Minimalism, gaps, and the Holton conditional

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1. Introduction

Minimalists about truth deny that truth is a substantial property; they assert that, in effect, 'truth' is little more than a device for disquotation. Despite its popularity minimalism, so understood, continues to generate numerous debates. Of the many issues currently surrounding minimalism one is particularly active and open, namely whether minimalism about truth is compatible with truth-value gaps (henceforth, gaps). *Compati-*

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bilists argue that minimalism is consistent with gaps; *incompatibilists* deny this. Among the former group are Holton (1993), Jackson, Oppy and Smith (1994), Smith (1994a, 1994b); among the latter, Boghossian (1990), Dummett (1978), Horwich (1990), Wright (1992), and Miller and Divers (1994).[1]

In this paper I examine an interesting new argument by Richard Holton, an argument which, unlike that of Holton 1993, defends compatibilism. Holton (2000) argues that, *pace* incompatibilists, minimalists *can* have gaps consistently; they need merely endorse a new conditional – the *Holton conditional*, as I will call it. Holton admits that the given conditional may carry various unintuitive consequences; his point, however, is that the conditional affords a *consistent* combination of minimalism and gaps.

My aim is two-fold. First, I show that the Holton conditional does not help compatibilists; it makes matters worse – a lot worse. In particular, the Holton conditional does not afford a consistent combination of minimalism and gaps; instead, it engenders the ultimate form of inconsistency, namely trivialism, the case in which A is true for *all* A. Second, I show that, despite the failure of Holton's conditional, not all is lost. Specifically, I show that there is another conditional – an intensionalized version of the Holton conditional – suitable for the Holton strategy.

The paper is structured as follows. §2 reviews the essential points about minimalism.[2] §3 presents the problem posed by gaps and its relation to truth-aptitude; §4 presents Holton's solution to this problem, namely his Holton conditional. §5 shows that, *pace* Holton, the Holton conditional will not work; it leads to triviality. What §6, the final section, shows is that the failure of the Holton conditional is not the failure of the Holton strategy. In particular, §6 vindicates the Holton strategy by presenting a conditional that will do the intended job.

2. *Minimalism*

'Minimalism about truth' names a family of theories. What unifies these theories is the idea that truth is not a substantial property; rather, 'truth' is a mere device for disquotation. This idea is standardly expressed by the so-called *equivalence thesis*, which is that all instances of the following are true – where, following Holton (2000), 'A' may be replaced by any

[1] The debate, as both Holton (1993) and more recently Burgess (1997) point out, has involved some confusion in the use of 'minimalism'; however, the main issue remains both clear and important. §2 presents the relevant sense of 'minimalism'.

[2] My rehearsals of minimalism and all other background issues follow Holton's. I assume familiarity with minimalism, and in particular the relevant debate over gaps. Accordingly, I provide only brief reviews of these matters.

declarative English sentence, italics serves to mention sentences, and *not-A* is the negation of *A*:

> *A* is equivalent to *'A' is true*
> *Not-A* is equivalent to *'A' is false*

How is 'is equivalent to' to be understood in the schema? Answers to this question serve to distinguish members of the minimalist family. Some (Frege, Ramsey) take it to be synonymy or sameness of meaning; others (Horwich) take it to be strict implication – material implication which holds of necessity. There are other familiar interpretations of the equivalence predicate; however, present purposes require only the following idea: Each of *A* and *'A' is true* are *equivalent* in the sense that both are acceptable, both rejectable, or both are ill-formed in the same fashion.[3] Accordingly, if we accept *A*, or we validly deduce *A* from other accepted sentences, then the equivalence schema tells us that *'A' is true* is acceptable.

So much for minimalism.[4] The question at hand concerns compatibilism, to which the next section is devoted.

3. Gaps and truth aptitude: the problem

Incompatibilists hold that minimalism and gaps are incompatible. The main argument for incompatibilism is short and powerful.[5] Suppose that *A* is gappy – neither true nor false. Then it is not the case that *A* is true, and it is not the case that *A* is false. So, we should accept *it is not the case that 'A' is true and it is not the case that 'A' is false*. But this, on any standard version of the equivalence thesis, is equivalent to a contradiction: namely, *it is not the case that A and it is not the case that not-A* – that is, *not-A and not-not-A*, which is a contradiction. Hence, the combination of minimalism and gaps appears to be inconsistent.[6]

What can the compatibilist do? The only apparent option involves a modified account of gappiness. On the previous account, *A* is *gappy* iff *A* is neither true nor false. The trouble with this account is that we're forced

[3] Similarly for the falsity clause. Note that this way of presenting the equivalence thesis, and the relevant sense of the equivalence thesis, follows Holton 2000 closely.

[4] As Holton (2000, §2) notes, the foregoing account of minimalism is intended to be as neutral as possible among the various members of the minimalist family.

[5] The following reflects Holton's presentation (2000, §2) closely.

[6] Even on weak-style semantics, where a gappy atomic spreads the gappiness throughout a compound, the problem remains. On weak semantics, the conjunction of *A* and *not-A* is gappy if *A* is gappy, in which case the given conjunction need not be *false*, and so the compatibilist need not be accepting a false sentence. Still, as Holton (2000, §6) notes, one shouldn't accept a gappy sentence any more than one should accept a false one.

to use the truth predicate in a way that engenders contradiction; that is, we're forced to assert that *A* (for some *A*) is neither true nor false. As above, that leads to contradiction. The hope, then, is that gappiness can be defined without so using the truth predicate.

But how will gappiness be understood? There is only one option that suggests itself naturally; the option invokes *truth-aptitude*. In short, let *A* be *gappy* iff *A* is not truth-apt. Now suppose that *A* (for some *A*) is gappy. In this case, modus ponens (following simplification) does not force the assertion that *A* is neither true nor false; instead, one is forced to say only that *A* is not truth-apt. Accordingly, the problem seems to be solved.

But is this correct? Is the problem really solved? No. After all, what is *truth-aptitude*? Unless it is mysterious, truth-aptitude is related to truth in the following way:

(†) '*A*' is truth-apt if and only if '*A*' is either true or false.

This, however, raises an immediate difficulty. Concentrate on the right-to-left direction of (†), which comes via simplification. By contraposition we immediately get

(‡) If '*A*' is not truth-apt, then it is not the case that '*A*' is true or false.

But, now, we're back to the same contradiction. To see this, simply let *A* be any non-truth-apt sentence. Then modus ponens on (‡) yields: *it is not the case that 'A' is true or false*. But this takes us back to the original contradiction; we are forced to say that *A* is neither true nor false, which, via the incompatibilist's reasoning, amounts to: *not-A and not-not-A*.

What can the compatibilist do? One might suggest that compatiblists simply refuse to assert some instances of (‡) – just remain silent. But as Holton points out, resorting to silence won't help; for refusing to assert some instances of (‡) is as undesirable as refusing to assert gappiness in general. One doesn't solve a philosophical problem, or resolve incompatibility, by gritting one's teeth and refusing to speak. This much is common ground. Accordingly, the compatiblist must either give up her compatibilism or find a way around the problematic (‡). In defence of compatibilism Holton argues that there is a consistent way around the problematic (‡).

4. *The Holton conditional*

According to Holton compatiblists may *consistently* endorse (†) by interpreting it as a *Holton biconditional*, which is a conjunction of *Holton conditionals*, as I shall say.[7] What is needed is a non-contraposible conditional. The Holton conditional is proposed to fill the job.

[7] Sobociński (1964) discussed the conditional, though not as a conditional. Still, Holton's application is important enough to tag the conditional with his name.

The Holton conditional and biconditional shall be represented by $\rightarrow_H$ and $\leftrightarrow_H$, respectively. Semantics for the connectives are given via the following operator diagrams, where 1, 0, and 1/2 represent truth, falsity, and gappiness, respectively.

$\rightarrow_H$	1	1/2	0
1	1	1/2	0
1/2	1	1	1
0	1	1	1

$\leftrightarrow_H$	1	1/2	0
1	1	1/2	0
1/2	1/2	1	1
0	0	1	1

There are two important points to note. First, note that $\rightarrow_H$ satisfies the minimal condition on conditionals: namely, it satisfies both modus ponens and conditional proof. So, the Holton conditional is indeed a conditional. Second, we assume K_3 (strong Kleene) negation: $\sim A$ is gappy iff A is gappy.[8]

Now, given these two points it follows that $\rightarrow_H$ does not contrapose; that is, $\{A \rightarrow_H B\} \not\models \sim B \rightarrow_H \sim A$. A countermodel arises when A is non-truth-apt while B is false, in which case '$A \rightarrow_H B$' is true but '$\sim B \rightarrow_H \sim A$' is gappy and, so, not true. Hence, we have a case in which we go from truth to non-truth; and that is a countermodel to contraposition. (The countermodel also shows that modus tollens fails; that is, $\{A \rightarrow_H B, \sim B\} \not\models \sim A$.)[9]

[8] §6 gives the matrix for K_3 negation, which is here represented by the tilde. Holton 2000 assumes K_3 negation and conjunction throughout, and, except for a brief discussion in §5 of this paper, I follow Holton's assumption.

[9] Note that Holton assumes a semantics according to which there is exactly one so-called *designated value*, namely 1. The undesignated values are 0 and 1/2. (Intuitively, designated values are those 'truth values' that are preserved in valid arguments. The

So, $\rightarrow_H$ fails to contrapose, which is precisely what the Holton strategy prescribes. With the failure of contraposition comes the apparent freedom to endorse (†) – understood as a Holton biconditional. After all, the problematic (‡) derives from (†) via simplification *and* contraposition. Since (†) is underwritten by the Holton conditional, which doesn't contrapose, the compatibilist avoids the problem.

Such is Holton's proposal. Holton admits that the cost of the Holton conditional may not be cheap; there appear to be rather unintuitive consequences that go with it. For present purposes, however, these apparently unintuitive consequences may be left aside. According to Holton, the important point is that the proposal gives compatibilists a *consistent* option; it is up to them whether the unintuitive consequences are excessively so.[10]

But does the proposal afford consistency? While his strategy is ingenious in many ways Holton is incorrect on the matter of *consistency*. The next section shows that matters are much worse for the compatiblist than Holton seems to think. In particular, the Holton conditional results in triviality, which is the ultimate form of inconsistency – everything is true.

5. *The Holton conditional and triviality*

As above, Holton proposes $\rightarrow_H$ as a means by which compatibilists may find consistency. The main point of this section is that the Holton conditional will *not* help to avoid inconsistency, but in fact engenders trivialism.

The point may be seen easily. First, note that $\rightarrow_H$ satisfies *pseudo modus ponens*:[11]

(PMP) $[A \mathbin{\&} (A \rightarrow_H B)] \rightarrow_H B$

That (PMP) is valid, relative to the Holton semantics, is clear. Let v be an admissible interpretation of the language, and let $v(A)$ be the value of A under v. Let '$v(A) = 1$' represent that A is true; '$v(A) = 0$', that A is false; and '$v(A) = 1/2$', that A is gappy. Is there a countermodel to (PMP)? No. Such a countermodel requires that $v(A \mathbin{\&} (A \rightarrow_H B)) = 1$ and $v(B) \neq 1$ (i.e. 0 or 1/2). If $v(A \mathbin{\&} (A \rightarrow_H B)) = 1$ then, by conditions on conjunction,

notion is essential to many-valued logics.) If the designated values comprise both 1 and 1/2, then the given countermodels cease to be countermodels. I return to this point briefly in §5. Meanwhile, I assume the same sets of designated and undesignated values.

[10] Holton (2000, §7) actually argues (persuasively, I think) that many of the apparently unintuitive consequences are merely apparent; they may be explained away in various ways. But, again, I leave this for another time.

[11] I use '&' for conjunction, understood, with Holton, as per K_3. The name 'pseudo modus ponens' is from Restall 1994; the principle also goes by the name 'assertion'.

$v(A) = 1$ and $v(A \rightarrow_H B) = 1$. But, then, if there is a countermodel to (PMP), $v(B) \neq 1$ *and* $v(B) = 1$, which is impossible. Hence, (PMP) is valid on the Holton semantics.

So what? Well, despite its initially innocent appearance the validity of (PMP) is a big problem for the Holton conditional. Given (PMP), plus the equivalence thesis (on any version) and a small dose of circularity, the compatibilist runs smack into Curry's paradox. In short, we consider the following sentence:

(C) (C is true) $\rightarrow_H$ X

where *X* is 'everything is true' – or, for that matter, any sentence one likes (or dislikes, as the case may be). Now, C = 'C is true $\rightarrow_H$ X', in which case, by substitutivity of identicals and the equivalence thesis we get:

(1) '(C is true) $\rightarrow_H$ X' is equivalent to '(C is true)'

By (PMP) we get

(2) [(C is true) & ((C is true) $\rightarrow_H$ X)] $\rightarrow_H$ X

By substitutivity of identicals we get

(3) [(C is true) & (C is true)] $\rightarrow_H$ X

By properties of conjunction we get

(4) (C is true) $\rightarrow_H$ X

By (1) we have it that (4) is equivalent to

(5) (C is true)

But, then, by modus ponens (4) and (5) yield

(6) X

Consequently, everything is true! The Holton conditional, coupled with the equivalence thesis, engenders inconsistency – inconsistency in its fullest form.[12]

Is there a way of blocking the validity of (PMP)? The only apparent option requires fiddling with conjunction. In particular, one might treat conjunction in such a way that a gappy conjunct 'conjoined' with a true conjunct yields a true conjunction. For example, let &* represent conjunction (so understood). Then, leaving necessary conditions aside, the proposal is that $v(A \mathbin{\&^*} B) = 1$ if $v(A) = 1/2$ and $v(B) = 1$, or vice versa. Given this semantics there is an interpretation under which

[12] For a detailed discussion of Curry's paradox see Restall 1994 and also Restall 1999. Similarly, see Priest 1987. For a classic discussion of Curry's paradox (and naive set theory) see Meyer, Routley, and Dunn 1979.

$v(A \,\&^*\, (A \rightarrow_H B)) = 1$ and $v(B) = 0$; that is, there is a countermodel to PMP (so construed). Specifically, let $v(A) = 1/2$ and $v(B) = 0$. Then $v(A) = 1/2$ and $v(A \rightarrow_H B) = 1$, in which case $v(A \,\&^*\, (A \rightarrow_H B)) = 1$. Given that $v(B) = 0$ we have an interpretation under which (PMP) comes out false.

Is this a good proposal? No. In short, the proposal requires us simply to ignore genuine (natural language) conjunction. After all, a necessary condition on something's being a *conjunction* is that it satisfy *simplification*. That &* does not satisfy simplification is clear. A countermodel is a case in which $v(A) = 1/2$ but $v(B) = 1$. In this case we go from truth to non-truth; we from $v(A \,\&^*\, B)$, which is true, to $v(A)$, which is not true – that is gappy. Hence, simplification is not valid.

An obvious reply to this worry is to modify the designated values of the semantics. Specifically, don't restrict the designated values to 1 only; instead, let the designated values comprise both 1 and 1/2, leaving only 0 as undesignated. Doing this allows one to retain &* while avoiding any countermodel to simplification.

Will this help? No – at least, it will not help the compatibilist retain the Holton conditional. Granted, the proposal, as said, does indeed afford a way of retaining both &* and simplification; however, it gives up the overall game. After all, on the proposed semantics $\rightarrow_H$ will satisfy contraposition! That is, on the proposed semantics there is no model in which $v(A \rightarrow_H B)$ is designated (i.e. 1 or 1/2) but $v({\sim}B \rightarrow_H {\sim}A)$ is not designated (i.e. 0). But, then, the Holton conditional – relative to the new semantics – contraposes and thereby fails to do its intended job.

Accordingly, I conclude that the validity of (PMP), relative to Holton's semantics, cannot be blocked – at least not in any plausible manner, and not in any way that might benefit the compatibilist.

One might object, of course, along familiar lines. In particular, the compatiblist might object that *C* is a *circular* sentence and that circular sentences be banned. The compatibilist may retain the Holton conditional provided that she restrict (†) to non-circular instances; and that, the proposal runs, is what she should do.

This proposal, though familiar, is not helpful. There are a few problems with banning circularity. First, beyond being ad hoc a general ban on circularity promotes an unstable position – for example, the claim *all truth-apt claims are non-circular* is circular and thereby non-truth-apt if true! Granted, familiar *hierarchical* moves will afford an escape from such instability; however, the escape comes at the price of implausibility. After all, the (in-)compatibilism debate is a debate over *natural language*, but natural language hardly seems to be hierarchical in the required (transfinite!) fashion. But put this aside. A much bigger problem confronts the proposed ban. Specifically, a ban on circularity will not avoid the problem at all. The reason for this is that a Yabloesque version of the problem is right around the corner – a version in which no circularity is involved at all.[13] Consequently, a ban on circularity seems not to help. But, then, if circularity is not the problem, on what grounds (if any) will C be banned? Until some non-ad hoc answer is given I suggest that C not be banned at all.[14]

I conclude, then, that the Holton conditional is stuck with the triviality problem. *Pace* Holton, $\rightarrow_H$ does not give the compatibilist a consistent combination of minimalism and gaps; indeed, it brings about the fullest inconsistent case – trivialism.

Is there any way of redeeming the Holton strategy – the strategy of finding a suitable conditional with which to express the relation between truth-aptitude and truth? Yes. In fact, a suitable conditional may be constructed by adding a dose of modal strength to the Holton conditional. §6 presents the conditional in question.

6. *The Holton strategy vindicated*

The *Holton strategy* is to seek a non-contraposible conditional with which to express the relation between truth-aptitude and truth. I have shown that the strategy must impose further constraints; the requisite conditional must satisfy neither contraposition nor (PMP).[15] Holton's own choice of conditional will not do the trick; it satisfies (PMP). Still, compatibilists need not abort the Holton strategy too quickly. As this section shows, there is a suitable conditional for the job.

The requisite conditional may be constructed by giving $\rightarrow_H$ a bit of intensionality – a bit of modal strength. The basic picture runs as follows.

First, as with Holton's approach, we let the extensional connectives be as per K_3, Kleene's strong 3-valued matrices:[16]

[13] Details of the Yabloesque version are given in Beall 1999. For discussion of Yabloesque paradox generally see Yablo 1993 and Sorensen 1998.

[14] Holton (2000, §6) gives another strong reason against banning circularity or otherwise restricting (†) in this context. He argues that minimalists have very little theoretical grounds on which to impose such restrictions. I agree entirely with Holton's arguments; however, I will not pursue them here. (I should also note my gratitude to an anonymous *Analysis* referee who, with the Editor, made this section better, and more careful, than it initially was.)

[15] And, of course, that any genuine conditional satisfies modus ponens and conditional proof remains a background assumption.

[16] Again, the designated values comprise only 1, while both 1/2 and 0 are undesignated.

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1	0
1/2	1/2
0	1

&	1	1/2	0
1	1	1/2	0
1/2	1/2	1/2	0
0	0	0	0

∨	1	1/2	0
1	1	1	0
1/2	1	1/2	1/2
0	1	1/2	0

Now, let '$\rightarrow_o$' represent the target conditional. Unlike $\rightarrow_H$, the conditional $\rightarrow_o$ is intensional, and so its semantics require a few more resources. Specifically, let $\mathbf{M} = \langle W,R,w^a,v\rangle$ be an interpretation in the usual way: W is an index set (of worlds), R is a binary (accessibility) relation on W, $w^a \in W$ is the actual world, and v a valuation (map) from $W \times P$ (the product of W and P) into $V = \{1,1/2,0\}$ (the truth values), where P comprises the propositional parameters. Let '$v_{w_i}(A) = 1$' represent that A is true at w_i under v, and similarly for '$v_{w_i}(A) = 0$' (false) and '$v_{w_i}(A) = 1/2$' (gappy). In turn, a valuation, v, is extended to compound sentences in accordance with the K_3 matrices and, more to the point, the following conditions on $\rightarrow_o$:[17]

$$v_w(A \rightarrow_o B) = 1 \text{ iff, for all } w_i \text{ such that } wRw_i,\ v_{w_i}(A) \neq 1 \text{ or } v_{w_i}(B) = 1$$

Finally, (semantic) consequence and logical truth are defined in the usual manner:

[17] Notice that, as proposed, the following conditions provide an intensionalized version of Holton's $\rightarrow_H$. This is particularly clear when the truth conditions for $\rightarrow_H$ are written thus – where v is a map into V, as on Holton's original semantics: $v(A \rightarrow_H B) = 1$ iff $v(A) \neq 1$ or $v(B) = 1$.

$A_1 \ldots A_n \models B$ iff, for all $\mathbf{M}$ (where v is the given valuation), if $v(A_i) = 1$ (for all $i \leq n$), then $v(B) = 1$

$\models A$ iff, for all $\mathbf{M}$ (where v is the given valuation), $v(A) = 1$

We shall write '$A_1 \ldots A_n \not\models B$' and '$\not\models A$' to represent the respective negations.

So goes the machinery. The most pressing question concerns the adequacy of $\rightarrow_o$ with respect to the Holton strategy. The question, in short, is whether each of the following is true:

(i) $A \rightarrow_o B \not\models {\sim}B \rightarrow_o {\sim}A$

(ii) $\not\models [A \mathbin{\&} (A \rightarrow_o B)] \rightarrow_o B$

The Holton strategy requires that both (i) and (ii) be true. The former asserts the failure of contraposition; the latter asserts the failure of pseudo modus ponens – (PMP^o), as it were. The good news is that each of (i) and (ii) is true. That this is so may be seen via the following countermodels.

Countermodel to contraposition. Let $W = \{w^a\}$, $R = \{\langle w^a,w^a\rangle\}$, $v_{w_a}(A) = 1/2$, $v_{w_a}(B) = 0$. But, then, for all worlds w accessible to w^a we have $v_w(A) \neq 1$ or $v_w(B) = 1$, in which case $v_{w_a}(A \rightarrow_o B) = 1$. Moreover, given the conditions for negation, $v_{w_a}({\sim}A) = 1/2$ and $v_{w_a}({\sim}B) = 1$, in which case, because w^a is accessible to itself, $v_{w_a}({\sim}B \rightarrow_o {\sim}A) = 1/2$. But, then, since the designated values comprise only 1, contraposition fails, just as required.

Countermodel to (PMP^o). Let $W = \{w^a,w_1\}$, $R = \{\langle w^a,w^a\rangle, \langle w^a,w_1\rangle, \langle w_1,w^a\rangle\}$, $v_{w_a}(A) = v_{w_a}(B) = v_{w_1}(A) = 1$, and $v_{w_1}(B) = 0$. Notice that at w_1 we have it that $v_{w_1}(A \mathbin{\&} (A \rightarrow_o B)) = 1$ but $v_{w_1}(B) = 0$. But w_1 is accessible to w^a, in which case $v_{w_a}([A \mathbin{\&} (A \rightarrow_o B)] \rightarrow_o B) = 0$. Hence, ($\text{PMP}^o$) fails, just as required.

Hence, $\rightarrow_o$ meets the minimal conditions for a successful Holton strategy. By using $\rightarrow_o$ to express the relation between truth and truth-aptitude the compatibilist may enjoy a *consistent* combination of gaps and minimalism. Whether the resulting position is ultimately plausible or attractive is an issue I leave open. The current issue is consistency; the next issue may be plausibility. For now, the former issue, thanks to the Holton strategy, may well be settled. At the very least, the Holton strategy, backed by $\rightarrow_o$, advances the debate.[18]

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