In defense of true higher-order vagueness

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Abstract   Stewart Shapiro recently argued that there is no higher-order vagueness. More specifically, his thesis is: (ST) 'So-called second-order vagueness in 'F' is nothing but first-order vagueness in the phrase 'competent speaker of English' or 'competent user of "F" '. Shapiro bases (ST) on a description of the phenomenon of higher-order vagueness and two accounts of 'borderline case' and provides several arguments in its support. We present the phenomenon (as Shapiro describes it) and the accounts; then discuss Shapiro's arguments, arguing that none is compelling. Lastly, we introduce the account of vagueness Shapiro would have obtained had he retained compositionality and show that it entails true higher-order.

Reviews and discussions of Stewart Shapiro's excellent recent book *Vagueness in Context*[1] have mostly focused on Shapiro's 'open-texture' theory and his contextualism, with relative neglect of his theory of higher-order vagueness.[2] The present paper aims to fill this gap. Shapiro argues that "there is no higher-order vagueness, strictly so-called" and that "so-called 'higher-order vagueness' is actually ordinary first-order vagueness in different predicates".[3] More specifically, *Shapiro's Thesis* is:

(ST)   So-called second-order vagueness in a predicate 'F' is nothing but first-order vagueness in the phrase 'competent speaker of English' or 'competent user of the word "F"'.[4]

Instead of true higher-order vagueness, Shapiro maintains, all we have is surrogate higher-order vagueness.[5] He bases (ST) on a description of the phenomenon of higher-order vagueness and two accounts of 'borderline case', and supports it with several arguments. We briefly present the phenomenon (as Shapiro describes it) and Shapiro's accounts of vagueness; then show that none of Shapiro's arguments for (ST) is compelling; finally, we introduce the account of vagueness that Shapiro would have obtained had he consistently abided by the rules of compositionality, and show that this account both entails true higher-order vagueness and does not turn on the vagueness of 'competent speaker'.

1. The phenomenon of higher-order vagueness and the accounts of 'borderline case'
For Shapiro "[h]igher-order vagueness is vagueness concerning borderline cases of vague predicates."[6] He describes the phenomenon as follows, assuming a series of men lined up according to how much hair they have:

> The first … has no hair whatsoever, and the last, … has [a] full head of hair. After [the first], each man in the series has slightly more hair than his predecessor. Intuitively, there is no (sharp) border between the men that are bald … and those that are not … . The fellows in the middle are the borderline cases. … Intuitively, it also seems that there is no sharp boundary between the (determinately) bald men at the start and the borderline bald men in the middle, nor … between the borderline men in the middle and the (determinately) non-bald men at the end.[7]

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[1] Shapiro (2006).
[2] Cf. e.g. Keefe (2007), Sorensen, (2008), Eklund, M. (2006), Gross (2009).
[3] Shapiro (2005) 147; Shapiro, (2006) 163.
[4] Shapiro (2005) 161: "on the present option, what passes for second-order vagueness is vagueness in the phrase 'competent user of the word "bald"'; ibid. 155 "If there is vagueness in 'borderline bald', it turns on the vagueness of 'competent speaker of English'". Cf. Shapiro (2006) 163. Instead of 'competent speaker of English' Shapiro also uses 'competent user of the language' and similar phrases.
[5] Shapiro (2005) 161, or, as he states in Shapiro (2006), 161 and 163, analogs to higher-order vagueness.
[6] Shapiro (2006) 125.
[7] Shapiro (2006) 125-6, cf. (2005) 147-8.

Shapiro identifies as second-order the borderline cases of 'determinately bald' with 'borderline bald' and the borderline cases of 'borderline bald' with 'determinately non-bald'. He identifies as third-order the borderline cases of 'determinately determinately bald' with 'borderline borderline bald', etc. (there are four categories for these); higher orders can be introduced in the same way.[8] The phenomenon is the one most commonly discussed under the heading of 'higher-order vagueness'.[9]

Shapiro provides two accounts of 'borderline case'. The first is:[10]

(1)   *a* is borderline F if it is not the case that (i) the thoughts and practices of competent English speakers determine the conditions of application for F and (ii) the facts about *a* determine that these conditions are met.[11]

Shapiro introduces a variation of (1) which indicates the location of indeterminacy:

(2)   *a* is a borderline case of F if (i) the thoughts and practices of speakers of the language *do determine* the conditions of application for F and for ¬F and (ii) the non-linguistic facts *do not determine* that either of these conditions are met.[12]

As a specification of (1) and (2) tailored to his open-texture account, Shapiro offers:

(3)   The borderline cases for a predicate like 'bald' are just those for which there is no consensus among competent speakers … even after the external context … is fixed.[13]

He further specifies (3) as:

(4)   If at least one competent speaker of the language would judge a man to be bald … and at least one competent speaker … would judge the same man to be not bald, then the man is borderline [bald].[14]

Shapiro works with the following relation between 'borderline case' and 'vague':

(5)   F is vague if there is a borderline case *a* of F.[15]

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[8] Shapiro (2006) 126-7, cf. (2005) 147-8. The number of categories of borderline cases doubles with each order.

[9] Besides Shapiro, Fine (1975) Keefe (2000) Greenough (2005), Sainsbury (1991).

[10] It is based on McGee & McLaughlin (1995) Section 2.

[11] Cf. Shapiro (2005) 151-2.

[12] Shapiro (2005) 155, italics ours.

[13] Shapiro (2005) 157. Shapiro assumes that "a competent speaker is someone that understand the language and is employing normal perceptual mechanisms under the fixed, favourable conditions" (ibid.) The competence is thus not merely linguistic.

[14] *Ibid*. Here and later we disregard Shapiro's references to conversational contexts, since they are irrelevant to the questions discussed in this paper.

[15] Cf. Shapiro (2005) 148, (2006) 125-7.

In the next three sections we discuss the points Shapiro produces in support of (ST). These are (i) his reference to Timothy Williamson's theory of higher-order vagueness; (ii) and (iii) his arguments regarding the facts that borderline red is not a colour and that the meaning of 'borderline red' makes reference to competent speakers; (iv) the argument by elimination which he puts forward in order to identify the source of so-called higher-order vagueness.

We employ the following terminological conventions: we use F for atomic vague predicates such as 'is bald' and a for designators such as 'Baldwin'. We abbreviate 'borderline' as BL. BL^2 is short for 'borderline borderline', etc. We occasionally make use of the letter Φ for predicates constructed from F by prefixing zero or more occurrences of 'borderline' and of 'not'. Like Shapiro, we use 'a is a borderline case of "F"' and 'a is borderline F' interchangeably. We abbreviate both as BLFa.[16]

2. The brittle alliance with Timothy Williamson
In support of his thesis (ST) that so-called higher-order vagueness is nothing but vagueness in "competent speaker", Shapiro four times quotes the following sentences from Timothy Williamson's paper on higher-order vagueness:[17]

> (i) It may be misleading to think of higher-order vagueness in α as a *species* of vagueness in α. (ii) Higher-order vagueness in α is first-order vagueness in certain sentences containing α.[18]

However, the quote does not support (ST), and Shapiro does not have a supporter in Williamson. The context of the quote reveals clearly the specific point Williamson intends to make.[19] To begin with, in his whole paper α stands for a closed sentence, more precisely for a closed propositional formula of the modal systems he discusses. Thus unlike (ST), Williamson's claim is not about predicates. We consider Williamson's two sentences individually.

Sentence (i) takes issue with the potential misunderstanding that higher-order vagueness in α might be a *species* of vagueness in α. Williamson reasonably assumes that if higher-order vagueness in α were a species of vagueness in α, the following principle would hold: 'In any theorem of the system we can substitute BL^n for each occurrence of a single BL *salva validitate*.' For instance, assume that $BL[\alpha_1 \& \alpha_2] \rightarrow [BL\alpha_1 \lor BL\alpha_2]$ is a theorem. (This is Williamson's example.) Then, if BL^2 in α was a species of BL in α, the following formula would also be a theorem: $BL^2[\alpha_1 \& \alpha_2] \rightarrow [BL^2\alpha_1 \lor BL^2\alpha_2]$. Yet, as Williamson correctly points out, this is not so. The same holds for higher orders. Hence higher-order vagueness in α is not a species of vagueness in α.

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[16] This terminology translates easily into standard nomenclatures for vague predicates in terms of determinacy, clarity, etc.: BLFa iff $\neg$DFa & $\neg$D$\neg$Fa.
[17] Williamson (1999) 140. Roman numerals ours.
[18] Shapiro (2005) 153, "So I agree with Williamson"; (2006) 125, as motto for the chapter on higher-order vagueness; (2006) 132 "So I agree with the passage from Williamson"; (2006) 163 "my endorsement of … Williamson".
[19] Cf. Williamson [1999] 139-40 for detail.

Sentence (ii) is meant to describe the relation between first-order and higher-order vagueness in an accurate way; that is, in a way that does not lead to the consequences entailed by the false assumption that higher-order vagueness is a species of vagueness. Taking the case Williamson himself is discussing, we get as an example for (ii): If we have $BL^2[\alpha_1 \& \alpha_2]$, (which is second-order vagueness in the sentence $[\alpha_1 \& \alpha_2]$), then we have first-order vagueness in the sentence $BL[\alpha_1 \& \alpha_2]$[20] (which is a sentence which contains $[\alpha_1 \& \alpha_2]$). Understood in the way Williamson intends, (ii) is true in all theories of higher-order vagueness we know. Generalized, it comes to the following: Having higher-order vagueness in α is nothing but having $BL^n\alpha$ with $n>1$. In that case we always, necessarily, also have first-order vagueness in $BL^{n-1}\alpha$, a sentence we obtain by replacing BL^n by BL^{n-1}. Evidently, this sentence is always a sentence that contains α. Thus (ii) comes to: nth-order vagueness in a sentence α is first-order vagueness in the sentence $BL^{n-1}\alpha$. (The sentence *containing* α stands to the sentence *in which there is higher-order vagueness* as $BL\beta$ stands to β.) Williamson's point is purely formal. It is fully compatible with the assumption of compositionality for higher-order vagueness.

Shapiro offers Williamson's (ii) as support for (ST). They indeed sound similar. Nevertheless, they are very different. Moreover, Shapiro's thesis is much stronger in that in most theories of vagueness it does not hold. If we formulate Shapiro's thesis in a way similar to Williamson's (ii), we get:

> So-called higher-order vagueness in a predicate F is nothing but first-order vagueness in a predicate CSwhere
> | | |
> |---|---|
> | (a) | CS stands for 'competent speaker of English'; |
> | (b) | F does not contain CS; |
> | (c) | CS is a meaning component[21] of BL; |
> | (d) | $BL^nFx \neq BL[BL^{n-1}CSx]$. |

Using an example: higher-order vagueness in 'bald' is first-order vagueness (a) in the predicate 'competent speaker',[22] where (b) 'bald' does not contain 'competent speaker'; (c) 'competent speaker' is a meaning component of 'borderline' and (d) 'borderline-borderline bald' is not equivalent to 'borderline case of "borderline competent speaker"'. None of (a) – (d) has anything to do with Williamson's point.

Thus, whereas the logical relations Williamson commented about in the quoted passage did not involve any predicates (or any expressions beyond those explicit in $BL^{n-1}\alpha$), and concerned the relation between modalized closed formulae, Shapiro's thesis involves a predicate ('competent speaker') which is not explicit in $BL^{n-1}Fx$, but makes explicit a meaning component of BL. Moreover, whereas Williamson's rejection of the genus-species relation for higher-order and first-order vagueness is uncontroversial and retains compositionality of the borderline-operator, and thus preserves true higher-order vagueness, Shapiro's thesis is highly controversial as it violates the compositionality of

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[20] And in the logical equivalents of $BL[\alpha_1 \& \alpha_2]$ in terms of definiteness, e.g. $\neg D[\alpha_1 \& \alpha_2] \& \neg D\neg[\alpha_1 \& \alpha_2]$.

[21] Shapiro does not define 'meaning component'. He seems to assume that if x is a constituent of the definition of y, then x is a meaning component of y (e.g. Shapiro 2005, 152).

[22] For brevity, we will use 'competent speaker' for 'competent speaker of English'.

the borderline-operator (details below), and thus eliminates true higher-order vagueness. In short, Williamson's quote does not support (ST).

3. The argument based on the fact that 'borderline red' is not a colour(-predicate)

Shapiro's second point in support of (ST) is an argument from the fact that 'borderline red' is not a colour(-predicate). He maintains that for any *a* to be a true borderline borderline case of 'red', 'borderline-red' would need to be a colour (*sic*).[23] However, he claims, the meaning of 'borderline-red' includes a linguistic component, in that it makes reference to the judgement of competent speakers, whereas the meanings of colour terms never do.[24] Therefore, Shapiro infers, borderline-red is not a colour(-predicate). Hence no *a* can be a true borderline borderline case of 'red'.

Shapiro offers no general argument, but we can reconstruct his reasoning: He claims that for true higher-order vagueness there must not be a "difference in kind" between predicates F and BLF. If one is a colour(-predicate), or height(-predicate), etc., so must be the other.[25] Hence for each ordinary language vague term ('red', 'tall') there is a kind-term K_F so that (i) we can say 'F is a K_F' and (ii) the meaning of this kind-term does not make reference to competent speakers. Then, for it to be possible that *a* is a true borderline borderline case of F, BLF would have to be a K_F. But the meaning of any predicate BLF does make reference to competent speakers, and thus BLF is not a K_F. Thus F and BLF are of relevantly different kinds, since no BLF is ever a K_F and all BLF, but no K_F, make reference to competent speakers. Hence no *a* can be a true borderline borderline case of 'F'. Hence there can be no true higher-order vagueness.

Shapiro's argument fails in several respects. First, it matters that the philosophically relevant type of borderline cases that Shapiro discusses are not red/orange or red/purple borderline cases, but red/not red borderline cases. The Sorites paradox as well as the so-called paradoxes of higher-order vagueness would disappear, if the red/not red borderline cases were replaced by red/orange borderline cases. Shapiro himself repeatedly notes that borderline cases are of the kind F/not F or F/non-F[26]. But 'not red' and 'non-red' are not colour(-predicate)s, and it would be a stretch to say they are on a par with 'red' and 'orange'. Moreover, 'not red' and 'non-red' contain a meaning component that makes reference to the absence of a color, which color terms (other than 'black') definitely don't. Shapiro's own line of argument would then imply that there can be no borderline cases of 'not red'. Thus the generalized result of his argument is incompatible with his own theory.[27]

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[23] Shapiro (2005) 147, 152. We assume that Shapiro intends 'colour-predicate' here, and speaks loosely.

[24] Shapiro (2005)152. Shapiro's underlying assumption here, that meanings and linguistic expressions are structured in the same way, is of course in itself controversial.

[25] Shapiro (2005)152.

[26] Shapiro (2005) 147-8 *passim*. In fact, every borderline case of F is also a borderline case of not-F. Cf. e.g. Shapiro (2006) 62-3, 101.

[27] The fact that 'not red' applies to the same kind of objects as 'red' and 'orange' doesn't help, since so does 'borderline red' (see below). Shapiro might retort: but neither 'borderline red' nor 'not borderline red' are colors, but one of 'red' and 'not red' is. Still he'd have to tell us why this matters.

Second, true higher-order vagueness is not precluded by the fact that the meaning of BL^nF, but not the meaning of F, makes reference to competent speakers. To show this, we suppose that (ST) is grounded *solely* on the fact that 'borderline F', but not 'F' makes reference to competent speakers. Now consider the predicate 'borderline H'. Applying Shapiro's own thesis, we get the result that second-order vagueness in 'borderline H' is not true higher-order vagueness, since the meaning of 'borderline borderline H', but not the meaning of 'borderline H' makes reference to competent speakers. But this is obviously false. Both the meaning of 'borderline H' and the meaning of 'borderline borderline H' make reference to competent speakers. Thus, if we skip the simply bald and simply non-bald men and start with the borderline bald men, we get perfectly good higher-order vagueness by Shapiro's own lights.[28]

Our foregoing two arguments are but playful banter. Philosophically more significant is the following point: Shapiro appears to confound two distinct questions: (i) whether 'borderline-red' is a *colour predicate* and (ii) whether the objects that satisfy the predicate 'borderline-red' *have* a colour. Take the predicate *H* 'is yellower than the Gouda your father brought but less yellow than the tulip the cat ate'. The meaning of *H* makes reference to your father and the cat and the notions of less and more. The meanings of colour terms quite definitely don't. Hence, according to Shapiro, *H* is not a colour predicate. Still, the objects that satisfy *H* all *have* a colour. More than that, *H* allows us to place the objects that satisfy it on a colour dimension (from more yellow to less yellow, left to right, say), in the minimal sense that they are to the right of all objects yellower than the tulip the cat ate and to the left of all objects less yellow than the Gouda your father brought.

The same general point can be made about the predicate 'borderline-red'. 'Borderline-red' may not be a *colour predicate*. Still, the objects that satisfy 'borderline-red' all *have* a colour.[29] More than that, given basic penumbral connections,[30] we can locate those objects on the dimension made up by a section of the colour spectrum (with decreasing nanometers from 700 to 600, say) in the minimal sense that they would not be to the left of any non-borderline case of 'red' we can identify and not to the right of any non-borderline case of 'not red' we can identify.

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[28] Perhaps Shapiro's thesis is only that there are no true higher-order borderline cases of predicates that do not have 'judgement of competent speakers' as meaning component, so that there is an insurmountable divide between 'red' and 'bald', for which there are no higher-order borderline cases, and 'borderline red' and borderline bald', for which there are. Thus Baldwin may be truly borderline borderline-bald, and Hariman may be truly borderline-borderline borderline-bald, but Baldwin is not truly borderline-borderline bald, and Hariman is not truly borderline-borderline-borderline bald (with Baldwin located somewhere between the borderline bald men and the clearly bald men, and Hariman located somewhere between Baldwin and the clearly bald men). Curiouser and curiouser.

[29] Naturally, we are not here concerned with a case in which something is borderline-red in a *derivative* sense, i.e. because it is borderline-coloured. An example of derivative borderline-red would be this: we put increasing numbers of drops of a red coloured essence into clear containers filled with clear water (rather than drops of red paint into yellow paint). Here the relevant kind would be things that can, but need not, be *coloured*.

[30] For penumbral connections see e.g. Fine (1975), Shapiro (2006) 67.

What matters is not whether 'borderline-red' is a colour predicate, but that satisfaction of BL^nF places a on a dimension on which – in the first instance – objects that satisfy Fx would also be placed. The *objects* that satisfy F, BLF, BL^nF are all the same kind of objects insofar as they are the kind of objects that can but need not be F (e.g. for 'tall', 'borderline tall', 'borderline^n tall', objects with a measurable height).

Shapiro is thus correct in requiring some shared feature of F and BL^nF. But it is neither that both are colour predicates (etc.) nor that it must not be that one, but not the other, makes reference to competent speakers. For there to be true higher-order borderline cases, it is sufficient (and necessary) that F and BLF, and any BL^nF, are alike in that they each place the objects that satisfy them on one and the same dimension D, a dimension which – in the standard case – has F objects at one end, non-F objects at the other. Baldemar, Haribald and Little Harry are all placeable, by 'bald', 'borderline bald' and 'borderline borderline bald' respectively, on the dimension of increasing amounts of hair, with hairless men at one end, men with abundant scalp hair at the other.

The upshot of this section is that neither the fact that 'borderline-red' is not a colour-predicate nor the fact that 'red' does not make reference to the judgement of competent speakers lends support to (ST).

4. The argument by elimination
Shapiro's only other argument for (ST) has the form of an argument by elimination. Shapiro presents the argument with his first account of 'borderline case':

> So our man is borderline bald if the thoughts and practices of competent language-users, together with the non-linguistic facts, do not determine whether the man is bald or whether he is not bald.
>
> I assume here that there is no vagueness in the relevant non-linguistic facts (such as the number and arrangement of hairs on our man's head). I also assume, just for the sake of simplicity, that there is no relevant vagueness in what counts as a 'thought' and a 'practice'. There is only one more place to look. If there is vagueness in 'borderline bald', it turns on the vagueness of 'competent speaker of English'.[31]

The underlying structure of the argument appears to be something like this:

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[31] Shapiro (2005) 155. Shapiro provides a much abbreviated version of this argument by elimination for his second account of 'borderline case': "If at least one competent speaker of the language would judge a man to be bald (…) and at least one competent speaker (…) would judge the same man to be not bald, then the man is borderline. Once again, we see that any vagueness of 'borderline bald' must turn on vagueness in 'competent speaker'." Shapiro (2005) 157. We assume that, in parallel to his first argument, Shapiro would eliminate the expressions 'at least one' and 'not' as not vague and would declare any vagueness there may be in 'to judge' as irrelevant, before drawing the conclusion that "any vagueness of 'borderline bald' must turn on vagueness in 'competent speaker'".

1. Implicit *compositionality premise*: If an expression Ψ is vague, then at least one of Ψ's meaning components (or components of the definition of Ψ) is vague.[32]
2. Implicit *elimination premise*: The meaning components of 'borderline bald' are the expressions 'the non-linguistic facts', 'thoughts', 'practices' and 'competent speaker'.
3. 'The non-linguistic facts' is not vague.
4. 'Thoughts' is not vague.
5. 'Practices' is not vague.
6. If 'borderline bald' is vague, then 'competent speaker' is vague. (From 1.-5.)
7. Any vagueness in 'borderline bald' turns on the vagueness in 'competent speaker'. (From 6.)

There are two problems with Shapiro's elimination argument. The first concerns the elimination premise. It seems that Shapiro has not listed all the meaning components of 'borderline bald'. In particular, there is no mention of 'bald'. At first blush, this seems baffling. Isn't 'bald' part of the account of 'borderline bald' and doesn't it by assumption have borderline cases, and is thus vague? How can 'bald' be ruled out as a possible source of the vagueness in 'borderline bald'? Shapiro doesn't say. Still, this is unlikely to be a simple oversight. There is one possible explanation, *viz.*, that for Shapiro (i) 'borderline' is a meta-linguistic expression, short for something like 'borderline case of (the predicate) "F"', and (ii) an account of it needs to be non-disquotational. We can modify Shapiro's account of 'borderline bald' from above accordingly:

> So our man is a borderline case of 'bald' if the thoughts and practices of competent language-users, together with the non-linguistic facts, do not determine whether the man satisfies 'bald' or whether he does not satisfy 'bald'.

Since Shapiro defines 'borderline case' in terms of a determinacy operator, and treats this operator sometimes explicitly as meta-linguistic, and since he often uses the phrase 'borderline case of "F"', we assume that the above is Shapiro's view. For him, it then follows that, although there are borderline cases of the predicate 'bald', and the predicate 'bald' is vague, there are no (relevant) borderline cases of 'the predicate "bald"', and 'the predicate "bald"' is not vague. Given the assumption of 'borderline' as a meta-linguistic expression, we can see how 'competent speaker of English' may appear to be left as the only plausible source for the vagueness in 'borderline bald'.

However, it is Shapiro's *choice* to use 'borderline' as a meta-linguistic expression with a non-disquotational account. Shapiro himself seems to agree with this, when he says that in the philosophy of language the word 'borderline' is becoming a term of art, and that what he is concerned with is this term of art.[33] We see no independent philosophical reasons that would force us, or Shapiro, to make 'borderline' a meta-linguistic expression with a non-disquotational account.

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[32] With this strong assumption of compositionality Shapiro has lost the support of many philosophers of language (e.g. those who accept unarticulated constituents), but this is not our concern here.

[33] Shapiro (2005) 153, (2006) 133.

The truth of the elimination premise thus rests on Shapiro's choice to use 'borderline' as a meta-linguistic expression. Without this choice, the conclusion that the vagueness of 'borderline bald' turns on the vagueness of 'competent speaker' cannot be drawn. But making an otherwise unmotivated terminological choice that undercuts the possibility of true higher-order vagueness is not the same as demonstrating that there is no higher-order vagueness. We conclude that Shapiro has not provided sufficient reason for eliminating the vagueness of 'bald' as a potential source for the vagueness of 'borderline bald'.

In fact, we can show that, if an expression 'borderline F' is vague, the vagueness of F is a necessary condition for the vagueness of 'borderline F'. Consider the cases of 'child*' and 'child'.[34] Both satisfy Shapiro's general criterion for vagueness. Both are such that for some individuals a, the thoughts and practices of competent language-users, together with the non-linguistic facts, do not determine whether a is a child*, or child, respectively. Now consider the expressions 'borderline child*' and 'borderline child'. The generally accepted view is that the first is not vague, but the second is. Why? In Shapiro's terms, there are no borderline borderline cases of 'child*', since there are no objects such that the (relevant) non-linguistic facts do not determine whether the application conditions for 'borderline child*' or for 'non borderline-child*' are met. By contrast, the phenomenon of higher-order vagueness suggests that there *are* objects such that the (relevant) non-linguistic facts do not determine whether the application conditions for 'borderline child' or for 'non borderline-child' are met. So the difference between the expressions 'borderline child' and 'borderline child*' (that the first is vague, the second not) cannot lie in their *shared* component 'borderline'. Hence the vagueness of 'child' is a necessary condition for the vagueness of 'borderline child'.[35] The factors on which the (true or so-called) second-order vagueness of 'child' turns cannot be reduced to the vagueness in (a meaning component of the) expression 'borderline'.[36]

Hence Shapiro's choice of 'borderline' as a meta-linguistic expression with non-disquotational definition is unfounded and clashes with the phenomenon of higher-order vagueness. Consequently, it should be rejected. As a result, the elimination premise falters, and so does the elimination argument as a whole.

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[34] 'child*' (like 'oldster', smidget, 'dommal') is an artificially concocted predicate which exhibits semantic indeterminacy with sharp boundaries. For discussion of such predicates see e.g. Sainsbury (1991) 172-4; Hyde (1994) 35-6, Soames, (1999) ch.6; Glanzberg (2003) 168-71.

[35] This argument assumes that the way the words 'borderline' and 'child' combine is not itself vague. If we drop this assumption, we can only infer that *either* the vagueness of 'child' is a necessary condition for the vagueness of 'borderline child' *or* the way 'borderline' combines with 'child' is vague, but the way 'borderline' combines with 'child*' is not. Again, the factors on which the second-order vagueness of 'child' turns cannot be reduced to vagueness in (a meaning component of the) expression 'borderline'.

[36] A similar point can be made regarding the number of higher orders of a vague expression. For all we know, different vague predicates may have a different number of higher orders of borderline cases. Again, this cannot simply be based on the relation between the expression 'borderline' and non-linguistic facts concerning objects which may satisfy this expression. In particular, it cannot be based on the relation between the expression 'competent speaker' and non-linguistic facts concerning objects which may satisfy this expression – as Shapiro would have it. For, by assumption, the number of higher orders depends on which first-order vague predicate is at issue. Naturally, if all vague predicates have an infinite number of higher orders, this point becomes void. However, Shapiro does not assume an infinite number of higher orders.

5. The reduction of higher-order to first-order vagueness and the shift to meaning components of 'borderline'

Even if Shapiro's argument by elimination was successful, it would not prove (ST). At most, it would demonstrate that vagueness in the phrase 'competent speaker' is a *necessary condition* for vagueness in the predicate 'borderline F' (and hence for so-called second-order vagueness in 'F').[37] By contrast, what is needed for (ST) is a proof that vagueness in 'competent speaker' is a necessary *and sufficient* condition for vagueness in 'borderline F'. Only then could so-called second-order vagueness in F be *reduced to* first-order vagueness in 'competent speaker'. It is unclear where in his argument Shapiro makes this step from necessary to necessary and sufficient condition.[38]

In any case, the inference from (i) 'ψ is the only vague component of the complex expression Ψ' to (ii) 'ψ is necessary and sufficient for the vagueness of Ψ' is invalid. Take the complex expression T 'tall & more than 6" high'. 'tall' is the only vague component in T. It is a necessary condition for T to be vague (to have borderline cases) that the component expression 'tall' is vague (has borderline cases). But it is not sufficient. Borderline cases, and hence vagueness, are context-sensitive.[39] In a context C_1 in which all borderline cases of 'tall' are below 6 feet, 'tall & more than 6" high' is not vague. By contrast, in a context C_2 in which some borderline cases of 'tall' are above 6 feet, 'tall & more than 6" high' is vague. Thus it depends on a non-vague component of T whether T is vague. Hence, even if the elimination argument were sound, Shapiro would not have proved (ST), since his argument does not reduce higher-order vagueness to first-order vagueness.

The general idea that higher-order vagueness of F reduces to vagueness in 'competent speaker' seems to originate in the implicit *compositionality premise* of the elimination argument. It said that, if an expression Ψ is vague, then at least one of Ψ's meaning components (or components of the definition of Ψ) is vague. The problem is not that the premise may be false; rather, that it is misleading, insofar as it encourages the assumption that the vagueness of a *meaning* component of an expression Ψ provides any useful insight regarding the form the vagueness of Ψ would take. Consider for comparison 'bald' or 'red'. These are vague predicates. They lead to borderline cases. But we do not usually ask 'where in the account of 'bald' does its vagueness reside?' – nor does Shapiro. Take the definition of 'bald' which Shapiro picked from a dictionary: "having little or no hair on the scalp".[40] Does the vagueness of 'bald' reside in 'to have' or 'little or no' or 'hair' or 'on the scalp'? Presumably 'little or no' is vague; but so are the other expressions. In any event, this is not how Shapiro himself progresses towards a philosophical explanation of Sorites-vagueness of 'bald'.

Rather, Shapiro progresses by taking account of the fact that the Sorites-proneness of 'bald' is based on the fact that there are borderline cases of 'bald'. There are cases where

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[37] Shapiro uses the phrase 'x turns on y' for 'y is a necessary condition for x', see e.g. Shapiro (2006) 41.
[38] In Shapiro (2005) 161 and (2006) 126 this step seems completed. Cf. also the motto in (2005) 147.
[39] Shapiro repeatedly emphasizes this. See Shapiro (2005) 152, 154; (2006) 134, cf. 3, 64.
[40] Shapiro (2005) 152.

the ascription of 'bald' is not straightforward.[41] *a* is borderline bald, since, although (i) the thoughts and practices of speakers of the language determine the conditions of application for 'bald' and for 'non-bald', (ii) the non-linguistic facts *regarding a* do not determine that those conditions are met.[42] No word about any phrase from the definition of 'bald' – and wisely so.

In the case of 'borderline bald', surely the first hypothesis must be that the very same is true: *'borderline bald' should be vague because there are borderline cases of 'borderline bald'*;[43] i.e. because there are cases *a* for which the ascription of 'borderline bald' is doubtful; or, in Shapiro's terms: cases for which neither the application conditions for 'borderline bald' nor those for 'not borderline bald' are met by the non-linguistic facts *regarding a*!

Instead, Shapiro strays from the path he had previously paved himself. The route he takes is that 'borderline bald', if vague, is vague (because 'competent speaker is vague, and that is) because there are speakers of English *s* for whom it is doubtful whether the expression 'competent speaker' applies *to them*; and that is, because neither the application conditions for *'competent speaker'* nor the application conditions for *'non-competent speaker'* are met by the non-linguistic facts *regarding some speakers of English s.*[44] Shapiro moves away from the series of objects that would feature in the Sorites series for 'bald', or for 'red', etc., to a target group of objects that would feature in a Sorites series for 'competent speaker'. It is this shift towards the vague meaning component of 'borderline' which seems to have prompted the endeavour to reduce higher-order vagueness to first-order vagueness.

6. Shapiro's accounts of 'borderline case' and compositionality

The most significant consequence of Shapiro's reduction of the vagueness of 'borderline bald' to the vagueness of 'competent speaker' is that it does away with the compositionality of the account of 'borderline case'.[45] Shapiro himself had stated:

(6)   By definition, a second-order borderline case of 'bald' is a borderline case of 'borderline bald'.[46]

Hence we would expect that *a* is second-order borderline-bald iff *a* is a borderline case of 'borderline bald'. Instead, Shapiro argues (unsuccessfully) that *a* is second-order borderline-bald iff some speaker *s* is a borderline case of 'competent speaker'.

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[41] Cf. e.g. Shapiro (2006) 44.

[42] Shapiro (2005) 151 "the facts about *a*" (drawing on McGee and McLaughlin); (2005) 155 "non-linguistic facts such as the number and arrangement of hairs"; cf. (2006) 135 ((2) above).

[43] Cf. Shapiro (2005) 148 "by definition, a second-order borderline case of 'bald' is a borderline case of 'borderline bald'".

[44] Cf. Shapiro (2005) Section IV.

[45] Note that the compositionality of vagueness dealt with in the previous two sections is different from the compositionality of the account of 'borderline case' or compositionality of the BL-operator.

[46] Shapiro (2005) 148, 157; cf. (2006) 126.

We now show that, if we use Shapiro's own account of 'borderline case' and construct the account for higher-order borderline cases in a way that strictly preserves compositionality, we obtain a workable account of true, as opposed to merely so-called, higher-order vagueness. We use Shapiro's specification of his second account:

(7)   *a* is a borderline case of F iff (in some conversational context) there is a competent speaker who would judge that *a* is F and (in some conversational context) there is a competent speaker who would judge that it is not the case that *a* is F.[47]

In line with our remarks above, we understand BL as an object-language operator[48] and express (7) slightly more formally:

(8)   BLF*a* iff there is a competent speaker who would judge that F*a* and there is a competent speaker who would judge that it is not the case that F*a*.

Making use of (6), we introduce second-order borderline cases thus: We substitute BLF*a* for F*a* on the side of the *definiendum*, and we substitute the account of BLF*a* for F*a* on the side of the *definiens*. In this way we get:

(9)   BLBLF*a* iff there is a competent speaker who would judge that (there is a competent speaker who would judge that F*a* and there is a competent speaker who would judge that it is not the case that F*a*) and there is a competent speaker who would judge that it is not the case that (there is a competent speaker who would judge that F*a* and there is a competent speaker who would judge that it is not the case that F*a*).

With this we are almost there. All we need to add is the scope of the competence of the speaker. Shapiro himself is keenly aware that the scope matters.[49] We believe that the question of scope has a straightforward answer, once we acknowledge that it varies systematically with the sentence the competent speaker is asked to judge. It is common sense to require that the competence of the speakers must be competence regarding the object of their judgement. Thus, if they are to judge whether F*a*, they need to be competent *with regard to* F*a*.[50] It is obvious that their qualifications must cover no less than this. At the same time there are no good reasons why their qualifications should go beyond this. We indicate the scope of competence by adding an index to the expression 'competent speaker':

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[47] Cf. above (4) and Shapiro (2005) 157. We have replaced 'the man' by *a* and 'bald' by F.

[48] Thus we avoid any pitfalls of disquotation and of the elimination argument (see above). As Shapiro frequently uses 'borderline' non-metalinguistically, we preserve the core elements of Shapiro's theory.

[49] He discusses the issue in Shapiro (2005) at 164, though without reaching a conclusive result.

[50] We discuss elsewhere what exactly this would involve. For present purposes, it suffices that there is a straightforward relation between the competence of the speaker and the object to be judged by the speaker. (The competence still has a linguistic component, since Shapiro's criterion for borderlinehood requires a conversational context.)

(10)   BLFa iff there is a competent speaker$_{Fa}$ who would judge that Fa and there is a competent speaker$_{Fa}$ who would judge that it is not the case that Fa.

(Based on the ordinary language use of 'whether', we assume that competence as to whether Fa is equivalent to competence as to whether $\neg$Fa.) For second-order vagueness, there will be two different indices:

(11)   BLBLFa iff there is a competent speaker$_{\text{(there is a competent speaker(F}a\text{) who would judge that F}a}$ $_{\text{and there is a competent speaker(F}a\text{) who would judge that it is not the case that F}a\text{)}}$ who would judge that (there is a competent speaker$_{Fa}$ who would judge that Fa and there is a competent speaker$_{\text{(there is a competent speaker(F}a\text{) who would judge that F}a\text{ and there is a competent speaker(F}a\text{) who would}}$ $_{\text{judge that it is not the case that F}a\text{)}}$ who would judge that it is not the case that Fa) and there is a competent speaker who would judge that it is not the case that (there is a competent speaker$_{Fa}$ who would judge that Fa and there is a competent speaker$_{Fa}$ who would judge that it is not the case that Fa).

Don't complain this is too complex.[51] All we did is construct an account of second-order vagueness that satisfies the requirement of compositionality. This is a necessary condition for true higher-order vagueness. Still, for convenience, we introduce some simplifications. We use the index '$_{\text{BLF}a}$' as an abbreviation for the index '$_{\text{(there is a competent}}$ $_{\text{speaker(F}a\text{) who would judge that F}a\text{ and there is a competent speaker(F}a\text{) who would judge that }\neg\text{F}a\text{)}}$', keeping in mind that this mixing of elements of the *definiendum* into the *definiens*, though harmless, is not entirely correct. We also replace BLBLFa with the equivalent BL^{2}Fa, and abbreviate 'it is not the case that' by '$\neg$'. Thus we get the more manageable:

(12)   BL^{2}Fa iff there is a competent speaker$_{\text{BLF}a}$ who would judge that (there is a competent speaker$_{Fa}$ who would judge that Fa and there is a competent speaker$_{Fa}$ who would judge that $\neg$Fa) and there is a competent speaker$_{\text{BLF}a}$ who would judge that $\neg$(there is a competent speaker$_{Fa}$ who would judge that Fa and there is a competent speaker$_{Fa}$ who would judge that $\neg$Fa).

The account for third-order borderline cases is obtained by substituting BLFa for Fa on the side of the *definiendum* of BL^{2}Fa, and substituting the account of BLFa for Fa on the side of the *definiens* of BL^{2}Fa. The accounts for higher orders are obtained in the same way.[52]

We have, thus, starting from Shapiro's own account of 'borderline case' and his own definition of 'second-order borderline case' constructed an account for higher-order vagueness that preserves compositionality and should define true, as opposed to merely so-called, higher-order vagueness.

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[51] Compare the accounts of higher-order vagueness in Fine (1975) Section 5 and Williamson [1999] and then come back … .

[52] Thus we disagree with Shapiro's statement "[t]he higher and higher orders correspond to deeper and deeper embeddings of "competent user of 'competent user of "competent user of …⋯"' " " (Shapiro (2006) 163). The deeper and deeper embeddings are not of 'competent user of'. They are of the whole account of 'borderline case' – just as it should be.

7. Shapiro's account of 'borderline case' does not entail (ST)

Of course we cannot rule out that Shapiro believes that the account of 'second-order borderline case' we thus got entails that 'competent speaker' is vague. For he himself offers something close to an account that is gained from substituting the account of 'borderline Fa' for Fa in his first account of 'borderline Fa':

> A man is a borderline case of 'borderline bald' if the thoughts and practices of speakers of the language determine conditions of application for 'determinately bald' and for 'borderline bald', and the non-linguistic facts do not determine that either of these conditions are met.[53]

Here Shapiro has substituted 'determinately bald' (which entails 'not borderline bald') and 'borderline bald' for 'not bald' and 'bald' in a variant of his first account. We next show that the compositionally obtained account of 'second-order borderline case' ((12) above) does not entail that second-order vagueness turns on the vagueness of 'competent speaker'. For this purpose, we want to bring out more clearly the logical structure of the embedded existential clauses in the *definiens*

(13)   … there is a competent speaker$_{\text{BLF}a}$ who would judge that (there is an x who is a competent speaker$_{\text{F}a}$ and who would judge that Fa and there is an x who is a competent speaker$_{\text{F}a}$ and who would judge that ¬Fa) and there is a competent speaker$_{\text{BLF}a}$ who would judge that ¬(there is an x who is a competent speaker$_{\text{F}a}$ and who would judge that Fa and there is an x who is a competent speaker$_{\text{F}a}$ and who would judge that ¬Fa).

We can expose the structure further by formalizing the existential clauses

(14)   … there is a competent speaker$_{\text{BLF}a}$ who would judge that [$\exists x$[CSx&Hx] & $\exists x$[CSx&Ix]] and there is a competent speaker$_{\text{BLF}a}$ who would judge that ¬[$\exists x$[CSx&Hx] & $\exists x$[CSx&Ix]]

with CSx for 'x is a competent speaker$_{\text{F}a}$', Hx for 'x would judge that Fa' and Ix for 'x would judge that ¬Fa'. We can now easily show that it is possible for the account of 'second-order borderline case' to be true with 'competent speaker$_{\text{F}a}$' being not vague. All we need is an interpretation I$_1$ based on the following assumptions: (i) in our domain there are only competent speakers$_{\text{BLF}a}$; (ii) all competent speakers$_{\text{BLF}a}$ judge all objects in the domain to be competent speakers$_{\text{F}a}$; hence 'competent speaker$_{\text{F}a}$' is not vague; (iii) one competent speaker$_{\text{BLF}a}$ in addition judges that $\exists x$Hx&$\exists x$Ix; (iv) another competent speaker$_{\text{BLF}a}$ in addition judges that [$\exists x$Hx&¬$\exists x$Ix] v [¬$\exists x$Hx&$\exists x$Ix]. In Interpretation I$_1$, a is BL^{2}Fx, but this fact does not turn on the vagueness of 'competent speaker$_{\text{F}a}$'.

Hence the (compositional) account of 'second-order borderline case' we obtained from Shapiro's own account of 'borderline case' and his own definition of 'second-order

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[53] Shapiro (2005) 155.

borderline case' does not entail that 'competent speaker' is vague. Shapiro's belief that (ST) is "how the notion of 'borderline case' in [his] own account of vagueness plays itself out, as we move to what passes for higher-orders [*sic*]"[54] is thus false.

8. Can higher-order vagueness ever turn on the vagueness of 'competent speaker'?

The compositionalized and properly indexed version of Shapiro's second account of 'borderline case' still seems to allow for a weakened form of Shapiro's thesis:

(ST$_w$) It is possible that there are individual higher-order borderline cases whose being borderline turns on the vagueness of 'competent speaker'.

For example, it seems possible that the reason why Baldwin is borderline-borderline bald is the fact that there are borderline cases of 'competent speaker$_{(\text{Baldwin is bald})}$', and that 'competent speaker$_{(\text{Baldwin is bald})}$' is hence vague. All we need to grant is

(15) Every competent speaker$_{\text{BLF}a}$ is a competent speaker$_{\text{competent speaker}(Fa)}$.

(15) is likely true.[55] With it granted, the following Interpretation I_2 provides a case in which some a's being second-order borderline-F turns on the vagueness of 'competent speaker$_{Fa}$'. Consider again the partially formalized account (14), but this time with Interpretation I_2:

(i) The domain is $\{b, c, d, e\}$.
(ii) d and e are competent speakers$_{\text{BLF}a}$.
(iii) b and c are not competent speakers$_{\text{BLF}a}$.
(iv) All competent speakers$_{\text{BLF}a}$ judge that Hb, Hc, ¬Hd, ¬He, Id, Ie, ¬CSc, CSd, CSe. (Thus by CSd and CSe, competent speakers$_{\text{BLF}a}$ judge themselves to be competent speakers$_{Fa}$.)
(v) d judges that CSb.
(vi) e judges that ¬CSb.

In I_2 there is a competent speaker$_{\text{BLF}a}$, i.e. d, who judges that [∃x[CSx&Hx] & ∃x[CSx&Ix]]: She judges that CSb, Hb, CSd and Id and then judges by inference that [∃x[CSx&Hx] & ∃x[CSx&Ix]]. And there is a competent speaker$_{\text{BLF}a}$, i.e. e, who judges that ¬[∃x[CSx&Hx] & ∃x[CSx&Ix]]: She judges that ¬CSb, ¬CSc, ¬Hd and ¬He (which makes the first conjunct of the conjunction with the largest scope false) and then judges by inference that ¬[∃x[CSx&Hx] & ∃x[CSx&Ix]].[56] Hence the condition for BL^{2}Fa is satisfied, that is, a is borderline borderline Fx.

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[54] Shapiro (2005) 151. Shapiro himself discards the alternative that competent speakers must be competent with respect to the entire language as leading to a circular account of 'competent speaker' at ibid. 164-5.

[55] Recall that 'competent speaker$_{\text{BLF}a}$' is short for 'competent speaker$_{(\text{there is a competent speaker}(Fa) \text{ who would judge that } Fa}$ and there is a competent speaker$_{(Fa)}$ who would judge that it is not the case that $Fa)$'. Thus in order to be a competent speaker$_{\text{BLF}a}$, a speaker needs to be competent with respect to 'competent speaker$_{Fa}$'. Hence every competent speaker$_{\text{BLF}a}$ is also a competent speaker$_{\text{competent speaker}(Fa)}$.

[56] We assume that competent speakers – or in any case d and e in I_2 – have basic rational skills.

Since in I_2 all competent speakers$_{\text{BLF}a}$ agree upon everything except their judgement regarding CSb, that is whether b is a competent speaker$_{\text{F}a}$, $\text{BL}^2\text{F}a$ turns on the disagreement of the competent speakers$_{\text{BLF}a}$ as to whether b is a competent speaker$_{\text{F}a}$. Since, by (15), all competent speakers$_{\text{BLF}a}$ are also competent speakers$_{\text{CS(F}a)}$, $\text{BL}^2\text{F}a$ turns on the disagreement of competent speakers$_{\text{CS(F}a)}$ as to whether b is a competent speaker$_{\text{F}a}$. In other words, it turns on the fact that there is a borderline case of competent speaker$_{\text{CS(F}a)}$, or, what is the same, on the fact that 'competent speaker$_{\text{CS(F}a)}$' is vague.

Thus the compositionalized and properly indexed modification of Shapiro's second account of 'borderline case' allows for there being individual higher-order borderline cases whose borderlinehood turns on the vagueness of 'competent speaker'. Worse, this modification seems to lead to two wholly unrelated criteria for second-order vagueness: one based on disagreement about how competent speakers would judge Fa; the other based on disagreement about whether some individuals are competent speakers. Nothing in the phenomenon of higher-order vagueness suggested such a thing, and it seems rather bizarre. Let's call this problem the Two-Criteria Problem.[57]

Should an a's being borderline-borderline F ever depend wholly on the fact that some competent speakers$_{\text{CS(F}a)}$ would disagree about whether someone (who is a competent speaker$_{\text{F}a}$) is a competent speaker$_{\text{F}a}$? Should it be possible that Baldwin is borderline-borderline bald *because* competent judge$_{\text{CS(F}a)}$ Jude would not judge competent judge$_{\text{F}a}$ Judy competent? That makes no sense. Either Judy is competent, whatever Jude says; then she should count just as every other competent speaker$_{\text{F}a}$, regardless of what Jude thinks. Or the fact that Jude would not judge Judy competent takes somehow away from her competence; in that case, we shouldn't want her to be criterial at all for whether Baldwin is borderline bald.

Moreover, the weakened thesis (ST_w) seems to allow for the unappealing possibility that there are borderline-borderline cases of F without there being borderline cases of F. Imagine that all competent speakers$_{\text{F}a1}$, competent speakers$_{\text{F}a2}$, …, competent speakers$_{\text{F}a100}$ agree about Fa_1, Fa_2, … Fa_{100}, respectively, but that there is disagreement among competent speakers$_{\text{CS(F}a24)}$ about one of the competent speakers$_{\text{F}a24}$ as to whether she is competent. Then a_{24} is borderline-borderline F, but neither a_{23}, nor a_{24}, nor a_{25} is borderline F. (This is possible, however fine-grained the series a_1 to a_n.) This clearly clashes with the phenomenon of higher-order vagueness with which Shapiro (and we) started out.[58] But it seems that as long as individual cases of second-order vagueness can turn on the vagueness of 'competent speaker', this possibility cannot be avoided.

At this point, the most reasonable thing to conclude is that the borderline-competence of individual competent speakers should never be the decisive factor for higher-order

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[57] Could the two criteria be unified by making the second dependent on the first? That is, by assuming that whether someone is a $\text{CS}_{\text{F}a}$ would depend on how they would judge Fa? This suggestion fails. For, in Shapiro's view, if Fa is borderline, even a $\text{CS}_{\text{F}a}$ could legitimately go either way in their judgement of Fa. So how they would judge Fa cannot determine whether they are competent.

[58] It also clashes with the result of the argument based on the child* example above, that the vagueness of 'borderline F' has the vagueness of 'F' as necessary condition.

borderlinehood.[59] Given this conclusion, there are two ways in which the Two-Criteria Problem can be avoided.

The first alternative: For each level (the levels of Fa, BLFa, BL^{2}Fa, etc.) considerations are restricted to all and only the relevant competent speakers (i.e. those with the index Fa, BLFa, BL^{2}Fa, etc., respectively). It is stipulated that the competent speakers are to count as part of the criterion, even if they are borderline competent.[60] We then get for the first three orders:

- BLFa iff, in the domain D_1 of competent speakers$_{Fa}$ there are x who judge that Fa and there are x who judge that ¬Fa.
- BL^{2}Fa iff, given the domain D_1 of competent speakers$_{Fa}$ and the domain D_2 of competent speakers$_{BLFa}$, there are x in D_2 who judge that in the domain D_1 of competent speakers$_{Fa}$ there are x who judge that Fa and there are x who judge that ¬Fa; and there are x in D_2 who judge that it is not the case that in the domain D_1 of competent speakers$_{Fa}$ there are x who judge that Fa and there are x who judge that ¬Fa.
- BL^{3}Fa iff, given the domains D_1 of competent speakers$_{Fa}$, D_2 of competent speakers$_{BLFa}$ and D_3 of competent speakers$_{BL^2Fa}$, there are x in D_3 who judge that there are x in D_2 who judge that in D_1 there are x who judge that Fa and there are x who judge that ¬Fa; and there are x in D_2 who judge that it is not the case that in D_1 there are x who judge that Fa and there are x who judge that ¬Fa and there are x in D_3 who judge that it is not the case that there are x in D_2 who judge that in D_1 there are x who judge that Fa and there are x who judge that ¬Fa; and there are x in D_2 who judge that it is not the case that in D_1 there are x who judge that Fa and there are x who judge that ¬Fa.

This alternative could be justified thus: If someone is fully competent with respect to Φa, then that suffices for them to count as criterial, even if there is some disagreement among competent speakers$_{CS(Φa)}$ as to whether they are fully competent. This is a kind of epistemicism about speaker competence. It is possible that speakers are fully competent, despite the fact the some speakers who are fully competent with regard to them may not be able to detect that they are. Competence is then not transparent.

The second alternative: It is stipulated that, if there is disagreement among the competent speakers$_{BLΦa}$, as to whether someone is a competent speaker$_{Φa}$, then that person is to be discounted as competent speaker$_{Φa}$. The justification would be this: First, according to (15), any competent speaker$_{BLΦa}$ is also a competent speaker$_{CS(Φa)}$. The competent speakers$_{CS(Φa)}$ are by definition the best qualified competent individuals with regard to competent speakers$_{Φa}$. Hence, if even the best qualified competent individuals cannot agree about whether the competent speakers$_{Φa}$ are appropriate judges regarding Φa, then

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[59] Of course excepting the cases in which the predicates at issue are of the kind 'is a competent speaker$_{Φa}$$x$'.
[60] Evidently, borderline competent speakers$_{Fa}$ who are *not* competent speakers$_{Fa}$ do not count.

we don't want those competent speakers$_{\Phi a}$ as judges for Φa.[61] This alternative assumes the transparency of competence.[62]

9. Concluding remarks

None of the four points Shapiro adduced in support of his thesis (ST) that – in an open-texture theory like his, at any rate – so-called higher-order vagueness is nothing but first-order vagueness in 'competent speaker' held up against scrutiny. (1) The quote from Williamson concerns a different theoretical point. (2) The fact that borderline red is not a colour is irrelevant to higher-order vagueness. (3) The fact that 'borderline case' makes reference to the judgement of competent speakers proved to be no impediment to the existence of true higher-order borderline cases. (4) Shapiro's argument from elimination is grounded on an unsubstantiated premise and does in any case not support the reduction of higher-order vagueness to first-order vagueness necessary for proving (ST).

By starting out from Shapiro's own account of 'borderline case' and his own formal definition of 'second-order borderline case', we constructed an account of higher-order vagueness that is compositional and truly higher-order. We showed that the undesirable possibility that with this account, in *some* cases, higher-order borderlinehood may turn on the vagueness of 'competent speaker' can be eliminated in two ways. One's choice would depend on whether one favours an account of higher-order vagueness with, or without, the S4-axiom. Plausible arguments were presented for either alternative.

In sum, we have every reason to believe that, even with an open-texture theory of vagueness like Shapiro's, there is true higher-order vagueness.[63]

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[61] Competent speakers$_{Fa}$ who are borderline competent speakers$_{Fa}$ can be excluded from being criterial for the borderlinehood of Fa by the addition of a suitable series of conjuncts into the *definiens* of (6). We abbreviate 'x is a competent speaker' as 'CSx', 'x would judge that y' as 'Jx(y)':

(6')   BLFa $=_{df}$ $[\exists x\,[\mathrm{CS}_{Fa}x\ \&\ Jx(Fa)]\ \&\ \exists x[\mathrm{CS}_{Fa}x\ \&\ Jx(\neg Fa)]]$

$\&\ [\forall y[\mathrm{CS}_{\mathrm{CS}(Fa)x}\,y{\rightarrow}Jy(\mathrm{CS}_{Fa}x)]\ \ v\ \ \forall y[\mathrm{CS}_{\mathrm{CS}(Fa)x}\,y{\rightarrow}Jy(\neg\mathrm{CS}_{Fa}x)]]$

$\&\ [\forall z[\mathrm{CS}_{\mathrm{CS}(\mathrm{CS}(Fa)x)y}z{\rightarrow}Jz(\mathrm{CS}_{(\mathrm{CS}(Fa)x)}y)]\ \ v\ \ \forall z[\mathrm{CS}_{\mathrm{CS}(Fa)x}y{\rightarrow}Jz(\neg\mathrm{CS}_{(\mathrm{CS}(Fa)x)}y)]]$

$\&\ [[\forall w[\mathrm{CS}_{\mathrm{CS}(\mathrm{CS}(\mathrm{CS}(Fa)x)y)z}w{\rightarrow}\ \ \mathrm{etc.}\ ...].$

[62] Logically, the second alternative would favour a modal system with the S4 axiom, the first alternative would favour a modal system without the S4 axiom. Cf. Bobzien (2010, forthcoming).

[63] Shapiro's arguments are important, since they generalize to all accounts of vagueness that use some kind of qualified individuals as a criterion for borderlinehood (i.e. the majority of accounts of vagueness). Our replies generalize as well. We show this in a different paper.

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