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Broad Properties of Beliefs

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Abstract

Yli-Vakkuri (2018) argues that content externalism can be established without thought experiments, as the deductive consequence of a pair of uncontroversial principles about beliefs, contents, and truth. I argue that the most dialectically plausible motivation for the first principle, that truth is a broad property or beliefs, undermines the second principle, that the truth-value of a belief goes hand-in-hand with that of its content, and that other motivations are likely to depend on externalist thought experiments the argument was meant to avoid. As it stands, the argument for externalism therefore fails.

Yli-Vakkuri (2018) has recently argued that content externalism can be established without reliance on thought experiments, as the deductive consequence of a pair of 'widely accepted principles' about the relationship between belief, content, and truth. If successful, that would certainly be a welcome result. Unfortunately, the two principles Yli-Vakkuri puts to work in pursuit of this commendable goal are, I shall argue, not as unproblematic as they might seem.

Yli-Vakkuri's argument has also been subjected to critical scrutiny by Sawyer (2018), who argues that standard formulations of content internalism in fact reject the two principles. However, while I agree with much of what Sawyer says (with an exception to which I return below), her argument against the principles, proceeding as it does on internalist premisses, is dialectically precarious in the present context. It remains open to the externalist to hold that the two principles advanced in Yli-Vakkuri's argument enjoy greater independent plausibility than any internalist premiss one might use to argue against them. A standoff threatens.

I aim to improve on the dialectical situation by arguing that the principles appealed to in Yli-Vakkuri's argument can be resisted without antecedent commitment to internalism. In particular, I shall argue that the most dialectically plausible defence of the first principle, that truth is a broad property of beliefs, undermines the second principle, that the truth-value of a belief goes hand-in-hand with that of its content.

Let me begin by setting out the terms of the debate. Yli-Vakkuri (2018) articulates the thesis of internalism in terms of duplication: things are *duplicates* if they are internally the same. Given duplicate subjects S and S', any part of S will *correspond to* a part of S'. A birthmark on S's left thumb, for example, will correspond to a birthmark on the left thumb of S'. Similarly, if S has a certain belief at a particular point in her life, S' will have a corresponding belief at the same point in her life. It is important to note (and will be important in what follows) that beliefs are here and throughout to be understood as *token* beliefs. No two subjects have the same belief in this sense.

Now, letting C be the relation that holds between corresponding token beliefs of duplicate subjects, and c a function that returns the content of a token belief, the thesis of internalism can be formulated as follows:

$$\textsc{Narrow}_{\textsc{C}}\colon \Box\forall x\forall y(C(x,y) \rightarrow c(x) = c(y))$$

$\textsc{Narrow}_{\textsc{C}}$ says that necessarily, corresponding beliefs of duplicate subjects have the same content. Externalism is then the denial of this claim: that it's possible for corresponding beliefs of duplicate subjects to differ in content.

Yli-Vakkuri (2018) shows that the negation of $\textsc{Narrow}_{\textsc{C}}$ is a deductive consequence of the following two general principles (where v is a function that returns the truth-value of a belief, and V that of a belief's content[1]):

$$\textsc{Broad}_{\textsc{T}}\colon \neg\Box\forall x\forall y(C(x,y) \rightarrow v(x) = v(y))$$

$$\textsc{Transparency}\colon \Box\forall x\; v(x) = V(c(x))$$

$\textsc{Broad}_{\textsc{T}}$ says that it is not necessary that corresponding beliefs have the same truth-value. Truth, in other words, is a 'broad' property of beliefs, one that need not be shared by corresponding beliefs. And Transparency says that necessarily, the truth-value of a belief is the same as the truth-value of that belief's content. $\neg\textsc{Narrow}_{\textsc{C}}$, the claim that content is also a broad property of beliefs, can now be shown to follow from $\textsc{Broad}_{\textsc{T}}$ and Transparency in a logic that combines FOL with the modal logic K.[2]

[1] I here depart slightly from Yli-Vakkuri's (2018) presentation in distinguishing these two functions, though see his fn. 13 for a similar suggestion. For the relevance of this, see the discussion of the principle CT below.

[2] Let A, B, and C be the FOL formulas in the scope of the $\Box$ operators of $\textsc{Narrow}_{\textsc{C}}$, Transparency, and $\textsc{Broad}_{\textsc{T}}$ respectively. Observe first that $\ulcorner(A \rightarrow (B \rightarrow C))\urcorner$ is a closed theorem of FOL. Applying the Rule of Necessitation gives us $\ulcorner\Box(A \rightarrow (B \rightarrow C))\urcorner$. Using the K Axiom a couple of times lets us distribute the necessity operator to get $\ulcorner\Box A \rightarrow (\Box B \rightarrow \Box C)\urcorner$ as a theorem. And the latter is then truth-functionally equivalent to $\ulcorner(\Box B \wedge \neg\Box C) \rightarrow \neg\Box A\urcorner$, that is to say, $\ulcorner(\textsc{Transparency} \wedge \textsc{Broad}_{\textsc{T}}) \rightarrow \neg\textsc{Narrow}_{\textsc{C}}\urcorner$. Compare Yli-Vakkuri (2018, fn. 10).

Sawyer (2018) argues that extant internalist views which endorse $\textsc{Narrow}_{\textsc{C}}$ reject either $\textsc{Broad}_{\textsc{T}}$ or Transparency. Though I think her arguments are largely successful (with the exception noted below), they are, as mentioned, dialectically problematic. Since they use $\textsc{Narrow}_{\textsc{C}}$ as a premiss, it remains open to the externalist to hold that the principles of $\textsc{Broad}_{\textsc{T}}$ and Transparency are independently more plausible than the thesis of $\textsc{Narrow}_{\textsc{C}}$ that Sawyer uses to argue against them.[3] My aim in what follows is to improve on this situation. I won't take $\textsc{Narrow}_{\textsc{C}}$ as a premiss, but rather argue that even in a neutral setting, the most dialectically plausible defence of $\textsc{Broad}_{\textsc{T}}$ should lead us to reject Transparency.

So let us ask: why accept $\textsc{Broad}_{\textsc{T}}$, that truth is a broad property of beliefs? Why should it be possible for corresponding beliefs to differ in truth-value? Here's one potential reason: one might hold that it is possible for corresponding beliefs of internal duplicates to differ in content, and that since different contents may differ in truth-value, corresponding beliefs may differ in truth-value. Perhaps Oscar has a belief about water, and Twin Oscar's corresponding belief is about twin water, and the property ascribed in their respective beliefs holds of water but not twin water. But of course this presumably can't be the reason to accept $\textsc{Broad}_{\textsc{T}}$ in the present context, since it takes externalism as a premiss.

Interestingly, Yli-Vakkuri (2018) does not directly address the question of why we should grant $\textsc{Broad}_{\textsc{T}}$, saying only that 'truth is a paradigmatic broad semantic property' (83) and that this assumption may therefore 'pass without comment' (85). But we can reconstruct a plausible motivation. To say that something is a narrow property of beliefs — a property shared by corresponding beliefs — is, he explains:

> one way of making (relatively) precise the idea that whether a belief has that property is determined by the way the subject of the belief is internally together with the way the belief relates to the way the subject is internally. (Yli-Vakkuri, 2018, 83)

So the claim that truth is a broad property is intended to amount to the claim that the truth-value of a belief is not determined by how the subject of the belief is internally. And this *is* uncontroversial: beliefs represent the world as being a certain way, and a belief's truth-value is determined by whether it correctly represents the world in which the subject of the belief finds herself.

[3] Indeed, $\ulcorner \textsc{Narrow}_{\textsc{C}} \rightarrow \neg(\textsc{Transparency} \wedge \textsc{Broad}_{\textsc{T}})\urcorner$ is a truth-functional corollary of Yli-Vakkuri's (2018) result (its contrapositive). So it comes as no surprise that internalists must reject one or the other of the two principles. What I take Sawyer (2018) to have shown is that extant internalist frameworks do in fact reject these principles. I aim to show that we can dispense with the internalist premiss in arguing against the principles.

So BROAD$_{\text{T}}$ might then be motivated by the following thought. We can consider two duplicate subjects S and S' whose beliefs differ in truth-value not because they have different contents, but because S and S' inhabit possible worlds w and w' that differ with respect to whether the shared content of their beliefs is true at those worlds. Suppose, for example, that S in w reads the newspaper one evening and forms the belief that the Dow Jones lost points on 2.5.2018, and that S' in w' reads the newspaper on the same evening and also forms the belief that the Dow Jones lost points on 2.5.2018. But in fact, the newspaper S' reads contains a misprint: although the Dow Jones lost points in w, it didn't lose points in w', so whereas S's token belief x is true, the corresponding token belief y of S' is not. This example now doesn't presuppose externalism, since the pair of corresponding beliefs in this example have the same content (on both internalist and externalist views). What accounts for the difference in truth-value isn't a difference in content, but a difference between the possible worlds in which the beliefs are held. So this defence of BROAD$_{\text{T}}$, unlike the one considered earlier, is dialectically viable.

I don't mean for this particular example to carry too much weight. Another example would be a pair duplicate subjects S and S' who, upon waking on Nov. 9, 2016, both hold the belief that the 45th US president is female, in worlds where the overnight vote-count had relevantly different outcomes. In general, what is needed is just the possibility of corresponding beliefs with the same contingent proposition as content, held in worlds that differ with respect to whether that proposition is true. Both internalists and externalists will presumably allow for this.

Returning to our example, the trouble is this: although we have an example of a pair of corresponding token beliefs that differ in truth-value, and thus support BROAD$_{\text{T}}$, this same pair of beliefs constitutes a counterexample to TRANSPARENCY. Or more directly, we have a counterexample to the following principle which is entailed by TRANSPARENCY:[4]

$$\text{CT: } \Box\forall x\forall y(c(x) = c(y) \rightarrow v(x) = v(y))$$

This says that necessarily, beliefs with the same content have the same truth-value. And we have just seen a pair of beliefs with the same content that don't have the same truth-value. So CT fails, and since TRANSPARENCY entails CT, TRANSPARENCY fails.

Readers may have noted that once we allow our quantifiers to range over token beliefs in different worlds in this manner, a question arises about how to interpret the notation '$V(c(x))$' that appears in TRANSPARENCY, since a belief's content can only be assigned a

[4] Let B again be the FOL formula in the scope of the $\Box$ operator in TRANSPARENCY, and D the FOL formula in the scope of the $\Box$ operator in CT. Observe first the $\ulcorner B \rightarrow D \urcorner$ is a closed theorem of FOL. Necessitating we get $\ulcorner \Box(B \rightarrow D) \urcorner$ and applying the K axiom we get $\ulcorner \Box B \rightarrow \Box D \urcorner$, that is, $\ulcorner$TRANSPARENCY $\rightarrow$ CT$\urcorner$, as a theorem of a logic that combines FOL with the modal logic K.

truth-value *relative to a world*. I shall here take it that the expressions '$v(x)$' and '$V(c(x))$' that appear in our principles receive the following interpretation in the semantic metatheory (suppressing relativization to the model for simplicity, and letting w and g be an arbitrary world and assignment):

$$[\![\text{`}v(x)\text{'}]\!]^{w,g} = \overline{v}(g(\text{`}x\text{'})) = \overline{V}(\overline{c}(g(\text{`}x\text{'})), u_{g(\text{`}x\text{'})})$$

$$[\![\text{`V(c(x))'}]\!]^{w,g} = \overline{V}(\overline{c}(g(\text{`}x\text{'})), w)$$

Here $u_{g(\text{`}x\text{'})}$ is the world in which the token belief $g(\text{`}x\text{'})$ is held, $\overline{c}$ is a function that returns the content of a belief, $\overline{v}$ a function that returns the truth-value of a belief, and $\overline{V}$ a function that assigns a truth-value to a content *relative to a world*. The thought is that '$v(x)$' denotes, with respect to any world of evaluation, the truth-value that x's content has *at the world in which the belief x is held*, whereas '$V(c(x))$' denotes the truth-value of x's content relative to the world of evaluation.

Let me flag that Yli-Vakkuri may not have intended the quantifiers in his principles to be construed along these possibilist lines. Possibilist, or 'constant domain,' quantifiers are controversial, since they e.g. validate necessary existence $\forall x \Box \exists y\, y = x$. I discuss the upshot of restricting the quantifiers to actual token beliefs in the final two paragraphs of this paper. But assuming for the time being that we may interpret the principles in the manner I've proposed, the problem is as described: there will be cases of corresponding token beliefs that differ in truth-value (as per BROAD_T) and yet have the same content (contrary to CT, and thus to TRANSPARENCY), provided that the beliefs are held in relevantly different worlds.

Before I consider potential replies, let me pause to make a more general point. CT says that beliefs with the same content necessarily have the same truth-value. To gain a better perspective on this claim, it will help to make a distinction between two conceptions of content, one that Yli-Vakkuri (2018) and Sawyer (2018) both register. Say that a content, or proposition, is *complete* if it only varies in truth-value across worlds, and *incomplete* if it varies in truth-value across things besides worlds — e.g. across individuals, or times, or standards of taste, or states of information.[5] Yli-Vakkuri (2018) notes that TRANSPARENCY will fail on views that allow for incomplete contents. Suppose, for example, that there is such a thing as the proposition that the Dow Jones lost points, which lacks a time specification and varies in truth-value across different days. It will now be possible for two subjects

[5]For views that countenance incomplete propositions, see e.g. Lewis (1979) (for variation across individuals), Kaplan (1989) (for variation across times), and MacFarlane (2014) (for variation across standards of taste and information states).

to have token beliefs that share this content but that differ in truth-value, provided the beliefs are held on relevantly different days. This would again give us a counterexample to CT, and with it to TRANSPARENCY.

What the example of S and S' shows is that incomplete contents aren't needed to generate this problem. Even complete contents are 'incomplete' in one respect, viz. possible world. Token beliefs with the same complete content will agree in truth-value if held in the same possible world. But even such beliefs can differ in truth-value if they are held in relevantly different possible worlds.[6] And as we've seen, it is pairs of beliefs of just this sort that provide a plausible motivation for BROAD_T. So the very examples that might motivate BROAD_T (without direct appeal to externalism) also constitute counterexamples to TRANSPARENCY.

This also brings me to a point of disagreement with Sawyer (2018). She argues that Segal's internalist view implies that:

> corresponding non-indexical beliefs [beliefs with complete contents] of duplicate subjects will ... necessarily have the same truth-value. This is because corresponding non-indexical beliefs of duplicate subjects have the same content [by the assumption of NARROW_C], and the content, being a complete proposition, has its truth conditions essentially. BROAD_T is false. (Sawyer, 2018, 680)

This argument is not successful, however. Sawyer allows us to consider corresponding beliefs held in distinct worlds — in the passage from which the above quote is taken, she is discussing the beliefs of Alf and *counterfactual* Alf. So consider two corresponding non-indexical beliefs held in distinct worlds. The internalist will assign them the same complete content. But contrary to what Sawyer suggests, nothing about the completeness of this shared content guarantees that the two beliefs have the same truth-value. Complete contents may have their *truth-conditions* essentially, but not their *truth-values*: even complete contents can differ in truth-value across worlds. A further premiss, besides the completeness of the relevant shared content, would be needed to reach the conclusion that corresponding non-indexical beliefs must be alike in truth-value.[7]

[6] The residual 'incompleteness' of contingent propositions is emphasized by MacFarlane (2014, 2009) in his discussions of 'nonindexical contextualism', echoing Lewis' (1980) remark that 'contingency is a kind of indexicality.'

[7] Sawyer also offers an internalist argument against TRANSPARENCY. This argument however relies on the controversial claim that there are incomplete belief contents, which a defender of Yli-Vakkuri's argument might well reject. Again, the example of S and S' from above shows that incomplete contents aren't needed to cast doubt on TRANSPARENCY. Even beliefs with complete contents are 'indexical' in a certain sense.

Let us now return to the case of the corresponding beliefs of S and S' considered above. I can see two ways in which a defender of Yli-Vakkuri's deductive argument might seek to avoid this counterexample to CT (and thus TRANSPARENCY). One option would be to hold that the example was mis-described, either in terms of the truth-values, or in terms of the contents, of this pair of beliefs. One could, for example, claim that the truth-value of a belief is determined by evaluating its content at the *actual* world, even if that is not the world in which the belief is held. S''s belief that the Dow Jones lost points on 2.5.2018 would then count as true, despite the fact that the Dow Jones did not lose points on 2.5.2018 in the world in which the belief was held. (This would of course also require us to now find a different example in support of BROAD_T.) Alternatively, one might hold that the contents of the two beliefs in our example in fact differ. To this end one might claim that these beliefs have *super-complete* contents, ones that don't even vary in truth-value across worlds. What S believes is that the Dow Jones lost points on 2.5.2018 *in* w, and what S' believes is that the Dow Jones lost points on 2.5.2018 *in* w'. Indeed, this would have to be claimed about any proposed cross-world counterexample to TRANSPARENCY. However, both of these strategies strike me as sufficiently implausible to rob TRANSPARENCY of its status as an uncontroversial principle.

A second, more plausible option would be try and rescue TRANSPARENCY by requiring that we restrict our attention to pairs of token beliefs held in a single world. Perhaps Yli-Vakkuri (2018) indeed meant to impose such a restriction. The trouble with this route is that it brings us back to the problem I registered at the outset. The intuitive motivation I suggested for BROAD_T is that the truth-value of a belief generally depends not just on the internal constitution of the subject, but on what the world in which the belief is held is like. This suggests that we are to consider corresponding beliefs that differ in truth-value because they are held in worlds that are relevantly different. If appeal to beliefs held in different worlds is barred, then this defence of BROAD_T falls by the wayside. A dilemma now looms.

We need a pair of corresponding beliefs that are held in a single world but still differ in truth-value. These beliefs will either have the same content or different contents. If they have the same content, we face the same problem with TRANSPARENCY pointed out above: we have pair of beliefs with the same content that differ in truth-value (such a content would have to be incomplete if the beliefs are held in the same world), meaning that CT, and with it TRANSPARENCY, fails. And any putative example of corresponding beliefs that are held within a single world but differ in content is likely to presuppose externalist intuitions and thus be dialectically problematic. I conclude that externalists will have to either appeal to the original motivation I proposed for BROAD_T but thereby abandon TRANSPARENCY, or

else rely on motivations that are likely to depend on externalist thought experiments the argument was meant to avoid.[8]

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