether and how he made allowances for higher-order vagueness, but if he did, this was not grounded on an epistemicist position.

## I

The Sorites-paradox originated in antiquity. At the time of the Stoic Chrysippus it was typically presented in the form of a dialectical game of questioning—perhaps as follows:<sup>3</sup>

'Does one grain of wheat make a heap?'—'No'. 'Do two grains of wheat make a heap?'—'No' 'Do three?'—'No'.—etc. If the respondent switches from 'no' to 'yes' at some point, they are told that they imply that one grain can make a difference between heap and non-heap, and that that's absurd.<sup>4</sup> If the respondent keeps answering 'no', they'll end up denying e.g. that 10,000

1. Epistemicism, or the epistemic theory of vagueness, is the position that 'The proposition a vague sentence expresses in a borderline case is true or false, and we cannot know which. We are ignorant of its truth-value.' Cf. T. Williamson, *Vagueness* (London, 1994), C. Wright, 'The Epistemic Conception of Vagueness', *Southern Journal of Philosophy* 33 (Suppl.) 1995, 133–59; R. Keefe, *Theories of Vagueness* (Cambridge, 2000) chs 3 and 8.3.

2. Williamson 1994, ch. 1.

3. Cf. Galen, *Medical Experience* XVI.1–2 and XVII.102 (Walzer), Cicero, *Academics* 2.93. There is also evidence for a formal premiss-conclusion version (Diogenes Laertius 7.82). But there's no evidence that Chrysippus discussed the Sorites in that form. The Chrysippian argument Williamson (p. 25) adduces (Plutarch *On Common Conceptions* (hereafter *Comm.not*) 1084cd) has a different form. It isn't a Little-by-Little argument. (See also n. 36.)

4. Cf. e.g. Sextus Empiricus *Against the Mathematicians* 1.69, *Gal.Med.exp.*XVII.3, XX.3.

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grains of wheat make a heap. And, they are told, that's also absurd.<sup>5</sup>

Chrysippus filled several papyrus scrolls writing on the Sorites-paradox, or Little-by-Little argument, as it was also called. These are lost. What has survived are a sentence or two in the partly extant papyrus of Chrysippus's *Logical Investigations* and three short passages in which opponents of the Stoics present part of Chrysippus's view on the Sorites. That's all. Our task is to see how much of Chrysippus's position can be restored by taking into account whatever else from Stoic logic, epistemology and philosophy in general may be relevant.

Two preliminary notes: (i) In modern discussions, the Sorites is often seen as just one factor among several which have to be done justice to in a satisfactory theory of vagueness. For antiquity, there is no evidence of an independent theory of vague expressions (or objects); rather the challenge was solely to find a satisfactory explanation of the Sorites-paradox. Evidently, any such explanation suggested by a philosopher would have to square with their philosophy in general; but there is no evidence that any philosopher felt bound to a particular solution of the Sorites because they subscribed to particular philosophical or logical theories. (ii) It is possible for someone to hold certain views about the Sorites-paradox without believing they have solved it. This is likely to have been Chrysippus's situation. There is no positive evidence that he thought he had provided a solution. His books on the Sorites<sup>6</sup> are not entitled 'solutions', as some about other paradoxes are. Nor does any of the other passages claim, suggest, or imply, that Chrysippus thought he'd solved the paradox.<sup>7</sup>

## II

*Bivalence.* The incentive to make Chrysippus an epistemicist comes from the fact that he's known to have accepted the

5. Chrysippus *Logical Investigations* col.IX, quoted in Section III; *Gal.Med.exp.XVI.1-2*.

6. DL.7.192 and 197.

7. In his *Logical Investigations* he stresses the difficulties into which one gets because of the Little-by-Little argument. The other passages concern only Chrysippus's advice to fall silent at a particular point in a Sorites questioning. This is not a solution, nor does it presuppose a solution. Finally, the Sorites, like the Liar-paradox, was classified by the Stoics as insoluble (*aporos*), which suggests at least that no solution was found that made the *aporia* disappear completely.

Principle of Bivalence for propositions.<sup>8</sup> This leads to the following train of thought: every step in a Sorites-questioning corresponds to a proposition; hence every premiss-question in a Sorites-series corresponds to something true or false. Since in borderline cases one cannot tell the truth-value, Chrysippus must have held that in such cases one cannot *know* it. *Ergo* Chrysippus was an epistemicist. The following reasons are given for this claim:

For every proposition  $P$  there is one right answer to the question ' $P?$ '; it is 'Yes' if  $P$  is true and 'No' if  $P$  is false. Consequently, for every sequence of propositions  $P_1, \dots, P_n$  there is one sequence of right answers to the question ' $P_1?, \dots, P_n?$ ', each member of which is either 'Yes' or 'No'.<sup>9</sup>

The Stoics themselves distinguished the proposition asserted from the sentence by means of which it is asserted. However, someone who utters '*i* are few' ... does assert something, which on the Stoic view requires the sentence to express a proposition.<sup>10</sup>

These passages, taken together, imply the following statements:  
For Chrysippus

- (i) every proposition, including those used in sophisms, is either true or false.
- (ii) someone who utters a (declarative) sentence (e.g. '*i* are few') asserts something.
- (iii) every (declarative) sentence ' $P$ ' expresses a proposition  $P$ .<sup>11</sup>
- (iv) for every question sentence ' $P?$ ' there is a proposition  $P$ .

I will now show that (ii)—(iv) are false. By implication I will have shown that, by holding the Principle of Bivalence for (ordinary) propositions, Chrysippus is not committed to an epistemicist position and a sharp true/false cut-off point in Sorites series.

To see how Chrysippus may have dealt with the Sorites-paradox, it isn't sufficient to look at Stoic logic in general, or at Stoic logic as used in non-Sophistic discourse. Rather, and above all, one needs to look at the Stoic treatment of other sophisms, and

8. For the Stoic concept of propositions (*axiōmata*) see *The Cambridge History of Hellenistic Philosophy (CHHP)*, (Cambridge 1999), 92–6.

9. *Vagueness* 12.

10. *Ibid.* 13

11. Since for the Stoics everything asserted is a proposition.

at Stoic irregular cases of rational impressions and language use. And there is plenty of relevant material here. First, the evidence for the falsehood of (ii)—(iv).

The Stoics made several distinctions among rational impressions. These are relevant, since humans have access to ‘meanings’,<sup>12</sup> including propositions, only by entertaining a corresponding impression. Thus semantic predicates used of propositions are also used—derivatively—of impressions. However, in the case of impressions the possibilities of combination are greater:

Of ... impressions some are true, some false, some both true and false, some neither true nor false. True are those of which it is possible to make a true assertion ... false are those of which it is possible to make a false assertion ... an example of a true and false impression is that of Electra experienced by Orestes in his madness ... . Neither true nor false are the generic impressions; for the genera of things whose species are of this or that kind are neither of this nor of that kind; for instance, whereas some men are Greeks, others barbarians, generic Man is neither Greek (for then all specific men would be Greeks), nor barbarian (for the same reason).<sup>13</sup>

We can assume that to an impression which is both true and false or neither true nor false no (one) proposition corresponds. However, grammatically,<sup>14</sup> or in their surface structure, those impressions don’t differ from impressions to which a proposition corresponds. (E.g. ‘Man is Greek’ would be an example of a generic impression.) Thus the mere fact that something (a sentence, an impression) has the form of a declarative sentence doesn’t guarantee a corresponding proposition, and, since only propositions can be asserted, it doesn’t guarantee either that someone who utters it asserts something.

The fact that not all declarative sentences have a corresponding proposition seems also to have been exploited in the solutions proposed for certain sophisms. Thus we have the sophism

If someone is in Athens, that one is not in Megara.  
Now man is in Athens.  
Hence, man is not in Megara.

12. Complete ‘sayables’ (*lekta*).

13. *SE.M.7.244–246*.

14. I can have an impression ‘Man is Greek’ because you say ‘Man is Greek’, so we can speak *in this sense* of the grammar of impressions.

This is a sophism, since its form seems valid, its premisses true, its conclusion false. (Man is as much in Athens as in Megara, in the sense that there are humans in both places.) The solution offered was most probably that the second premiss was an impression which is neither true nor false, and to which thus no proposition corresponds, since 'man' is a generic term, and to impressions where a predicate designed to be predicated of individuals is predicated of a generic term, no proposition corresponds.<sup>15</sup> What we learn from this case is that the Stoics allowed sophisms to contain sentences or impressions to which no propositions correspond, and which accordingly have no truth-value.

That the Stoics admitted declarative sentences without corresponding propositions is also attested for Chrysippus directly. He holds that, when the referent of the demonstrative 'this one' in the sentence 'this one is dead' has died, the corresponding proposition ceases to subsist. But the sentence, possibly including an act of demonstration, is still there. More generally, Chrysippus held that sentences of the form 'This one is *F*' will not have a corresponding proposition if no demonstration to an intended referent accompanies the utterance.<sup>16</sup>

The fact that Chrysippus was ready to give up or by-pass the Principle of Bivalence in special cases, such as insoluble sophisms, is moreover clearly manifested in his treatment of the Liar and similar paradoxes. As in the case of the Sorites, we only have fragmentary evidence of Chrysippus's view. But in this case there is indubitable evidence that Chrysippus was ready to either give up or by-pass basic logical principles, including that of Bivalence.<sup>17</sup> The relevant texts allow two main lines of interpretation. Either (i) the premiss of the Liar 'I am speaking falsely', though resembling a proposition, is in fact not one, because it is neither true nor false, or (ii) it is a proposition, but is for some reason exempted from bivalence.<sup>18</sup> Surely, if Chrysippus allowed

15. The sophism may additionally have played on the ambiguity of *anthrōpos* meaning 'man' and 'a man'.

16. Cf. *CHHP*, 98–100.

17. *Plut. Comm. not.* 1059d-e, *Cic. Acad.* 2.95–7.

18. See e.g. A. Rüstow, *Der Lügner: Geschichte, Theorie und Auflösung* (Leipzig, 1910); M. Mignucci, 'The Liar Paradox and the Stoics', in K. Ierodiakonou (ed.), *Topics in Stoic Philosophy* (Oxford, 1999) 54–70; *Alex. Top.* 188.19–28. I favour (i).

premisses of the Liar and similar paradoxes to be exempted from bivalence in either of these ways, he may have done the same for premisses of the Sorites.<sup>19</sup>

To sum up: there is plenty of evidence for the fact that the Stoics, including Chrysippus, admitted declarative sentences and rational impressions to which no proposition corresponds, and which were exempted from bivalence, and that such sentences or impressions were taken to occur in the insoluble arguments. For Chrysippus, bivalence may have been sacrosanct for propositions.<sup>20</sup> But in the case of sophisms, bivalence was bypassed by distinguishing between sentences and impressions to which propositions correspond, and those to which none correspond. Hence his holding of the Principle of Bivalence did not commit Chrysippus to an epistemicist position on the Sorites.

### III

*Vague Expressions.* The basic intuition about so-called borderline cases of a Sorites-series is that there is no (one) fact of the matter. It is natural to assume that the Stoics shared this intuition. This tallies nicely not only with the result of Section II, that the Stoics may have deemed sentences expressing borderline cases not to be propositions, but also with their account of propositions—that a true proposition is one that obtains and has a contradictory, and a false proposition is one that doesn't obtain and has a 'contradictory'.<sup>21</sup> Assuming that '51 are few' is a borderline case, the Stoics would then have thought neither it nor its contradictory to obtain. As to whether 51 are few, there would simply be no fact of the matter; there would be no propositions corresponding to '51 are few' and 'not: 51 are few' and their compounds.

Although the ancients appear not to have discussed vagueness as such, they seem to have referred to vague expressions (in the semi-technical sense of Sorites-prone expressions) as being

19. Chrys.*Log.Inv.col.IX*, one sentence before mentioning the Little-by-Little argument, considers a proposition-like type of complete sayable, which isn't a proposition. This suggests the possibility of a solution of the Sorites in which the force of e.g. '51 are few' is claimed not to be assertive, but of a different kind. (Such a position on borderline cases has been suggested by S. Schiffer.)

20. Or propositions in non-sophistic discourse.

21. *SE.M.8.10* and 85. The Stoics regarded true propositions as facts.

indefinite (*aoristos*):

First, now, just as the ⟨expression⟩ ‘many’ is indefinite and gives rise to the Sorites-paradox, so is the ⟨expression⟩ ‘most’.<sup>22</sup>

Hence presumably Sorites-prone expressions such as ‘heap’ and ‘bald’ were also classified as indefinite. If so, the things Chrysippus said about ‘indefinites’ in his writings on sophisms may have been connected to the Sorites.<sup>23</sup> Here’s what we have:

For he (i.e. Chrysippus) denies of a conjunction of indefinite contradictories that it is straightforwardly false ...<sup>24</sup>

Perhaps this sentence alludes to the fact that Chrysippus held that in borderline cases with indefinites such as ‘51 are few’, a conjunction formed of ‘contradictories’ (‘51 are few and not: 51 are few’) is not straightforwardly false, since this is the sort of thing we say in borderline cases, and find acceptable.<sup>25</sup> Again, this points to the interpretation that e.g. the impression (and the sentence) ‘51 are few’ were considered to have no corresponding propositions. Two Chrysippian book titles and a sentence from his *Logical Investigations* provide further information:

Proofs that the indefinites should not be cut.  
To those who object to those against cutting the indefinites.<sup>26</sup>

22. SE.M.1.68.

23. *aoristos* is also used to name propositions with an indefinite pronoun (‘someone’) in subject place. But the Stoics often used the same word for different technical expressions, as long as no confusion arose.

24. Plut. *Comm.not.*1059d-e, reading *aoristōn* for *ō ariste*.

25 Sorites borderline cases may have been thought of as impressions which (have no proposition corresponding to them and) are both plausible and implausible, depending on the context in which they are considered. Cf. SE.M.7.242–3: ‘Of impressions, some are plausible, some implausible, some both plausible and implausible, some neither plausible nor implausible ... . Both plausible and implausible are those which, according to the relation in which they stand, are now of this kind and now of that, as for instance the impressions of the insoluble arguments. Neither plausible nor implausible are e.g. the (impressions) of the following things (i.e. propositions): the stars are even in number, the stars are odd in number’. Williamson (p. 15) uses the Stoic example ‘the stars are even’ to corroborate his claim that Chrysippus was an epistemicist (them having a truth-value unknowable to us). However, the above passage shows that these impressions were regarded as belonging to a different class than those in insoluble sophisms. Hence they cannot be used to support the claim that Chrysippus was an epistemicist.

26. DL.7.197.

And up to what point one must continue to give the same answer is difficult because of the Little-by-Little argument, and in the same way, when one has to make a cut with regard to one's answer, it is likely that this isn't possible either.<sup>27</sup>

We don't *know* what 'cutting' meant in the context of sophisms. But as there seems to have been a debate about cutting indefinites, and making cuts was discussed in the context of one's answers in a Sorites-questioning, and Chrysippus suggested that this may be impossible, we can venture a guess: When one comes to the borderline cases in a Sorites-series, it isn't possible to answer the *i*-th case with 'yes', and the (*i* + 1)-th case with 'no'. One cannot make such a cut in the series of answers because in borderline cases there is no fact of the matter (and thus no corresponding proposition). In the books listed above Chrysippus may have produced arguments along these lines for why it is impossible to change from 'yes' to 'no' in series of sentences with indeterminate expressions in predicate position.

Thus our evidence for Chrysippus's treatment of sophisms, including the Sorites, harmonizes considerably better with a non-epistemicist than with an epistemicist position on the Sorites-paradox.

#### IV

*Independent Evidence for Sharp Cut-off Points?* In order to corroborate his claim that Chrysippus was an epistemicist, Williamson puts forward what he believes to be three pieces of 'independent evidence that the Stoics accepted sharp cut-off points'.<sup>28</sup> He closes the paragraph saying: 'The Stoics were prepared to apply bivalence to Sorites reasoning and swallow the consequences.' Thus we can assume that Williamson takes it that we have evidence for the Stoics having a sharp *true/false* cut-off point in Sorites-series. However, I note that the fact that a philosopher accepts some sharp cut-off points somewhere in their theory is no evidence for their believing that there is a sharp cut-off point from truth to falsehood in Sorites cases. Most philosophers with a view on vagueness are not epistemicists. And most

27. Chrys.*Log.Inv.col.IX*.

28. *Vagueness* 13.

of these non-epistemicists accept many sharp cut-off points somewhere in their theories. I now consider the three pieces of evidence in turn.

(1) 'First and most tenuous, in Cicero's account Chrysippus compares himself to a clever charioteer who pulls up his horses before he comes to a precipice; what is the sharp drop if not from truth to falsity?'<sup>29</sup> The passage referred to is *Cic.Acad.2.94*: 'like a clever charioteer before I get to the end, I shall pull up my horses, and all the more so if this place to which they go is precipitous: I pull up in time as he does, and when captious questions are put I don't reply any more'. It can be shown that the precipice of the analogy doesn't stand for the 'sharp drop from truth to falsity'. Rather, the precipice in which one is not meant to fall is the absurdity of having to assent to an evident falsehood.

- (i) First, this is suggested by the passage itself. 'This place' refers back to 'the end'. The end of the *explicandum* of the analogy (the Sorites-questioning) is the absurdity of assenting to an evident falsehood. At that point the respondent has lost the game. Hence the precipitous place to which the horses proceed in the analogy stands for this absurdity of assenting to something evidently false.
- (ii) Second, the analogy is meant to explicate Chrysippus's advice to 'stop some (considerable) time before you reach many'.<sup>30</sup> Here 'the end' that is to be avoided, and hence the 'precipice', would be reaching 'many', i.e. reaching the cases which one perceives as evidently not few, and still answering 'yes' to the question 'are i few?'. This reaching 'many' is the point at which one has fallen into absurdity, not a sharp true/false drop.
- (iii) Third, another of the Chrysippian passages on the Sorites confirms that the precipice doesn't stand for a true/false divide, but for the absurdity of assenting to an evident falsehood: 'Chrysippus and his followers claim that when the Sorites is being propounded, one ought to halt and

29. *Ibid.* This analogy is in fact not attributed to Chrysippus, and may have only been propounded by some later philosopher.

30. *Cic.Acad.2.93.*

hold back while the argument is still proceeding, *in order to avoid falling into absurdity*.<sup>31</sup> Here the absurdity is, again, one's assenting to evident falsehoods.

- (iv) Fourth, the immediate context of the passage just quoted provides the following analogy: 'Just as if there were a road leading to a precipice, we don't push ourselves into the precipice just because there is a road leading to it but we avoid the road because of the precipice; so, in the same way, if there should be an argument which leads us to some agreed absurdity, we shan't assent to the absurdity just because of the argument but avoid the argument because of the absurdity.'<sup>32</sup> Here the analogy between a precipice and the absurdity to which one is led by an argument is explicitly made.

The idea of a chasm between truth and falsehood is thoroughly modern.<sup>33</sup> In the ancient Sorites the problem is not that one might fall down from the last true case to the first false, but that one may, starting from safe ground, i.e., saying 'yes' to what is evidently true, fall into something dangerous, i.e. an absurdity, by having to assent to something evidently false. Thus the 'first and most tenuous' piece of evidence for a sharp true/false cut-off point is no such thing.

(2) 'Second, in other cases which look susceptible to Sorites reasoning the Stoics insisted on sharp cut-off points. For example, they denied that there are degrees of virtue, holding that one is either vicious or perfectly virtuous'.<sup>34</sup> It is true that the Stoics held that there are no degrees of virtue, that one is either vicious or virtuous, and the same for all pairs of virtues and vices, and several other terms with evaluative connotations. However, the cases were not, in the eyes of the ancients, susceptible to Sorites reasoning,<sup>35</sup> for two reasons:

- (i) A Sorites argument typically works from clear cases via an obscure zone to clear cases of the opposite type. An

31. Sextus Empiricus, *Outlines of Pyrrhonism* (hereafter *PH*) 2.253.

32. *SE.PH.2.252*.

33. No ancient passage on the Sorites mentions a sharp true/false drop or cut-off point.

34. *Vagueness* 13.

35. Nor is there *any* evidence that the Stoics thought they were.

epistemicist assumes that somewhere in the obscure zone, unknowable to us, there is a sharp true/false cut-off point. In the case of Stoic virtue, there is no such pattern. Rather, virtue is a *limit*. Once something is a heap, it can still grow from a small heap to a bigger heap; once something counts as many, it can grow from just many to very many, etc. But once someone has become virtuous, they have become fully, maximally, perfectly, and most virtuous at that very time. Thus there is no sharp cut-off point *within a series of cases*, but (if there is such a thing as a series at all, see (ii)) we have a series of cases that ends, necessarily, with the first case of the other type, e.g. the first case of being virtuous. There is a clear asymmetry, whereas at least in the ancient Sorites cases there is a clear symmetry.

- (ii) All the ancient cases we know of as ‘proper’<sup>36</sup> Sorites arguments use numerical series. Given that for the Stoics vice and virtue are dispositions, there is no feasible way of constructing a numerical series from vice to virtue. One could perhaps construct one from virtue to vice: someone who is virtuous has dispositions to act and behave right in all situations. Now take someone who has dispositions to act and behave right in all but one situations; ... in all but two situations; etc. But this way about, of course, the cut-off point is evident: according to the Stoics the person is no longer virtuous after the first step. There is nothing in principle unknowable about the ‘cut-off’ point, and no paradox ensues.

(i) and (ii) make it clear that the cases of virtue, etc., provide no suitable parallel for unknowable true/false cut-off points.<sup>37</sup> Hence the second piece of evidence fails also.

(3) ‘Third, in rebutting the Sorites argument against cognitive impressions, Chrysippus dealt explicitly with the case “when the

36. In later antiquity, the terms ‘Sorites’ and ‘Little-by-Little argument’ are sometimes used for chain-arguments in which the predicates from one premiss to the next show a close similarity. However, *pace* Williamson (pp. 21 and 25), there is no evidence that the early Stoics thought of such arguments as ‘Sorites’ or ‘Little-by-Little arguments’. On the contrary, the Stoics used such arguments themselves to back up their tenets, and considered them sound and unproblematic, whereas they were quite clear about the fact that Sorites-arguments are fallacious.

37. Obviously, even if in these cases there *were* an unknown border, it doesn’t follow that there would be one in proper Sorites cases also.

last cognitive impression lies next to the first non-cognitive one"; cognitiveness has a sharp cut-off point.<sup>38,39</sup> The passage alluded to (SE.M.7.416) is discussed in Section VII. Let me here say only: (i) For the Stoics, being cognitive is a property of impressions; it is epistemic, in that it relates to the cognizability of one's impressions. By contrast, being true is a property of propositions, used only derivatively of impressions; it is not epistemic. (ii) The Stoic class of cognitive and non-cognitive impressions is not co-extensive with that of true and false impressions. Rather, cognitive impressions include part of the true impressions, and non-cognitive impressions include the rest of the true impressions, all false ones, *and* neither true nor false ones, *and* both true and false ones. (iii) Hence a sharp divide in a Sorites-series between cognitive and non-cognitive impressions is perfectly compatible with the absence of a sharp true/false divide and the presence of an intermediate range of neither true nor false impressions. (iv) It is likely that the Stoics thought that the borderline between cognitive and non-cognitive impressions in a Sorites-series is in principle cognizable. Thus the third and last piece of independent evidence fails as well.

Thus none of the points adduced as independent evidence for the assumption that Chrysippus was an epistemicist holds any ground.<sup>40</sup> I close this section on independent evidence with an 'argument from silence' which—I believe—carries some weight. If Chrysippus had thought the Sorites was solved by claiming that there is a sharp true/false divide in Sorites-series, but that it is impossible to know where, then we should have evidence for this. For (i) this is a position that can be stated in very simple terms (I just did it), and (ii) it is so counter-intuitive, that the sceptics would not have missed the opportunity to rant against it. But we find no such thing.

## V

*Falling Silent.* Chrysippus may not have thought that he had solved the Sorites; but he had something to say about it which

38. Williamson is in error in thinking that the context is Chrysippus's 'rebutting the Sorites argument against cognitive impressions'. *All* Sorites-arguments move from cognitive to non-cognitive impressions, and nothing in the quoted passage or its context suggests that Chrysippus is replying to a Sceptical argument.

39. *Vagueness* 13.

40. As much of what Williamson says in the rest of the chapter (pp. 15–27) is built on this assumption, that also fails.

posterity found worth preserving—if only to ridicule it and turn it back against the Stoics. What Chrysippus had to say was that, when taken through a Sorites-series, one should, at some point, fall silent.<sup>41</sup> Falling silent is a strategy that in antiquity was used in the ‘game’ of dialectical questioning. The standard answers permitted to the respondent in the game are to say ‘yes’ and ‘no’. Within the game, for the respondent to say anything else would be to break the rules.<sup>42</sup> Thus, in order to escape fallaciously reached conclusions, the *only* option that remains to the respondent is simply to *not* answer, to say nothing, to fall silent.<sup>43</sup> This strategy is illustrated well at Simplicius, *On Aristotle’s ‘Categories’* 24.9–21:<sup>44</sup>

In the case of syllogisms based on a homonymy the logicians advise falling silent at the point at which the questioner transfers the word to another meaning; e.g. when someone asked whether the garment is manly (i.e. a man’s garment), if it happens to be manly, we will concede this. And when it is asked whether that which is manly is brave, we will concede this, too, for it is true. But when it is inferred that the garment is therefore brave, one must separate the homonymy of the word ‘manly’ and show ...

Here the advice is to respond with ‘yes’ to the premisses, since—taken individually—they are true, but to fall silent at the moment when one is led into absurdity or falsehood, i.e. when the fallacious reasoning has been introduced. Then, in a second step, one is meant to step outside the game, onto the meta-level as it were, and explain the fallacious element(s) in the argument.

How would this two-step strategy be applied to Sorites arguments? First, one is to fall silent at the moment when the fallacious element is introduced.<sup>45</sup> But of course it is a salient

41. Or, as he put it, come to a halt and keep silent. Cf. *SE.M.7.416*, *Cic.Acad.2.93*. In one passage (*SE.PH.2.253*) we are told to stop and hold back (*epekhein*). ‘To hold back’ is the Stoic term for suspending belief; ‘falling silent’ and ‘holding back’ appear to describe the same strategy (cf. Plutarch, *Against Colotes* 1124a.) Not only is one not to say anything, one is also ‘inwardly’ not meant to assent to one’s impression.

42. Gellius, *Attic Nights* (hereafter *NA*) 16.2.1–3.

43. Thus Williamson’s extended argumentation on pp.15–20 why the Stoics used silence *rather than saying ‘I don’t know’ or ‘unclear’*, however interesting, is quite irrelevant. The Stoics ‘fall silent’, because there is no option to *say* anything but ‘yes’ or ‘no’. In particular, saying ‘I don’t know’ or ‘unclear’ aren’t options.

44. Cf. also Gell.*NA*.16.2.4–13, who illustrates the point with the paradoxical question ‘have you ceased committing adultery?’.

45. *Cic.Acad.2.94* ‘I pull up in time as he does and *when captious questions are put* I don’t reply any more’. Perhaps borderline cases are captious questions since their corresponding declarative sentences have no truth-value, but seem to have one?

feature of the Sorites that the fallacious element enters gradually and unnoticeably. Hence, we could adjust the strategy and express it in very rough terms as: one must fall silent before it's too late. Second, ideally, one should add some explanation concerning the argument's fallaciousness.

At which point in a Sorites-questioning are we meant to fall silent? The point is variously described as 'before the obscure',<sup>46</sup> 'while the argument is proceeding',<sup>47</sup> 'some time before coming to "many"',<sup>48</sup> and 'when the difference between the last cognitive impression and the first non-cognitive is hardly noticeable'.<sup>49</sup> To gain some clarity here, we must enter the topic of higher-order vagueness.

## VI

*Higher-Order Obscurity.* It may be that in a Sorites-series some cases are definite(-ly true or false), and others are indefinite (have no truth-value). It may also be that for some cases in a Sorites-series it is obscure to us whether they are true or false, or indefinite (if there are assumed to be such cases), and in other cases it isn't. The questions of indefiniteness and obscurity are at least in part independent. Obscurity is an epistemic relation between us, geared towards cognition, and the semantic value of the linguistic items we are confronted with. Indefiniteness is a property the linguistic items are meant to have independent of their being cognized. Thus if it is clear,<sup>50</sup> i.e. not obscure, to us whether something is true, false, or indefinite, it is definitely true, false, or indefinite; but if it is obscure to us whether it is true or false; or true or indefinite; or indefinite or false, it is still possible that it is in fact definitely true or indefinite or false.

So far, I have shown that there is no evidence for the claim that Chrysippus thought all cases in a Sorites-series are either true or false; moreover, that it is likely that he thought some to be neither true nor false, and perhaps called these 'indefinite'

46. Ibid.

47. *SE.PH.2.253*.

48. *Cic.Acad.2.93*.

49. *SE.M.7.416*.

50. Note that, unlike Williamson, I use 'clear' as the opposite of 'obscure' but not as synonym to 'cognitive'. See also Section VII and n. 70.

(Section III). Now I look at the question of obscurity. Here are some possible models, each depicting the range of a Sorites-series which includes the obscure area—if there is one. (In models with odd numbers, there are two or more areas such that for each case of the Sorites series it is clear to us whether or not it belongs to an area. In models with even numbers, there are between any two such areas areas such that it is obscure for the cases in them whether they belong to the ‘left’ or ‘right’.)

**model 1**

clear ‘yes’		clear ‘no’
-------------	--	------------

**model 2**

clear ‘yes’	$\xi$	clear ‘no’
-------------	-------	------------

obscure whether  
clear ‘yes’ or  
clear ‘no’

**model 3**

clear ‘yes’		clear obscure		clear ‘no’
-------------	--	---------------	--	------------

**model 4**

clear ‘yes’	$\xi$	clear obscure	$\xi$	clear ‘no’
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obscure whether clear ‘yes’ or obscure	obscure whether obscure or clear ‘no’
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The sequence of models can, in principle, go on *ad infinitum*.<sup>51</sup>

There is no direct evidence for Chrysippus’s view on obscurity as it occurs in Sorites-series. But at Cic.*Acad.*2.94 we read ‘you deny that you progress to the obscure cases. Hence you stop at the lucid cases,’ addressed to a Stoic of Chrysippean bent. ‘Obscure’ (*obscurus*) is here used as an epistemic term; obscure is obscure to us. Thus the ancients seem to have assumed that a typical Sorites-series includes obscure cases, i.e. cases where no

51. E.g. **model 5** has five neatly divided areas: non-obscurely ‘yes’; non-obscurely obscure whether ‘yes’ or obscure; non-obscurely obscure; non-obscurely obscure whether obscure or ‘no’; non-obscurely ‘no’. **Model 6** has areas corresponding to the five of **model 5**, and in addition in between any two adjacent ones, there is an area where it is obscure whether the cases in it belong to the ‘left’ or ‘right’.

clear answer suggests itself. Hence **model 1** can be excluded. As the Sorites was standardly performed in question form, we can venture an explanation of ‘obscure’ that tallies with this:

(the sentence) ‘ $n$  grains make a heap’ is obscure iff(f) it’s not clear whether one should answer ‘yes’ or ‘no’ to the question ‘do  $n$  grains make a heap?’<sup>52</sup>

The sentence quoted tells us further that the Stoics won’t progress to the obscure cases, but fall silent *before* these. More precisely, they will fall silent *at* some clear case.<sup>53</sup>

Why do the Stoics not stop *at* (the first of) the obscure cases, but *before*? We know that the general policy of falling silent counsels doing so at the step at which the fallacious element is introduced (Section V). One possible line of answer then is this: the Stoics thought we cannot know which case is the first obscure one.<sup>54</sup> Let’s explore this. If the Stoics thought we couldn’t know the first obscure case (e.g. because there is no such thing), they presumably also thought that we couldn’t know the last clear case. Thus they thought that between the clear ‘yes’ and ‘no’ cases there are cases (somewhere) such that it is obscure what category they belong to. So we can exclude **model 3**. Did Chrysippus then assume **model 2** or **4**? The difference is roughly whether one permits obscure cases for which it isn’t obscure whether they are obscure. Cicero’s talk of ‘the obscure cases’ suggests that the Stoics held that there were at least some such cases. This suggests **model 4** or higher even-numbered ones. Then the Stoic reason for stopping *before* the obscure cases could have been that for some cases in the series they thought it to be obscure whether they are obscure. These cases would lie between those that are (clearly) non-obscure and those that are (clearly)

52. This explanation leaves it open whether the obscurity has its origin in some corresponding indefiniteness or whether it is *merely* a limitation of our cognitive apparatus.

53. The charioteer-analogy similarly suggests that one should stop *on safe ground*, which indicates a case in the series before the obscure starts. Similarly at Cic.*Acad.*2.93 Chrysippus is said to require us to stop ‘some time before the many’.

54. From here on everything in this section is based on this—unproven—supposition. Alternatively, the Stoics advocated stopping before the obscure cases, since they accepted the principle that ‘*one* doesn’t make a difference’, and hence they fell silent lest they were drawn into assenting to the wrong cases (SE.*M.*7.417), e.g. because the principle would have committed them to do so. (Cf. interpretation (i) in Section VII).

obscure.<sup>55</sup> In terms of the above explanation of obscurity, we obtain:

(the sentence) ‘“*n* grains make a heap” is obscure’ is obscure if(f) it’s not clear whether one should answer ‘yes’ or ‘no’ to the question ‘is (the question) “do *n* grains make a heap?” obscure?’

Theoretically, this move is infinitely iterable, producing **models 6, 8, 10**, etc. Chrysippus’s advice to stop *before* the obscure cases would make allowances for all higher-order obscurity in one go: you have to stop answering before there’s even a tinge of obscurity. If this was the reason for Chrysippus’s advice to stop before the obscure cases, he had worked out the idea of higher-order obscurity, and hence had a reasonably sophisticated understanding of the Sorites. But we don’t know whether this was his reason.

In any event, note the following two points: (i) whether Chrysippus held the conception of higher-order obscurity developed above is entirely independent of whether he was an epistemicist. **Models 2, 4, 6**, etc. are perfectly compatible with the view that all or some of the obscure cases are neither true nor false, but, say, indefinite; (ii) the above deliberations have not made any use of the Stoic distinction between cognitive and non-cognitive impressions. A cognitive impression is one ‘which arises from what is and is stamped and impressed exactly in accordance with what is’;<sup>56</sup> and it is quite unclear what the relation between cognitive and non-cognitive cases, and obscure and non-obscure cases was.

## VII

*The Sage and Cognitive Impressions.* In one passage only are the items of the Sorites-series expressly called cognitive and non-cognitive impressions.<sup>57</sup> This passage reports the behaviour of the wise when confronted with Sorites arguments. Here first is a

55. The wriggled vertical lines in **model 4**.

56. DL.7.46.

57. The Academic critics, when using Sorites type arguments in order to criticise the Stoic theory of cognitive impressions, did not construct Sorites-series *from* cognitive (and non-cognitive) impressions, but used in those series sentences *about* cognitive impressions. Moreover, they were not sorites-arguments in the Stoic understanding, cf. n. 36.

rather literal translation. (Additions in angled brackets are taken to be dictated by the Greek.)

For, in the Sorites, when the last cognitive impression lies next to the first non-cognitive one and is almost indistinguishable (from it), Chrysippus and his followers say that in the case of impressions in which the difference (i.e. between the last cognitive and the first non-cognitive one) is small in this way (i.e. such that one lies next to the other and is almost indistinguishable from it), the sage will stop and keep silent, but in the case of (impressions) where (the difference) presents itself as greater, the sage will assent to one of the two as true.<sup>58</sup>

Sextus uses this unusual Stoic case where sages do not assent to one of their cognitive impressions<sup>59</sup> against the Stoics (SE.M.7.417–21). The passage compares the reactions of the wise in two different situations in which they are confronted with a pair of impressions of which one is cognitive, the other non-cognitive. In the first case, the two impressions are part of a Sorites-series and lie next to each other. (There's no room for another one in between.) In numerical Sorites-series these contain adjacent natural numbers. In the second case, the difference between the two impressions is greater; at least one impression fits in between. In this second case, the sage assents to the cognitive impression as true. We are not given the sage's reaction to the non-cognitive impression; but we *know* that sages never assent to non-cognitive impressions. In the first case, the sage falls silent. Consequently, at least one cognitive impression is not assented to. We are not told when exactly the sage falls silent. But the text implies that this is *at* the last cognitive impression.

Why does the sage fall silent in the first case? The next section in Sextus gives an answer:

Now, if we show that many false and non-cognitive things lie next to the cognitive impression, obviously we shall have established that one must not assent to the cognitive impression, lest by approving it we hasten forward, because of the proximity, into assent also to the things that are both non-cognitive and false, even though the greatest possible difference between the impressions seems to present itself.<sup>60</sup>

58. SE.M.7.416.

59. This doesn't contradict orthodox Stoic doctrine, which only claims that sages never assent to non-cognitive impressions, not that they assent to all their cognitive ones.

60. SE.M.7.417.

Here Sextus makes use of what must have been the Stoic explanation why the sage falls silent (or part of that explanation).<sup>61</sup> ‘Hastening forward’ (i.e. to assent) is the Stoic technical expression for what ordinary people do when receiving plausible non-cognitive impressions. Sages never do this. However, in Sorites-series, even a sage *would* be hastening forward to assenting to a non-cognitive impression *if* he assented to the last cognitive one.<sup>62</sup> But why?

Can or does the sage locate the last cognitive impression in a Sorites-series? We ordinary mortals often take non-cognitive impressions as cognitive and assent. So it is likely that *we* cannot discern the last cognitive impression. But sages are different. After all, a cognitive impression contains in itself all that’s needed for it to be cognized; thus it can—at least in principle—be cognized. In certain circumstances a sage may receive a cognitive impression without assenting to it, since (intra-personal) circumstances keep its ‘cognitiveness’ from being apparent to them. But in normal and in ideal circumstances sages assent to their cognitive impressions—even though sometimes they may first need to investigate the case closely.

It is possible that, when confronted with a Sorites-series for the first time, or even repeatedly, a sage in fact doesn’t discern the last cognitive impression in the series as cognitive (e.g. ‘50 are few’). (I.e. it doesn’t present itself to the sage in the manner of cognitive impressions which make him assent.) However, it appears that if the sage were confronted with the same impression in isolation, or contrasted with a substantially different non-cognitive one (somewhere down the series), he would assent to the cognitive impression. That seems to be the point of *SE.M.7.416*. Thus we can assume that, outside the Sorites-series, the sage would recognize as cognitive the last cognitive impression of such a series (e.g. ‘50 are few’).<sup>63</sup> The reason why

61. The sceptics argue generally from the premisses of their opponents, as they themselves suspend judgement on all dogmas; moreover the terminology of the sentence is Stoic through and through.

62. Sextus’s argument is geared to show that the sage would eventually even assent to impressions that are *both* non-cognitive *and* false, as ‘10,000 are few’ (*SE.M.7.418–20*). The original *Stoic* point, we may assume, was simply that sages would assent to one or more impressions that are non-cognitive, but possibly true or semantically undetermined.

63. At least in the minimal sense that the way it appears to the sage is no different from the way other cognitive impressions appear, and—perhaps—that the sage could in principle become aware of that fact.

the sages don't assent to the impression *must* lie in its being part of the Sorites-series.

And this is precisely what SE.M.7.417 says. It is the close proximity of the first non-cognitive impression to the last cognitive one which may tempt even the sage to hasten to assent to the latter if he assented to the former. Why? Here are two possible answers.

- (i) The Stoics, like all the ancients we know of, accepted the principle that in a Sorites-series '*one cannot make the difference*'.<sup>64</sup> Hence, the sage knows that if he assented to the last cognitive impression he would also have to assent to the first non-cognitive one, because of this principle. But sages don't assent to non-cognitive impressions, and so he doesn't assent to the last cognitive impression, even though he may recognize it as cognitive.<sup>65</sup> (But doesn't the principle commit the wise to assent to the last cognitive impression, if they had just assented to the penultimate one? If asked this, they would also fall silent. The reason for their assenting to the cognitive impressions up to the penultimate one is that they are cognitive in themselves without invocation of the principle. By contrast, the last cognitive impression is cognitive only by inference; the proximity of the first non-cognitive impression prevents it from being cognitive in itself.)<sup>66</sup>
- (ii) Alternatively, the Stoics assumed that *within the context of the Sorites-series* it is indeed impossible for the sage to recognize the last cognitive impression as such. Because of its proximity, '51 are few', which is the first non-cognitive impression, and is obscure, overshadows, as it were, the last cognitive case, '50 are few', and thus, *in the context*, removes its non-obscurity. As a result, the sage is unable to see it 'as it is', i.e. as cognitive. The closeness to the first non-cognitive case, or perhaps

64. E.g. Gal.*Med.exp.*XVII.3 and XX.3; SE.M.1.69.

65. This allows for the straightforward reading of SE.M.7.416, that the sage can become aware of the fact that the impression is the last cognitive one in the series. Thus the deliberations about higher-order obscurity (Section VI) would hold for ordinary people, but not necessarily for the sage.

66. This reading would bring Chrysippus close to positions like M. Dummett's: the wise realize that Sorites-prone terms are governed by a set of incoherent rules.

the anticipation of that case, thus functions as an obstacle to the cognition of a cognitive impression (as some later Stoics would say).<sup>67</sup> Within the Sorites-context it becomes impossible for the recipient of the impression to see things as they are.

Thus, regardless of whether one favours interpretation (i) or (ii), SE.M.7.416 could not support epistemicism.

SE.M.7.416 has been interpreted as saying that ‘not even the wise man can locate the last clear [i.e. cognitive] case with perfect accuracy’, and therefore falls silent at some—indeterminable—case that is still clearly cognitive. I believe that this is a problematic reading of the passage<sup>68</sup> and is moreover hard to square with the Stoic conception of cognitive impressions.<sup>69</sup> But let’s assume for argument’s sake that this is not so. This makes it no more likely that Chrysippus was an epistemicist. For even if there were an *unknowable* sharp cut-off point between cognitive and non-cognitive impressions in a Sorites-series, this would not imply that there is also one between true and false impressions. There could still be true, indefinite, and false impressions. And as we have seen above, it is likely that Chrysippus thought there were.<sup>70</sup>

67. SE.M.7.253–7. The anticipation can be seen as an intra-personal obstacle. Something in the mind obstructs the normal way one experiences cognitive impressions.

68. The passage is about *pairs* of impressions throughout.

69. A cognitive impression that can—in principle—be cognized (see above). Moreover, *pace* Williamson p. 17, for any two distinct impressions, the wise can (with practice) learn to detect that they are distinct. So also in cases *i* and *i + 1* in a Sorites series. Hence Williamson’s basis for claiming that one cannot recognize the last cognitive impression (p. 18) crumbles. In addition, this position is difficult to harmonize with SE.M.7.417.

70. The relations between cognitive/non-cognitive and clear/obscure impressions seem now to be as follows: There are obscure and clear *non-cognitive* impressions. Clear are those whose contradictories are cognitive and clear; they are false. The rest are obscure. Most *cognitive* impressions are clear. Sometimes a cognitive impression is obscure. For ordinary people, in the context of a Sorites-series, an indeterminable number of cognitive impressions before the first non-cognitive one are obscure. (Individuals can decrease the class of obscure cognitive impressions up to a point by practice.) For the wise, it seems, only the last cognitive impression within a Sorites-series is obscure. As to sharp cut-off points in Sorites-series, there appears to be none between obscure and clear cases, but there is one between cognitive and non-cognitive cases, and this is cognizable. As Williamson does not distinguish adequately between being obscure and being non-cognitive, most of his argumentation on pp. 14–22 does not present Chrysippus’s position.

## VIII

*Conclusion.* We have reached the end of our examination of the evidence for the thesis that Chrysippus was an epistemicist. There is none. The surviving texts all suggest that, if Chrysippus held any position on Sorites arguments, it was a non-epistemicist one according to which at least some of the borderline cases have no truth-value, since no propositions correspond to them. Chrysippus was no epistemicist.<sup>71</sup>

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