

DISCUSSION

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The Theories of Modality A Reply to von Wachter

1. *Introduction*

Without the use of modal discourse to aid us we should be unable to express many of the most fundamental facts—facts that are fundamental to our understanding of science, mathematics and human agency. But the best efforts of philosophers to come to a convincing account of modal discourse have been bedevilled by a welter of ideological, epistemological and ontological difficulties. For this reason many philosophers have endeavoured to provide a ‘reduction’ of modal discourse.

It is a philosophical problem in itself to establish just what a reduction must achieve in order to be successful (whether in connection with modality, the nature of the mental or some other subject matter). Nevertheless, it is clear that—in some sense or other—a reduction of modality will, if successful, display how facts expressed with the aid of modal vocabulary ultimately depend upon facts that need not be expressed in this way. A variety of contrasting strategies for executing a modal reduction have been proposed. *Conceptual* or *analytical* reductions seek to show that modal concepts may be analysed into concepts that do not rely upon modal vocabulary for their expression. By contrast *ontological* reductions forswear the idea that modal concepts admit of non-modal analyses or translates. They maintain instead that the truth or falsity of modal claims depends—in a manner that may be perspicuously presented to the intellect without benefit of conceptual analyses—upon the states of an underlying reality, a reality that may be described with recourse to modal vocabulary.

These contrasting descriptions of reductive strategies are admittedly crude. But still they provide a framework for understanding a debate that has arisen concerning the proper location of an influential theory of modality advanced by David Armstrong. In *A Combinatorial Theory of Possibility* (1989)—hereafter *CTP*—Armstrong proposed a form of conceptual reductionism. According to this theory the concept of possibility is to be analysed in combinatorial terms—in terms of the concept of a combination of existing particulars and universals. In *A World of States of Affairs* (1997)—hereafter *WSA*—Armstrong developed a different kind of reductionism (which should not be taken to imply that he abandoned the conceptual reductionism earlier proposed). According to this ontological form of reductionism the truth-makers for claims of necessity and possibility are to be found exclusively amongst the class of existing particulars and universals.

The earlier theory was criticised by the present author on grounds of circularity. I argued that the conceptual analysis Armstrong provided is circular because the concepts of particular and universal are themselves modal notions (MacBride 1999). In “The Ontological Turn Misunderstood” Daniel von Wachter dismisses this criticism. Drawing evidence from the text of *WSA* he argues that the reductionism Armstrong advanced is ontological rather conceptual. Since ontological reductions do not aim to provide analyses he concludes that the charge of circularity misses its intended target.

Von Wachter is mistaken in drawing this conclusion. He is mistaken because he has failed to appreciate that Armstrong has offered us two different theories of modality. Whereas the earlier theory is intended to be a conceptual reduction, the later theory is intended to be an ontological reduction. So even if it is the case that the charge of circularity cannot apply to the later theory it does not for this reason fail to apply to the earlier one. But von Wachter is also mistaken for another deeper reason. The inextricable involvement of the concepts of particular and universal with modal notions not only undermines Armstrong’s conceptual reduction. The same involvement undermines just as well the ontological reduction Armstrong proposes.

In order to make good on these claims I will proceed in the following fashion. After expounding the conceptual reduction Armstrong advances I will explain how this theory lapses into circularity. I will then turn to consider the ontological reduction he proposes and explain how this theory too becomes confounded.

2. Conceptual Reduction

In *CTP* Armstrong provides two epistemological arguments to motivate the development of his reductionist theory. The first argument makes appeal to Armstrong's "Naturalism", the doctrine that "nothing at all exists except the single world of space and time" (*CTP*: 3). This doctrine, Armstrong claims, is "epistemically very secure". But if there are *merely possible* states of affairs then they will exist outside the world of space and time. This means that the doctrine that such states of affairs exist must be highly speculative and uncertain. We can have no causal or nomic connection with merely possible states of affairs. Moreover, the postulation of entities that lie beyond our world can hardly be used to explain what happens within it (*CTP*: 7-8).

This first argument seeks to cast doubt upon the existence of merely possible states by questioning our capacity to have knowledge of a modal realm that subsists outside the Natural realm. The second argument questions whether we could even have knowledge of primitive modal compatibilities and incompatibilities inherent in the fabric of the actual Natural world itself:

"The only Naturalist alternative for a theory of possibility seems to be that modality is an irreducible feature of this world – a theory of *de re* compatibilities and incompatibilities. It is worth remarking that the epistemology of this view is very obscure. How can we begin to decide, for instance whether causal connection is a necessary or contingent connection, given this view? Do *de re* necessities affect our mind differently from mere contingencies?" (*CTP*: 102)

Armstrong returns to emphasise this concern in the concluding section of *CTP*:

"I do not like the idea that modality is a fundamental unanalysable feature of actuality. In particular, I see great epistemological problems for a Naturalist in explaining the process by which we come to know of the existence of such features of actuality (*CTP*: 140-1)

Armstrong seeks to avoid the epistemological difficulties and perplexities that attend the admission of merely possible states of affairs or *de re* compatibilities and incompatibilities amongst actually existing things by providing a conceptual or analytic reduction of modality:

“The Combinatorial theory now to be argued for purports to give an *analysis* of modality in combinatorial terms... It traces the very idea of possibility to the idea of the combinations – *all* the combinations – of given actual elements” (*CTP*: 34-37).

Armstrong’s analysis proceeds in two stages. First necessary and sufficient conditions are supplied for the truth of possibility statements:

“What a statement states is a possibility if and only if there exists a possible world in which that statement is true” (*CTP*: 100).

In this way possibility claims are translated into extensionally equivalent existential claims about possible worlds. Next, existential claims about possible worlds are analysed in combinatorial terms “where possible worlds are combinations or re-combinations of the world”.

The reduction that Armstrong offers us—in *CTP*—purports to trace out an analytic connection between the concept of possibility and the concept of combination. It is because Armstrong intends to provide thereby a *conceptual* reduction that he considers it a potential flaw of his theory that it should turn out to be *circular*:

“my hope is that the Combinatorial theory has given us a reductive analysis of possibility and necessity... It may be, however, that the analysis is covertly circular and that the theory itself makes use of the very notion of modality that it is intended to analyse” (*CTP*: 139).

Armstrong goes on to reflect that if the combinatorial analysis of possibility statements is circular this need not prevent its being placed at the service of a more modest account. Such an account would seek to exhibit “in a perspicuous manner the *structure* of modality”, the combinatorial structure (*CTP*: 139-40; c.f. 34). But Armstrong is clear. This more modest account of possibility that fails to effect a non-circular reduction is *not* his own. It is a fall back position that he would adopt only if it turned out that the conceptual reduction he proposes were to fall prey to circularity.

How might Armstrong’s analysis fail in this regard? According to this analysis, the notion of a possible atomic state of affairs is “introduced semantically, by means of the notion of an atomic *statement*” (*CTP*: 45). Consider the statement “*a* is *G*”. If it is false it fails to correspond to an atomic state of affairs. But even if it is false “*a* is *G*” corresponds to the “*form*” of an atomic state of affairs, picking out a particular *a* and falsely

predicating a monadic universal G of a . So even though what it says is false, “ a is G ” expresses a possibility, the possibility that a is instantiated by G . Reflecting in this way Armstrong bases his reduction upon the ontological assumption that the Natural world consists of a stock of fundamental elements (simple individuals, properties and relations):

“It is at the heart of the matter that *any* statement involving these elements, and which respects the form of states of affairs (has the form ‘ Fa ’, ‘ Rab ’, ‘ $Sabc$ ’) states a possibility. So the possible atomic states of affairs are *all* the combinations.... In this way, the notion of possibility is given an analysis, an analysis which uses the universal quantifier” (*CTP*: 47).

This analysis will fail if it turns out that *not* all combinations of particulars and universals that respect the form of states of affairs are possible. In *WSA* Armstrong takes a retrospective look back at this earlier analysis. He remarks:

“The idea for possibility, then, is that all the combinations of simple particulars, properties and relations that respect the form of atomic states of affairs constitute the possibilities for first-order states of affairs. Notice that I am not saying ‘all the possible combinations’, which would be trivial, but ‘all the combinations’. The hypothesis is that these combinations are all of them possibilities” (*WSA*: 160).

Of course, it is a matter for investigation—not stipulation—whether the stock of existing particulars, properties and relations admit of promiscuous recombination. Armstrong therefore sets out to determine whether this is so. Negative universals or negative states of affairs, if there are any, constitute one potential source of counter-example to this claim. If promiscuous recombination is permitted then these universals or states of affairs may be combined to yield a possible world in which both a is F and $\sim(a$ is $F)$. But there is no such possible world—combinations of this kind are impossible. It appears therefore that the combinatorial analysis of possibility fails because *not* all combinations are possible after all. To avoid this difficulty Armstrong considers the following way out:

“If, however, we try to deal with the problem by introducing an extra constraint forbidding contradictory conjunctions in the one world, then we are using in our statement of constraints that very notion of modality which it was our hope to analyse. For contradictory states of affairs would be ones for which one state of affairs *must* obtain, and the other fail to obtain” (*CTP*: 48).

We can now see how circularity may arise in Armstrong's analysis. His analysis will turn out to be circular if appeal must be made to modal constraints to circumscribe the range of combinations to which possibilities are reduced (see also *CTP*: 79-80).

3. *Could Armstrong have been a Universal?*

The difficulties that Armstrong emphasises in connection with negative states of affairs flow from a general dilemma that confronts his analysis. Either (i) the analysis will fail to be extensionally adequate because it deems combinations to be possible that are in fact impossible (a is F & $\sim(a$ is F)). Or (ii) the analysis is circular because it employs modal constraints to ensure an extensionally correct circumscription of the combinations that are possible ($\sim\Diamond((a$ is $F) \& \sim(a$ is $F))$). In the particular case of negative states of affairs Armstrong seeks to avoid this dilemma by denying that there are any kind of negative entities. But it does not follow that the dilemma can generally be avoided. Or so I argued in "Could Armstrong have been a Universal?"

In that paper I considered a variety of different ways in which this dilemma might be critical for Armstrong's view. Let me briefly indicate two of them. First ask yourself the question: could Armstrong have been a universal? According to Armstrong's analysis, possibilities correspond to combinations of particulars and universals that respect the form of atomic states of affairs. So to answer the question raised we must determine whether the possibility of Armstrong being a universal corresponds to such a combination.¹

Before proceeding to settle this issue let us pause to consider what it means to be a universal or a particular. Focusing attention upon Armstrong's favoured ontology, particulars and universals are distinguished by the different ways in which they contribute to the states of affairs of which they are constituents. The *Principle of Instantial Invariance* dictates the stereotypical manner in which universals contribute to states of affairs: universals are either monadic or dyadic or ... n -adic (*CTP*: 40).² It follows from this principle that a universal F will either

¹ For the sake of exposition assume that Armstrong is an atomic particular (rather than say a molecular state of affairs).

² Since I believe that there are good reasons to affirm the existence of multigrade universals—universals that lack a definite adicity—I do not hold to this principle. I

combine with one other constituent to make a state of affairs (if F is monadic), or combine with two other constituents (if F is dyadic)... or combine with n other constituents (if F is n -adic). Particulars, by contrast are not bound by any such principle; they are instantial freewheelers. They may occur in states of affairs that contain any number of constituents.

What does this tell us about the kinds of combinations in which Armstrong must feature to model the possibility of his being a universal? They must be combinations in which he answers to the *Principle of Instantial Invariance* whilst being accompanied by a range of particulars (that fail to answer to this principle). Now if we are permitted to consider *all* the combinations of the existing stock of fundamental elements then there will indeed be such combinations. Do these combinations respect the form of states of affairs? It would appear so. Suppose Armstrong features as a monadic universal combined with one other particular (say Socrates). Then this combination respects the form of a monadic state of affairs. It follows—by Armstrong’s analysis—that Armstrong could have been a universal. For the combination of existing elements that models his being a universal respects the form of states of affairs.

But could Armstrong have been a universal? If he could not, then Armstrong analysis must either (i) fail to be extensionally adequate deeming a modal statement to be true when it is false or (ii) appeal to further constraints to circumscribe the combinations that are genuinely possible for Armstrong. In the latter case, it appears that Armstrong must appeal to the constraint that particulars (Armstrong included) are *necessarily* particulars, thereby making use of a modal concept embedded in a context that his analysis is unable to reduce. Either way Armstrong’s analysis is confounded.

In “Could Armstrong have been a Universal?” I argued that there are two ways in which Armstrong may come to terms with this dilemma. Either he may embrace the second horn of the dilemma and admit that some deep ontological principles are modally irreducible. But in that case it becomes unclear whether any genuine theoretical motive remains for attempting to reduce principles that whilst less ontologically significant are no more modal. Or alternatively he may embrace the first horn and admit that he could have been a universal. But in that case, Armstrong must abandon the insight—that runs continuously through his metaphysical writings—that particulars and universals are the fundamental constituents

employ this principle here simply because it is one upon which Armstrong has relied since his earliest writings on universals.

of reality. Instead, the notions of *particular* and *universal* must be consigned to the level of functional roles, roles that the fundamental elements occupy differently at different possible worlds (Armstrong a particular at one world and a universal at another).

In the foregoing discussion I have simply taken Armstrong's notion "form of a state of affairs" for granted. In Armstrong's reduction the notion of form is used to circumscribe the class of *possible* combinations from the broader class of *mere* (arbitrary) combinations—some members of which fail to respect the form of states of affairs. The second difficulty for Armstrong's view that I will touch upon here concerns the question whether this notion is ultimately modal in character. If it is, then Armstrong's account will be circular and his reduction will fail.

The problem that Armstrong encounters is exacerbated by the fact that he tells us virtually nothing about the notion of form. The only insight he (implicitly) offers makes appeal to the *Principle of Instantial Invariance*: a combination will respect the form of a state of affairs if it combines a monadic universal with a single particular, a dyadic universal with two particulars... an n -adic universal with n particulars (*CTP*: 45, 47). Because Armstrong understands the notion of form in this way he effectively employs the valencies (adicities) of universals to determine which combinations are possible—according to this determination, the combinations are possible that respect the adicities of existing universals. But now Armstrong faces an instance of the general dilemma already discussed. If universals do not have their actual adicities necessarily then these combinations will fail to circumscribe the class of possible combinations—the determination will fail to include possible combinations in which existing universals have different adicities. In that case, Armstrong's reduction will fail to be extensionally adequate. But if Armstrong's reduction achieves extensional adequacy by appealing to the necessary characteristics of existing universals—the adicities they enjoy necessarily—his account will be circular.

That Armstrong's reduction should be subject to this uncomfortable dilemma should come as no surprise.³ Armstrong characterises his own

³ That the concepts of particular or universal are modal has long been maintained by Herbert Hochberg. Consider, for example, his remark: "One concerned with 'independence' might point out that in yet another sense no component of an atomic fact is 'independent'. For by [the Principle of Exemplification] particulars require properties and vice versa. No particular is presented 'bare' and no quality is presented

account as a version of logical atomism, one inspired by the metaphysical system Wittgenstein presented in the *Tractatus* (*CTP*: 37). But if we look back to that way in which Wittgenstein introduced the notion of form—the form of simple objects whether particulars or universals—we see that Wittgenstein’s logical atomism is modal through and through:

2.0123 If I know an object I also know all its possible occurrences in states of affairs. (Every one of these possibilities must be part of the nature of the object.)

2.0124 If all objects are given, then at the same time all *possible* states of affairs are also given.

2.0141 The possibility of its occurring in states of affairs is the form of an object.

4. *Von Wachter’s criticisms*

Von Wachter says that I have proceeded too hastily in my examination of Armstrong’s theory. He denies that Armstrong ever attempted to provide a reductive account of modality whose success would depend upon avoiding the pitfalls of extensionality failure and modal circularity. According to von Wachter “it is clear in everything that Armstrong writes that he thinks there are ... true irreducibly modal statements.” Armstrong is able to admit to the existence of such statements because, he claims, Armstrong only ever avowed a “deflationary” form of reductionism, a form of reductionism that seeks to avoid commitment to merely possible states of affairs but not circular analyses.

Armstrong’s repeated pronouncements to the contrary give the lie to von Wachter’s criticisms (“The notion of possibility is analysed, reduced I think it can be said, to the combination of elements” *CTP*: 48 and all the rest already cited). It should be evident to the reader that Armstrong did—in *CTP*—endeavour to provide a reductive (non-circular) analysis of modal statements. Armstrong was motivated to do so because he intended his account not only to avoid a commitment to merely possible states of affairs but also to avoid a commitment to primitive *de re* compatibilities and incompatibilities in the natural realm. It should also be evident to the reader that the dilemma I have posed for Armstrong’s account—to avoid,

unexemplified" (see his 1961, p. 235). Hochberg subsequently makes use of this point in criticism of Armstrong's combinatorial account (see his 2001, pp. 162-3).

on the one hand, failures of extensional adequacy and, on the other, modal circularity—is no more than a generalisation of a particular dilemma that Armstrong posed to himself—to avoid, on the one hand, false claims about contradictory combinations and surreptitious modal constraints on the other. In both particular and the general cases the dilemma is pertinent just because Armstrong wished to avoid irreducibly modal statements by providing a reductive analysis.

Von Wachter raises a further criticism of the account of Armstrong that I have given. In “Could Armstrong have been a Universal?” I claimed that if Armstrong’s reduction is to succeed then it should provide for a systematic translation from a language that contains modal vocabulary to one that contains none. Such a translation should map each sentence of the modal language onto an extensionally equivalent sentence of the non-modal language. In this way the reduction, if successful, will provide non-modal truth-conditions for the sentences of a modal language. Von Wachter objects to this procedure on the grounds that Armstrong has no interest in truth-conditions, with what von Wachter calls “meaning entities”. Armstrong’s project, von Wachter claims, is to describe the “ontic structure of this world”, not the structure of a language or a range of meaning entities used to describe it. But this objection fails because it over-interprets the notion of truth-condition involved in the envisaged translation.

The notion of a truth condition may be interpreted in a variety of different ways. It may be interpreted as falling upon the sense side of Frege’s distinction between sense and reference, a notion intended to capture the fine-grained meanings of the sentences for which truth conditions are supplied. But the notion of a truth-condition may also be interpreted in a far more minimal sense: to provide truth-conditions in this sense simply means providing necessary and sufficient conditions for the truth of the sentences in question. Minimally interpreted the provision of a reductive truth-condition for a modal sentence S amounts to no more than the specification of a non-modal sentence S^* where S^* is extensionally equivalent to S ($S \leftrightarrow S^*$). The provision of truth-conditions in this minimal sense broaches no concern with “meaning entities”, just ties of extensional equivalence between sentences.

Von Wachter also denies that Armstrong need have any truck with issues of translation, his project being concerned with ontological structure. But this denial rests upon a failure to appreciate that—in *CTP*—Armstrong is concerned to give a *conceptual* reduction of modality.

For if Armstrong were to succeed in setting such a reduction in place then—guided by the analysis of modal concepts given—it would be possible to translate all modal sentences into extensionally equivalent sentences that contain no modal vocabulary. It follows that if Armstrong’s reduction fails to provide us with the wherewithal to translate modal discourse in this way then that is a sure fire sign that his conceptual reduction also fails.

Von Wachter criticises my account of Armstrong from a more general perspective. He says that Armstrong is an “M-philosopher” whose concern is with truth-makers, the fundamental constituents of reality responsible for the truth and falsity of the sentences we utter. By contrast I, I am told, am an “S-philosopher”, someone with an interest only in language—only in semantics and truth conditions. Seen from this perspective, von Wachter continues, my criticisms of Armstrong obviously miss their mark, resting upon the mistaken assumption that Armstrong is an S-philosopher like me.

But it is obvious that both positions—the positions of S- and M-philosophers—are unhelpful caricatures. On the one hand, language is itself a feature of the world, not something outside of it, a subject matter with its own distinctive but unduly neglected ontology. Moreover, our conception of what the world we inhabit is like significantly constrains our choice of which semantics are eligible for a language used to describe that world. So for these, and other reasons still, no S-philosopher can ultimately insulate him or herself from ontological concerns. On the other hand, we cannot determine what the truth makers for a class of sentences must be unless we are equipped to determine what these sentences really *say*. If we do not have a proper grasp of what these sentences say then we can hardly be in a position to grasp what makes them true. To establish what these sentences really say we must look to their inferential relations with other sentences, the ontological commitments they make, the way in which the expressions that make up these sentences hook onto the world. In short: to establish what the truth-makers of our sentences are we must concern ourselves to a significant degree with semantics.

Armstrong himself is well aware of all this. After noting the difficulties that the existence of negative states of affairs or universals poses to the combinatorial analysis of possibility Armstrong remarks:

“This, of course, faces us with a further task: that of providing a semantics for ‘ $\sim(a \text{ is } F)$ ’. How does this contingent statement hook onto the world? It is rather

easy to see how ‘ $(a \text{ is } F) \vee (a \text{ is } G)$ ’ hooks on. The truth-conditions are perspicuous. Not so with negation” (*CTP*: 48-9)

Armstrong then proceeds to investigate the *semantics* of negation (*CTP*: 92-7). For only so, Armstrong realises, will it be possible to establish whether negative states of affairs or universals are required as truth-makers (or constituents of truth-makers) for sentences that contain the negation sign. It should therefore come as no surprise that in his most recent work Armstrong describes the truth-maker relation as “in a broad sense, a semantic relation” (see his 2004: 37). Clearly, if I am an S-philosopher then Armstrong is too. But it would be better to say that neither Armstrong nor I are S- or M-philosophers. The distinction that von Wachter draws between these positions is far too crude to usefully further debate.

5. *Ontological Reductionism*

How could this be? How could there be such confusion surrounding what Armstrong is really about? Confusion has arisen because Armstrong has presented not just one but two theories of modality. This does not mean that Armstrong is confused, only that if we are to understand him we must unravel the different threads from which his view is woven.

We have seen Armstrong offer a conceptual reduction in *CTP*. In *WSA* Armstrong does not abandon this theory—he still holds on to the hope that his combinatorial analysis will succeed in reducing modality.⁴ But Armstrong also proposes an ontological reduction of modality. Unlike a conceptual reduction, an ontological reduction does not aim to translate modal claims into non-modal claims. Instead it attempts to display how the truth or falsity of modal statements depends upon the configurations of an underlying ontology. Armstrong’s basic idea is that the class of simple elements (particulars and universals) should serve as truth-makers for modal truths. So, for example, the mereological sum of the particulars a and b and the relation R ($a+R+b$) serves by Armstrong’s reckoning as truth-maker for the statement that $\Diamond aRb$. In other words, if $a+R+b$ exists then “ $\Diamond aRb$ ” must be true.

⁴ See *WSA*: 147, 154, 160-1 and 268. Armstrong does make some changes to his earlier theory—he gives up the appeal to possible worlds conceived as fictions and upgrades alien universals from merely conceptual to genuinely metaphysical possibilities (*WSA*: 166-7, 172). But these differences are not significant for present purposes.

In what sense is a theory of this kind reductionist? It may not be designed to translate modal claims into claims of some other sorts but Armstrong still intends this theory to avoid a commitment to merely possible states of affairs. This Armstrong achieves by restricting the class of truth-makers for modal statements to the plurality of actually existing elements. But Armstrong also wishes his theory to achieve something else. He wishes his new theory to display in a “perspicuous manner” how the necessary modal truths—the exclusions and incompatibilities—arise from the underlying combinations of simples included in his ontology (*WSA*: 147). This perspicuous display is to be provided by appealing to the internal relations of identity and difference that obtain between the constituents of the truth-makers:

“The truthmaker or truthmakers for a particular modal truth will make that truth true in virtue of nothing more than the relations of *identity* (strict identity) and *difference* holding between the constituents of the truthmaker” (*WSA*: 150).

How is such a theory supposed to function? Where necessary truths are at issue the theory appeals to the (strict) identities—often partial—that obtain between the particulars and universals involved (*X* is partially identical to *Y* just in case *X* shares a part with *Y*). To fix ideas consider one of the simplest patterns of necessitation for which Armstrong’s theory accounts—the pattern in which the instantiation of a conjunctive universal (*P* & *Q*) necessitates the instantiation of its conjuncts (*P*, *Q*). According to Armstrong, the instantiation of the conjunction necessitates the instantiation of its conjuncts because the former is a complex universal that contains the latter as proper parts (*WSA*: 51-2). Because *P* and *Q* both are proper parts of *P*&*Q* whatever instantiates *P*&*Q* *eo ipso* instantiates *P* and instantiates *Q*. In this way the partial identity of conjunctive universals and their conjuncts provides a basic model of the way in which the necessary connections between universals may be seen to perspicuously flow from the internal relations—in this case the relation of partial identity—that obtains amongst them.

To account for more complicated patterns of necessitation Armstrong extends this basic model by appealing to more complicated arrangements of overlapping particulars and universals. Consider the necessary truth that nothing can be 5 kg and 1 kg in mass. According to Armstrong, this necessary truth is grounded in the partial identities that obtain between (i) the *five kilogram* universal and the *one kilogram* universal and (ii) the

particulars that instantiate these universals. According to his account, the latter universal overlaps the former universal in such a way that anything *P* that instantiates the *five kilogram* universal has a proper part *P-* that instantiates the *one kilogram* universal (*WSA*: 54, 144-5). It follows—Armstrong maintains—that no particular can simultaneously instantiate both universals at once. For then a particular would—*per impossible*—be identical to one of its proper parts ($P = P-$).⁵

Whatever other criticisms may be made this strategy for providing a perspicuous account of necessary truths has an inbuilt limitation. It will not apply to truths that describe necessary connections between distinct but nevertheless *simple* particulars or universals. This is because the account presupposes that there are relations of partial identity, relations the obtaining of which requires the presence of a complex element which other simpler elements overlap. But if the necessary truths in question concern only simple elements then relations of partial identity cannot obtain.

Armstrong attempts to overcome this limitation by denying that there are necessary truths involving simple but distinct elements for his theory to accommodate. Once again Armstrong endeavours to discredit in advance any account that allows for such connections by pointing out the mysterious epistemology of irreducible *de re* incompatibilities (“It would certainly be difficult to integrate this account into cognitive psychology”). But Armstrong also alludes to what he takes to be far “more serious difficulties”:

“The simplicity of the universals involved creates a problem. What foundation can there be in these simple entities for the entailments and exclusions? It would seem that these relationships must forever be opaque to the intellect, inexplicable in the same way that ultimate contingent truths are opaque. They are truly brute necessities” (*WSA*: 157).

Voicing his philosophical predilections as a latter day Hume Armstrong so dismisses the idea of necessary entailments and exclusions amongst simple elements. He affirms instead:

“a natural thought, at least within the Humean tradition of thinking about possibility that the existence of one of these thin particulars never entails and never excludes any other. What about the simple properties and simple

⁵ It seems to me that this argument does not succeed even on its own terms. See MacBride 1999: 483-4 for a sceptical response to Armstrong’s diagnostic treatment of modal exclusions.

relations? They too will be wholly different from each other. The simplest hypothesis about them... is the parallel idea that, first, every simple property is compossible with every other, and second, that all simple properties are compossible also, so that any n -place relation may hold or fail to hold between any n particulars” (*WSA*: 155).

But does Armstrong really have the right to reject necessary connections between distinct but simple existences? Does his “natural thought” that the simple elements are everywhere compossible really cohere with the intellectual ideals that the Humean tradition endeavours to preserve?

The correct answer to both of these questions seems to be: no. And here is the reason why. Even the simple elements of Armstrong’s ontology are necessarily connected. Let it be granted that, as Armstrong states,

(1) any n -place relation may hold or fail to hold between any n particulars.

When considered in isolation this principle may make it appear that n -place relations are everywhere compossible. But if we cast our view more widely we will see that the *capacity* of any n -place relation to combine with any n particulars is matched by a corresponding *incapacity* to combine with any different number of particulars. For, as the *Principle of Instantial Invariance* dictates,

(2) no n -place relation can hold between any k particulars (where $k \neq n$).

By contrast to (1), (2) makes evident that there are necessary connections present that prevent the simple but distinct elements of Armstrong’s ontology promiscuously combining. Since the elements involved are simple (2) indicates a commitment upon Armstrong’s part to an irreducible *de re* incompatibility amongst existing particulars and universals.

(2) is not the only principle that indicates a commitment of this kind. For Armstrong also endorses the principles that no particular can instantiate another, no universal can exist uninstantiated, and so on. These are general or framework principles that exclude the possibility that simple but distinct particulars and universals combine in certain ways.⁶ Hume’s scepticism concerning necessary connections between distinct existences

⁶ For other examples ‘framework’ principles governing the elements of Armstrong’s ontology that generate necessary connections see MacBride 1999: 485-93.

led him to endorse a metaphysic of elements that are “entirely loose and separate”. We now see that Armstrong’s commitment to framework principles governing the behaviour of simple elements with distinctive modes of combination—distinctive of n -place relations, distinctive of particulars, and so on—prevent him from endorsing a metaphysic of this kind, one free of necessary connections between distinct existences.

5. *Conclusion*

What does this show? It shows that Armstrong not only fails to provide a conceptual reduction of modality but that he also fails to provide an ontological reduction. A theory is reductionist in this latter sense (recall) if it displays in a “perspicuous manner” how the necessary modal truths—the exclusions and incompatibilities—arise from the underlying combinations of simples. But because the elements that framework principles govern are simple the strategy that Armstrong develops for displaying how exclusions and incompatibilities arise cannot apply to them. The fundamental modal truths expressed by framework principles are left “brute”, “opaque to the intellect”.

How best to respond to this situation? Hume was able to advance a thoroughgoing rejection of necessary connections because he was a nominalist—his ontology ultimately consisted of just one category of simple particulars. The difficulties that arise for Armstrong result (in part) from his rejection of nominalism in favour of realism, an ontology consisting of two different categories—the particulars and the universals—the elements of which behave in irreducibly distinct ways. One response to these difficulties would be to reject realism in favour of nominalism. Another response would be to follow Ramsey’s lead and undertake a radical overhaul of realism (see his 1925). To do so would be to deny that the categorical differences are what they seem, and to abandon as unfounded the conviction that particulars and universals behave in the irreducibly distinct ways tradition supposes.

However, it is difficult to avoid the impression that neither of these alternatives really takes us to the root of the difficulties that reductionism encounters. For these difficulties are also generated by the assumption the necessary connections are—unless reduced—opaque to the intellect. This raises the question whether by taking this assumption for granted we impose far too high a threshold upon the requirements for genuine understanding. Hume imposed such a high threshold because, famously, he was in the grip of an empiricist theory of understanding. But this theory

has been found wanting in so many regards and few, if any, of us are now empiricists in Hume's sense. It is correspondingly doubtful whether fundamental modal truths—even those that express necessary connections between distinct existences—should be subjected to reduction in order to legitimate our intellectual grasp of them.⁷

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⁷ Thanks to Daniel Nolan and Stephanie Schlitt for discussion. I am also grateful to the Leverhulme Trust for the award of a Philip Leverhulme Prize that provided the opportunity to write this paper.