

*Review Article*  
***Blueprint for a Science of Mind:  
A Critical Notice of Christopher  
Peacocke's A Study of Concepts\****

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The word 'concept' is used in a variety of ways, as Frege remarked over a century ago; 'its sense', he said, 'is sometimes psychological, sometimes logical, and sometimes perhaps a confused mixture of both' (Frege, 1960a, p. 42). Despite the ambiguity of the word, it has long played a central role in philosophical discussion, and the questions of what concepts are and how we are to understand talk of them are of central importance to that self-understanding which is one of the peculiar aims of philosophy. And to the extent to which it is correct to conceive of philosophy as mapping out the conceptual structure of the world, and to see that structure as the structure within which empirical variation of theory can take place, these questions are of fundamental importance to all scientific and rational inquiry.

Despite the centrality of the concept (or concepts) of a concept in philosophy, it tends to be used in the course of philosophical inquiry rather more often than it is taken as its subject. This makes Christopher Peacocke's contribution to its discussion in *A Study of Concepts* a welcome one. As the title suggests, the book makes no pretence of being an exhaustive examination of the concept of a concept, nor of being restricted in scope to the concept of a concept. The book does not introduce and argue for a central thesis, but rather introduces a research program, and carries out a number of investigations under its guidance, which the author admits

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need further filling in and elaboration. It is nonetheless an ambitious book. For it seeks to set out a general framework for giving theories of particular concepts, and to derive important conclusions from that general framework about the nature of thought, as well as to apply it by way of illustration, and elaboration, to a variety of important concepts and kinds of concept, some which are used in the explication of the theory itself.

This workman-like book is divided into eight chapters, the first of which, on the individuation of concepts, is the most important, since it lays out Peacocke's framework for giving analyses of particular concepts in terms of their possession conditions (see also Peacocke, 1989a, 1989b). The second chapter, on system and structure, traces out some consequences of the framework developed in the first chapter. Peacocke argues that various independently plausible principles governing thought contents follow from the conditions on accounts of concepts he lays down in the first chapter. In particular, Peacocke argues that the following two principles can be derived from his general framework for giving accounts of concepts: (i) Evans's Generality Constraint, which holds that, for example, if one can think  $Fa$ , and possesses the singular concept  $b$ , which is in the range of objects which can be  $F$ , one can think  $Fb$ ; and (ii) what Peacocke calls the Productivity Principle, which holds that if one possesses the first level concept  $F$ , and one acquires the singular concept  $m$ , one can think thoughts containing  $Fm$  as a constituent. In the third chapter, Peacocke develops a general account of the possession conditions for concepts involved in perceptual contents in terms of the notion, employed in previous work, of a scenario, a set of ways of filling in the space around a perceiver compatible with the content of his perceptual representation of it (see also Peacocke, 1992). The fourth chapter deals with the metaphysics of concepts, and urges in particular that the status of concepts as abstract objects presents no obstacle to their being employed in a description of the empirical world (see also Peacocke, 1991a). The fifth chapter is likewise concerned with a possible objection to the framework for giving accounts of concepts developed earlier, namely, that the normativity of concepts and contents is incompatible with a naturalistic world view (Peacocke, 1990a). In the sixth chapter, the framework is applied to the concept of belief, which plays a central role in the account in chapter one. The seventh chapter urges that a philosophical account of concepts is relevant to psychological explanation, and, in particular, that for 'any particular concept, the task for the psychologist is not fully formulated until the philosopher has supplied an adequate possession condition for it' (p. 190; unless otherwise noted, all parenthetical page citations are to *A Study of Concepts*). (See also Peacocke, 1990b.) The final chapter develops with respect to some specific examples a treatment of the illusion of content, that is, it illustrates how to explain what occurs when one supposes one has a thought with a content when one does not, as, for example, in the case of the hypothesis of absolute space (see also Peacocke, 1988).

Many of the themes and arguments of the book (as indicated) have

appeared in Peacocke's previous work in the form of articles, but the material has been reworked for the book for presentation as a unified project. The book is densely argued, and it is beyond the scope of this review to treat every topic covered, or any of the topics fully. In the following, I will consider the basic framework, its application to the systematicity of thought, the response to potential objections in the chapters on the metaphysics of concepts and naturalism, and the treatment of the concept of belief.

### 1. Individuating Concepts

Near the beginning of the book, Peacocke tells his reader that he 'will be using the word "concept" stipulatively as follows' (p. 2):

**Distinctness of Concepts** Concepts *C* and *D* are distinct if and only if there are two complete propositional contents that differ at most in that one contains *C* substituted in one or more places for *D*, and one of which is potentially informative while the other is not.

This is perhaps a slightly misleading way of introducing his subject, since it is clear that Peacocke does not mean to be introducing an arbitrary use for the word, but rather to be identifying or introducing a use that tracks one of the principal roles for which concepts have been traditionally employed in philosophy, namely, as the shared constituents of the contents of different thoughts. In a book sometimes more difficult to read than its subject matter justifies, an account at the outset of where the author thinks his use of 'concept' fits with respect to the tradition's use of that word would have been welcome. The antecedent that Peacocke has in mind emerges by page 15, when he identifies the above principle as Frege's 'intuitive identity condition for concepts'. This too, however, is a bit misleading, since Frege's use of the word 'concept' (or rather of '*Begriff*', which is standardly translated as 'concept' in Frege's writings) is not the same as Peacocke's, as Peacocke himself acknowledges (p. 2). Peacocke treats the Fregean sense of a word as the concept expressed by that word. Frege, of course, distinguished between sense (*Sinn*) and concept (*Begriff*), which he associated with incomplete expressions. In Frege's use, a concept is the referent of an incomplete expression whose completion yields a sentence, such as 'x is a horse', which Frege treated as 'a function whose value is always a truth-value' (Frege, 1960b, p. 155). This is to use the word in what Frege called a purely logical sense. The principle Peacocke gives above is derived, of course, not from Frege's discussion of *Begriff* but of *Sinn*. The sense of a sentence is a thought, what we grasp when we understand the sentence, and, hence, has a psychological element not present in the Fregean use of the word 'concept'.

It is clearly crucial to understanding Peacocke's use of 'concept' to understand the notion of the potential informativeness of a propositional content. Peacocke treats propositional contents as structured items whose constituents are concepts. Contents determine the truth conditions for 'indicative' thoughts whose contents they are. We can think of the specification of the truth conditions for a thought as being in the form of a biconditional

A's thought T(C) is true at t iff p

where 'C' represents the content of the thought and 'p' is replaced by a sentence that expresses that content. Suppose now that  $C(A,B)$  is a content whose structure is indicated by the arrangement of the expressions within the parentheses of the expression denoting it, and that 'A' and 'B' denote concepts.  $C(D,B)$  would then be said to be a content derived from  $C(A,B)$  by substituting  $D$  for  $A$ , i.e.  $C(D,B)$  and  $C(A,B)$  have the same structure, but differ in what concept occupies what we can call the first location within that structure. What is it for  $C(A,B)$  to be potentially informative, while  $C(D,B)$  is not? Peacocke never makes precise this important notion in his account, so what I say about this is speculative. It is natural, however, to try to spell it out in the following way. Suppose that it is necessary that  $C(A,B)$  is recognized to be true by anyone who entertains it. Then  $C(A,B)$  will be said not to be potentially informative. Then a content of the form  $C(. . . .)$  will be potentially informative just in case it is not necessary that it be recognized to be true by anyone who entertains it. If  $C(A,B)$  is recognized to be true by anyone who entertains it while  $C(D,B)$  is not, then  $A$  is distinct from  $D$ ; and if  $A$  is distinct from  $D$ , then there are two contents  $C(. . .A. . .)$  and  $C(. . .D. . .)$  otherwise alike except that  $A$  occurs in a location in one where  $D$  occurs in the other such that one is recognized to be true by anyone who entertains it while the other is not.

This parallels what a Fregean would say about how to individuate the senses of linguistic expressions. Two expressions  $\alpha$  and  $\beta$  differ in sense just in case there are two sentences in which  $\alpha$  and  $\beta$  are used,  $S(\alpha)$  and  $S(\beta)$ , such that one can be obtained from the other by substituting  $\alpha$  for  $\beta$ , or vice versa, and  $S(\alpha)$  is potentially informative while  $S(\beta)$  is not, or vice versa, where a sentence is potentially informative if it is potentially capable of extending our knowledge. A sentence would not be potentially capable of extending our knowledge if, on grasping its sense, we could not fail to realise that it was true. There is a difficulty that arises in the case of sentences, however, which is not present in the case of contents. This is that a sentence may be informative, and indeed informative about the world, in virtue of features of it which do not have to do with its sense. For example, in the case of identity statements, ' $a = a$ ' and ' $a = b$ ' may differ in potential informativeness while ' $a$ ' and ' $b$ ' do not differ in sense because they have no sense but only a referent. They may differ in

informativeness in virtue of our associating with the signs themselves different sorts of information which are not part of the conventional use of the signs. Since in the case of contents there is no distinction corresponding to that between syntax and semantics, there can be no corresponding difficulty.

It is an important feature of this approach, at least as I have spelled it out, that concepts are individuated ultimately in terms of a thinker's *epistemic* relations to his attitude contents. Differences between concepts make a difference to the potential informativeness of contents of certain forms, and so make a difference to their truth conditions.

Concepts are the constituents of our thoughts, and we express our thoughts in sentences whose words on the occasions of their use express senses which are the concepts that figure in the thought expressed using them. Thus, the concepts that Peacocke wishes to study are the sort of thing that can be the sense of a word, and Peacocke apparently takes the semantics of sentences in natural languages to give a straightforward guide to what concepts are contained in thoughts that we express using them. This is already to be committed to a certain, to some degree tendentious, account of the nature of thought, namely, that, by and large, the structure of thoughts mirrors the semantic structure of sentences. Thus, we find Peacocke endorsing different kinds of concepts for different grammatical categories of words, and often calling the classes of concepts by the terms that apply to the corresponding grammatical category, e.g. 'singular', 'demonstrative', and 'predicative' (p. 2). Concepts, being identified with possible senses of words, are distinguished from the level of reference, and so from the referents of singular terms, the extensions of predicates, and the properties and relations that predicates 'pick out'.

The most fundamental principle of Peacocke's treatment of concepts, apart from his identification of them with senses, individuated as above, is what he calls the 'Principle of Dependence' (p. 5):

**Principle of Dependence** There can be nothing more to the nature of a concept than is determined by a correct account of the capacity of a thinker who has mastered the concept to have propositional attitudes to content containing that concept (a correct account of 'grasping the concept').

That is to say, since we introduce the word 'concept' to cover the constituents of propositional contents, we should suppose that an account of concepts will be given in terms of what it is to be able to have propositional contents involving that concept, and that will be an account of the possession conditions for the concept, what it is to 'grasp' or understand that concept. This is an instance of a venerable tradition which seeks to understand talk of concepts ultimately in terms of talk of the capacities of thinkers. The fundamental expression for the purposes of analysis is not 'the concept F' but instead 'x possesses the concept F'.

The form for all accounts of concepts that Peacocke introduces on the basis of the Principle of Dependence is as follows (p. 6):

**Simple Formulation** Concept *F* is that unique concept *C* to possess which a thinker must meet conditions  $\mathcal{A}(C)$ .

Here '*C*' is a variable ranging over concepts and '*A*' a schematic letter. Reformulating this will help to make clearer its structure. We are here giving a necessary and sufficient condition for a concept to be identical with Concept *F*, by means of a description of it in terms of conditions any thinker must meet to possess the concept. I take the modifier 'unique' to mean that one and only one concept is associated with the relevant possession conditions. Letting '*C*' with or without subscripts range over concepts, and '*t*' range over thinkers, ' $P(t, C)$ ' mean '*t* possesses *C*', and ' $\mathcal{A}(C, t)$ ' mean '*t* meets condition  $\mathcal{A}(C)$ ', we have:

$$(\forall C)(C = \text{Concept } F \leftrightarrow (\exists! C_1)(\Box(\forall t)(P(t, C_1) \leftrightarrow \mathcal{A}(C_1, t)) \ \& \ C = C_1))$$

(where ' $\Box$ ' represents the modal operator 'necessarily' and ' $(\exists!x)$ ' means 'there is one and only one *x*'). Thus, we provide necessary and sufficient conditions for any concept to be a particular concept in terms of a necessary and sufficient condition for a thinker to possess a concept. If the possession condition does not use or mention concept *F*, then this provides a reduction of the concept *F* in terms of the possession conditions. A thinker will possess the concept *F* iff there is one and only one concept *C* of the thinker for which he meets condition  $\mathcal{A}(C)$ . Since the conditions that fix the identity of a concept are given in terms of a possession condition that specifies a role for a concept, this is, broadly speaking, a conceptual role account of concept individuation (for a fairly explicit statement of this, see pp. 107, 112). The most important questions to be raised about this approach are whether it is plausible that there are any, or, at any rate, very many, true accounts of concept identity of the form above in which the possession conditions do not presuppose either the identity or the possession conditions of the very concept for which individuation conditions are being given.

It will help to examine the case of the concept of conjunction, which Peacocke uses to illustrate the application of the form above. This will introduce some additional important features of Peacocke's general approach. Conjunction is one of the most favorable cases for an account of a concept in terms of its conceptual role, since the sense of 'and' is exhausted by its truth table. A thinker possesses the concept of conjunction iff there is one and only one concept *C* of the thinker such that the thinker finds inferences of the form

$$\frac{p, q}{p \text{ C } q} \quad \frac{p \text{ C } q}{p} \quad \frac{p \text{ C } q}{q}$$

to be *primitively compelling* and does so because they are of these forms. The crucial notion here is that of finding an inference primitively compelling. According to Peacocke (p. 6):

To say that the thinker finds such transitions primitively compelling is to say this: (1) he finds them compelling; (2) he does not find them compelling because he has inferred them from other premises and/or principles; and (3) for possession of the concept C in question (here conjunction) he does not need to take the correctness of the transitions as answerable to anything else.

Two points are worth noting about this explication of finding an inference primitively compelling. First, this is an explication primarily of the work that the adjective 'primitively' is doing, and does not tell us what finding an inference compelling comes to. Second, the third condition introduces a normative requirement on finding something primitively compelling: I take the claim that finding an inference primitively compelling entails that one *need not* (not just *does not*) take its correctness to be answerable to anything else to mean that (i) the transition is correct, and (ii) it is correct in virtue of the form of the inference, since that is all that is in question here, and it is answerable to nothing else.

The work that finding an inference or belief primitively compelling does is to fix those roles that a concept plays in a thinker's mental economy that are constitutive of having the concept. It is in this light that the third condition above in particular should be understood, for that connects finding an inference primitively compelling with its being valid, and so with the truth grounds of the premises being sufficient for the truth grounds of the conclusion. This is connected with what inferences are constitutive of having the concepts involved in those inferences because the truth conditions of the content are determined by their constituent concepts and form. The notion of primitive compellingness later plays an important role in Peacocke's discussion of how to reconcile his account of concepts with naturalism, and we will return below to some questions about finding something primitively compelling in the discussion of that project, and, in particular, to the question whether the current way of explaining it can be compatible with the use Peacocke wants to make of it there.

The notion of finding something primitively compelling does not appear in all of the formulations of possession conditions that Peacocke gives in illustration, e.g. in specifying possession conditions for the concept *red*. Instead, the role of a concept is specified in terms of a speaker's dispositions in certain circumstances. For example, part of the possession con-

dition for the concept *red* would involve a specification of conditions under which the thinker would be disposed to have a belief whose form involved 'a perceptual-demonstrative mode of presentation in predicational combination with *C*' (p. 7).

Thus, the general strategy is to give individuation conditions for concepts in terms of (a) the forms of certain contents, and (b) conditions in which the thinker makes transitions between thoughts with contents of such forms, or conditions under which the thinker acquires thoughts with contents of such forms.

The concepts that are constituents of a thought content should (as we have said) fix the truth conditions of the thought, the conditions under which the thought is true and the conditions under which it is false. This is implicit in the criterion for distinctness of concepts. The semantic value of the concept in the context of the thought is its contribution to the truth conditions of the thought. The possession conditions for a concept must therefore fix the semantic value of a concept relative to a context. Peacocke calls 'a theory of how the semantic value of the concept is determined from its possession conditions (together with the world)' a 'determination theory'. What is an example of a determination theory? In the case of conjunction (p. 18):

the truth function that is the semantic value of conjunction is the function that makes transitions of the forms mentioned in the possession condition truth-preserving under all assignments to their constituents *p* and *q*.

This is a theory of how the semantic value is determined from the possession conditions in the sense that it gives a description of the semantic value in terms of a condition on the possession conditions: the semantic value of the concept of conjunction is whatever value is required in order to make the forms of inferences found primitively compelling by the possessor of the concept in virtue of having that concept valid inferences. The general form for such a description is (p. 19):

The determination theory for a given concept (together with the world in empirical cases) assigns semantic values in such a way that the belief-forming practices mentioned in the concept's possession condition are correct.

The practices are correct if the beliefs formed are true, and inferences valid (p. 19). No doubt this is a bit too strong a requirement on correctness; a certain visual experience may be a rational basis upon which to form a certain belief, though it cannot guarantee its truth. One could put the requirement more cautiously and more generally by saying that correct determination theories make the relevant practices out to be epistemically virtuous, or rational.

In effect, this tells us what semantic value to assign to a concept given its possession conditions (and the world). It provides a test of whether a putative account of an antecedently given concept is an adequate one: if the semantic value assigned to the concept given the possession conditions in order to make the practices specified in the possession conditions out to be rational do not correspond with the semantic value of the concept in question, then the proposed possession conditions are incorrect. Thus, for any concept, given its semantic value, its possession conditions will be determined to be the set of practices involving contents with that concept that are required for the thinker who employs such contents to be rational. This has been a familiar theme in the philosophy of mind in the latter half of this century, though its presentation in Peacocke obscures a bit its relation to its antecedents.

The worry raised earlier about the general form of Peacocke's account of concept possession can now be reformulated. Concepts fix semantic values (given the world). Therefore, to maintain that the concepts a person possesses can be specified completely in terms of the roles they play in his mental economy, when those roles are specified in ways that do not presuppose he possesses any particular concepts, Peacocke must maintain that no more than one assignment of semantic values to concepts specified only in terms of their conceptual roles can make a thinker out to be rational. This seems to me to be extremely implausible, and Peacocke does not offer any argument to show that in all or even many cases this condition can be met.

I said above that if the possession conditions for a given concept can be specified independently of using or mentioning the concept, one would have a reduction of that concept. Peacocke does not aim to give a reduction of concepts in this sense to possession conditions. This is clear from his remarks about acceptable possession conditions for the concept *red* (cf. pp. 8–9). Peacocke requires only that 'red' not be used in the scope of any attitude attributed to the thinker in specifying the possession conditions. Peacocke imposes this restriction so that the conditions given for possessing a certain concept do not presuppose the possession of that very concept. For if 'red' were used in the scope of an attitude attribution, that would presuppose that the thinker possessed the concept of red. However, 'red' might be used to specify a certain property that the thinker must respond to in certain conditions in order to possess the concept. Such a use of 'red' in a specification of the possession conditions would not presuppose that the thinker possessed the concept. Peacocke, then, is concerned not with giving a reduction of *concepts* but rather of *possession conditions* for concepts.

In addition to requiring that the possession conditions for a given concept, given its semantic value, be such as to make the thinker rational in his belief formation and transition practices involving contents of which the concept is a constituent, Peacocke says that '[m]eeting the possession condition for a concept can be identified with knowing what it is for

something to be the concept's semantic value (its reference)' (p. 22). This is a reasonable requirement since meeting the possession conditions for a concept is possessing it, which we have already identified as grasping or understanding the concept, and since the role of the concept is to contribute systematically to the truth conditions for propositional contents, grasping or understanding the concept must surely involve knowing, in some sense, what its contribution to such truth conditions is, which will simply be its semantic value. It is less clear that a reductive account of possession conditions for concepts will succeed in preserving this epistemic feature of concept possession. For this is tantamount to claiming that epistemic concepts can be reduced to non-epistemic concepts, certainly a thriving industry, but one, I believe, with at best dubious prospects.

Let me mention briefly what I believe is a difficulty for Peacocke's account that is raised by his view about the conditions under which it is correct to attribute propositional attitudes to thinkers. The difficulty is raised by Peacocke's endorsement of Tyler Burge's claim that our attitude contents are sensitive, given certain conditions, to conventions for word use in our linguistic community. Accepting this forces Peacocke to deny that someone who has a given attitude need possess the concepts which are constituents of its content. In general, possession conditions for concepts will appeal to attitudes of various forms of a thinker. If possessing concepts that are constituents of those attitudes is not a necessary condition for having them, as Peacocke admits, then there is no reason to object to mentioning the concept for which possession conditions are being specified in the scope of an attitude, for this will not by itself presuppose the thinker possesses the concept. This also clearly raises a difficulty about the principle for distinctness of concepts, at least as I elaborated it. For that principle presupposes that everyone who entertains certain contents will immediately recognize them to be true. That presupposes that anyone who entertains the content will recognize that its truth conditions are trivially fulfilled. Since concepts function to contribute systematically to the truth conditions of contents, that presupposes in turn that the individual grasps the concepts involved in the content, simply in virtue of entertaining it. But that cannot be correct if someone can have or entertain a content without possessing all the concepts involved in it. I should emphasize, however, that this is a difficulty for Peacocke's view only to the extent that he embraces Burge's view that one can have an attitude with a certain content without grasping the concepts involved in it. So far as I can see, nothing in Peacocke's account depends on his endorsing Burge's view.

A potentially more recalcitrant difficulty is raised by the question whether we can make sense of talk of finding inferences of certain forms primitively compelling without presupposing that a thinker actually possesses concepts of the same or a more general sort. Talk of finding an inference compelling in virtue of its form certainly suggests that the thinker recognizes the inference to have a certain form. Take the inference from

A C B to B. What does it take to recognize this form of inference? Presumably, one has to recognize it as an inference from a judgment involving two contents as constituents linked by a 'connective' of some sort. To so recognize it, one must therefore at least already possess certain concepts of the general categories of concepts one is explicating. This suggests that there can be no general reductive account of possession conditions for concepts in terms of finding inference forms primitively compelling because every such explanation presupposes a prior grasp of some concepts. Peacocke may deny that he intends 'finding an inference primitively compelling' to require recognizing the form of the inference found to be primitively compelling, but then it becomes unclear what is meant by 'finding an inference primitively compelling'.

It will be worthwhile drawing out what is likely to be another consequence of Peacocke's commitment to giving reductive conditions for possession conditions. It seems clear that many concepts cannot be specified by appeal simply to their conceptual role, if that is specified only in terms of inferential relations among attitudes, but must either be connected with various experiences or directly with the world. If this is right, then this commitment to giving reductive conditions for concept possession will inevitably involve appeal to relations to objects in our environments. Since on this view concepts are constituents of contents, this will commit us to an externalist theory of thought content, i.e. a theory according to which (some, at least) content properties are relational properties. This is not something that would worry Peacocke, since he is independently committed to content properties being relational, but there remain serious difficulties for such theories, difficulties which the present approach to concepts, if it aims at giving reductive conditions for concept possession, will inherit.

## 2. Systematicity and Productivity

A virtue that Peacocke claims for his account of concepts is that it allows him to derive two important principles which are widely thought to be necessarily true of anything capable of thinking. These principles are that thought is systematic and productive.

The systematicity of thought is the fact that a thinker capable of thinking a thought of a certain form, say,  $aRb$ , is able to think related thoughts of that form if he possesses concepts that play the same roles. For example, if  $a$  and  $b$  are singular concepts, and he possesses singular concepts  $c$  and  $d$ , which are in the same category as  $a$  and  $b$ , he is able to think  $bRa$ ,  $cRb$ ,  $dRb$ ,  $cRd$ , etc. If he possesses a relational concept  $R'$ , which is of the same category as  $R$ , then he likewise can think  $aR'b$ ,  $bR'c$ , etc. Peacocke calls this the 'Generality Constraint' (p. 42):

**Generality Constraint** If a thinker can entertain the thought  $Fa$  and also possesses the singular mode of presentation  $b$ , which refers to something in the range of objects of which the concept  $F$  is true or false, then the thinker has the conceptual capacity for propositional attitudes containing the content  $Fb$ .

Why does systematicity follow from Peacocke's general account of concepts? The key is the requirement that possessing a concept is knowing what it is for something to be its semantic value, and the role of concepts as constituents of contents which together with the form of the content fix its truth conditions. To know what it is for something to be a predicative concept's semantic value is to know what it is for some arbitrary object to fall under it, and this requires that, if one has the singular concept  $b$ , for example, one knows what it is for it to be the case that  $Fb$ , provided that  $b$  refers to an object in the range of objects to which  $F$  applies. Systematicity, on this view, is a result of the epistemic character of concept possession.

Usually 'the productivity of thought' is used to refer to that feature of thought whereby it is possible to think an indefinitely large number of novel thoughts. That is not the way that Peacocke uses the term. Peacocke's productivity principle is explained as follows (p. 46):

**Productivity Principle** Suppose that a thinker possesses the first-level concept  $f$  and acquires a new singular concept  $m$  that denotes something in the significance range of  $F$ . If in these circumstances the thinker continues to possess  $F$ , then he is in a position to know what it is for the thought  $Fm$  to be true without any further stipulations or determinations about the concept  $F$ .

The explanation of this is the same as the explanation for the Generality Constraint. The Generality Constraint is explained by the fact that in possessing a concept  $F$  a thinker must know, for any arbitrary object in the appropriate range, what it is for that object to fall under  $F$ . Thus, if a thinker can think  $Fa$ , he possesses the concept  $F$ , and so knows what it is for an arbitrary object that falls in the range of objects that can be  $F$  to fall under it, and so can think for any singular concept  $c$  in the appropriate category  $Fc$ . Thus, if he possesses the singular concept  $b$ , he can think  $Fb$ . And thus, likewise, if he acquires the singular concept  $m$  of the appropriate category, then he possesses it, and so can think  $Fm$ . Given that the explanation and the phenomenon in both the Generality Constraint and the Productivity Principle are basically the same, it is puzzling why Peacocke distinguishes them and treats them separately.

It is important to note that the derivation of the Generality Constraint and the Productivity Principle relies only on the requirement that possessing a concept is knowing what it is for something to be its semantic

value. That requirement, in turn, is derived from the view that concepts are constituents of contents, which together with their form determine their truth conditions, and that concepts can be individuated by their 'information potential'. The argument will go through independently of the possibility of producing reductive possession conditions for concepts.

A qualification must now be made to the above arguments. The attentive reader will recall that Peacocke denies that being able to think *Fa* requires possessing the concepts that are its constituents (because he endorses Burge's view about the social determination of content). Thus, the Generality Constraint and the Productivity Principle cannot be shown to be true by appeal to conditions on possessing concepts, since it is not a necessary condition on thinking *Fa* that one have the concept *F*, and it is not a necessary condition on acquiring a new singular concept *m*, that one possess it. Note that if one maintains that the Generality Constraint and the Productivity Principle are still held to be generally true, not just of thinkers who possess the concepts which their thoughts involve, Peacocke is not in a position to explain them. Peacocke intends (p. 41) that the Constraint and Principle apply only to thoughts of thinkers when they fully grasp the concepts involved in those thoughts. If one does hold a view like Burge's, however, it is not clear that one would want to deny either the Generality Constraint or the Productivity Principle. Suppose, to take one of Burge's examples, I believe that I have arthritis in my thigh, and so I believe that I have arthritis. Would it not be plausible to suppose that if I have or acquire a new singular concept *m*, that I would be in a position to think that *m* has arthritis? If that is true, surely the proper explanation will also serve as an explanation in the more restricted case of thinkers who possess the concepts that are constituents of their contents.

### 3. Metaphysics

Concepts are abstract objects. Peacocke's account is committed to their existence since the Simple Account quantifies over them. But abstract objects do not stand in causal relations with other objects. How then can they play a role in characterizing 'the empirical mental states of thinkers' (p. 99)?

They can play a role in characterizing the empirical mental states of thinkers provided that we can give an explanation of when it is appropriate to use a term referring to an abstract object to describe a mental state of a thinker that does not mention any concepts or contents. This can be done by specifying in general empirical conditions under which it is appropriate to describe a given state using an abstract object, and specifying that an individual fulfils those conditions. Thus, suppose, to use Peacocke's example, that John believes that Lincoln Plaza is square. This is said (p. 106) to be equivalent to the conjunction of

(1) John is in some state **S** that has the relational property **R**,

and

(2) The content that Lincoln Plaza is square is the unique content *p* such that necessarily for any state **S**, **S** is a belief that *p* iff **S** has the relational property **R**.

Compare this with a parallel explanation of the use of numbers in numbering physical objects. Suppose that there is one computer on my desk. This would be said to be equivalent to the conjunction of

(3)  $(\exists x)(x \text{ is a computer on my desk and } (\forall y)(y \text{ is a computer on my desk} \rightarrow y = x))$

and

(4) One is the unique number **n** such that necessarily, for every property **P**, there are **n** things that are **P** iff  $(\exists x)(x \text{ has } \mathbf{P} \text{ and } (\forall y)(y \text{ has } \mathbf{P} \rightarrow y = x))$

Clearly, given (4), we have

(5) There is one computer on my desk iff  $(\exists x)(x \text{ is a computer on my desk and } (\forall y)(y \text{ is a computer on my desk} \rightarrow y = x))$

Likewise, given (2), we would have,

(6) John believes that Lincoln Plaza is square iff John is in some state **S** that has the relational property **R**.

If (2) and (4) are necessary truths, then so are (5) and (6). In this case, we can systematically eliminate from our talk about beliefs (and other attitudes) any reference to abstract objects. (It is worth noting that as far as the form of the proposal goes, it is not necessary to require that the property the state has be a relational property.) Concepts contribute systematically to contents, and would be ultimately understood then in terms of their contribution to the relational property said to be necessary and sufficient for the possession of the content (in a given mode) by some thinker. This Panglossian prospect of course depends upon finding some relational property that is specifiable independently of any propositional attitudes, and which is necessarily equivalent to having a given propositional attitude.

What are the prospects for this? Clearly, it is no argument for there being such relational properties as are required that if there were, we would avoid this difficulty over using abstract objects to characterize belief

contents. Peacocke suggests 'that the relations required of a state if it is to be a belief with a given content are fixed by the possession conditions of the constituent concepts of the content' (p. 107). Indeed, one feels that this should be stronger than a suggestion. Since the content is constituted by its constituent concepts and its form, Peacocke is virtually required to urge that his account of concepts will suffice, if there is some relational property a state can have that is necessary and sufficient for that state to be a belief with a certain content, in conjunction with the form of the content, to fix that relational property. This, of course, will be possible only if reductive possession conditions for concepts can be given. Peacocke gives here a succinct description of the sort of theory he has in mind (p. 107):

A possession condition for a particular concept specifies a role that individuates that concept. The possession condition will mention the role of the concept in certain transitions that the thinker is willing to make. These will be transitions that involve complete propositional thoughts involving the concept. . . . Quite generally, each clause in the possession condition for a concept that occurs in a given complete propositional content makes a distinctive contribution to the requirements for a belief to have that propositional content. The totality of requirements derived by considering the contribution of each clause of a possession condition of each concept that occurs in the content fixes the relational property required for a belief to have that content.

Peacocke offers a brief sketch of how this might go in the case of the belief that Lincoln Plaza is square. Each of the concepts *Lincoln Plaza* and *square* will have two clauses, one dealing with perceptual encounters with objects falling under the concepts, and one dealing with judgments involving the concepts in other circumstances. Call those for *Lincoln Plaza* L1 and L2, and for *square* S1 and S2. Then there are four cases to consider: L1 and S1, L2 and S2, L1 and S2, and L2 and S1. The clauses specify judgements the thinker is willing to make under certain conditions. To get the condition for the belief that Lincoln Plaza is square, we require that the speaker possesses the relevant concepts, and that for each pair of conditions specified in L1, L2, S1, S2, the thinker 'be willing in these circumstances to be in state S' iff he meet some appropriate condition. For example, in the case of the conditions specified in L1 and S1, he must be willing to be in S 'when he is taking his experience at face value, experiences some object as having both appearance  $\Sigma$  [associated with being square] and appearance  $\Delta$  [associated with Lincoln Plaza], and takes it for granted that the object is in the presupposed range' (p. 111). Quite apart from worries about details of the formulations of possession conditions, one can get a lively sense of the difficulties facing this project by noticing that this part of the condition is shot through with what appear

to be attributions of intentional attitudes to the thinker. Until these are shown to be in principle eliminable, or we are given some reason to think they can be, it is clear that this sketch will not make plausible the claim that one can actually specify a property of the appropriate sort, that is, one that does not involve in its specification some reference to propositional attitudes, and so, on Peacocke's view, some reference to abstract objects.

#### 4. Normativity

Let us turn now to another challenge to Peacocke's account, namely, that contents and concepts are normative and that normativity cannot be accommodated in a genuinely naturalistic world view. *Contents* are normative in the sense that they are correct or incorrect, true or false. *Concepts* are normative in the sense that a particular kind of concept in a content may give reasons for accepting the content, perhaps relative to certain conditions, even independently of just its contribution to the truth conditions of the thought. For instance, my thought, *I think*, may give reason for its own truth in part in virtue of its having as a constituent the concept expressed by 'I'. In contrast, my thought, *Ludwig thinks*, does not give reason for its own truth, though it is necessarily equivalent to my thought, *I think*.

Why is normativity, of this sort, thought to be a problem for naturalism? And what is naturalism in the first place? The doctrine Peacocke has in mind places two constraints on a theory. First, 'any explanation of an event or temporal state of affairs is a causal explanation' (p. 127). Second, 'any truth is supervenient on purely descriptive truths' (p. 127). Unfortunately, Peacocke does not give us his account of supervenience (this sort of lapse is characteristic of much of Peacocke's discussion), and there are competing accounts in the philosophical literature on supervenience. Of particular importance is what modality Peacocke takes supervenience to involve. It is not clear to me what Peacocke has in mind here. However, to have something precise to work with, I will assume to begin with that Peacocke has in mind a doctrine of the following sort. I will raise below some questions about whether this is really what Peacocke has in mind. We can develop the account in two parts. A truth we will treat as a true proposition. Then we can say that

a family of truths  $T_1$  supervenes on a family of truths  $T_2$  iff the family of propositions  $P_1$  from which the truths of  $T_1$  are drawn supervene on propositions in the family  $P_2$  from which the truths of  $T_2$  are drawn.

Now we characterize what it is for one family of propositions to supervene on another.

Propositions in family  $P_1$  supervene on propositions in family  $P_2$  iff it is nomically necessary that for any proposition  $p_1$  in family  $P_1$ , if  $p_1$  is true, then there is some proposition  $p_2$  of family  $P_2$  such that  $p_2$  is true and it is nomically necessary that if  $p_2$ , then  $p_1$ .

There are radical and moderate versions of the supervenience constraint, the difference between which is that the moderate version allows modal truths to figure in the descriptive truths, while the radical version does not.

Peacocke's remarks about the radical version of the supervenience constraint suggest that he thinks that it is too strong a constraint. If we suppose, however, that he is concerned only with the moderate version of the supervenience constraint, we are faced with a puzzle. The requirement that concepts be naturalizable turns out to be too easy to satisfy to see why there should be even *prima facie* a difficulty about them, or, at least, an *a priori* difficulty (and a philosophical theory would not be appropriately addressed to any other sort). For all that is required for normative truths to supervene on descriptive truths is that it be a (perhaps brute) nomic fact about the world that for every possible normative truth there be a possible descriptive truth that nomically requires it. The requirement that every explanation of an event or temporal state of affairs be a causal explanation can then simply be stipulated to hold, and any form of explanation employing concepts which violates this can be rejected.

Peacocke's subsequent discussion suggests, however, that he has a stronger constraint in mind, which may indicate that my characterization of supervenience above, particularly in the modality involved, is weaker than what Peacocke intends. The first sign of this occurs in the following passage (p. 135), in which Peacocke says,

[I]t cannot always be the case that we characterize possession of a given concept . . . only by relating it to other conceptual capacities of the thinker. If we were to do so, we would have no fully adequate answer to questions of the type, What is it for the thinker to possess concept  $C$  rather than concept  $D$ ? It cannot always be satisfactory to answer his question only by saying that to possess  $C$  is to possess a concept that stands in certain relations to the thinker's conceptual capacities involving the distinct concepts  $C_1, \dots, C_N$ , while to possess  $D$  is correspondingly to possess a concept that stands in certain relations to his conceptual capacities involving the distinct concepts  $D_1, \dots, D_n$ . For the same question can be raised in turn about possession of each of the  $C_i$  as contrasted with possession of the  $D_i$ . At some point a good account of conceptual mastery must tie the mastery to abilities and relations that do not require conceptualization by the thinker. For any

concept not explicitly defined in terms of others, there must be a nonconceptual component in an account of mastery of it.

It seems, then, that we make concepts naturalistically acceptable, on Peacocke's account (in part), by ultimately reducing their possession conditions to facts that do not mention any particular concepts or possession conditions. What this comes to is illustrated by the example of the concept of conjunction above: in that case, we understand concept possession in terms of a thinker's finding certain inference *forms* primitively compelling. How does this help? 'That a thinker finds certain transitions and principles primitively compelling and does so from certain causes is a naturalistically kosher claim', Peacocke tells us (p. 138). So far so good, but we want also an account of the 'normative liaisons' of concepts and the correctness conditions of contents. We get this from the requirement (discussed above) that we assign as semantic value to a concept whatever is required to make the inferences the thinker finds primitively compelling involving that concept out to be rational. This means that those inferences will ipso facto be correct inferences, and thinkers will have reason to regard them so simply in virtue of the concepts involved in them. Furthermore, of course, assigning a semantic value to the concepts ipso facto provides judgments involving those concepts with correctness conditions.

All this is more than is required to meet the conditions on naturalism as given above. This makes it look, then, as if Peacocke has in mind some more strenuous requirement, but it may be that he only wants to emphasize that his own account is sufficient to naturalize concepts, even if it is not necessary.

At this point, we should return to the concept of finding something primitively compelling. It appears that part of Peacocke's argument for his account being compatible with naturalism depends upon giving possession conditions in terms of primitive compellingness, and similar notions, and these being purely non-normative in character. (He says, that 'a thinker finds certain transitions and principles primitively compelling . . .' is 'not normative' (p. 138).) It is not clear to me why this *should* be a requirement, but let us suppose for a moment that it is. In our first exposition of the concept of primitive compellingness, in order to sanction the claim that it was connected with possessing a certain concept, we built into it that an inference was primitively compelling only if in fact it was a valid or rational inference. If this is how we are to understand primitive compellingness, then clearly describing possession conditions in terms of primitive compellingness will not be non-normative. So we must suppose that at this point Peacocke does not want primitive compellingness to be understood in part in terms of the validity or rationality of the inferences found primitively compelling. This suggests he wants it for present purposes to be a purely psychological concept of some sort. This is certainly not a natural reading of it on its first introduction, but let us suppose it is simply a psychological concept which has no normative

implications. How then do we get from a description of possession conditions in terms of such a notion to such transitions being valid or correct?

The rough outline of such an explanation on Peacocke's account would go as follows. *X*'s inference from *P* to *Q* is rational because (a) the inference from *P* to *Q* was of such and such a form, (b) inferences of such and such a form are found primitively compelling by *X*, (c) inferences found primitively compelling involve concepts whose semantic values make those inferences rational. The crucial claim in this of course is (c), and an important question to raise is why we should think (c) is true. Peacocke's account, I take it, is that (c) is true because finding something primitively compelling is constitutive of what it is to possess a concept whose semantic value makes that inference rational. But here now is our puzzle: if the notion of finding something primitively compelling is not in fact normatively committed, if it is purely psychological, why should we think that (c) is true? What exactly is its status? It is hard to avoid the impression that Peacocke wants to have his cake and eat it too, something we can all sympathize with.

Is Peacocke in the end successful in showing that his account is compatible with naturalism? This is a difficult question to answer. As I have indicated, on the most natural reading of his characterization of naturalism, one can do less than what Peacocke wants to do, and in fact there is simply no philosophical reason to deny that concepts and possession conditions are naturalizable. Much of Peacocke's discussion, however, makes it look as if he has a higher standard in mind, but since it is unclear exactly what that standard is, it is difficult to tell whether he has met it. If the standard is that we give conceptually sufficient conditions for concept possession that are non-normative, then I think it is certainly very unclear that Peacocke has given us any reason to think that this can be done.

### 5. *The Concept of Belief*

Peacocke's account of the concept of belief is given in two clauses, one for first-person, and one for third-person contents. The full account is as follows (pp. 163–4):

**Possession Condition for the Concept of Belief** A relational concept *R* is the concept of belief only if

(F) the thinker finds the first person content that he stands in *R* to *p* primitively compelling whenever he has the conscious belief that *p* [and the question of whether he does comes up] and he finds it compelling because he has that conscious belief; and

(T) in judging a thought of the third person form *aRp*, the thinker thereby incurs a commitment to *a*'s being in a state that has the

same content-dependent role in making *a* intelligible as the role of his own state of standing in *R* to *p* in making him intelligible, were he to be in that state.

What makes the first condition plausibly a condition on a concept *R* being the concept of belief is a link that Peacocke introduces between primitive compellingness and knowledge. Peacocke puts it this way (p. 157):

**Link between Possession Conditions and Knowledge** Take any mental state of the thinker that a possession condition for a concept says is sufficient for the thinker finding primitively compelling a given content containing the concept. Then when a thinker judges that content and for the reason that he is in that state, his judgement constitutes knowledge.

Putting this together with clause (F) above, we have the conclusion that a necessary condition on a concept *R* of a thinker being that of belief is that when he consciously believes that *p* and the question of whether he does comes up, he knows that he is *R* to *p*. (Note that this requires that finding a content primitively compelling guarantees its truth, not just rationality.) This captures the intuitive requirement on having the concept of belief that one recognizes that one has the belief that *p* when one consciously does and the question comes up. (Peacocke rejects the view (to my mind correctly) that to consciously believe that *p* is to believe that one believes that *p*.)

Let me raise briefly a question about clause (F) in Peacocke's account. The question is about the status of the link between possession conditions and knowledge, which goes through the notion of primitive compellingness. We are faced here with a question similar to that we raised earlier about the notion of primitive compellingness. If we build into the notion of primitive compellingness an epistemic element, then the link between possession conditions and knowledge becomes a conceptual link. This seems to be in tension with the explanatory work that Peacocke sometimes wants to have the notion of finding something primitively compelling do. However, if the link is not secured in this way, then it is an important, and unanswered, question why there should be a link of this sort at all, and to the extent to which there being such a link is required to make plausible (F), this calls into question whether (F) is a necessary condition on having the concept of belief. For my part, I think Peacocke should make the connection conceptual, and not suppose that the notion of primitive compellingness can carry any or much explanatory weight.

At this point, I can enter another argument on behalf of taking primitive compellingness to be conceptually bound up with knowledge. The account of concepts and concept possession that Peacocke gives in the book is

itself supposed to rest on an analysis of the concept of a concept (perhaps as the word is used in certain specialized contexts, but in which nonetheless there is a fairly well worked out antecedent use). What is the epistemology of the account itself? A natural answer would be to say that the account is based on finding certain inferences and judgements involving the concept of a concept to be primitively compelling. But if finding something primitively compelling is not *ipso facto* to recognize its truth or validity, then the account itself rests on air. So the very methodology of the project Peacocke engages in seems to commit him from the outset to treating primitive compellingness as an essentially epistemic state. This would not, I think, please those who seek a reduction of epistemic states or properties to non-epistemic ones, but I can see no reason why Peacocke cannot accept this.

Let us turn now to the third-person clause in the characterization of the possession conditions for the concept of belief. A first difficulty for this is that there are some contents one attributes to others that one could not have oneself, most prominently, first-person thoughts attributed to others. If I say, 'He thinks *he* is hungry', I cannot suppose coherently that I could be in a state with that content, since only he could have a state with that content. This might be got round by introducing a subclause to deal with third-person attributions of first-person contents. The attributor would be required only to think *a* is in a state with the same content-dependent role as the role of a corresponding state of his own. Some work would have to be done in spelling out the idea of a corresponding state, but the intuitive idea is clear. A second complaint I have about this condition is that it is not very informative. In the first place, one could imagine the very same clause appearing in an explication of the concept of any contentful state, e.g. the concept of desire or intention. Of course, Peacocke does not represent himself as giving sufficient conditions for a concept to be the concept of belief, but this indicates something of the distance between this suggestion and an adequate account. In the second place, the general form of this explication of the concept of belief (or any other) seems unlikely to shed much light on the concept. Since we are believers, in attributing beliefs to others, we attribute to them states that we ourselves could have, or states analogs of which we could have, in the case of first-person or perspectival beliefs. So if we possess the concept, and think someone falls under it, of course we are committed to saying that he has a state that plays the same content-dependent role in making him intelligible as the role such a state would play in making us intelligible were we to have it. But this is no more informative than being told that if we possess the concept of weight, and think someone weighs 300 kilograms, we are committed to saying that he is in a mass-dependent state which plays the same role in making him heavy as would the role of one's own mass-dependent state in making one heavy were one to be in that state.

## 6. Conclusion

Let me now summarize two main questions Peacocke's book leaves us with.

First, the account is basically a conceptual role account. In the case of concepts like that of conjunction, it is not implausible that we could characterize the concept exhaustively in terms of its role in thought. It seems much less likely in the case of most other concepts, and Peacocke has not given us any reason to suppose that it is possible. In particular, in the case of empirical concepts, it looks as if the role of the concept will have to be spelled out in part in terms of an individual's relations to his environment. I am myself extremely doubtful that any such relations are conceptually required to have belief contents about external objects. If this is right, then the kind of account being put forward here will not be successful.

Second, the notion of primitive compellingness turns out to be central to much of the discussion of the book, but is inadequately characterized. On first introduction, it seems best understood in part in terms of the validity or rationality of the inferences found primitively compelling. However, this seems to be something that is incompatible with some of the later explanatory work which Peacocke wants to use the notion for, especially in the discussion of naturalization. Exactly what is built into the concept of primitive compellingness needs to be clarified, and an explanation is needed of the connection between this notion and other crucial notions it is linked to in case the link turns out not to be conceptual.

I have not done justice to the wealth, subtlety, and intricacy of argument and allusion in Peacocke's book. There are a great many comparisons of the view that Peacocke puts forward with the views of other prominent philosophers, often interesting detailed criticisms of the views of others, and many more assumptions I would like to challenge than I have. A study of the book will, I think, pay dividends, even if one comes to it, and away from it, as I have, thinking that the project it articulates probably cannot be carried out. While clearly intended only as a propaedeutic to carrying out the project, *A Study of Concepts* brings together the elements of an impressive blueprint of a naturalistic account of concepts in terms of their possession conditions. No one, however, should pick up the book with the intention of reading it over the weekend. It is not an introductory work, and presupposes considerable knowledge of the field on the part of the reader. That, together with a formidable style, and a certain modesty about spelling out sometimes key notions, makes this a book that pays dividends only after a considerable investment of time.

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**References**

- Frege, G. 1960a: Concept and Object. In P. Geach and M. Black (eds), *Translations from the Philosophical Writings of Gottlob Frege*. Oxford: Basil Blackwell.
- Frege, G. 1960b: Introduction to *Grundgesetze der Arithmetik*. In P. Geach and M. Black (eds), *Translations from the Philosophical Writings of Gottlob Frege*, Oxford: Basil Blackwell.
- Peacocke, C. 1988: The Limits of Intelligibility: A Post-verificationist Proposal. *Philosophical Review*, 97, 463–96.
- Peacocke, C. 1989a: What are Concepts? In *Contemporary Perspectives in the Philosophy of Language*, II, *Midwest Studies in Philosophy*, Volume 14. Notre Dame, Ind.: University of Notre Dame Press.
- Peacocke, C. 1989b: Possession Conditions: A Focal Point for Theories of Concepts. *Mind and Language*, 4, 51–6.
- Peacocke, C. 1990a: Content and Norms in a Natural World. In E. Villaneuva (ed.), *Information, Semantics, and Epistemology*. Oxford: Basil Blackwell.
- Peacocke, C. 1990b: Philosophical and Psychological Theories of Concepts. In A. Clark and P. Millican (eds.), *Proceedings of the 1991 Turing Colloquium*. Oxford University Press.
- Peacocke, C. 1991a: The Metaphysics of Concepts. In S. Blackburn and R.M. Sainsbury (eds), *Mind and Content*, Centennial Issue of *Mind*, 525–46.
- Peacocke, C. 1992: Scenarios, Concepts, and Perception. In T. Crane (ed.), *The Content of Experience: Essays on Perception*. Cambridge University Press.