PROOF THAT KNOWLEDGE ENTAILS TRUTH*

This paper aims to prove the principle that knowledge entails truth, or similarly, that nothing false can be known. The precise conclusion is

(KT) $\Box\forall s\forall p$ (s knows that $p \to p$).[1]

Few philosophical principles are more orthodox than (KT). The principle is commonly assumed across all areas of philosophy.[2] It is an axiom of standard epistemic logics, and is central to nearly all theories of propositional knowledge.[3] Acceptance of (KT) even roots deeply within the history of philosophy, stretching back to at least Plato's *Meno*.[4]

Despite its importance, our confidence in (KT) is beginning to erode. There are at least two recent signs of this.

The first is that our preferred way of supporting (KT) is now highly controversial. Standardly, (KT) is posited as a linguistic explanation of certain uses of the word 'knows'.[5] But philosophers such as L. Jonathan Cohen and Allan Hazlett have raised significant doubts about this explanation.[6] Very roughly, if we want to explain how the word 'knows' is used, we must consider a

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1 Italicized lowercase letters are variables, whether bound or unbound. Uppercase letters are denoting expressions—'A' and 'S' denote subjects; 'P', 'Q', and 'R' denote propositions; 'W' denotes a possible world.

2 For example, Shelly Kagan, *Death* (New Haven: Yale University Press, 2012) p. 256.

3 See Jaakko Hintikka, *Knowledge and Belief: An Introduction to The Logic of The Two Notions* (Ithaca: Cornell University Press, 1962); Timothy Williamson, *Knowledge and Its Limits* (Oxford: Oxford University Press, 2000) ch. 1; and Ernest Sosa, *A Virtue Epistemology: Apt Belief and Reflective Knowledge, Volume I* (Oxford: Oxford University Press, 2007) ch. 2.

4 Plato, "Meno" in Edith Hamilton and Huntington Cairns, eds., *The Collected Dialogues of Plato* (Princeton: Princeton University Press, 1961) pp. 381-82, Stephanus number 98a.

5 See Williamson, *Knowledge and Its Limits*, *op. cit.*, p. 35; and Jennifer Nagel, *Knowledge: A Very Short Introduction* (Oxford: Oxford University Press, 2014) pp. 8-9.

6 L. Jonathan Cohen, *An Essay on Belief and Acceptance* (Oxford: Oxford University Press, 1992) p. 91; Allan Hazlett "The Myth of Factive Verbs," *Philosophy and Phenomenological Research* LXX, 3 (May/2010): 497–522; Allan Hazlett, "Factive Presupposition and The Truth Condition on Knowledge," *Acta Analytica* XXVII, 4 (2012): 461–78.

wide array of linguistic constructs involving 'knows', including interrogatives, negations, and non-factive uses (where a subject is said to know a false proposition). We must also examine a host of semantic and pragmatic mechanisms that can explain these uses, including semantic and pragmatic presupposition, conversational and conventional implicature, and so on. The upshot is that we now have much more data to explain, and many more potential explanations of this data. And it is no longer obvious that (KT) is part of the best explanation. If it is not, then our favored argument for (KT) fails.[7]

Another sign of eroded confidence in (KT) is that many epistemologists now reject it. The denial of (KT) would have gained no traction a few decades ago,[8] but there is now, according to Adam Bricker, a "nascent non-factive project" in epistemology.[9] Bricker, along with Wesley Buckwalter and John Turri, hold that knowledge does not entail truth, but instead entails something like "approximate truth"[10] or "truthlikeness."[11] In a separate article, Turri and Buckwalter report an experiment aimed at testing their non-factive account on ordinary speakers.[12] They claim that it supports their view over (KT). Many other epistemologists accept a compromise between (KT) and its denial: they hold that 'knows' is ambiguous, expressing a factive sense which accords with (KT) and a non-factive sense which violates (KT).[13] Although this view strives for compromise, it

[7] Other arguments for (KT) are rejected in Hazlett, "The Myth of Factive Verbs," *op. cit.*, pp. 503-07.

[8] Laurence BonJour, *Epistemology: Classic Problems and Contemporary Responses* (New York: Rowman and Littlefield 2010) p. 28.

[9] Adam Bricker, "Knowing Falsely: the Non-Factive Project," *Acta Analytica* XXXVII, 2 (2022): 263–82, at p. 263.

[10] Wesley Buckwalter and John Turri, "Knowledge and Truth: A Skeptical Challenge," *Pacific Philosophical Quarterly* CI, 1 (March/2020): 93-101, at p. 97.

[11] Bricker, "Knowing Falsely: the Non-Factive Project," *op. cit.*, p. 263

[12] Wesley Buckwalter and John Turri, "Knowledge, Adequacy, and Approximate Truth," *Consciousness and Cognition* LXXXIII, (August/2020): 1-8.

[13] Roberta Colonna Dahlman, "Did People in The Middle Ages Know That The Earth Was Flat?" *Acta Analytica* XXXI, 2 (2016): 139–52; Savas Tsohatzidis, "How to Forget That 'Know' Is Factive," *Acta Analytica* XXVII, 4 (2012): 449–59. Hazlett also seems to fall in this camp, holding that the sense of 'knows' in ordinary language is non-factive while the sense of 'knows' among epistemologists is factive. See Hazlett, "The Myth of Factive Verbs," *op. cit.*, p. 500 and p. 522.

proposes something that nearly all philosophers rejected a few decades ago—that there is a legitimate sense of 'knows' in which (KT) is false.[14]

This paper does not directly address these alternative approaches to (KT).[15] It only aims to advance a new argument in favor of (KT). By contrast to standard arguments, the present one does not posit (KT) as an explanation of how the word 'knows' is used—it does not posit (KT) to explain anything whatsoever. Rather, (KT) is shown to follow deductively from other exceedingly plausible claims that we have every reason to accept. Those who wish to reject (KT) are thereby forced to deny at least one of the argument's premises, and all supporting arguments for that premise.[16] Recent denials of (KT) provide no indication of which premise this would be, and so will not be discussed here.

Many philosophers believe there is no proof of (KT).[17] But this paper offers one in the following sense. It advances a deductively valid argument for (KT), whose premises are, by most lights, obviously true. Moreover, each premise is buttressed by at least two supporting arguments. And finally, all premises and supporting arguments can be rationally accepted by people who do not already accept (KT).[18]

This proof does not introduce any unfamiliar claims. Many philosophers already accept its premises. It is just that these premises have never been combined in an argument for (KT) until

[14] Prior to those cited in this paragraph, Ackermann might be the only epistemologist to accept this view. See Robert Ackermann, *Belief and Knowledge* (Garden City: Doubleday and Company, 1972) pp. 65-67 and p. 107. For discussion, see Robert Shope, *The Analysis of Knowing: A Decade of Research* (Princeton: Princeton University Press, 1983): 197-200.

[15] For recent discussion on such views, see Michael Shaffer "Can Knowledge Really Be Non-Factive?" *Logos and Episteme* XII, 2 (2021): 215-26; Peter Baumann, "True Knowledge," *Logos and Episteme* XII, 4 (2021): 463-67; and Michael Shaffer, "Further Reflections on Quasi-Factivism: A Reply to Baumann," *Logos and Episteme* XIII, 2 (2022): 207-15.

[16] This also applies to the ambiguity view just mentioned, as will be explained in the conclusion.

[17] For example, Fred Feldman, *A Cartesian Introduction to Philosophy* (New York: McGraw-Hill, 1986) p. 22.

[18] Infallibility-based arguments for (KT) violate this last desideratum. If you think it is possible to know falsehoods, you cannot rationally believe that knowledge requires infallibility. Arguably, an infallibility-based argument can be found in David Lewis, "Elusive Knowledge," *Australasian Journal of Philosophy* LXXIV, 4 (December/1996): 549-67, at pp. 551-54.

now. As it turns out, we have already possessed the resources to prove (KT). We just did not know it.

Section I states and explains three premises, and then demonstrates that (KT) follows from them. Section II provides at least two supporting arguments for each premise; it also defends these premises from objections.

I. DEMONSTRATION

(KT) concerns propositional knowledge, or knowing-that. But the proof of (KT) involves two premises about knowing-whether. More precisely, these premises concern knowing-whether-or-not. The latter is clearer in one respect: it explicitly contrasts a proposition with its negation—that is, the sentence 'S knows whether or not P' explicitly contrasts P with ¬P. The truncated phrase 'S knows whether P' does not specify what P is contrasted with—it does not tell us whether P is contrasted with Q, or R, or ¬P, and so on. For this reason, the argument focuses strictly on knowing-whether-or-not.

According to the first premise, knowing-that requires knowing-whether-or-not:

(TW) $\Box\forall s\forall p$ (s knows that $p \rightarrow s$ knows whether or not p).

The second premise proceeds in the opposite direction, from knowing-whether-or-not to knowing-that:

(WT) $\Box\forall s\forall p$ (($\neg p \wedge s$ knows whether or not p) $\rightarrow s$ knows that $\neg p$).

These premises should seem obvious. Beginning with (TW), it is clearly impossible for someone to know that Biden won but fail to know whether or not Biden won. Now consider (WT), and suppose Trump did not win: how could someone know whether or not Trump won but fail to know that Trump did not win? That too seems impossible. Jonathan Schaffer takes both (TW) and (WT) to be "truistic."[19] Jeroen Groenendijk and Martin Stokhof treat (WT) as a datum that any adequate semantics of whether-complements should explain.[20] Paul Egré treats (TW) in a similar way.[21] These principles have great intuitive appeal. Even better is that they are supported by arguments, which are discussed in section II.

The demonstration's third premise holds that a subject can know a proposition only if she does not know its negation:

(Consistency) $\Box\forall s\forall p$ (s knows that $p \rightarrow \neg$(s knows that $\neg p$)).

(Consistency) is also obvious. However, one might worry that its obviousness stems from the fact that it follows from (KT)—if knowledge entails truth, then knowledge that p precludes knowledge that $\neg p$, because p and $\neg p$ cannot both be true. This way of supporting (Consistency) could only appeal to those who already accept (KT). Still, it is certainly possible for subjects to find (Consistency) intuitive without invoking (KT). Indeed, section II.1 supports (Consistency) with four types of arguments that are independent of (KT).

Now observe that (KT) can be deduced from (TW), (WT), and (Consistency). For a reductio, assume the denial of (KT):

(KT-Denial) $\neg\Box\forall s\forall p$ (s knows that $p \rightarrow p$).

(KT-Denial) is equivalent to

(1) $\Diamond\exists s\exists p$ ($\neg p \wedge s$ knows that p).

Now instantiate (1) in possible world W, with proposition Q and subject A:

(2) In W, $\neg$Q $\wedge$ A knows that Q.

[19] See Jonathan Schaffer, "Knowing the Answer Redux: Replies to Brogaard and Kallestrup," *Philosophy and Phenomenological Research* LXXVIII, 2 (March/2009): 477-500, at p. 484. For Schaffer, the claims must be relativized to context. If desired, all claims in the present argument for (KT) can be relativized to context.

[20] Jeroen Groenendijk and Martin Stokhof, "Semantic Analysis of 'Wh'-Complements," *Linguistics and Philosophy* V, 2 (1982): 175-232, at p. 176.

[21] Paul Egré, "Question-Embedding and Factivity," *Grazer Philosophische Studien* LXXVII, 1 (2008): 85-125, at p. 108.

By applying (TW) to (2)'s second conjunct, we get

(3) In W, A knows whether or not Q.

From (3), (2)'s first conjunct, and (WT), we get

(4) In W, A knows that ¬Q.

Finally, (Consistency) and (2)'s second conjunct jointly entail

(5) In W, ¬(A knows that ¬Q).

Since (4) and (5) contradict each other, we can infer the negation of (KT-Denial), which is equivalent to our desired conclusion:

(KT) $\Box\forall s\forall p$ (s knows that $p \to p$).

Therefore, (KT) follows from (TW), (WT), and (Consistency).[22]

It is tempting to simplify (WT) by removing each occurrence of '¬'. The resulting principle is equally plausible though more elegant:

(Simple-WT) $\Box\forall s\forall p$ (($p \wedge s$ knows whether or not p) $\to s$ knows that p).

However, if (WT) is replaced with (Simple-WT) then (4) cannot be deduced from (2) and (3), without an extra premise, such as

$\Box\forall s\forall p$ (s knows whether or not $p \to s$ knows whether or not $\neg p$).

And this extra premise entails an infinite regress. Suppose one knows whether or not Q. From the extra premise, it follows that one knows whether or not ¬Q. The latter entails, by the same

[22] Because this argument is a reductio ad absurdum, it might fail within paraconsistent frameworks, where the possibility of true contradictions is allowed. However, these logics do not accept all contradictions as possibly true, but only certain ones involving paradoxical statements, such as liar sentences. And the contradiction in the present argument—between (4) and (5)—does not follow from any paradoxical statements. This indicates that the argument could be made valid within paraconsistent frameworks, if only there were a rule to permit the inference. Fortunately, paraconsistent logics often provide ways of recapturing classical rules such as *reductio ad absurdum*. For example, we could stipulate that we're dealing with a contradiction-free domain. Or, we could appeal to Graham Priest's notion of "local consistency." See Graham Priest, "Reductio ad Absurdum et Modus Tollendo Ponens," in Graham Priest, Richard Routley, and Jean Norman, eds., *Paraconsistent Logic: Essays on The Inconsistent* (München: Philosophia Verlag, 1989): 613-26, at p. 620. For other strategies, see Eduardo A. Barrio and Walter Carnielli, "Recovery Operators in Logics of Formal Inconsistency," *Logic Journal of The IGPL* XXVIII, 5 (2020): 615–23.

principle, that one knows whether or not ¬¬Q, and so on. We shall avoid this complication by employing (WT) as originally stated.

II. PREMISES

Although the premises may seem obvious, they can be additionally supported without assuming (KT). This section defends the premises as needed, and provides at least two supporting arguments for each. The supporting arguments help to solidify the premises for those who do not find them obvious. They also reveal that people who do not already accept (KT) could have good reason to believe each premise, and then come to believe (KT) as a result. This section begins with (Consistency), and then examines the premises about knowing-whether-or-not.

II.1. Consistency. Is there reason to accept the following?

(Consistency) $\Box\forall s\forall p$ (s knows that $p \rightarrow \neg$(s knows that $\neg p$)).

As noted, one can argue for (Consistency) by assuming (KT). But we need an argument that succeeds regardless of (KT). Four types of arguments are sketched below.

II.1.a. Belief-Based Arguments. Belief-based arguments support (Consistency) by assuming that knowledge entails belief. According to one version, the argument also assumes it is impossible to believe a proposition while also believing its negation. Call this the exclusivity of belief. These assumptions jointly entail (Consistency), regardless of (KT).

The exclusivity of belief is initially plausible.[23] But let us suppose for the sake of argument that a person could believe a proposition while also believing its negation.

Surprisingly, this may not undermine our first version of the argument. Recall that the argument assumes that knowledge requires belief—normally this means outright belief. Outright belief contrasts with a weak notion of belief, where a person who merely has some confidence that *p*

[23] Otherwise, there would be no static paradox of self-deception. See Alfred Mele, "Recent Work on Self-Deception," *American Philosophical Quarterly* XXIV, 1 (January/1987): 1-17, at p. 1.

is said to believe *p*. Mere confidence is not enough for outright belief. To believe outright, one must be sure. And surety is arguably what is required for knowledge.[24] Perhaps, then, the exclusivity of belief is false when interpreted according to the weak sense, but true when interpreted according to outright belief. Let us revisit the principle: Is it possible to be sure that a proposition is true while also being sure that its negation is true? If this is impossible, then (Consistency) follows suit.

The above is only one kind of belief-based argument for (Consistency). We can advance another without assuming the exclusivity of belief. We can instead assume that one cannot know a proposition while believing its negation. This principle entails (Consistency), without entailing the exclusivity of belief. And it has similar appeal.

II.1.b. Justification-Based Arguments. Justification-based arguments assume that knowledge requires justification (or some other epistemic property such as warrant or rationality).[25] According to one version, the argument also assumes it is impossible for a subject to be justified to believe a proposition while also being justified to believe its negation.[26] Call this the exclusivity of justification. If knowledge entails justification, and justification is exclusive, then (Consistency) is true.

Is justification exclusive? Plausibly it is. A subject's putative justification for *p* would seem to have a defeater if she also had justification to believe $\neg p$.

But there is an objection. Imagine you know there is a fair lottery with one winner and *n* number of tickets, where *n* is large enough to make it highly probable that each ticket will lose. It seems plausible that, for each ticket t_i, you are justified to believe that t_i will lose. Now consider

(Agglomeration) If *s* is justified to believe *p* and *s* is justified to believe *q*, then *s* is justified to believe $(p \wedge q)$.

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[24] Alfred Ayer, *The Problem of Knowledge* (London: Macmillan, 1956) p. 34.

[25] We cannot assume that justification entails truth; otherwise, these arguments might implicitly presuppose (KT). If justification comes in degrees, then the assumption is that knowledge requires a certain degree of justification. All of the following claims would apply to that degree of justification.

[26] A subject can be justified to believe *p* without actually believing *p*. Hence, the principle is independent of the exclusivity of belief.

Given (Agglomeration), it follows that you are justified to believe the following conjunction:

t_1 will lose ∧ t_2 will lose ∧ … t_n will lose.

However, we have already stipulated that you know the lottery will have a winner. So, you are also justified to believe the negation of the above conjunction. Thus, according to this argument, justification is not exclusive.[27]

Few find this argument persuasive. By applying (Agglomeration) again, it follows that one can be justified to believe an explicit contradiction:

(t_1 will lose ∧ t_2 will lose ∧ … t_n will lose) ∧ ¬(t_1 will lose ∧ t_2 will lose ∧ … t_n will lose).

And most philosophers deny that one can be justified to believe a proposition that one knows to be contradictory. This, they say, is sufficient reason to reject (Agglomeration).[28] If (Agglomeration) is false then the exclusivity of justification can be reinstated.

Justification-based arguments can be advanced without the exclusivity of justification. We could instead assume that one cannot know a proposition while being justified to believe its negation. This principle supports (Consistency) without entailing the exclusivity of justification. However, the above lottery argument, with certain adjustments, could be advanced against this revised principle. So, this variant argument may fare no better than our first justification-based argument.

II.1.c. Closure-Based Arguments. Our third type of argument assumes a closure-like principle and then derives an absurdity from the denial of (Consistency). According to one version, we assume multi-premise closure—if you know various propositions and know that they entail an

[27] Although indirect, Kuhn may provide the basis for a different challenge to the exclusivity of justification. See Thomas Kuhn, "Objectivity, Value Judgment, and Theory Choice," *The Essential Tension: Selected Studies in Scientific Tradition and Change* (Chicago: University of Chicago Press, 1977): 320-39.

[28] Henry Kyburg, *Probability and The Logic of Rational Belief* (Middletown: Wesleyan University Press, 1961).

additional one, then you are at least in a position to know the additional one.[29] The argument then seeks to show that the denial of (Consistency) entails an absurdity.

For a reductio, suppose (Consistency) is false, and that it is possible for S to know P while also knowing ¬P. These two known propositions entail an explicit contradiction (P ∧ ¬P). By the principle of explosion, the contradiction entails any proposition whatsoever. So, given multi-premise closure, it follows that S is in a position to know that S does not exist, that S does not know anything, that S is a boiled carrot, that 1+1=37, and so on. It is absurd that S's knowledge could extend this far.[30]

Multi-premise closure is controversial. But many other principles could be used instead. Here is one: if you know various propositions, know that they entail an additional one, and believe the additional one by competently deducing it from the previous ones, then you are justified in believing the additional proposition. Together with the denial of (Consistency), this principle entails similar absurdities—for example, that S could be justified in believing that S is a boiled carrot. Thus, similar arguments could be advanced without multi-premise closure, and they may have equal or greater force.

II.1.d. Fragmentation-Based Argument. Potentially, one could resist all the above arguments for (Consistency) if one holds that minds can be fragmented. Instead of attributing a single system of beliefs to a given person, we might attribute multiple systems that are independently accessible in different situations. These systems are known as fragments. A fragment can contain individual beliefs that fail to cohere with beliefs in other fragments of the same person. Proponents of this approach sometimes reject the exclusivity of belief, exclusivity of justification, and closure, at least

[29] One can consistently accept multi-premise closure while rejecting (Agglomeration).

[30] Paraconsistent logics reject the principle of explosion, but methods of recapturing it may be possible here too. See footnote 22.

insofar as these principles apply across fragments.[31] The previous three argument-types should be enough to establish that (Consistency) holds for non-fragmented subjects. The present section shows that (Consistency) also holds for fragmented subjects.[32]

If beliefs can reside in fragments, then there is a derivative sense in which knowledge can also reside in fragments:

> For any fragment f (s knows that p within $f \leftrightarrow s$ has a belief-that-p within f and this belief amounts to knowledge).

Now consider the two ways in which (Consistency) might fail to hold for fragmented subjects:

> (Intra) For some fragment f (s knows that p within $f \wedge s$ knows that $\neg p$ within f).
> (Inter) For some fragments $f1$ and $f2$ (s knows that p within $f1 \wedge s$ knows that $\neg p$ within $f2$).

To establish that (Consistency) holds for fragmented subjects, the present argument shows that (Intra) and (Inter) are both impossible. And it does so without assuming (KT).

(Intra) can be shown impossible via any of the three arguments previously discussed—i.e. belief-based, justification-based, and closure-based arguments—provided these arguments are only applied within fragments, rather than across them. For example, it is extremely plausible that the exclusivity of belief holds within every fragment, even if it does not hold across fragments. According to this restricted version of the exclusivity of belief, it is impossible for a given fragment to contain the belief that p while also containing the belief that $\neg p$. Such a view is typically seen as constitutive of what a fragment is.[33] Thus, (Intra) is impossible, if the exclusivity of belief holds within every fragment. In a similar way, (Intra) could be ruled out with justification-based and

[31] Dirk Kindermann and Andrea Onofri, "The Fragmented Mind: An Introduction," in Cristina Borgoni, Dirk Kindermann, and Andrea Onofri, eds., *The Fragmented Mind* (Oxford: Oxford University Press, 2021): 1-33, at pp. 4-5.

[32] It might be possible to partition a person's inconsistent beliefs from one another without invoking the theory of fragmentation. But the main lines of the argument advanced below should apply for other strategies too.

[33] Cristina Borgoni, "Rationality in Fragmented Belief Systems," in Cristina Borgoni, Dirk Kindermann, and Andrea Onofri, eds., *The Fragmented Mind* (Oxford: Oxford University Press, 2021): 137-55, at p. 141.

closure-based arguments, provided these arguments invoke principles that apply within every fragment.

(Inter) is also impossible. The above paragraph establishes that, for every fragment f, it is impossible to know a proposition within f while also knowing its negation within f. In other words, it has been shown that (Consistency) holds within every fragment. When this is combined with (TW) and (WT), it follows that (KT) also holds within every fragment. The reasoning here would mirror the demonstration of (KT) in section I, although its premises would be relativized to fragments, and its conclusion would be this:

(Frag-KT) For every fragment f (s knows that p within $f \rightarrow p$).[34]

(Frag-KT) can now be used to rule out (Inter).

For a reductio, suppose (Inter) is true. Given (Frag-KT), this assumption entails a contradiction ($p \wedge \neg p$). Hence, it is impossible for someone to know a proposition within a fragment while also knowing its negation within a different fragment. (Consistency) therefore holds across all fragments, as well as within them.

In short, it is impossible for (Consistency) to fail to hold for fragmented subjects. This has been shown without assuming (KT). Notably, the argument makes explicit use of both (TW) and (WT)—two principles that have yet to be established. They will concern us next.

II.1.e. Summary. We have seen four types of arguments for (Consistency)—belief-based, justification-based, closure-based, and fragmentation-based arguments. A total of seven arguments were sketched. All seven are initially plausible. None assumes (KT).

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[34] Analogous to the demonstration of (KT) in section I, the precise argument for (Frag-KT) would proceed from the following premises:
(Frag-Consistency) $\Box\forall s\forall p\forall f$ (s knows that p within $f \rightarrow \neg$(s knows that $\neg p$ within f)).
(Frag-TW) $\Box\forall s\forall p\forall f$ (s knows that p within $f \rightarrow s$ knows whether or not p within f).
(Frag-WT) $\Box\forall s\forall p\forall f$ (($\neg p \wedge s$ knows whether or not p within f) $\rightarrow s$ knows that $\neg p$ within f).

II.2. Whether-Premises. The proof of (KT) involves two premises about knowing-whether. Let us consider them in tandem, beginning with

(TW) $\Box\forall s\forall p$ (s knows that $p \rightarrow s$ knows whether or not p).

Clearly, (TW) could be rationally accepted by someone who does not already accept (KT). According to (TW), knowing-that-p entails knowing-whether-or-not-p. But the latter is compatible with $\neg p$, and so does not entail p. So, the mere refusal to accept (KT) provides no grounds for resisting (TW).

Is there reason to accept (TW)? Yes. (TW) follows from a plausible definition of 'knowing whether or not' in terms of knowing-that and disjunction:

(DEF1) $\Box\forall s\forall p$ (s knows whether or not $p \leftrightarrow$ (s knows that $p \vee s$ knows that $\neg p$)).[35]

One can argue for (TW) by deducing it from (DEF1). As we'll see in a moment, this argument must face an objection—one might worry that (DEF1) competes with another plausible definition of 'knowing whether or not'.

Let us first review the other premise about knowing-whether:

(WT) $\Box\forall s\forall p$ (($\neg p \wedge s$ knows whether or not p) $\rightarrow s$ knows that $\neg p$).

(WT) is supported by another definition of 'knowing whether or not':

(DEF2) $\Box\forall s\forall p$ (s knows whether or not $p \leftrightarrow$ (($p \rightarrow s$ knows that p) $\wedge$ ($\neg p \rightarrow s$ knows that $\neg p$))).

(DEF2) is basically what David Lewis has in mind with the following passage:

> Holmes knows whether… if and only if he knows the true one of the alternatives presented by the 'whether'-clause, whichever one that is.[36]

[35] Hintikka, *Knowledge and Belief*, *op. cit.*, p. 12; Maria Aloni, Paul Egré, and Tikitu de Jager, "Knowing Whether A or B," *Synthese* CXC (2013): 2595-621, at p. 2597.

[36] David Lewis, "'Whether' Report," in Tom Pauli, ed., *Philosophical Essays Dedicated to Lennart Åqvist on His Fiftieth Birthday* (Uppsala: University of Uppsala Press, 1982): 194–206, at p. 194.

The clause 'whether or not *p*' presents *p* and $\neg p$ as alternatives. (DEF2) basically says that the subject knows the true one of these alternatives, whichever it is. Notice that (DEF2) entails (WT). So, we can argue for (WT) simply by deriving it from (DEF2). In section II.2.d, we will consider whether (WT) should be contested by those who reject (KT).

So far, each premise about knowing-whether has been supported by its own argument. (TW) follows from (DEF1), and (WT) follows from (DEF2). But one might worry that these arguments compete: Can we accept both (DEF1) and (DEF2)? Yes. Those who accept (KT) can accept both definitions, because the definitions are logically equivalent if (KT) is true. Still, the argument for (KT) should hold sway with those who do not already accept (KT). Could (DEF1) and (DEF2) be logically equivalent without (KT)?

It makes no difference, because we do not need either definition in its totality. Notice that (TW) can be deduced from (DEF1)'s sufficiency condition alone. And (WT) can be deduced from (DEF2)'s necessary condition alone. There is no competition between these two conditions. So, we need not assume (DEF1) and (DEF2) in their entireties. We can merely assume (DEF1)'s sufficiency condition along with (DEF2)'s necessary condition. This assumption provides the following two arguments:

1st Argument for (TW)
(DEF1)'s sufficiency condition is true.

Therefore, (TW) is true.

1st Argument for (WT)
(DEF2)'s necessary condition is true.

Therefore, (WT) is true.

These arguments do not assume (KT), and should thus be amenable to those who do not already accept (KT). Below, (WT) and (TW) are each supported by at least one additional argument.

II.2.a. 2nd Argument for (TW). (TW) is supported by a version of a thesis advanced by Richard Zuber[37] and accepted by Paul Egré[38]:

> (That-to-Whether) For any verb *V*, if *V* takes both that- and whether-or-not-complements, then ⌜*s V* that *p*⌝ entails ⌜*s V* whether or not *p*⌝.

(That-to-Whether) holds trivially for verbs, like 'wonders' and 'hopes', which do not accept both that- and whether-or-not-complements. Other verbs satisfy (That-to-Whether) in non-trivial ways:

> 'Lola predicted that Q' entails 'Lola predicted whether or not Q'.
> 'Sino said that Q' entails 'Sino said whether or not Q'.
> 'Zevar remembers that Q' entails 'Zevar remembers whether or not Q'.

But (That-to-Whether) is not simply an empirical generalization based on such examples. It is meant to follow from the meanings of 'that' and 'whether or not'. As Egré explains it, the meanings of whether-clauses "systematically weaken the meaning of *that*-clauses when embedded after verbs that admit both kinds of complements."[39]

The second argument for (TW) is simple. Assume (That-to-Whether). Observe that 'knows' takes both that- and whether-or-not-complements. These claims guarantee (TW).

There is a problem, however. (TW) gains no support from this argument unless (That-to-Whether) is a necessary truth. But there are possible verbs that do not satisfy (That-to-Whether). Imagine the verb 'nevsaid' is synonymous with the complex expression 'never said'. Clearly, 'nevsaid' fails to satisfy (That-to-Whether): 'Sino nevsaid that Q' does not entail 'Sino nevsaid whether or not Q'. (That-to-Whether) is therefore not a necessary truth.

This objection can be met if we reformulate (That-to-Whether):

> (Modified-That-to-Whether) For any verb *V*, if *V* takes both that- and whether-or-not-complements, then ⌜*s V* that *p*⌝ entails ⌜*s V* whether or not *p*⌝, unless ⌜*s V* that *p*⌝ is synonymous with a negation.

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[37] Richard Zuber, "Semantic Restrictions on Certain Complementizers," in Shiro Hattori and Kazuko Inove, eds., *Proceedings of The 13th International Congress of Linguists* (Tokyo: Proceedings Publishing Committee, 1982): 434-36, at p. 435.

[38] Paul Egré, "Question-Embedding and Factivity," *op. cit.*, p. 108.

[39] Paul Egré, "Question-Embedding and Factivity," *op. cit.*, p. 108.

The last clause excludes 'nevsaid', because ⌜*s* nevsaid that *p*⌝ is synonymous with the negation ⌜It is not the case that *s* ever said that *p*⌝.

This modified principle is not ad hoc. It follows from the very idea that motivates the original hypothesis—namely, the weakening effect of whether-clauses. If a whether-statement is logically weaker than its corresponding that-statement, as Egré claims, then the negation of the whether-statement must be logically stronger than the negation of its that-statement. So, the negation of its that-statement cannot entail the negation of its whether-statement. This is a logical truth. The 'nevsaid' objection exploits it by hiding a negation within the meaning of the verb. The modified principle prevents such exploitation.

(Modified-That-to-Whether) is plausibly a necessary truth. It can thus be used to support (TW), since ⌜*s* knows that *p*⌝ is not synonymous with a negation. Let us now consider some arguments against (TW).

II.2.b. Arguments against (TW). Initially, one might challenge (TW) by pointing out that knowing-whether-or-not-*p* involves a disjunction whereas knowing-that-*p* does not. So, the former expresses extra content, and therefore cannot be entailed by the latter.

This argument is invalid. Disjunctions are entailed by their individual disjuncts even if those disjunctions express extra content—for example, 'P ∨ Q' is entailed by 'P' even though 'P ∨ Q' expresses more content than 'P' alone. Similarly, 'S knows whether or not P' might be entailed by 'S knows that P' even if the former expresses more content than the latter. This entailment is exactly what we'd expect if something like (DEF1) were true—recall that (DEF1) treats knowing-whether-or-not as a disjunction.[40] Of course, the goal here is not to show that the entailment holds, but only to rebut arguments against it. The present argument is invalid.

[40] Potentially, other definitions could guarantee this entailment too.

A second argument against (TW) focuses instead on the negation involved with knowing-whether-or-not. It claims that (i) knowing-whether-or-not-*p* requires one to have a view about $\neg p$, but (ii) a subject could know that *p* without having a view about $\neg p$. Therefore, it is possible to know that *p* without knowing whether or not *p*.

This argument must be discussed at length. As we'll see, there is a tension between (i) and (ii). Premise (i) is vulnerable to potential counterexamples, which can only be disregarded if (ii) is false. Either way, one of the premises is mistaken.

Let us begin by considering potential counterexamples to (i). There are at least two types of cases in which, arguably, a subject can know whether or not *p* without having a view about $\neg p$. One sort of case is where the subject knows a proposition without considering its negation. For example, suppose Frege never considered the obviously false proposition that Hesperus is not Hesperus, in which case he did not have a view about this negation. Still, it seems Frege could know whether or not Hesperus is Hesperus. A second sort of case is where the subject may have considered the negation, but, for various reasons, does not form a view about it. Suppose Moore is too distracted by excruciating pain for him to form a view about the false proposition that he is not in pain (a proposition he had previously considered). Surely his lack of a view about this negation does not prevent him from knowing whether or not he is in pain.

We need only one genuine counterexample to show that (i) is false. There are indefinitely many potential ones to advance. Such cases can be constructed with any kind of proposition that is paradigmatically knowable, including simple mathematical truths (such as that 1+1=2), external world propositions (such as that this is a hand), truths about one's own existence (such as that I exist), obvious analytic truths (such as that triangles have three angles), truths about one's past (such as that I woke up this morning), and many more. Generally speaking, it is plausible that we know whether or not *p*, where *p* is a paradigmatically knowable proposition. And this remains plausible even when we do not have a view about its negation (such as that $1+1 \neq 2$, that this is not a hand, that I do not exist, that triangles do not have three angles, that I did not wake up this morning). To have a view about the negation we must, first, consider it, and second, take a stand on its truth-value. Although we are able to do these two things in any given case, there seem to be many actual cases where we do not do them (at least not consciously). On the face of it, then, there is an abundance of possible—indeed actual—cases where we know whether or not *p* without having a view about $\neg p$.

The fact that there are so many potential counterexamples reveals that premise (i) cannot be salvaged merely by dismissing the few examples outlined here. Instead, one needs a reason for thinking all examples of the above sort are impossible, contrary to appearances. There are three kinds of reasons one might have for this general claim. But, as we'll see, they succeed in salvaging premise (i) only by falsifying premise (ii).

First, one could argue that the subjects in each case must have views about the relevant negations, contrary to what was said above. Each example involves a subject who has a view about some particular proposition (such as that Hesperus is Hesperus). And one might claim that their view about this proposition guarantees that they also have a view about its negation (such as that Hesperus is not Hesperus). So, all the examples are impossible. However, this strategy would salvage premise (i), but it is incompatible with premise (ii). Knowing that *p* requires that the subject has a view about *p*, which, according to this reply, guarantees that she also has a view about $\neg p$. So, contrary to premise (ii), this reply entails that it is impossible for one to know that *p* without having a view about $\neg p$.

Second, one could argue that none of the relevant subjects know whether or not *p*.[41] The trouble is that there is no reason to claim this for absolutely every case, except for reasons that falsify premise (ii). Recall that the putative counterexamples involve propositions that are paradigmatically knowable. And we can easily describe these cases so that the subjects in question satisfy all requirements for knowledge (whatever they may be), provided the requirements can be possibly satisfied. For example, if safe belief is a requirement for knowledge, then we can stipulate that Moore has a safe belief that he is in pain. The same goes for other potential requirements (such as sensitivity, reliability, and so on).[42] We thus have no reason to deny that Moore knows whether or not he is in pain, which means we have not dismissed every example. On the other hand, there may be requirements for knowledge that cannot be possibly satisfied (such as unrestricted infallibility). But these requirements would entail universal skepticism—that we cannot know anything whatsoever. And universal skepticism is incompatible with premise (ii). If it is impossible to know anything, then it is impossible to know that *p* while lacking a view about ¬*p*.

The third strategy eschews any attempt at specifying why the examples are impossible; it simply aims to provide a reason to accept premise (i) itself. This would in turn provide a reason to think the examples are impossible, even if we cannot specify why. It should be noted, however, that this strategy cannot succeed if the only support for premise (i) comes from the claim that (i) is intuitively appealing. After all, the putative counterexamples are also intuitively appealing. So, if there are no other reasons for premise (i), and no reasons to dismiss the examples, then the rational response is, at best, to suspend judgement on (i). And in that case, the argument against (TW) fails. This third strategy needs to support (i) with an argument, not just an intuition.

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[41] The natural way to do this is to assume (WT) or (Simple-WT), and then to deny that the subject has knowledge-that.

[42] If premise (i) is itself a requirement for knowledge, then we cannot stipulate that it is satisfied in any of the cases. But this approach assumes the very premise that is under attack, without supporting it with reasons. The third strategy below advances this approach by supporting premise (i) with reasons. It will be considered shortly.

Do any arguments support the premise that knowing-whether-or-not-*p* requires one to have a view about ¬*p*? This premise does not follow from any general facts about whether-or-not constructions. Many constructions of this sort (such as '*s* wonders whether or not *p*' and '*s* says whether or not *p*') do not require their subjects to have a view about ¬*p*. At best, premise (i) would follow from a widely-accepted account of knowing-whether, to which we shall now turn.

The main argument for premise (i) begins with statements of the form '*s* knows whether *p* or *q*'—where *p* and *q* are the two alternatives being contrasted.[43] Arguably, for these statements to be true, *s* must know the correct alternative and rule out the incorrect one. For instance, suppose there is a canary in the garden but no goldfinch. For *s* to know whether the bird is a canary or a goldfinch, she must know two things—she must know that it is a canary, and she must also know that it is not a goldfinch.[44] Examples of this sort are used to support a general thesis:

> (General) *s* knows whether *p* or *q* only if *s* knows the correct alternative to be true and *s* knows the incorrect alternative to be false.

Now apply this general account to the statements we're concerned with—statements of the form '*s* knows whether or not *p*' where the alternatives are *p* and ¬*p*. The result is this:

> (Specific) *s* knows whether or not *p* only if:
> if *p* is the correct alternative, then *s* knows that *p* is true and *s* knows that ¬*p* is false;
> if ¬*p* is the correct alternative, then *s* knows that ¬*p* is true and *s* knows that *p* is false.

Here is the upshot: regardless of which alternative is correct, *s* must have a view about ¬*p*—either by knowing it is true or by knowing it is false. We thus have a straightforward argument for premise (i). (General) supports (Specific), and (Specific) entails premise (i).

The trouble is that (General) is highly implausible, unless one assumes a closure principle that renders premise (ii) false. To see why, suppose an ornithologist knows that a particular bird is a

[43] For simplicity, assume only one alternative is true, and not both.

[44] Jessup Kallestrup, "Knowledge-Wh and The Problem of Convergent Knowledge," *Philosophy and Phenomenological Research* LXXVIII, 2 (March/2009): 468-76, at pp. 470-71; Maria Aloni, Paul Egré, and Tikitu de Jager, "Knowing Whether A or B," *op. cit.*, p. 2598.

canary, and has never considered the obviously false proposition that it is an ostrich. Since she has not considered the latter, she cannot know it is false. From (General), it follows that the ornithologist fails to know whether the bird is a canary or an ostrich (despite her knowing it is a canary!). This is extremely implausible.[45]

Of course, proponents of (General) can reply by assuming a simple closure principle, something like this: if *s* knows *p*, and *p* self-evidently entails *q*, then *s* knows *q*. If any such principle is true, then the ornithologist is guaranteed to know it is false that the bird is an ostrich. Perhaps that is so. But, once again, this reply undermines premise (ii). Anyone who knows that *p* should also be guaranteed to know that $\neg p$ is false, by the same closure principle. So, it is impossible to know that *p* without having a view about $\neg p$. In short, premise (i) may be supported by (General), but (General) is only plausible if premise (ii) is false.[46]

Can we support premise (i) by relying only on (Specific) (and ignoring (General))? No. (Specific) is vulnerable to all the putative counterexamples discussed in this section. So, the same problem that arises for premise (i) is equally a problem for (Specific). We have seen no way around this problem.

To sum up: there are three types of reasons for thinking all the potential counterexamples to (i) are impossible. These reasons cannot salvage premise (i) unless premise (ii) is false. It is thus not reasonable to accept both premises of the objector's argument against (TW).[47]

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45 For other objections to this view, see Schaffer, "Knowing the Answer Redux," *op. cit.*, pp. 493-95.

46 Here is a different reply to the ostrich objection. One could weaken (General) and (Specific) by claiming that *s* need only be in a position to know the incorrect alternative is false. However, this provides no support for premise (i). Suppose *s* knows whether or not *p*, and is only in a position to know that $\neg p$ is false, without actually knowing this. Here, there is no guarantee that *s* has a view about $\neg p$.

47 Another argument against (TW) might claim (i*) that certain non-human animals lack the concept of negation and therefore must fail to know whether or not *p* (for every proposition *p*). But (ii*) such animals can know that there is food in front of them, when in fact there is. Hence, these animals can know that there is food without knowing whether or not there is food. However, why would lacking the concept of negation make it impossible to know whether or not *p* (for every proposition *p*)? Lacking other concepts (such as the concept of red) does not render this impossible. Presumably, it is because the animal's lacking the concept of negation prevents it from having a view about $\neg p$, which (supposedly) prevents it from knowing-whether-or-not-*p*. But this reasoning plainly assumes premise (i) of the previous argument. It is highly doubtful for reasons already discussed. Of course, premise (i) could be accepted if one rejects

II.2.c. 2nd Argument for (WT). Let us now turn our attention to the other premise about knowing-whether. (WT) has already been supported by one argument, relying on a definition of knowing-whether-or-not. The second argument for (WT) relies on a general theory of knowing-*wh*, where '*wh*' is an interrogative clause (such as when-, who-, whether-, and so on). We can state the theory as follows:

> (Reductive View) *s* knows-*wh* ↔ *s* knows that *p*, where *p* is a correct answer to the question associated with the *wh*-clause.

(Reductive View)'s sufficiency condition is controversial. But its necessary condition is widely accepted, and only its necessary condition is assumed here.

(WT) can be derived from (Reductive View)'s necessary condition. Assume that ¬Q and that S knows whether or not Q. Here, the *wh*-clause is associated with the question of whether or not Q. And this question can only be correctly answered with the proposition that ¬Q (since we have assumed ¬Q is true). So, from (Reductive View)'s necessary condition, it follows that S knows that ¬Q. (WT) can therefore be derived from (Reductive View)'s necessary condition.

This argument assumes that the question of whether or not Q can have only one correct answer. Perhaps some questions have more than one correct answer. But the question of whether or not Q cannot. This question has only two options—Q and ¬Q—only one of which can be correct.

This second argument for (WT) relies on (Reductive View)'s necessary condition. Although this condition is widely accepted, there is some dissent.[48] Those who doubt the condition can rest assured that (WT) will soon be supported by a third argument, which is independent of (Reductive View).

premise (ii) of the previous argument. But rejecting premise (ii) of the previous argument would undermine (ii*) of the present argument. If (ii) is false, then it is impossible for a subject to know that *p* without having a view about ¬*p*. So, the animal cannot know that there is food because it cannot have a view about the negation that there is no food (since it lacks the concept of negation). In this case, (ii*) is false.

[48] For instance, Katalin Farkas, "Know-Wh Does Not Reduce to Know-That," *American Philosophical Quarterly* LII, 2 (April/2016): 109-22.

II.2.d. Should (KT)-Deniers Reject (WT)? Let a (KT)-denier be anyone who rejects (KT), and thereby allows for the possibility of knowing falsehoods.[49] (KT)-deniers typically have reasons for their view, and so could use their view to argue against one of our three premises—(TW), (WT), or (Consistency). Which one should they reject?

One might think their natural target should be (WT). After all, (WT) says that knowing-whether-or-not-*p* requires one to know the truth—and KT-deniers take issue with the latter. But this worry is confused. Those who deny (KT) can and do allow for the possibility of knowing truths. Compare: we all deny that belief entails truth, but can still allow for the possibility of believing truths.

Here is a second attempt. (KT)-deniers hold that it is possible for a subject to know that *p* even though $\neg p$. This entails that the subject knows whether or not *p*. It also entails that she does not know $\neg p$. All together, these claims supply a counterexample to (WT).

The first thing to note is that this line of thought implicitly assumes both (TW) and (Consistency). It is only if (TW) is true that the (KT)-denier's view entails that the subject knows whether or not *p*. And it is only if (Consistency) is true that her view entails that the subject does not know $\neg p$. So, this approach simply turns our main argument on its head. It derives ¬(WT) from (TW), (Consistency), and (KT-Denial).

Does this approach work? No. It overlooks the fact that there are two other ways to overturn the main argument. First, one could derive ¬(TW) from (WT), (Consistency), and (KT-Denial). And second, one could derive ¬(Consistency) from (WT), (TW), and (KT-Denial). This raises a problem: if one of these three strategies is sound, then the other two are unsound. And we have seen no reason to think the (KT)-denier's targeting of (WT) is not one of the unsound attempts.

[49] For example, Wesley Buckwalter and John Turri, "Knowledge and Truth," *op. cit.*, p. 97.

Here is a third attempt. Unlike the previous one, this attempt provides a particular reason for targeting (WT) rather than the other premises. To argue against (WT), (KT)-deniers might first try to explain the differing truth-values of whether-that statements. Whether-that statements are statements of the following form (where V is a verb):

$(\neg p \wedge s\ V$ whether or not $p) \rightarrow s\ V$ that $\neg p$.

Such statements are false for verbs like 'says', 'predicts', and 'announces'. Clearly one could say whether or not the Earth is flat without saying that it is not. But such statements are true for verbs like 'sees', 'remembers', and 'discovers'. Given that the Earth is not flat, it is impossible to discover whether or not it is flat without discovering that it is not. So, there are differing truth-values for whether-that statements, depending on the verb. What explains this?

Plausibly, the true whether-that statements contain veridical verbs—where $\ulcorner s\ V$ that $p\urcorner$ entails p. And the false whether-that statements contain non-veridical verbs. So, in order to explain their divergent truth-values, one might propose the following (for any verb V, which accepts both that- and whether-or-not complements):

(Veridicality) V's whether-that statement is true $\leftrightarrow$ V is veridical.[50]

If (Veridicality) is independently plausible, (KT)-deniers might use it to argue against (WT). (KT)-deniers hold that 'knows' is non-veridical. Combined with (Veridicality), this entails that (WT) is not true, since (WT) is the whether-that statement associated with 'knows'.

However, this argument is self-defeating. Given some plausible assumptions, proponents of the argument are actually required to reject (Veridicality). Here is a non-exhaustive list of whether-that statements that plausibly correspond to veridical verbs:

(a) $(\neg p \wedge s$ remembers whether or not $p) \rightarrow s$ remembers that $\neg p$
(b) $(\neg p \wedge s$ sees whether or not $p) \rightarrow s$ sees that $\neg p$

[50] For discussion on a similar principle, see Benjamin Spector and Paul Egré, "A Uniform Semantics for Embedded Interrogatives: *An* Answer, Not Necessarily *The* Answer," *Synthese* CXCII (2015): 1729-784.

(c) $(\neg p \wedge s$ realizes whether or not $p) \rightarrow s$ realizes that $\neg p$
(d) $(\neg p \wedge s$ learns whether or not $p) \rightarrow s$ learns that $\neg p$
(e) $(\neg p \wedge s$ discovers whether or not $p) \rightarrow s$ discovers that $\neg p$
(f) $(\neg p \wedge s$ proves whether or not $p) \rightarrow s$ proves that $\neg p$.

Given certain assumptions, proponents of the above argument are required to think (a)-(f) are all false, and are thus required to reject (Veridicality).

Here is why. By rejecting (WT), proponents of the above argument commit to the following as possible (for some subject s and some proposition p):

(Counterexample) $\neg p \wedge s$ knows whether or not $p \wedge s$ does not know that $\neg p$.

But (Counterexample) is at odds with all of (a)-(f). Focusing on (a), let us suppose there is a possible instance of (Counterexample) where S knows whether or not P by remembering it. This entails that S remembers whether or not P. Moreover, ¬P is true, according to (Counterexample). So, (a)'s antecedent is satisfied. However, because S does not know that ¬P, according to (Counterexample), it follows that S does not remember that ¬P, since remembering entails knowing.[51] So, (a)'s consequent is not satisfied. Therefore, (a) is false. Analogous reasoning can be constructed to refute (b)-(f). Proponents of the argument against (WT) are thus required to reject (Veridicality).

Notice that they cannot reply by simply denying that (a)-(f) contain veridical verbs, nor can they simply accept that (a)-(f) are false. Doing either would undercut support for (Veridicality). Recall that (Veridicality) is supported by the assumption that true whether-that statements contain veridical verbs. (a)-(f) are used to illustrate such statements, but the same problem can be raised with others.

The above rebuttal of the argument against (WT) rests on two assumptions. It assumes (I) that if (Counterexample) is possible then there is a possible instance of (Counterexample) where the subject knows by remembering, or seeing, or realizing, and so on. It also assumes (II) that each

[51] Williamson, *Knowledge and Its Limits*, *op. cit.*, p. 37.

specific state entails knowing. Proponents of the argument against (WT) cannot accept both (I) and (II) for any of the various states. Otherwise, (Veridicality) is false.

But merely refusing to accept (I) or (II) is not enough. Proponents of the argument must also have reason to reject either (I) or (II) with regard to each state. Recall that (Veridicality) gains support only if statements like (a)-(f) are true. But, as we have seen, proponents of the argument cannot rationally believe any such statements are true unless they have reason to reject (I) or (II). So, they cannot rationally accept (Veridicality) unless they have reason to reject (I) or (II).

Could they reasonably reject (I) or (II)? There is absolutely no reason to reject (I) with regard to any of the relevant states. Clearly, it is possible to know via remembering, discovering, seeing, and so on. Assumption (I) merely combines this possibility with (Counterexample). And there is nothing in (Counterexample) that would forbid such a combination. Assumption (I) is thus unassailable with regard to all the relevant states.

This means proponents of the argument need reasons to reject (II) with regard to all the relevant states. They need reasons to think that remembering does not entail knowing, and neither does seeing, realizing, proving, discovering, and so on. But the (KT)-denier's position provides no basis for this. And there is certainly no basis for denying these entailments in every case. For example, even if there is reason to deny that seeing entails knowing, this has no bearing on whether discovering entails knowing, or learning entails knowing, and so on.

At best, proponents of the argument against (WT) cannot accept (Veridicality), because they cannot reject either (I) or (II) in every case. At worst, they must reject (Veridicality), because they must accept both (I) and (II) in some cases.

II.2.e. 3rd Argument for (WT). In the process of refuting the argument against (WT), we have stumbled upon a third argument in favor of (WT). This argument begins with a plausible whether-that statement, such as

P1: $(\neg p \wedge s \text{ sees whether or not } p) \rightarrow s \text{ sees that } \neg p$.

It also assumes that the corresponding state entails knowing:

P2: $s \text{ sees that } p \rightarrow s \text{ knows that } p$.

And finally, it assumes

P3: If (WT) is false, then it has a possible counterexample where the subject knows via seeing.

For a reductio, let us assume that (WT) is false. From P3, it follows that we have a possible case like this:

$\neg Q \wedge S$ knows whether or not Q via seeing $\wedge$ S does not know that $\neg Q$.

This entails a contradiction. The second conjunct entails that S sees whether or not Q. Since $\neg Q$ is true, P1 guarantees that S sees that $\neg Q$. From this, along with P2, it follows that S knows that $\neg Q$. And the latter contradicts the third conjunct from above. Hence, (WT) must be true, contrary to our initial assumption.

This argument focuses on seeing, but could easily be advanced with regard to discovering, realizing, remembering, and so on. Its versatility makes it hard to find lasting faults with either P1 or P2. And P3 is incredibly plausible for all the relevant states (such as discovering, remembering, and so on). If there is a possible counterexample to (WT), we surely do not render it impossible by stipulating that the subject knows via seeing, remembering, and so on.

III. CONCLUSION

Recent debates continue over whether (KT) can be supported by ordinary language arguments.[52] If this paper succeeds then there is no need to rely on such arguments, and no need to wait for these debates to resolve. (KT) can be secured regardless.

52 Hazlett "Factive Presupposition and The Truth Condition on Knowledge," *op. cit.*, pp. 461-78; and Michael Hannon, "'Knows' Entails Truth," *Journal of Philosophical Research* XXXVIII (2013): 349-66.

It has been shown that (KT) follows from three premises that many of us already accept—(TW), (WT), and (Consistency). In addition to being obviously true, these premises are each supported by at least two arguments. And all premises and supporting arguments can be rationally accepted by people who do not already accept (KT).

Despite this proof, some theorists may still wish to deny (KT). To do so, they would need to reject a premise of the main argument, along with every supporting argument for that premise. This is an onerous path. A similar point holds for the ambiguity view, mentioned at the outset—the view that 'knows' expresses a factive sense which accords with (KT) and a non-factive sense which violates (KT).[53] The main argument of this paper buttresses the first half of the ambiguity view—'knows' has a factive sense. But the second half of the ambiguity view is rendered problematic by this paper's argument. Suppose there is a non-factive sense of 'knows'. If so, then (KT) is false whenever its occurrence of 'knows' expresses the non-factive sense. Now, let us stipulate that the three premises—(TW), (WT), and (Consistency)—also use 'knows' in the non-factive sense.[54] This ensures that the main argument does not equivocate with the word 'knows'. But the result of the argument is unchanged—the assumption that there is a non-factive sense of 'knows' entails a contradiction, given our three premises. Thus, the ambiguity view must also resist a premise of the main argument, along with every supporting argument for that premise. The ambiguity view is in the same boat as an all-out denial of (KT).

[53] Dahlman, "Did People in The Middle Ages Know That The Earth Was Flat?" *op. cit.* pp. 139–52; Tsohatzidis, "How to Forget That 'Know' Is Factive," *op. cit.*, pp. 449–59; Hazlett, "The Myth of Factive Verbs," *op. cit.*, p. 500 and p. 522.

[54] This stipulation should be acceptable given that the premises can all be supported without assuming (KT).

Which premise would these theorists reject? So far there is no clear indication.[55] Finding a culprit, and explaining away its plausibility, is crucial to maintaining these views. This paper has argued that there is no culprit.

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[55] If Shaffer is right, Buckwalter and Turri must at least reject (Consistency). But this implication is seen as problematic, not a welcome consequence. It is unclear which premise other theorists would reject. See Shaffer "Can Knowledge Really Be Non-Factive?" *op. cit.*, pp. 215-26.

[56] The viewpoints expressed in this article do not reflect the official positions of any U.S. government agency.