TROUBLES WITH PEACOCKE'S RATIONALISM. A CRITICAL STUDY OF *THE REALM OF REASON*

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In his latest book, *The Realm of Reason*, Christopher Peacocke sketches and partially develops an ambitious programme he calls "generalised rationalism", which holds that "all entitlement has a fundamentally a priori component" (RR, p. 2).[1] By "entitlement" he means a certain kind of positive epistemic right one may have for making certain transitions among intentional states, for example, transitions from perceptual states to perceptual judgements or transitions from certain premises to a certain conclusion. The central thesis of his generalised rationalism is that in all instances of such transitions there is an a priori element that plays a constitutive role in entitling us to the transitions. He argues for the central thesis of his programme by attempting to demonstrate with respect to various kinds of transitions we are entitled to make that there is such an a priori entitling element.

Peacocke's rationalism differs from rationalist views that preceeded it in various respects. One difference is precisely that it attempts to *generalise* an insight that Peacocke finds in classical rationalists such as Frege and Gödel, and more remotely in Leibniz, according to which the truth-conducivity of a transition to which a thinker is entitled must be explicable in terms of the nature and individuation conditions of the states involved in the transition (RR, p. 52). Peacocke thinks those rationalists applied this insight only to what he calls "outright a priori" transitions (RR, p. 33). He attempts to apply the insight elsewhere, to all transitions a thinker is entitled to make. In carrying out his programme, Peacocke relies on

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[1] All references to *The Realm of Reason* are given parenthetically in the text with the abbreviation "RR". All other references are given in footnotes as usual.

his previously developed theory of concept possession (see section 3 below) and this also distinguishes his position not only from that of classical rationalists but also from that of other more recent ones. In particular, his appeal to his own theory of concepts makes his rationalism be of a *moderate* kind, occupying a middle-ground between two extremes: on the one hand what he calls "faculty rationalism" (RR, p. 153), a position he finds in Gödel and Penrose, which posits a misterious faculty of intellection to account for our knowledge of a priori truths, and on the other what he calls "minimalism" (RR, p. 154), a position he himself embraced earlier in his carreer, which leaves too much without explanation concerning the rational acceptance of primitive a priori truths. Peacocke's moderate rationalism is meant to escape both extremes. But his rationalism is not the only moderate position in the field these days; as he points out there are other contemporary moderate rationalists, such as Bonjour and Bealer. Peacocke underlines that his position differs from theirs again in the particular theory of concepts he uses to carry out his programme, as he puts it in "the specific account of particular concepts, their possession, and how the nature of those concepts can contribute to the explanation of a priori status" (RR, p. 156).

Peacocke's project is guided by three desiderata that jointly define his generalised rationalism, he formulates them as three principles:

[P I] Principle I: *The Special Truth-Conduciveness Thesis*

A fundamental and irreducible part of what makes a transition one to which a thinker is entitled is that the transition tends to lead to true judgements (or, in cases where the transition relies on premises, tends to do so when its premises are true) in a distinctive way characteristic of rational transitions. (RR, p. 11)

[P II] Principle II: *The Rationalist Dependence Thesis*

The rational truth-conduciveness of any given transition to which a thinker is entitled is to be philosophically explained in terms of the nature of the intentional contents and states involved in the transition. (RR, p. 52)

[P III] Principle III: *The Generalised Rationalist Thesis*

All instances of the entitlement relation, both absolute and relative, are fundamentally a priori. (RR, p. 148)

Chapter 1 of Peacocke's book supports [P I] by underminig views that attempt to prescind from truth and truth-conducivity in the explanation of entitlement and rationality in general. [P II] is the specifically rationalist constraint on the explanation of entitlement that Peacocke seeks to generalise; chapter 2 sets out in broad outlines how an explanation of entitlement constrained by [P II] must be developed. When a type of entitling transition is shown to be truth-conducive in accordance with [P II] Peacocke says that it is "fundamentally a priori"; [P III] asserts that all entitling transitions are fundamentally a priori, this principle is discussed in chapter 6, where Peacocke also develops in detail his account of what he calls the "outright a priori", which contrasts with what he calls the "relative a priori".[2] Chapter 3 attempts to demonstrate that perceptual entitlement is fundamentally a priori, in the sense jointly defined by [P II] and [P III]; chapter 5 attempts the same kind of demonstration but with respect to our entitlement to inductive inference. Chapter 4 expounds some consequences of Peacocke's rationalist explanations for several contemporary debates in epistemology and the philosophy of mind and action. The two final chapters of this book, 7 and 8, discuss our entitlement to moral judgment and argue for the fundamentally a priori status of moral principles.

Peacocke's book displays much of his well known style. The reader must be prepared for an overflow of technicisms and contorted definitions, but these stylistic obstacles should not deter him from going through this ambitious piece by a contemporary philosopher who has done as much as anyone can in attempting to deepen our understanding of a priori knowledge.

In a paper like this it is not possible to discuss all the philosophically central issues that Peacocke addresses in his book, so I will focus on those that I think must be regarded as crucial for the success of his rationalist programme. Section 1 below raises some questions concerning [P I]; I argue that the role that Peacocke assigns to truth-conducivity in the explanation of entitlement can be shown to take him to problems familiar to other truth-centred epistemologies. In carrying out the explanatory task defined by [P II] and [P III] Peacocke makes essential use of what he calls the "Complexity Reduction Principle", section 2 discusses his use of such principle and casts some doubt on the a priori legitimacy of such uses. The rationalist claims that Peacocke defends, and those he uses in his explanations, are meant to be themselves pieces of a priori knowledge,

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[2] See section 1 below for the meaning of these technical terms.

in particular of "outright a priori" knowledge. Section 3 highlights some problems in Peacocke's account of the outright a priori and in applying such account to the philosophical knowledge he believes to be in possesion of.

1. *Peacocke's Truth-Centred Epistemology*

[P I] is Peacocke's way of formulating the core insight of traditional reliabilism: that justification of a belief is necessarily constrained by the reliability of the method used to reach the belief. Although he talks of entitlement instead of justification, Peacocke's thought is structurally the same as classic reliabilism: the epistemic quality he aims to explain is held to be constrained by truth-conducivity. But the role that Peacocke assigns to truth-conducivity in constraining entitlement differs substantially from that of traditional reliabilism. Unlike traditional reliabilists, Peacocke qualifies the truth-conducivity necessary for entitlement with the last sentence of [P I]: the transitions to which one is entitled must be truth-conducive in a "distinctive way characteristic of rational transitions". He intends this qualification to imply that "pure reliability of a transition is not by itself enough to make the transition entitling" (RR, p. 11). It is natural to think that the qualification Peacocke wants is to be cashed out as the constraint imposed by [P II] on the explanation of truth-conducivity that yields entitlement. The idea would then be that the truth-conducivity, which is constitutive of entitlement, is precisely that which can be explained from the nature and individuation conditions of the intentional states involved; the truth-conducivity of a transition, which is *accidental* relative to those conditions, would not be enough for entitlement. However, this is *not* the qualification that Peacocke has in mind. As his reference to Bonjour's work[3] suggests (RR, p. 12), in thinking that mere truth-conducivity is not enough for entitlement Peacocke has an eye on the types of cases famously used by internalists to refute crude forms of reliabilism. Such cases describe a subject who possess a truth-conducive method of belief-formation but who is seriously irrational in holding the beliefs he holds, for example, by disregarding evidence that undermines his belief or simply by lacking anything that can be taken as a ground on which to base his belief. Like many other philosophers, Peacocke also believes that such cases show that truth-conducivity is not enough for entitlement and hence adds the condition that, in order

[3] See Bonjour 1985, chapter 3.

to be entitling, a transition must be "rational from the thinker's own point of view" (RR, p. 101). *This* is the qualification Peacocke wants for the truth-conducivity constitutive of entitlement. Eventually, Peacocke explains the nature of that condition by saying that in making a rational transition to a judgement that *p* the thinker must *appreciate* that his grounds or reasons for the transition to the conclusion that *p* fulfil a condition for being adequate grounds for the content of his judgement (RR, p. 176). This explanation of the desired rationality condition for entitlement is strikingly similar to those given by internalist philosophers who also thought that truth-conducivity was not enough for justification. They typically cashed out the extra-condition as a higher-level requirement to the effect that the subject must know or justifiably believe that his grounds or reasons for belief meet a certain condition of adequacy for being a ground or a reason. Peacocke's condition that the subject must *appreciate* that his grounds are indeed adequate support for his belief constitutes a higher-level requirement of exactly that sort, unless his notion of *appreciation* is neither cognitive nor doxastic, but this is extremely implausible.

In virtue of being a higher-level requirement on the adequacy of one's grounds or reasons, Peacocke's condition of rationality for entitlement faces some problems analogous to those that beset the conditions proposed by his internalist predecessors. For example, does the appreciation of one's grounds as adequate reasons require the appreciation that basing one's belief on them results in a truth-conducive method of belief-formation? If so, Peacocke's condition comes close to the condition that in order for a perceptual ground to entitle one to a certain perceptual belief one must believe (i.e. appreciate) that basing belief on such a ground is a truth-conducive way of belief-formation. But this condition overintelectualises entitlement, for it entails that only subjects equipped with the conceptual sophistication necessary to think the proposition that *basing their beliefs on such-and-such grounds is a truth-conducive way of belief formation* can be entitled to perceptual belief. On the other hand, in order to play the rationalising role expected of it, it would seem that the second-level belief concerning the adequacy of the grounds for the first-level belief should not be a mere whim; it must be itself a rationally held belief. If it is rationally held, that would be arguably because it is held on the basis of some adequate grounds; but then here we will have another instance of a transition from grounds to belief, and Peacocke would seem to be committed *pari passu* to require a condition for the rationality of *this* transition analogous

to the condition for rationality he required for the transition to the first-level belief. In this case, however, we have the beginnings of an infinite regress, for in order to satisfy the rationality condition for the transition to the second-level belief we would need to attain a rational belief to the effect that the grounds of the transition to the second-level belief are truth-conducive, and in order for such a third belief to be rational one would have to believe that the grounds of the transition to such third-level belief are truth-conducive and so on *ad infinitum*.[4]

The first step in developing Peacocke's rationalist programme is endorsing a truth-centred epistemology as embodied in [P I], but he wishes to qualify the role he assigns to truth-conducivity in order to distinguish his position from some forms of traditional reliabilism. However, his qualified view resembles other forms of traditional views, those that have typically opposed reliabilism and which are hunted by prototypic problems which Peacocke's own view, despite the theoretical sophistication in which it is embedded, is also bound to face. In this respect, Peacocke's version of a truth-centred epistemology does not appear to escape some of the problems that have traditionally beset his predecessors.

Peacocke is one of several influential philosophers who, with different theoretical motivations, have been developing in recent years notions of entitlement which overlap and differ in interesting ways. Tyler Burge, for example, has elaborated a notion of entitlement applied to perceptual belief that is closely related to Peacocke's.[5] Like Peacocke Burge also thinks that brute reliability is insufficient for entitlement, but unlike Peacocke he wisely avoids adding a further condition in the form of a higher-level requirement. The condition that Burge adds is rather that the reliability that is constitutive of entitlement is one that is grounded on the natures and individuation conditions of the perceptual states involved.[6] As we have pointed out, Peacocke could have said something exactly along such lines, for that would be substantiated by his [P II]. Although such a view might have problems of its own and probably would not satisfy the internalist intuition of making the transitions rational "from the thinker's own point of view", it would at least save Peacocke from the troubles

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[4] For a discussion of overintellectualisation, the threat of infinite regress and other problems faced by higher-level requirements on justification, see Alston 1991.

[5] See Burge 2003.

[6] Burge 2003, pp. 532–538.

that derive from his embedding a traditional higher-level requirement into his account of entitlement.[7]

The second desideratum in Peacocke's rationalist programme [P II] says that "the rational truth-conduciveness of any given transition to which a thinker is entitled is to be philosophically explained in terms of the nature of the intentional contents and states involved in the transition" (RR, p. 52). Peacocke thinks that classical rationalists like Leibniz, Frege and Gödel were primarily concerned with what he calls "outright a priori" entitlements, that is entitlements that do not constitutively depend upon *any* of the thinkers' perceptual experiences or other conscious states. The proof of a mathematical theorem is an example of this. The entitlement to the transition from the premises of the proof to the conclusion is outright a priori in the sense that it does not constitutively depend upon any of the thinkers' perceptual experiences (RR, p. 24); of course, one may need perceptual aids in effectuating the transition, for example, by seeing the proof written on a piece of paper, but the perceptual experiences thus involved do not play, according to Peacocke, any entitling role. They are more like a vehicle for the true entitling condition, which in this case is a structure of propositions or Fregean thoughts (RR, p. 25). Peacocke thinks that it is the hallmark of classical rationalism to explain the truth-conducivity of outright a priori transitions in terms of the nature of the intentional contents involved in such transitions, but it is the hallmark of his own rationalism to generalise this idea to *all* transitions to which a thinker is entitled. This is indeed the central thesis of *The Realm of Reason*. Peacocke's central argumentative strategy to support that generalisation is to argue by example, that is to say, he attempts to show in some detail how the truth-conducivity of various types of transition which are *not* outright a priori can nevertheless be explained in terms of the nature of the intentional contents and states involved in the transition. The case he devotes most time to is that of transitions from perceptual experiences to perceptual belief (RR, ch. 3), but he also discusses the case of transitions prototypic of enumerative induction, i.e. transitions from finite bodies of evidence $Fa_1 \& Ga_1 \ldots$

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[7] Other philosophers who have recently developed notions of entitlement are Crispin Wright and Martin Davies. Unlike Peacocke's and Burge's notions, theirs do not apply to ordinary perceptual beliefs, nor to ordinary beliefs of other sorts, but to some special kinds of doxastic attitudes that have as their content certain propositions to the effect that some overarching conditions for the proper functioning of cognitive capacities hold in place. For a description of this notion of entitlement and the theoretical role it is made to play see Wright 2003 and Davies 2003.

$Fa_n\&Ga_n$ to conclusions of the form "all Fs are G" (RR, ch. 5). In Peacocke's terminology these transitions, which are not outright a priori, are still a priori in some sense he calls "relative a priori", by which he means that given only that the thinker has certain empirical evidence —for example, given only that she has a certain perceptual experience E— she is thereby entitled to a certain belief without her entitlement depending on *any other* auxiliary empirical evidence; she has that entitlement a priori relative to experience E (RR, p. 26). This use of "a priori" qualified by "relative" is quite unorthodox, but the point Peacocke wants to make by subsuming all forms of entitlement to one or another category of apriority is sufficiently clear; for him what truly unifies all cases of entitling transitions is that their truth-conducivity can be explained in terms of the natures of the intentional contents involved in them, this is what makes them all "fundamentally a priori", as the third principle [P III] of his rationalism holds.

2. *Complexity-Reduction as an A Priori Explanatory Tool*

It is time to review how Peacocke actually explains the truth-conducivity of specific types of transitions in accordance with [P II] and [P III]. As an example of a relatively a priori transition we will discuss his treatment of perceptual entitlement, for it is the one he develops in most detail. We will discuss his treatment of the outright a priori in §3.

Not all transitions from perceptual experiences to perceptual judgement are relatively a priori, Peacocke spends some time identifying those that are. The subclass of transitions that Peacocke targets is that which involves perceptual experiences with what he calls "instance-individuated contents" ("i-i contents", hereafter), which he characterises as follows: "What makes these perceptions have the content they do is the fact that when the subject is properly related to the world the holding of these contents causally explains such perceptual experiences" (RR, p. 69). Examples of experiences with i-i contents are experiences that *that's square* or that *this is a sharp edge*, for when the subject is properly related to the world the holding of those contents causally explains the occurrence of those experiences. Experiences with contents such as *that's a Mac computer* or *those are Swedish people* are not instance-individuated (RR, p. 66), for even when the subject is properly related to the world, experiences with those contents may not be causally explained by the holding of the correctness condition for those contents. Peacocke

holds that a transition from perceptual experiences with i-i content to a judgement that endorses such content is relatively a priori because the entitlement to endorse the content does not depend on *any other* empirical information apart from the particular experience with that i-i content: "A perceptual experience which represents a content as correct and which is instance-individuated with respect to that content is also one which entitles a thinker to judge that content, in the absence of reasons for doubting that he is perceiving properly" (RR, p. 70).[8]

So for Peacocke the only perceptual transitions whose truth-conducivity can be explained in terms of the nature of the intentional contents involved in them are those from experiences with i-i contents. What does it mean to explain their truth-conducivity in such terms? For Peacocke it means to *prove —using only a priori truths concerning the nature and individuation conditions of the perceptual states with i-i contents—*, that the transitions from such states to judgements that endorse such contents are truth-conducive. Constructing such an a priori demonstration of the truth-conducivity of the targeted transitions is what Peacocke calls the "philosophical explanation" of the existence of the entitlement to make such transitions (RR, pp. 97–98). He presents such an a priori demonstration at RR, pp. 80–99; we can summarise it as follows:

1. The occurrence of perceptual states is a complex event.

2. Explanations that best reduce complexity show the easiest way for things to come about.

3. Explanations that show the easiest way for things to come about are the most likely to be true.

4. Explanations that best reduce complexity are the most likely to be true. (From 2 and 3)

5. A Natural Selection (NS) explanation of the occurrence of perceptual states best reduces complexity.

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[8] There are many important questions concerning Peacocke's characterisation of i-i perceptual contents, but here we need not go into those questions, as none of our criticisms below depends on the specific characterisation of experiences with i-i contents he offers. For the sake of brevity, in what follows we will sometimes talk about perceptual states without qualification, but it must be understood that we are talking only about perceptual states with i-i contents in Peacocke's sense.

6. Therefore, a (NS) explanation of the occurrence of perceptual states is the most likely to be true. (From 4 and 5)

7. A (NS) explanation of the occurrence of perceptual states implies that they are predominantly veridical.

8. Therefore, on the most likely explanation perceptual states are predominantly veridical. (From 6 and 7)

9. Therefore, transitions from perceptual states to belief are predominantly truth-conducive.

Let us examine the meaning of the central terms in this argument and the way in which Peacocke presents the inferences in it.

Peacocke introduces the notion of complexity reduction with some illustrations, where a good explanation of some complex conditions of type X is one that does not cite an explanans involving conditions of the same type X. One of his illustrations concerns the explanation of the hexagonal structure of snowflakes. The explanation does not cite hexagonal structures at a different level to explain the hexagonal structure of the whole snowflake; it cites different types of facts, for example, that frozen oxygen molecules are roughly spherical and arranged in a plane, and that the most efficient way of arranging spheres in a plane results in a hexagonal shape. Peacocke points out that we give good marks to explanations that do not repeat the same type of complexity: "The correct explanation of the shape of snowflakes does not leave us with the same complexity again at another level. It reduces —in this case it eliminates— that kind of complexity" (RR, p. 78). Similarly, the explanation of the occurrence of an intentional state should not repeat the same type of state in its explanans: "Any explanation of how the subject comes to be in that state, an explanation that accounts empirically for the presence of this complexity, must not simply presuppose similar intentional complexity" (RR, p. 85). Peacocke goes on to elaborate the notion of complexity implicit in these judgements as follows:

> When there is an explanation of a complex property of some object or event, there is an explanation of why the object or event has a property which falls within a narrow range of the space of possible properties of that object or event. Shapes with hexagonal symmetry form a small subset of the geometrically possible shapes for a quantity of a frozen liquid. What needs to be explained is why the shapes of actual snowflakes fall within that narrow subset. (RR, p. 81)

This means that the hexagonal shape of a snowflake is a complex property of this object because hexagonal shapes are a small subset of the set of possible properties the snowflake could have in respect of its shape. Accordingly, if hexagonal shapes formed a bigger subset of the possible properties the snowflake could have in respect of its shape, having a hexagonal shape would be a less complex property; and if the sets of actual and possible properties of the snowflake in respect of its shape coincided there would be no explanation of why the actual property falls in a narrower range from a wider range of possibilities it could have, simply because there wouldn't be a wider range of possibilities available for it. *A fortiori* there would be no complexity *reduction* explanation for such a necessary property. We can formulate this notion of complexity saying that the complexity of a property X of an object or event M is proportional to the ratio:

[COMPLEX] Possible properties of M in respect Y / Actual property X of M in respect Y.

If the ratio [COMPLEX] is high the complexity of property X is proportionally high; if it is low, the complexity of property X is proportionally low.

According to Peacocke "[a]ny explanation of complexity as I am conceiving it must explain more complex states by less complex states" (RR, p. 82). Given the above notion of complexity this means that an explanation of a complex property $X1$ of an object or event $M1$ that reduces complexity does so by citing an explaining property $X2$ of an object or event $M2$, such that the ratio: possible properties of $M2$ in respect $Y2$ / actual property $X2$ of $M2$ in respect $Y2$, is *lower* than the corresponding ratio for the property $X1$ to be explained. But then it becomes unclear whether the explanation of the hexagonal shape of snowflakes that Peacocke mentions really reduces complexity in *this* sense. For that explanation cites the condition that oxygen molecules in frozen water have roughly spherical shape and it is unclear why we should regard the property of this explaining condition, i.e. having spherical shape, as less complex than the property of the condition to be explained, i.e. having a hexagonal shape. The following ratio: possible properties of frozen oxygen molecules in respect of their shape/actual property of frozen oxygen molecules of having a roughly spherical shape, seems to be *at least as high as* the ratio: possible properties of snowflakes in respect of shape/actual property of snowflakes of having hexagonal shape; for hexagonal shapes and spherical shapes form an *equally* small subset

of all possible geometrical shapes. If this is so then the explanation
Peacocke describes as an example of complexity reduction does not
really reduce complexity in the special sense he elaborates.

In §3 below we will come back to the significance of the mismatch
between Peacocke´s notion of complexity reduction and the examples
he gives of it. He uses reduction of complexity as a criterion for good
explanations. That is what his Complexity Reduction Principle says:

> Other things equal, good explanations of complex phenomena explain
> the more complex in terms of the less complex; they reduce complexity.
> (RR, p. 83)

If our explanation does not reduce complexity in his sense, "one will
have explained the apparently unlikely in terms of the apparently
unlikely. One will not have shown how the complexity could easily
have come about" (RR, p. 82). So, the less complex conditions that a
complexity reduction explanation cites as its explanans are conditions
that could easily come about. This is premise (2) in his argument.
Peacocke also holds that conditions that could easily come about are
more likely to come about (this is premise (3)):

> other things equal, complexity reducing explanations of complex phe-
> nomena are more likely to be true than those that do not reduce com-
> plexity. (RR, p. 95)
> [T]he fact that an explanation reduces complexity counts in favour of
> its confirmation, because it is an explanation that does not make it hard
> or excessively improbable for the postulated explaining condition to be
> true. (RR, p. 97)

According to Peacocke, applying the principle of complexity reduc-
tion to the complex phenomenon of the occurrence of perceptual
experiences, we find that its best explanation, i.e. the one that best
reduces complexity, is a Natural Selection (NS) explanation (premise
(5)), which says that perceptual states "are produced by a device
which has evolved by natural selection to represent the world accu-
rately to the subject" (RR, p. 87). This means that the explanation
of perceptual experiences that most reduces complexity happens to
be one which predicts that perceptual experiences of creatures like
us predominantly represent the world veridically (premise (7)). Since
the explanation that most reduces complexity is the most likely to
be true, we obtain the result that on the most likely explanation
perceptual states predominantly represent correctly:

explanations of the occurrence of experiences with instance-individuated contents which succeed in reducing complexity will also result in the representational contents of those instance-individuated experiences being predominantly correct. Such representational contents are predominantly correct in the case that is most likely, that of the complexity-reducing explanation which appeals to the evolution of a perceptual system through natural selection. (RR, pp. 97–98)

If on the most likely explanation perceptual states are predominantly veridical, then the most likely hypothesis is that transitions from perceptual states to belief are truth-conducive. This concludes the allegedly a priori argument for the claim that transitions from perceptual states to perceptual belief are generally truth-conducive, which in Peacocke's programme is the core of the philosophical explanation of our entitlement to perceptual belief.

In order for Peacocke's argument to show that the targeted perceptual transitions are fundamentally a priori, the premises of his argument must be a priori truths about the nature and individuation conditions of perceptual states with i-i contents, for only then will he have explained the truth-conducivity of the targeted transitions as the second principle [P II] of his rationalism demands. It must be noted that the argument uses at least two premises, i.e. (2) and (3), which are *not* claims about the nature or individuation conditions of perceptual states; they are rather claims that connect the notions of explanation, complexity reduction and likelihood of truth generally. Such premises then exceed the explanatory resources that [P II] seems to permit the rationalist philosopher to use. But this might not be a damaging fact for Peacocke's programme as long as such premises could be established *a priori*. The trouble, as we will see next, is precisely that the apriority of such core premises that take us from complexity reduction to likelihood of truth, i.e. premises (2)–(4), can be disputed. Even if all its premises were truths about the nature and individuation conditions of the targeted perceptual states, if the referred premises are not in fact *a priori* truths Peacocke's argument will have failed to show that the targeted transitions are fundamentally a priori.

Let us begin with the Complexity Reduction Principle (CRP) itself. Why should we accept that the criterion of *good* (and as the steps from (2) to (4) purport to show, *more likely*) explanation is that it reduces complexity in Peacocke's sense? He gives no principled argument for (CRP), he only illustrates its plausibility with a few examples (like the one about snowflakes we discussed earlier)

and highlights the dissatisfaction we would feel if the principle was violated in some instances, for example, in an explanation of how intelligence comes about that cited capacities of similar intellectual richness (RR, p. 88). But this kind of argument by example is definitely insufficient as the justification for a principle that states a criterion for acceptable explanations in *full generality* and which Peacocke treats as *a priori correct*. Moreover, as we argued above, the example of snowflakes Peacocke uses does not in fact seem to reduce complexity and so it wouldn't support (CRP).

In fact there are positive reasons for doubting (CRP). In general, given Peacocke's special sense of complexity reduction (CRP) disqualifies as bad explanations many paradigmatically *good* explanations in physical science that do not seem to reduce complexity in that special sense. In particular, all explanations that cite in their explanans a numerical constant do not seem to reduce complexity.[9] For example, the gravitational constant $G = 6.67 \times 10^{-11}$ newton $-m^2/kg$, is used to calculate, among many other things, the mass of the planets. Given Peacocke's notion of complexity reduction it is unclear why we should regard the property of having the numerical value 6.67×10^{-11} newton $-m^2/kg$ as less complex than the property of the Earth of having a mass of value 5.9742×10^{24} kg. The following ratio: possible values for the gravitational constant / actual value of the gravitational constant seems to be *at least as high as* the ratio: possible values for the mass of the Earth / actual value of the mass of the Earth, since the actual value of the gravitational force and the actual value of the mass of the Earth seem to be *equally* small subsets of all possible values for the gravitational constant and all possible values of the mass of the Earth, respectively.

In response it might be argued that in fact the range of possible values that the gravitational constant could have taken is not as large as the possible values the mass of the Earth could have taken, and so the ratio that defines the complexity of the gravitational constant is lower then the ratio that defines the complexity of the mass of the Earth. But the question would then be: how do we know that the range of possibilities for the gravitational constant is smaller than the range of possibilities for the mass of the Earth? In fact, a parallel question arises with respect to all purported examples of complexity reduction, and one central difficulty in answering such questions is that Peacocke does not explain what notion of possibility he uses in

[9] I am indebted to Marcus Giaquinto for this point about physical constants in connection with complexity reduction.

formulating his notion of complexity reduction. If it is merely *logical possibility* then the explanation of the mass of the Earth which appeals to constant G is a good explanation that does not reduce complexity for the reasons already explained; the same holds for the explanation of snowflakes' shape discussed above. If Peacocke wanted to argue that the ranges of possibilities for the gravitational constant and for the arrangement of frozen oxygen molecules are smaller than the ranges of possibilities for their respective explananda, it seems that he would have to invoke a notion of what values those explaining conditions *could have* taken informed by empirical information, possibly supplied by cosmological science and physics, respectively. It may be that these sciences have discovered that the value of the gravitational constant, unlike the value of the mass of the Earth, could not be very different from its actual value; and that the arrangement of oxygen molecules in frozen water, unlike the shape of snowflakes, could not be very different from the arrangement it actually takes. But in that case judgements about the complexity of a purported explanans relative to its explanandum would be *empirically justified*; they could not be made a priori as Peacocke needs them to be.

However, for the sake of argument let us suppose that Peacocke's (CRP) and particular applications of it can be justified a priori, and let us see if Peacocke succeeds in justifying a priori the other core premises in his argument.

Premise (2) in Peacocke's argument says that "the aim of complexity reduction in explanation is to show how the apparently unlikely can easily come about" (RR, pp. 90–91). Why should we accept *a priori* that the explanation that best reduces complexity is the one that shows the easiest way things could come about? Surely we can describe counterexamples to such a correlation. Imagine a world where all the brains that have existed in the last one thousand years have been always vatted and manipulated by a super-computer designed by an evil scientist. In that world the explanation of the occurrence of perceptual experiences which best reduces complexity in Peacocke's sense still is one that doesn't cite the intentions of an evil scientist, but that explanation does not coincide with the one that shows the easiest way for perceptual experiences to come about, for in that world the easiest way for a perceptual experience to come about is by being a hallucination produced by the manipulations of a super-computer programmed by the evil scientist. This counterexample to premise (2) exploits the fact that if the right hypothesis is in place then the easiest way for something to come about is not going to coincide with the explanation that best reduces complexity. Peacocke

is aware of the threat that this fact poses to his views and responds
by saying that he intends the judgement that aligns easiest ways with
complexity reduction not to be relativised to any hypothesis about
any empirical conditions that may hold in the world. He illustrates
the point with the explanation of how a molecule of a specified type
of DNA came into existence; he holds that relative to the empirical
information that DNA molecules already exist the easiest way for
the molecule of the specified kind to come about is for one of the ex-
isting molecules to be copied. But he holds that without relativisation
to the information that DNA molecules already exists the easiest way
for a molecule of the specified type to come about is through some
form of chemical evolution (RR, p. 92). He intends his judgement
about the easiest way for a perceptual state to come about to be of
this unrelativised kind:

> It is a claim of the unrelativised kind I intend when I say that the
> easiest way for a perceptual experience to occur is one in which it is
> unlikely to be a hallucination. The case for this claim, whether right
> or wrong, is made on philosophical grounds, and does not rely for its
> justification on empirical information attained by perception. There is
> no relativisation in this claim to conditions which are known to hold
> only on empirical grounds. (RR, p. 92)

That is exactly what the apriority of his explanation demands, i.e.
that his judgement about the easiest way for things to come into ex-
istence does not rely on any empirical information. But the example
he gives is not an argument that such *fully* unrelativised judgements
are possible. At best it illustrates independence from *one specific*
piece of empirical information. Even if we concede that the judge-
ment that the easiest way for a specific type of DNA molecule to
come into existence is through chemical evolution is not relativised
to the *specific* piece of information that DNA molecules already exist,
it remains doubtful that such a judgement is not relativised to *any*
empirical assumption at all. For instance, with what right could we
hypothesise that chemical evolution is the easiest way for a certain
type of DNA molecule to come into existence, without assuming
some knowledge of, for example, how chemical evolution acts on
other known DNA molecules? A hypothesis about the easiest way for
a type of DNA molecule to come to exist postulated in a strictly em-
pirical vacuum should look arbitrary. In any case Peacocke does not
show that a judgement *fully* unrelativised to empirical information

about the easiest way for empirical conditions to come into existence is possible; his illustration leaves this question open.

What should we say about premise (3), which connects easiest ways with likelihood of truth? Schematically, premises (2) and (3) give us these connections:

Complexity reduction — Easiest way for X to come about — Most likely to be true
                                        (2)   (3)

We do not need to enquire whether the connection between the easiest ways and the most likely ones, i.e. premise (3), can be established a priori; for even if it could we have argued that Peacocke fails to show that the connection between complexity reduction and easiest ways, i.e. premise (2), is establishable a priori. Therefore, he hasn't shown either that the connection between complexity reduction and likelihood of truth, i.e. premise (4), which is inferred from (2) and (3), is establishable a priori.

If the foregoing criticisms are correct then even if Peacocke could somehow single out a priori the Natural Selection explanation as the one that best reduces complexity with respect to the occurrence of perceptual states[10] (premise (5)), the inference to its being the most likely (premise (6)), will be mediated by (4), which itself depends on (2), and, as we have argued, he hasn't shown (2) to be establishable a priori. For this reason Peacocke's abduction in favour of the explanation that predicts that perceptual states are predominantly veridical cannot be regarded as a priori. Therefore, Peacocke's argument does not constitute an *a priori* case for the claim that transitions from perceptual states to belief are truth-conducive; he has not fulfilled one of the central desiderata of his rationalist explanation.

Peacocke uses (CRP) and the premise that links complexity reduction with the easiest ways for things to come about in the argument that purports to show a priori that inductive transitions are truth-conducive (RR, pp. 134, 147), and he clearly thinks that the same premises can be used to demonstrate a priori the truth-conducivity of *all other* types of transitions to which we have a non-conclusive

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[10] But Peacocke also has trouble in defending the claim that the Natural Selection explanation is the one that best reduces complexity with respect to the occurrence of perceptual states, as he acknowledges: "The argument is open ended in that I have not shown that explanations by natural selection of the existence of perceptual systems provide the only satisfactory explanation of complexity that succeeds in reducing complexity. I have not proved that there are no others: I have merely not been able to construct any" (RR, p. 98).

entitlement (RR, p. 106). Those premises then are central to his rationalist project; to that extent the considerations used above to cast doubt on their apriority undermine not only his case concerning perceptual transitions, but a general form of argument pivotal to his rationalism as a whole.

3. *The Outright A Priori and Self-Applicability*

Let us now move to Peacocke's treatment of the outright a priori. His account of what makes a way of coming to know a proposition an outright a priori way relies on his previous work on concept possession, as developed in Peacocke (1992) and elsewhere. In that work he sets out a theory according to which a concept C is individuated by the conditions a thinker must satisfy in order to possess C, and he describes such possession conditions as the thinker finding "primitively compelling" certain inferential practices which contain concept C. For example, the possession condition for the concept *and* is that the thinker finds primitively compelling the introduction and elimination rules for conjunction.[11] Peacocke couples this conception of what individuates a concept with a further theoretical device he calls "Determination Theory", which is meant to assign semantic values to concepts under the constraint that the assignments must render the inferential practices mentioned in the possession conditions for the concepts truth-preserving. In this way the determination theory for a concept "will validate as correct the judgemental and inferential practices mentioned in the possession conditions" (1992, p. 139). For example, the determination theory for the concept *and* assigns to it the standard truth-function for conjunction as its semantic value; for this is the assignment that makes the inference rules mentioned in its possession conditions truth-preserving. Peacocke's theory of concepts has been criticised on many scores,[12] we will not go into any of those criticisms here. In as much as his account of the outright a priori presupposes his account of concept individuation, the problems of the latter are bound to generate problems for the former; however the troublesome aspects in his account of the outright a priori we will mention below do not, at least immediately, trace back to problematic aspects of his theory of concept individuation.

Peacocke gives this characterisation of the outright a priori:

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[11] See Peacocke 1992, p. 6.
[12] For some of the most recent criticisms see Davis 2005.

> An outright, non-defeasible, way of coming to know p is an a priori way if the possession-conditions for the concepts in p together with the Determination Theory jointly guarantee that use of that way leads to a true belief about whether p is the case. Similarly, a transition from one set of contents to a given content is an a priori transition if the possession-conditions for the contents involved together with the Determination Theory jointly guarantee that the transition is truth-preserving. (RR, p. 172)

Peacocke calls this explanation of the outright a priori "Metasemantic Theory" of the a priori. One initial problem in assessing the plausibility of such explanation is that Peacocke contents himself with illustrating its adequacy with the same elementary examples involving logical connectives he used in *A Study of Concepts*. His preferred example is once again that of a propositional content containing the concept of conjunction. Given that a possession condition for conjunction is that the thinker finds transitions from (A and B) to A compelling and that the Determination Theory for conjunction is constrained to validate such transitions as truth-preserving, surely "it is thus a consequence of the possession conditions for conjunction, together with the Determination Theory, that when (A and B) is true A is true. That, according to the metasemantic theory, is why the transition is a priori" (RR, pp. 172–173). But the realm of the outright a priori, by Peacocke's own lights, extends far beyond elementary cases of that sort, yet he gives no indication of how to deploy his metasemantic theory to more complex cases. Maybe he thinks that to work out such applications of his theory is a relatively straightforward matter; but it is not. We will come back to this point below.

Peacocke does recognise some explanatory limitations of his metasemantic explanation of the outright a priori, but the supplementations he envisages for his theory in order to account for problematic cases are poorly argued for. For example, he thinks that there are a priori truths involving a concept C which do not follow from the principles mentioned in the possession conditions for C. He exemplifies the point with the concept *whole number* and the a priori truth that any whole number has only finitely many predecessors (RR, p. 180). He believes that our a priori knowledge of this truth cannot be explained with the metasemantic theory simply because that truth cannot be deduced from the principles mentioned in the possession conditions for the concept *whole number* that are validated by the

Determination Theory for that concept. Peacocke explains our a priori knowledge or implicit conception of the problematic truth not written into the possession conditions for the concept *whole number* by supplementing the metasemantic theory with the postulation of tacit knowledge of some condition something must satisfy in order to fall under the concept *whole number*. He holds that such tacit knowledge of the condition explains the pattern of application of the concept and believes that a thinker's reflection on his own practice is the means through which he can extract the part of the implicit conception underlying his use that is necessary to rationally accept the a priori truths not written in the possession conditions for the concept *whole number* (RR, pp. 180–181).

There are several important questions concerning the plausibility of this supplementation of his metasemantic theory that Peacocke does not discuss. For example, he writes: "That tacit knowledge of one condition rather than another underlies undestanding is shown by the thinker's pattern of application of the concept in question" (RR, p. 180). But why should we accept that a given pattern of application justifies ascribing to the thinker tacit knowledge of one condition rather than another? The attempt to give an answer to this question immediately brings to mind the Wittgenstenian considerations on following a rule, which precisely question the justifiability of making any such determinate ascriptions to a thinker in trying to explain his patterns of linguistic application. Peacocke does not comment on this apparent difficulty for his supplemented explanatory resources, nor, for that matter, does he explain why that would not be a difficulty for his approach.[13]

Peacocke used to think that the content of the tacit knowledge or implicit conception that explains our patterns of application is a *definition*,[14] and a definition is a statement of the conditions necessary and sufficient for something to fall under the defined concept. It is not clear if he still conceives the content of implicit conceptions as definitions, he just says that such content is a "condition for something to fall under the concept" (RR, p. 180), which is ambiguous between a necessary, a sufficient or a necessary and sufficient condition.

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[13] In his 1998, pp. 76–77, Peacocke does briefly mention the problem of following a rule in connection with his use of tacit knowledge. His remarks raise more questions than the ones they answer, but this is no the place to go into these issues. One feels puzzled that he did not include a fuller discussion of these issues in *The Realm of Reason*, for they seem central to the supplementation of his explanation of the outright a priori.

[14] See Peacocke 1998, pp. 52, 63.

If he still thinks of the content of implicit conceptions as definitions there seem to be reasons to doubt that our competence in concept deployment is best explained by ascription of implicit conceptions, so understood. Such reasons can be brought out by considering that he thinks that implicit conceptions explain patterns of application not only of mathematical and logical concepts but of a huge variety of concepts, including concepts of artifacts, such as *chair*, and even moral and political concepts (RR, p. 180). But certainly the repeated failures of the "programme of analysis" constitutes substantive evidence that there are no definitions of such concepts, conceived as correct non-circular statements of necessary and sufficient conditions for something to fall under the analysed concepts. Of course, Peacocke accepts that thinkers might be unable to articulate correctly the content of their implict conceptions; but the failures we are citing here are failures of thinkers specially trained in reflection, indeed of thinkers whose job is to reflect on their implicit conceptions. On the face of such persistent failures insisting that the conceptual competence of an ordinary thinker is explained by his tacit knowledge of such elusive, and for all we know inexistent, definitions looks like the introduction of a theoretical posit we have reason to believe does not exist. It must be clear that we are not denying the reality of Peacocke's explanandum here, i.e. the a priori rational acceptance of principles not written in the possession conditions of the relevant concepts; we are only citing some *prima facie* reason to doubt that an element in his supplemented explanans, i.e. the resource of implicit conceptions, is sufficiently justified.

There are some striking lacunae in Peacocke's account of the outright a priori, they concern *applications* of the account. For instance, besides the single example concerning the concept *whole number*, which he presents to illustrate how implicit conceptions are supposed to work, there is no discussion of how to apply his explanation to our knowledge of mathematics. This lacuna is puzzling given the importance accorded to the epistemology of mathematics by those rationalists (like Leibniz, Frege and Gödel) whom Peacocke sees as his predecessors.

Peacocke claims that his metasemantic account of the outright a priori has an important virtue: that it applies to itself. He writes:

> Our philosophical theories of the a priori are not merely empirical. Any theory of the a priori must therefore be applicable to itself, if it is to be applicable. [. . .] On the metasemantic approach [. . .] the same explanation of the a priori status of philosophical knowledge can be

offered as is given for the a priori status of our knowledge of arithmetic, logic, and the rest. The metasemantic theory of the a priori draws upon our understanding of what it is for something to be a concept. To possess the concept of a concept is to have some implicit conception of something individuated by a possession-condition. (RR, p. 193)

Peacocke thinks that the knowledge the rationalist philosopher has of the metasemantic theory he uses to explain the outright a priori in various domains is itself a piece of outright a priori knowledge, and therefore it must be itself explicable using the resources of the metasemantic theory. Peacocke takes this self-applicability to be a binding condition on the adequacy of any explanation of the a priori, and believes that his metasemantic explanation fulfils such a condition. Whether this is so is an interesting question that he barely touches on in the paragraph just quoted and the following lines. But even if we grant that his knowledge of the metasemantic theory is explicable through the metasemantic theory itself, there would still be the question of whether other pieces of arguably outright a priori knowledge that he also exploits in carrying out his rationalist programme can be explained using the metasemantic theory. For example, we saw earlier the pivotal role he assigns to the Complexity Reduction Principle and to the claim that explanations that best reduce complexity show the easiest way for things to come about, in the purportedly a priori demonstrations of the truth-conducivity of various kinds of transitions. Peacocke treats both claims as a priori truths, but he can rightfully treat them so only if he can show that our knowledge of such claims is explicable along the lines of the metasemantic theory. How is such explantion to be developed? One immediately faces problems when trying to apply the metasemantic theory to the (alleged) knowledge of truths concerning complexity reduction. It might be easy, perhaps even obvious, how to reach agreement on what are the possession conditions for the concept of *conjunction*, but how are we going to identify and agree on which are the possession conditions for the concept of *complexity reduction*, for example? Peacocke gives no clue on how to do that. He does give some characterization of the concept *complexity reduction*, but as we saw earlier Peacocke himself offers as illustrations of the concept examples that do not really correspond to the concept as he understands it. We could say here that he does satisfy the conditions for possession of the concept *complexity reduction* but fails to articulate correctly the content of the corresponding implicit conception, the one that is actually operative in his classification of examples. The

task for the rationalist philosopher would then be to reflect on his theoretical uses of complexity reduction and extract a *different* definition of the concept from which the a priori truths about complexity reduction not written in its possession conditions (assuming we know which ones those are) follow. Obviously, these considerations are far from showing that some pieces of a priori knowledge that Peacocke exploits in carrying out his rationalist programme cannot be explicated with his own theory of apriority; but they suggest that he should not assume that his account can be easily generalised to cases beyond the elementary ones he discusses.

The tone of this paper has been mostly critical, but this should not conceal the value of struggling through Peacocke's challenging book. Anyone with a serious interest in understanding the nature and extent of a priori knowledge must study *The Realm of Reason* in depth.[15]

REFERENCES

Alston, W., 1991, "Higher-Level Requirements for Epistemic Justification", in K. Lehrer, and E. Sosa (eds.), *The Open Curtain. A U.S.-Soviet Philosophy Summit*, Westview Press, Boulder, pp. 9–25.

Bonjour, L., 1985, *The Structure of Empirical Knowledge*, Harvard University Press, Cambridge, Mass.

Burge, T., 2003, "Perceptual Entitlement", *Philosophy and Phenomenological Research*, vol. 67, no. 3, pp. 503–548.

Davies, M., 2003, "The Problem of Armchair Knowledge", in S. Nuccetelli (ed.), *New Essays on Semantic Externalism and Self-Knowledge*, MIT Press, Cambridge, Mass., pp. 23–56.

Davis, W., 2005, "Concept Individuation, Possession Conditions, and Propositional Attitudes", *Noûs*, vol. 39, no. 1, pp. 140–166.

Peacocke, C., 2004, *The Realm of Reason*, Oxford University Press, Oxford.

——, 1998, "Implicit Conceptions, Understanding and Rationality", *Philosophical Issues*, vol. 9, pp. 43–88.

——, 1992, *A Study of Concepts*, MIT Press, Cambridge, Mass.

Wright, C., 2003, "Some Reflections on the Acquisition of Warrant by Inference", in S. Nuccetelli (ed.), *New Essays on Semantic Externalism and Self-Knowledge*, MIT Press, Cambridge, Mass., pp. 57–78.