On Epistemic Alchemy

Introduction

Crispin Wright has proposed that we have an *entitlement* to accept various cornerstone propositions: propositions that play a foundational role within our bodies of belief. Such entitlement does not require the possessor to have acquired specific evidence speaking in favor of those propositions. The proposal therefore allows Wright to concede the force of the sceptical arguments that seem to show that we can never acquire *justification* to believe the cornerstones, while resisting the further sceptical conclusion that we lack *warrant* to accept them. The sceptic's arguments for this further conclusion go wrong precisely when they equate warrant with evidential justification, overlooking non-evidential entitlement.

On Wright's picture, then, one's body of belief is a structure built on mere entitlement to accept. A well-known challenge to this picture is the *leaching problem*; there is a risk of leaching of mere entitlement upwards into one's body of belief, but an adequate response to the challenge posed by scepticism should be able to vindicate a good many of those beliefs as justified or even knowledgeable (Wright 2004: 178). Here I focus on a closely related problem, the *alchemy problem*. 'Epistemic alchemy' is Martin Davies term for the conversion of mere entitlement to accept a proposition into justification to believe that proposition.[1] Alchemical theories of warrant—theories that permit this kind of conversion—are clearly objectionable, and the alchemy problem is that of ensuring that one's theory is not alchemical. The alchemy problem arises on Wright's picture because, as we'll see, it seems easy to show that if, contrary to the general thrust of the leaching problem, possession of mere entitlement for a cornerstone proposition suffices to enable one to acquire evidential justification for the beliefs founded on that cornerstone, it must also suffice to enable one to acquire evidential justification for the cornerstone proposition itself.

Wright is aware of the problem, but he considers it in a specific form, due to Stephen Schiffer. The version of the problem Wright credits to Schiffer invokes a closure principle for justification, and so Wright's response is to deny the standard formulations of that principle, while offering an explanation of why we found them plausible. I offer two sets of considerations designed to call into question the adequacy of this response to the alchemy problem. First, I argue that there is reason to doubt that this response gets to the heart of the problem, since a case can be made for thinking that the alchemy problem arises on Wright's picture whether or not he accepts a standard closure principle for justification. Second, if one gives up standard formulations of closure principles for justification, one needs to offer a qualified principle that articulates just when justification *is* hereditary under known

[1] I will explain the distinction between *acceptance* and *belief* below. For now it suffices to say that Wright conceives of belief as a sub-species of the attitude of acceptance.

entailment.[2] I argue that neither of the two obvious qualifications we can make to standard closure principles for justification offers a criterion for when justification is guaranteed to be inherited across known entailment that Wright can regard as acceptable.

Taken together the two objections point to the need for a diagnosis of the kind of circularity involved in epistemic alchemy. In particular, the attempt to find an acceptable restriction of standard closure principles for justification needs to be informed by such a diagnosis. I do not attempt to offer a diagnosis here, contenting myself on this occasion with establishing the importance of the task, and showing that it is not quite as straightforward as one might think. My discussion also raises to salience some rather striking consequences of applying Wright's notion of entitlement to the case of testimony. An adequate treatment of the issues concerning testimony thrown up here would require a paper at least as long as the present one, and so again I settle for offering a preliminary discussion, while emphasizing the need for further work of this topic.

Entitlement and Scepticism

Above I briefly introduced Wright's notion of entitlement and the role he envisages it playing in offering a response to scepticism. However, we will need to familiarize ourselves more fully with Wright's picture if we are to bring the issues I wish to discuss into focus.

Wright's proposal is usefully classified as a form of 'modest foundationalism'.[3] The suggestion is that we may look to propositions for which we possess a kind of non-evidential warrant—an entitlement—to play a foundational role in shoring up our body of beliefs. Wright (2004) sketches three accounts of the status of these entitlements, but the basic strategy behind each is to allow that considerations traditionally thought to belong to the domain of practical rationality can warrant accepting these foundational propositions even in the absence of any specific evidence speaking in their favor. Acceptance is to be understood as 'a more general attitude than belief, including belief as a sub-case, which comes apart from belief in cases where one is warranted in acting on the assumption that P or taking it for granted that P or trusting that P for reasons that do not bear on the likely truth of P' (Wright 2004: 177). Wright's thought is that we may concede a more or less evidentialist picture of *warrant to believe*, according to which what one is warranted in believing is determined by one's evidence, so long as we acknowledge that the attitude of *acceptance* may be warranted even in the absence of evidence. On this picture, warrant to belief is always justification; warrant to accept may be mere entitlement.

[2] I borrow this expression from Dretske 1970.
[3] I borrow this term from Pryor 2001.

As noted in the introduction, this form of modest foundationalism is intended to have anti-sceptical clout. Wright contends that the most impressive versions of the arguments for scepticism have a lacuna, which his proposal exploits. He focuses on two different kinds of sceptical argument, tentatively suggesting that these exhaust 'all we have to worry about' (2004: 174). Both of these sceptical arguments consist of two stages. The first comprises of an argument that a certain propositions are *cornerstones*. A proposition is a cornerstone 'for a region of thought just in case it would follow from a lack of warrant for it that one could not rationally claim warrant for *any* belief in the region' (2004: 167-8, emphasis in original). The second stage of the sceptical reasoning takes the form of an argument to the conclusion that one cannot have warrant for any cornerstone proposition.

The two different kinds of sceptical arguments that Wright focuses on differ in how they execute the second stage of their reasoning. *Cartesian* scepticism 'makes a case that it is a cornerstone for a large class of our beliefs that we are not cognitively disabled or detached from reality in a certain way—the scenarios of a persistent coherent dream or hallucination, persistent deception by a *malin génie*, the envatment of one's disembodied brain, and the 'The Matrix' are examples of such detachment—and then argues that we have no warrant to discount the scenario in question' (2004: 168). The sceptic aims to establish this latter conclusion by arguing that we could only acquire warrant for discounting such scenarios by performing an appropriate empirical procedure, and then noting that such a procedure can only yield warrant if one is warranted in taking the procedure to have been properly executed. But being warranted in taking any procedure to discount the Cartesian sceptic's scenarios as having been properly executed requires that one is already warranted in supposing that one is not cognitively disabled or detached from reality in just the manner that the scenario suggests (Wright 2008: 169).

Humean sceptical arguments, sometimes referred to as I-II-III arguments, also aim to show that acquiring warrant for a certain propositions is impossible, since allowing that we could do so would involve us in vicious epistemic circularity. Consider the following version of Moore's 'refutation' of scepticism about the external world:

I My experience is in all respects as it there is a hand in front of me.
II There is a hand in front of me.
III There is an external world.

The information encoded in I is the best possible kind of evidence on which to believe Moore's premise, II. Moreover, II entails III.[4] But, the sceptical thought runs,

[4] As Wright notes, not all I-II-III arguments share the feature that the type-II proposition *entails* the type-III proposition. Indeed, the paradigm of this kind of sceptical argument, Hume's argument for scepticism about induction, does not possess this feature. Consider:

I All observed Fs are G.
II All Fs are G.

contrary to Moore's proposal, one cannot acquire warrant for III by inferring it from II. For I's status as evidence for II is defeasible, and in particular, I provides warrant for II only if one possesses *antecedent* warrant for III. If one has no warrant for taking there to be an external world which is more or less as one's senses represent it as being, then the world appearing to one in all respects as if *p* does not warrant one in believing that *p*. So the sceptic contends that our best shot at acquiring warrant for III, through inferring it from a proposition such as II, requires rather than delivers warrant for III. The vicious circularity involved in Moore's attempted refutation of scepticism about the external world turns out to be symptomatic of our general epistemic predicament. Type-III propositions are cornerstones for certain regions of thought, since one must possess antecedent warrant for them if one is to be able to claim warrant for any type-II propositions in that region; but, the sceptic contends, the only route to acquiring warrant for a type-III proposition is through (deductive or ampliative) inference from a relevant type-II proposition. So the attempt to acquire warrant for such a cornerstone results in vicious epistemic circularity.

Wright accepts the first stage of both argument, namely that certain propositions play this structural role as the cornerstones of interesting and important regions of thought. So he must resist the conclusion that we have no warrant for the cornerstones. It is here that Wright can draw attention to the common lacuna in both these sceptical arguments mentioned above. In order to reach the truly devastating sceptical conclusion that we cannot rationally claim warrant for any of our beliefs in many important regions of thought, the sceptic requires the lemma that we *lack* warrant for the relevant cornerstone propositions. But the sceptic hasn't secured that lemma; the considerations just reviewed at best support only the much weaker conclusion that warrant for the cornerstones can never be *acquired*: that one can never gain evidence that furnishes warrant for the cornerstones. So now we can see the anti-sceptical import of Wright's version of modest foundationalism. If one possesses an entitlement—a warrant that one can possess without having had to do any specific epistemic work to acquire—for each of the cornerstones, the obstacle to one's rationally claiming warrant for much of one's body of belief presented by the sceptical arguments will have been cleared.

Closure and Epistemic Alchemy

This is a deeply appealing prospect. However, there are by now a number of well-known challenges to Wright's notion of entitlement, and its employment in the service of combating scepticism. I won't catalogue those here. Rather, I want to focus on the following challenge to Wright's picture, which Wright credits to Stephen Schiffer. Consider again the following I-II-III triad:

III The world abounds in natural regularities.

In this case, it is obvious that any good inference from II to III will itself be ampliative rather than deductive.

I My experience is in all respects as it there is a hand in front of me.
II There is a hand in front of me.
III There is an external world.

To recap. Wright concedes to the sceptic that I cannot give me warrant to believe II unless I have antecedent warrant to accept III. Moreover, he concedes that I cannot have evidential justification for III. The sceptical conclusion is blocked, however, since one can have warrant to accept III that does not consist of evidential justification for III.

However, and this is Schiffer's objection, this picture looks unstable if we accept a closure principle for such justification.[5] Suppose, for instance, that justification is closed under known logical implication. Since I know that II entails III, closure entails that I am justified in believing II only if I am justified in believing III. But, since Wright has conceded that we are not justified in believing III; we are merely entitled to accept it. Then it follows from this concession and closure that one is not justified in believing II. And the point generalizes to any type-II and type-III propositions where the former entails the latter (Wright 2004: 178).

Alternatively, Wright might, while still hanging on to closure, qualify his concession to the sceptic. While closure makes justification for a type-III proposition a necessary condition on the possession of justification for any type-II proposition that is known to entail it, closure does not make possession of *antecedent* justification for the type-III proposition a necessary condition on justification for the type-II propositions. Suppose, as Wright contends, that one has an entitlement to accept that there is an external world, and that this enables one to acquire justification to believe that there is a hand in front of one. Closure entails that when one acquires such justification, one thereby acquires justification to believe the cornerstone. But note that this is all perfectly consistent with Wright's concession of the force of the Humean sceptical argument. Wright concedes only that the argument shows that one could not acquire justification for a type-III proposition if one lacked antecedent warrant for that very proposition. On the assumption that all warrant is justification, it follows that one cannot ever acquire justification for a type-III proposition. But, crucially, that is precisely the assumption Wright would have us give up. So strictly speaking Wright need not concede to the sceptic that we can *never* acquire justification for type-III propositions; he need only concede that the acquisition of such justification comes too late to enable these propositions to discharge their role as foundations for the rest of one's beliefs in the region.

Wright doesn't even consider this kind of way out of the problem raised by Schiffer, and it is not hard to see why. It amounts an endorsement of what Martin Davies calls

[5] Wright in fact discusses closure principles for doxastic justification. It is far more plausible that propositional justification obeys a closure principle, and so I discuss the latter notion instead. Nothing important will turn on this.

'epistemic alchemy' (2004: 222): the transformation of 'the lead of rational trust into the gold of justified belief' (2004: 220). Accepting closure for justification commits Wright to epistemic alchemy, on pain of being forced to concede that we do not possess justification for any type-II proposition that is known to entail a type-III proposition.[6] Understandably then Wright's own response to the objection is to give up closure for justification. Our intuition that justification should obey a closure principle is to be chalked up to the fact that *warrant*—still understood disjunctively as either entitlement or (evidential) justification—obeys such a principle.[7]

I will here develop two worries about this line of response to Schiffer's objection. The first is that it is not clear that Wright's response gets to the heart of the kind of worry Schiffer has raised, for we may be able to generate essentially the same puzzle without appealing to a closure principle for justification. Let us return to Cartesian arguments for scepticism. Recall from above that such arguments proceed in two steps. In the first, it is argued that certain propositions to the effect that one is not 'cognitively disabled or detached from reality' are cornerstones for certain regions of thought. Second, it is argued that any attempt to acquire warrant for one of these cornerstones through the execution of an empirical procedure designed to decide the matter is bound to fail. One would already need to have warrant to discount the possibility of cognitive disability or detachment from reality if one were to take the procedure to have executed properly, or even to have been executed at all. The sceptic draws the conclusion that one 'cannot ever acquire such a warrant (for the first time)' (Wright 2004: 169).

Wright's parenthetical comment here is suggestive. Suppose that Wright is correct to suggest that I am entitled to accept that I am not the victim of any of the misfortunes with which the Cartesian sceptic makes his play. Now suppose that I devise an empirical procedure to test whether or not I am dreaming—pinching

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[6] I've set the problem up here as a trilemma: concede we lack warrant to believe type-II propositions, accept that we can acquire justification to believe type-III propositions, or give up standard closure principles for justification. Perhaps one can avoid all three horns by going contextualist about 'justification', or by taking justification to be an interest-relative matter. Such maneuvers would be quite foreign to Wright's response to scepticism, though, and so I leave them aside here.

[7] Wright doesn't discuss whether he would also qualify standard closure principles for knowledge. It may seem obvious that he would, but there are complications. Wright has tended to criticize Dretske for giving up standard closure principles for knowledge in the face of the paradoxes (see, for example, Wright 2002: 331-2; 2008: 44). If we can avoid it, then, we should not attribute to Wright the very position he finds objectionable. Moreover, as Hawthorne (2004) has argued, attempts to qualify closure principles for knowledge have not proved promising. This leaves Wright with the options of conceding that one cannot know the type-II propositions in question, or accepting that one can come to know the relevant type-III propositions through inference from them. Wright would not be as concerned by the conclusion that we do not know type-II propositions as he would be by the conclusion that we're not justified in believing them (1991: 88). But we surely want to avoid making such a radical concession to scepticism if we can. The suggestion that we can come to know type-III cornerstone propositions through such inferences seems just as bad as the suggestion that we can acquire justification for them in that fashion. So I'm not at all sure how Wright wants to try to resolve the analogue of Schiffer's objection at the level of knowledge. However, I won't pursue the issue any further here.

myself hard, for example.[8] Now, in order for the execution of this procedure to yield warrant, I need to have antecedent warrant to accept that I am not dreaming; this much Wright has conceded to the Cartesian sceptic, and it entails that the execution of this kind of procedure is utterly hopeless as a means of acquiring warrant *for the first time*. But on Wright's proposal I actually have the required prior warrant! For I'm entitled to accept that I am not dreaming. So it seems like I'm in a position to gain *evidential justification* for the proposition that I am not now dreaming through the correct execution of the relevant procedure (pinching, in this case). Likewise, I can easily gain evidential justification to believe I'm not a disembodied brain in a vat; I simply use my perceptual faculties to establish that I have a body. Something has clearly gone wrong, but Wright cannot agree with the sceptic's diagnosis of what; the sceptic's diagnosis is that we lack the required *antecedent* warrant to dismiss the Cartesian sceptical scenarios, but this Wright's denies.

Nor does the problem seem to be driven by a principle of closure for justification. Now, this claim might be resisted. One might insist that the outcome of executing an empirical procedure to determine that one is not a handless brain in a vat provides justification for the cornerstone proposition that one is not a handless brain in a vat only by justifying some proposition from which one can infer that cornerstone. We might represent the situation with a I-II-III trio:

I My experience is in all respects as if I have a body.
II I have a body.
III I am not a disembodied brain in a vat.

If this is the correct picture, then a closure principle for justification will commit one to holding that the empirical evidence one acquires upon the correct execution of a relevant procedure justifies the cornerstone proposition in question. But if we follow Wright in giving up closure, we don't seem to be required to accept that conclusion. So Wright's response to the alchemy problem would have the required generality after all, contrary to my suggestion.

But it is far from clear we can always discern this kind of inferential structure at work in the relevant class of cases, even if we can in the case just discussed. For example, suppose that we have an entitlement to accept that testimony is generally reliable. Now suppose that someone that I have very good reason to trust does a great deal of research, and then on the basis of a piece of inductive inference forms a justified belief that testimony is reliable.[9] This person then informs me that

[8] This is admittedly a little fanciful, since it's not clear that the pinch-test could work even supposing one had prior warrant for dismissing the hypothesis that one is dreaming. The other example I offer in this paragraph is less fanciful.

[9] A well-known objection to certain reductionist theories of testimony is that they require each subject to have undertaken this kind of research and performed the induction in order to be justified in believing anything on the basis of testimony. But in order to have a suitable basis for the induction, a subject would have to rely on the testimony of others. (see, for instance, Coady 1992: 80-1).

testimony is generally reliable. On some views about how one gains justification through testimony, testimony that *p* only non-inferentially justifies one is believing that *S* said that *p*, the further step to a justified belief in the content *p* being based on inference (perhaps to the best explanation). We may note that it is not closure that is at issue here, but some related principle concerning when justification is hereditary under a particular kind of ampliative inference. But much more importantly, if Wright's response to Schiffer's objection holds out the correctness of such a controversial account of testimony as a hostage, that is surely to be considered a cost. We should not impose inferential structure on our picture of the transmission of justification through testimony just to be able to find a closure step to finger as our epistemic alchemist. Of course, none of this demonstrates that Wright's diagnosis of the real root of Schiffer's objection is mistaken. But it does give us grounds to register some reservations about the adequacy of his response.

My second worry with that response starts from the thought that we cannot simply abandon closure for justification. Closure for warrant, which Wright wants to retain, is a very weak principle; it only guarantees that one will have warrant to accept the know consequences of one's justified beliefs, and this warrant may be either justification or mere entitlement. We need to supplement this with a qualified closure principle for justification, since we are surely committed to something stronger than closure for warrant. However, it turns out to be surprisingly difficult to formulate a plausible qualified closure principle for justification.[10]

Let us say a principle of closure for justification is *alchemical* if in conjunction with the claims that one is justified in believing that there is a hand in front of one, it commits us to holding that one is also justified in believing that there is an external world. The following standard formulation of such a closure principle is clearly alchemical:

CJ1 If i. one is justified in believing *p*,
ii. one knows that *p* entails *q*,

then one is justified in believing *q*.[11]

How should we modify CJ1 to yield a non-alchemical principle? One natural proposal is suggested by the following passage by Davies (2004: 221):

However, we do not face this kind of worry in building the example, since we're supposing that the researcher is antecedently entitled to accept that testimony is generally reliable.

[10] The kinds of worries I will develop will be somewhat reminiscent of Hawthorne's (2004) criticisms of Dretske's recent attempts to find a qualified version of closure for knowledge.

[11] One might refine CJ1 along the lines proposed in the literature on closure for knowledge, say by adding a requirement that one have competently perform the inference in question, retaining one's justification to believe one's premise throughout (see, for instance, Hawthorne 2004). This refinement would not make any difference to the arguments of the present paper if we suppose throughout, as we may, that the subjects in question not only know that the relevant entailment relations hold, but have also competently made the inferences in question, etc.

> …even supposing that there is evidential support for the type-II proposition and that there is some kind of antecedent warrant, perhaps entitlement, for the type-III proposition (since it is a cornerstone), the evidential support for the type-II proposition still cannot be transmitted to the type-III proposition. It provides no additional support for the type-III proposition. As Wright puts it in another recent paper, the I-II-III arguments are not *cogent* […].

Very roughly, an argument is cogent, in Wright's sense, just when one could reach warrant for the conclusion *for the first time* by acquiring warrant for the premises and correctly inferring the conclusion from those premises. The basic idea then is that justification may fail to be inherited across known entailment when the relevant argument from the premise to the conclusion is not cogent. This gives us the following principle:

CJ2 If i. one is justified in believing *p*,
ii. one knows that *p* entails *q*, and
iii. the argument from *p* to *q* that grounds one's knowledge of this entailment is cogent,

then one is justified in believing *q*.

Unfortunately for Wright, CJ2 also turns out to be problematic. The point turns on the following observation. Suppose we follow Wright in supposing there to be an entitlement to trust the testimony of others, so that one can gain justified beliefs from the utterances of others. Then one can construct *cogent* arguments from certain type-II propositions to type-III propositions that they entail. A simple example will help make this clear. Assume that subject *S* has an entitlement to accept that testimony is generally reliable. Now suppose that *S* has good reason to trust *T*, and *T* informs *S* that *T* ate cornflakes for breakfast yesterday morning. *S* comes to have a justified belief that *T* ate cornflakes for breakfast yesterday, and from this infers the (cornerstone, type-III) proposition that the world did not spring into existence some time today replete with apparent traces of a more extended history.

There is no obvious reason to deny that the argument *S* runs through here is cogent. We do not need to suppose that *S* must have prior warrant to accept that the world did not spring into existence some time today replete with apparent traces of a more extended history in order for *S* to accept *T*'s testimony and to thereby gain a justified belief that *T* ate cornflakes for breakfast yesterday morning. The general point is that once we allow that a subject can gain justified beliefs in type-II propositions through testimony, we need no longer accept the sceptic's contention that the best sort of evidence one could possibly have to believe a type-II proposition is typified by a corresponding type-I proposition. In particular, we need not accept that the best sort of evidence one could have to believe something about the past is typified by a type-I proposition concerning the deliverances of one's own

memory: for instance, that one remembers that *T* ate cornflakes for breakfast yesterday. The sceptic has argued, and Wright has agreed, that type-I propositions only support relevant type-II propositions in the presence of antecedent warrant to accept the relevant type-III proposition. But, to reiterate the crucial point, if testimony can deliver justification to believe a type-II proposition, then we may bypass the step from I to II, and with it the need for antecedent warrant for the relevant type-III propositions. And in such cases, one can construct a cogent argument from a type-II proposition to an entailed type-III proposition.

S's inference in the case just described offers an example. The sceptic may be right that one can only acquire justification for believing that *T* has cornflakes for breakfast yesterday morning from one's memory to that effect if one has prior warrant to accept that the world did not spring into existence some time today replete with apparent traces of a more extended history (including, crucially, traces provided by one's apparent memories). But, so I'm contending, testimony provides a route to justification concerning what *T* had for breakfast yesterday that does not require *S* to have prior warrant to accept that the world was already in existence breakfast-time yesterday.

The immediate upshot is it is plausible to suppose that *S* meets all three conditions in the antecedent of CJ2, and so CJ2 delivers the conclusion that *S* is justified in believing that that the world did not spring into existence some time today replete with apparent traces of a more extended history. But this is precisely the sort of proposition Wright wants to treat as an entitlement. This isn't quite epistemic alchemy, but it is surely too close for comfort.

It is natural to wonder if one can devise other examples with essentially the same structure. For example, we might try to construct examples parallel to that offered above in which *T* informs *S* that *T* is in pain, or that there is a material object in front of *S*. *S* then infers that there are minds other than her own, or that there is a material world. But it is plausible that one who had no prior warrant to accept these propositions would not be able to acquire warrant through testimony. The thought operative here is that one can only acquire justification to believe *p* on the basis of testimony that *p* if one has warrant to accept or believe that one really is the recipient of testimony that *p*, but this cannot be something one has warrant to accept if one lacks warrant to accept that the testifier actually exists—the testifier being a minded creature (usually) possessing a material body. So *S*'s arguments in these other cases probably aren't cogent; the example we picked above was well chosen, since being warranted in accepting testimony doesn't seem to require prior warrant to accept that the world has been around since before today.[12] We also

[12] One might insist that one can form a justified belief on the basis of testimony only if one has *inductive* grounds for trusting the testifier. Then perhaps one needs prior warrant to accept that the world is older than a day in order to be warranted in making the requisite inductive inference (on the grounds that a suitable basis for the induction requires evidence concerning the testifier's reliability over time). However, it is completely implausible that the conditions under which one can gain justification through testimony are this demanding; one can gain a justified belief, perhaps even

encounter problems trying to construct cases that do not involve an entitlement to trust testimony. What is distinctive of testimony that enables us to construct the kind of example I offered above is that one can gain justification for a belief while the responsibility for acquiring the kind of evidence that characteristically supports beliefs of that kind is left to another (the originator of the chain of testimony).

Even if we struggle to construct other examples, the one I offered already suggests that CJ2 is an unacceptable revision of closure for Wright's purposes. Moreover, consideration of that example suggests a diagnosis of where CJ2 goes wrong. Wright's problems with closure arose because possession of warrant to accept a type-III proposition sometimes puts one in a position to acquire justification for a type-II proposition that is known to entail a type-III proposition that Wright wants to regard as an object of entitlement. The line of thought that motivates CJ2 goes wrong in assuming that this can only happen when the entailed type-III proposition is the very proposition warrant for which enables one to acquire justification for the entailing type-II proposition. This is a very natural assumption, but the case described above shows it to be mistaken. In that case, a subject's entitlement to accept the reliability of testimony did the necessary work in enabling that subject to acquire a justified belief in a type-II proposition that entailed the type-III proposition that the world did not spring into existence some time today replete with apparent traces of a more extended history.

Let us leave CJ2 to one side, then. We might propose the following revision of CJ1 instead:

CJ3 If i. one is justified in believing *p*,
ii. one knows that *p* entails *q*, and
iii. *q* is not a cornerstone proposition,

then one is justified in believing *q*.

It is not entirely clear that CJ3 avoids the problems I have highlighted for CJ2. However, engaging that point would involve us in some quite subtle issues about the conditions under which a subject can rationally claim to possess warrant for a proposition. I prefer to sidestep those here, since a demonstration that CJ3 is unsatisfactory need not await their resolution. As we saw above, Wright is committed to closure for *warrant*. This principle together with Wright's definition of a cornerstone immediately entails the following lemma: every known entailment of a cornerstone proposition for a given region of thought is itself a cornerstone proposition for that region. Now suppose that one makes the following inference:

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knowledge, concerning the time by asking a stranger on the street. Sometimes it is held that the standards for the exchange of testimonial justification or knowledge are only this relaxed concerning certain such mundane matters (see, for instance, Fricker 1995: 405). But telling someone what one had for breakfast yesterday is one of the paradigm cases of mundane testimony, along with telling someone the time or one's name.

A. Two plus two equals four.

So, B. Either two plus two equals four or testimony is a reliable source.

CJ3 fails to yield the desired conclusion that one is justified in believing the conclusion B on the basis of this inference; by the lemma B is a cornerstone proposition, and so clause (iii) isn't satisfied. But surely disjunction introduction performed on a simple arithmetical truth cannot carry one from justification to mere entitlement. The justification one has for the first disjunct should provide justification to believe the disjunction. That suggests that the antecedent of CJ3 is more demanding than it ought to be. Of course, this doesn't show that Wright should regard CJ3 as *incorrect*, for strictly speaking its antecedent only supplies a set of sufficient conditions. But we want such a principle to articulate the conditions under which justification is hereditary under known entailment. That is why we could not rest content with a closure principle for warrant, and so why we embarked upon the task of finding a suitably qualified version of CJ in the first place. The example shows that CJ3 at best offers only a partial characterization of when justification is hereditary, and we cannot rest content with that.

We have now considered two natural revisions to CJ, and I have argued that neither will suit Wright's purposes. CJ2 proved vulnerable to counterexamples on the assumption that subjects have an entitlement that enables them to gain justified beliefs through testimony, while CJ3 failed to offer a reasonable criterion for when justification is hereditary under known entailment. There are no doubt a number of other revisions worth considering, but I will stop there for now.

I have offered two concerns with Wright's response to the objection raised by Schiffer. Although Schiffer's version of the objection relies upon the principle of closure for justification, it seems that one can get alchemical results on Wright's picture without that principle. If that's right, qualifying closure can be at best a partial solution. Second, the task of finding an appropriately qualified principle turns out to be less straightforward than one might imagine. I think the two problems have a common underlying source. We do not yet have a good grip on the kind of epistemic circularity involved the idea that possession of mere entitlement can put subjects in a position to acquire justification to believe a proposition which seems to be no less a cornerstone than the first. Once we do, we will have a clearer idea of how the challenge presented by the alchemy problem might be met. And once we know how to characterize the objectionable kind of epistemic circularity involved in epistemic alchemy, we will be able to formulate a closure principle for justification that includes a clause requiring that the entailment from p to q not display that sort of circularity. The restriction to closure thus drops out of a diagnosis of the underlying problem.

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