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Published in:
Epistemic Pluralism

2017

Link to publication

Citation for published version (APA):
Olsson, E. J. (2017). Explicationist Epistemology and Epistemic Pluralism. In A. Coliva, & N. Jang Lee Linding Pedersen (Eds.), *Epistemic Pluralism* Palgrave Macmillan.

Total number of authors:
1

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Download date: 06. Oct. 2026

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Abstract: I discuss Carnap's method of explication with special emphasis on its application to epistemology. I observe that explication has the advantage over conceptual analysis of not being vulnerable to the so-called paradox of analysis. Moreover, explicationist epistemology is intrinsically immune to the Gettier problem. I proceed to identify three senses in which the former is inherently pluralistic. For example, it allows for a plurality of legitimate and potentially interesting epistemological projects. Finally, I argue that while there are salient affinities with Alston's theory of epistemic desiderata, beyond a far-reaching commitment to pluralism, there are also important differences. Above all, Carnap's methodological outlook is reconstructive in ways in which Alston's is not.

1. Introduction

By explication, Carnap explained, "we mean the transformation of an inexact, prescientific concept, the explicandum, into a new exact concept, the explicatum" (1950, p. 3), whereby the latter should satisfy the condition of being reasonably faithful to ordinary use, fruitful, exact and simple. In the present article, I focus on the application of the method of explication in epistemology. I distill three senses in which explicationist epistemology is intrinsically pluralistic. It allows for there being a plurality of legitimate epistemological project corresponding to pursuing explication of different explicanda signified by the same ordinary term (e.g. "knowledge"); a plurality of reasonable and useful explicata corresponding to the same explicandum; and, finally, a plurality of epistemological sub-methodologies for use in parts of the explication process. Concerning the last point, I propose in a preliminary fashion that putative rivals such as intuition-based, experimental and formal epistemology can be usefully viewed as representing complementary sub-disciplines within a general explicationist framework.

My first task, in section 2, will be to explain the concept of explication, drawing on Carnap's 1950 account.[1] After that, I turn, in section 3, to the question what it means to pursue epistemology in Carnap's sprit, and how this approach is different from other methodological proposals. I investigate the pluralist consequences of the present methodology in section 4. Finally, I briefly comment on the

[1] Another useful resource for understanding Carnap's method of explication is his debate with Strawson in the Schilpp volume dedicated to Carnap's work (Schilpp, 1963). See Strawson (1963) and Carnap (1963). I discuss various objections to Carnap's method, by Strawson and others, in Olsson (2015).

relationship between the present methodology and the related but, as it turns out, not identical pluralistic epistemological picture advanced in William Alston's well-known article on what he calls epistemic desiderata (Alston, 1993).

2. Carnap and the method of explication

The method of explication was introduced by Rudolf Carnap, most systematically in Carnap (1950), as a procedure for defining scientific concepts generally, and philosophical concepts in particular. By explication, Carnap explains, "we mean the transformation of an inexact, prescientific concept, the *explicandum*, into a new exact concept, the *explicatum*" (p. 3). Thus an explication can be seen as a function or mapping from an informal domain to a formal, exact domain. An important aspect of this fact is that there is no exact answer to the question whether a given explication is right or wrong. What we can meaningfully ask is whether it is fruitful, useful, simple, and so on.

The method proceeds in two steps: 1) the elucidation of the explicandum and 2) the specification (precise definition) of the explicatum. As for the first step, "[a]lthough the explicandum cannot be given in exact terms, it should be made as clear as possible by informal explanations and examples" (p. 3). Clarifying the explicandum serves the purposes of specifying, perhaps in relatively crude terms, what is to be included and what is intended to be excluded. Once this task has been accomplished we can meaningfully discuss possible explications of the concept or idea in question with the aim of finding a more exact concept that is to replace the explicandum in certain specialized contexts. This is similar to how a scalpel is a more precise and useful a tool than the pocket knife in the operating room.

One of Carnap's examples of his method at work concerns the term "true". Suppose that we want to find a suitable explication of this term or concept. An elucidation of the explicandum would in this case involve stating that we do not intend the meaning "true" has in phrases like "a true democracy" or "a true friend", but rather the meaning it has in phrases like "this sentence is true", "what he just said is true", and so on. This does not yet mean that we have explicated the term "true"; we have only zoomed in on one particular meaning of the term. Explicating the concept of truth would involve specifying a formal or semi-formal theory of truth, e.g., in logical or set-theoretical terms, perhaps drawing on the work of Tarski and others.[2]

What requirements should be placed on a suitable explicatum once the explicandum has been sufficiently elucidated? The purpose of explication is to introduce a more or less vague or unclear intuitive concept into an exact framework. Thus, we wish to find a more exact concept that in some sense corresponds to the intuitive, everyday concept and that can do the job which the latter cannot do, or cannot do as well. But what does this relation of correspondence entail? It is obvious that we cannot

[2] For the purposes of the present exposition a sharp distinction between terms and concepts is unnecessary.

hope for complete correspondence in meaning. The whole point of explication is, as it were, to diverge from the meaning of the intuitive concept by introducing a more exact correlate to the latter.

A natural proposal is that the explicatum should, nonetheless, be as close or similar to the explicandum as the latter's vagueness permits. Carnap finds, however, that this suggestion is undermined by scientific practice. One of his paradigm examples concerns the artificial scientific concept fish, defined in *Encyclopedia Britannica* as "any of more than 30,000 species of cold-blooded vertebrate animals (phylum Chordata) found in the fresh and salt waters of the world" and for which Carnap uses the Latin term *piscis*. This concept has come to replace the everyday concept of fish in scientific contexts. In fact, it has replaced fish even in everyday contexts. This happened, moreover, in spite of the fact that *piscis* is a narrower concept that excludes several kinds of animal that were previously subsumed under the concept fish, e.g. whales and seals. Zoologists simply found that *piscis* is a more fruitful concept than fish. In general, Carnap explains, "[a] scientific concept is the more fruitful the more it can be brought into connection with other concepts on the basis of observed facts; in other words, the more it can be used for the formulation of laws." (p. 6) Thus, *piscis*, unlike whales and seals, have a streamlined body for rapid swimming, extracts oxygen from water using gills or uses an accessory breathing organ to breathe atmospheric oxygen, have two sets of paired fins, usually one or two (rarely three) dorsal fins, an anal fin, and a tail fin, have jaws, have skin that is usually covered with scales, and lay eggs. Whales, by contrast, are taken to belong to the category of mammals because, like other mammals, they breathe air, are warm-blooded, nurse their young with milk from mammary glands, and have body hair.

By extrapolation from examples such as those discussed above, Carnap arrives at four general requirements on a suitable explicatum (p. 7):

> 1) The explicatum [the thing that explicates] is to be *similar to the explicandum* [the thing that is explicated] in such a way that, in most cases in which the explicandum has so far been used, the explicatum can be used; however, close similarity is not required, and considerable differences are permitted.
>
> 2) The characterization of the explicatum, that is, the rules of its use (for instance, in the form of a definition), is to be given in an *exact* form, so as to introduce the explicatum into a well-connected system of scientific concepts.
>
> 3) The explicatum is to be a *fruitful* concept, that is, useful for the formulation of many universal statements (empirical laws in the case of a nonlogical concept, logical theorems in the case of a logical concept).
>
> 4) The explicatum should be as *simple* as possible; this means as simple as the more important requirements 1), 2) and 3) permit.

Of these requirements, the fourth – concerning simplicity – is the least important, Carnap thinks:

> In general, simplicity comes into consideration only in cases where there is a question of choice among several concepts which achieve about the same and seem to be equally fruitful: if these concepts show a marked difference in the degree of simplicity, the scientist will, as a rule, prefer the simplest of them. (p. 7)

Details of Carnap's account can be questioned from a contemporary perspective. One example is the division between "logical" and "nonlogical" concepts, whereby, crucially, "nonlogical" is treated as synonymous with "empirical". This picture leaves out, among other things, the important categories of ethical and legal concepts, not to mention presumably evaluative epistemological expressions such as "good reason" or "justification". Behind Carnap's treatment lies presumably the thought that explication only concerns scientific concepts, and the further view, widely shared at the time, that ethical or legal concepts, to the extent that they cannot be reduced to logical or empirical concepts, do not belong to science, properly so called. [3]

3. Explicationist epistemology

From an epistemological perspective, Carnap's original account has the interesting consequence that evaluative epistemological terms like "justification", too, are either not explicable at all or they are explicable in either logical or empirical terms. If we rule out the former, for good reason it would seem, what remains is the latter. Thus there is an affinity between Carnap's method of explication, in its original formulation, and "naturalized epistemology" as championed by Quine (1969) and later by, among others, Goldman (1986) and Kornblith (2002).

It should come as no surprise that Quine was not only a "naturalist" regarding epistemology but also an advocate of Carnap's explicationist methodology. These two strands of Quine's thinking and their intimate interrelations become evident upon reading the final chapter of *Word and Object* (Quine (1960). Quine writes, in the closing paragraph:

> The philosopher's task differs from the others', then, in detail; but in no such drastic way as those suppose who imagine for the philosopher a vantage point outside the conceptual scheme that he takes in charge. There is no such cosmic exile. He cannot study and revise the fundamental conceptual scheme of science and common sense without having some conceptual scheme, whether the same or another one less in need of philosophical scrutiny, in which to work. He can scrutinize and improve the system from within, appealing to coherence and simplicity; but this is the theoretician's method generally. He has recourse to semantic ascent, but so has the scientist. And if the theoretical scientist in his remote way is bound to save the eventual connections with non-verbal stimulation, the philosopher in his remoter way is bound to save them too. (Quine 1960, pp. 275-276)

If scientific definitions are explications, it follows that philosophical definitions are, or should be seen as, explications as well (cf. Quine, 1960, pp. 257-262). In particular, definitions of knowledge, justification and other concepts of epistemological interest are best viewed as explications.

Even so, it is quite possible, in my view, to embrace the methodology of explication in philosophy and epistemology without being also committed to naturalized epistemology. A modern reader can happily dismiss the identification of the nonlogical with the empirical alluded to above as a relic of 20th century positivism and proceed on the assumption that irreducibly epistemological, ethical and legal

[3] A second point of justified criticism concerns the way in which Carnap phrases his requirement of fruitfulness in terms of the number of universal statements in which the concept figures. Taken literary, Carnap is implying that any old universal statement will do. Yet his clarification in terms of "empirical laws" and "logical theorems" suggests that the statements in question must be plausibly true and also of a certain theoretical standing.

concepts, if such there be and presumably there are, are just as amenable to explication as logical and empirical concepts are once the criteria of fruitfulness are correspondingly broadened.

I will use the term *explicationist philosophy* to refer to this view on the nature of philosophical definitions, in so far as they aim to define or analyze a concept occurring in natural language. We will henceforth refer to an epistemology based on this methodological position, correspondingly, as *explicationist epistemology*.[4]

Few epistemologists subscribe explicitly to Carnap's methodology. An exception is Keith Lehrer in his book *Theory of Knowledge* (1990). However, Lehrer introduces a subtle modification of Carnap's method, writing that "explication aims at producing concepts useful for articulating laws *and theories*" (p. 6, our italics). Carnap, we recall, explicitly writes that conceptual fruitfulness is a matter of being useful for the articulation of laws period. Moreover, the outcome of Lehrer's study is surprising given the proclamation that Carnap's method has been used. Thus, Leher's final definition of knowledge, arrived at on p. 147, is neither exact nor simple, and – unsurprisingly given his unorthodox interpretation of Carnap on this point – considerations of fruitfulness, in Carnap's strict sense, do not enter visibly in Lehrer's motivation of his definition. As for simplicity, the specification of Lehrer's explicatum requires no less than 13 definitorial clauses (ibid., pp. 147-149), prompting his remark that "[n]eedless to say, the attempt to analyze justification and undefeated justification in terms of acceptance, reasonableness, and truth has yielded a complicated analysis" (p. 149).[5] , although Lehrer thinks there is "underlying simplicity" (ibid.).

Alvin Goldman in his book *Knowledge in a Social World* (1999) is an example of an epistemologist who advances something very similar to explicationist epistemology, yet without reflecting on the relationship to Carnap. Early in the book (p. 5), Goldman declares: "[v]eritistic epistemology (whether individual or social) is concerned with the production of knowledge, where knowledge is here understood in the 'weak' sense of *true belief*." Letting "S-knowledge" and "W-knowledge" stand strong and weak knowledge, respectively, Goldman writes a few pages later (p. 24):

> The present book, however, will have nothing to say about S-knowledge [i.e. knowledge as justified, true belief]. It is devoted entirely to the prospects for W-knowledge, which is simply *true belief*. One reason I focus on W-knowledge is to circumvent the intricate issues that surround the notion of S-knowledge. Addressing those issues would demand a major digression from the main thrust of the book. A second and more important reason is that

[4] In Olsson (2015), I introduced the term "explicative epistemology" but I now prefer "explicationalist epistemology".

[5] Lehrer proceeds to claim that there is "underlying simplicity" on the grounds that "[k]nowledge reduces to undefeated justification, a just reward for our arduous analytical efforts" (p. 149). However, it remains true that Lehrer's definition of knowledge is hardly simply on a strict application of Carnap's criterion of definitional simplicity which requires that the form of the definition be simple (Carnap 1950, p. 7). Lehrer might respond that this shortcoming is offset by the simplicity of the laws for the formulation of which his explicatum is useful, in particular the supposed law that knowledge reduces to undefeated justification, appealing to the second aspect of simplicity on Carnap's account. However, it is doubtful whether this universal statement expresses a lawlike connection of the kind Carnap had in mind as it is a mere analytical consequence of the definitions of the concepts involved.

people's dominant epistemic goal, I think, is to obtain true belief, plain and simple. They want to be *informed* (have true belief) rather than *misinformed* or *uninformed*. The usual route to true belief, of course, is to obtain some kind of evidence that points to the true proposition and away from rivals. But the rationale for getting such evidence is to get true belief. Hence, the entire focus of this book is on W-knowledge.

Goldman proceeds to discuss the extent to which he has "invented" W-knowledge (p. 24) and indicates that he believes that he has not. There is, he thinks, an ordinary sense of "know" that corresponds to true belief. Yet he adds (p. 25): "If I am wrong about this, however, I am prepared to proceed cheerfully with weak 'knowledge' as a term of art (or technical term)." In the context of voter core knowledge (p. 324), i.e. knowledge of the core question facing the voter, Goldman is explicit about the usefulness of the weak concept: "I shall show that certain significant consequences for democracy logically follow from widespread core knowledge even in the weak sense of 'knowledge', so we need not concern ourselves with core knowledge in the strong sense."

Thus, Goldman, in attending to "weak knowledge", seems to do something very similar to explicating one purported sense of "knowledge". First of all, his account is purpose-driven; he is interested in finding a fruitful account of knowledge mainly for use in social epistemology. Second, his account contains an "elucidation of the explicandum", i.e. the identification of a promising purported sense of knowledge in which the latter reduces to getting things right. He is then suggesting that this putative sense of knowledge is appropriately explicated as "true belief". In doing so, Goldman can be understood as being willing to sacrifice some similarity with ordinary use in order to gain the advantages of simplicity and usefulness. To the extent that this account is a correct reconstruction of Goldman's intentions, he is in his 1999 book essentially practicing explicationist epistemology. This becomes even clearer as Goldman proceeds to define the value of true belief, or "veritistic value", in exact terms utilizing the resources of probability theory.

The methodology of explication should be understood to imply that all four requirements on an explicatum be given positive weight. After all, Carnap himself refers to the conditions on an explication as "requirements". In particular, the requirement of exactness should be taken quite seriously. An explication as a mapping from an inexact to an exact conceptual domain, although Carnap acknowledged that exactness is not a matter of all or nothing, and that the precification of scientific concepts sometimes proceeds in stages. In practice, the explicatum need not be exact in the logical or mathematical sense, but it should at least be *more exact* than the explicandum.

One way to see more clearly what explicationist epistemology involves is to contrast it with other methodological approaches to epistemology. I will argue that other approaches can be thought of as "limiting cases" of explication in the sense that not all conditions on an explication are thought to be important. Thus interpreted, these other methodological accounts are explications only in a degenerative or improper sense.

If we assign zero weight to all requirements other than that of similarity to the explicandum, the result is an account close to that associated with ordinary language philosophers like J. L. Austin, Gilbert Ryle and the later Wittgenstein. On this view, the main purpose of an account of a philosophical concept is to shed light, perhaps by means of examples, on the use of that concept or term in ordinary language. Few analytic philosophers nowadays officially subscribe to the ordinary language philosophy which dominated the Oxford scene in the mid-20th century. However, it is not unusual to find analytic philosophers who consider vagueness preservation to be a virtue of a philosophical analysis or definition. Faced with the objection that their preferred analysis of a given philosophical concept does not give a clear verdict as to how a particular example is to be classified, they will be inclined to argue, if possible, that this observation actually supports their analysis because the very same vagueness pertains to the explicandum.[6] A desire to preserve the vagueness of ordinary discourse is, for reasons noted, deeply at odds with the methodology of explication.

The ordinary language school has to some extent been revived recently in the form of experimental epistemology (e.g. Stich et al). Where the ordinary language philosophers sought to capture the meaning of epistemologically central terms through arm-chair reasoning and thought-experiments conducted by subjects thought to be expert users (the philosophers themselves), the experimentalists are preoccupied with probing the intuitions of ordinary people in psychological experiments, e.g. by presenting philosophical laymen with questionnaires. The sole focus in both cases, however, is on the first Carnapian requirement: similarity to the explicandum. Where the two camps differ is in the methodology thought to be most appropriate for this common purpose.

On a traditional account, philosophical methodology amounts to conceptual analysis. A prominent advocate was G. E. Moore, who thought that "[a] thing becomes intelligible first when it is analysed into its constituent concepts" (1899/1970, p. 97). A prototypical example would be the conceptual decomposition of 'bachelor' into 'unmarried' and 'man'. Similarly, knowledge has been thought to be analyzable as "justified, true beliefs" and the like. To the extent that the advocate suggests that exploring meaning relations between terms in ordinary language is the sole aim of the philosopher's definitional activity, conceptual analysis is not compatible with the principles of explicationist epistemology but rather constitutes a variation on the theme of ordinary language epistemology.

The point just made is related to the *paradox of analysis*. Consider a proposed conceptual analysis of the form "A is C", e.g. "knowledge is justified, true belief", where A is the analysandum (what is analysed) and C the analysans (what is offered as the analysis). Then either A and C have the same

[6] David Lewis is a well-known case. As Brian Weatherson (2009) notes, in his entry on Lewis in Stanford Encyclopedia, concerning the vagueness of Lewis's account of conventions: "Lewis, characteristically, thought this was a feature not a bug of the view. Our intuitive notion of a convention is vague, and any analysis of it should capture the vagueness. The idea that analyses of imprecise folk concepts should be imprecise recurs throughout Lewis's career."

meaning, in which case the analysis is correct but expresses a trivial identity and hence is uninformative; or else A and C do not have the same meaning, in which the analysis is informative but incorrect. Hence, no conceptual analysis can be both correct and informative.

No corresponding puzzle arises for explicationist epistemology. An explication does not aim to deliver a conceptual analysis of the explicandum, in the sense of identifying the meaning constituents of the latter (if such there be). Rather, the aim of an explication is to identify, for a particular purpose, a more exact correlate of the explicandum such that the former satisfies the requirements of similarity to the latter while being in addition fruitful and simple.

A further striking advantage of Carnap's methodology over mainstream epistemological thinking in the conceptual analysis tradition is that the former, unlike the latter, is immune to the Gettier problem. Under what conditions would the Gettier problem be a threat to the claim that a given account of knowledge satisfies the first Carnapian desideratum, that of faithfulness to ordinary use? It would be if it would show that it is not true that, in most cases in which the ordinary concept of knowledge has so far been used, the proposed explicatum can be used in its stead. But there are good reasons to think that the Getter problem does not show this: Gettier cases are not frequent enough to threaten the claim that a given account of knowledge can be substituted for ordinary knowledge in most cases. This basis for this claim is that Gettier cases involve the consecutive occurrence of two improbable events: a proposition (Brown owns a Ford) that is strongly supported by evidence turns out nonetheless to be false and yet by sheer luck (Brown is in Barcelona) the target proposition (Brown owns a Ford or is in Barcelona) comes out true anyway. Hence, the Gettier problem can never seriously undermine an explication (as opposed to a conceptual analysis) of knowledge.[7]

The methodologies contrasted with explicationalism so far can be reconstructed as being exclusively concerned with shedding light on the ordinary use of epistemologically central terms. These approaches methodologies are limiting cases of explicationism in the sense that they assign all weight to the requirement that the outcome should be maximally similar to the ordinary language concept. At the other end of the spectrum we find epistemologists who seem largely unoccupied with considerations of ordinary use. Jakko Hintikka's epistemic logic, as advanced in his famous book *Knowledge and belief* (1962) is a case in point. As Hendricks (2006, Ch. 6) explains, epistemic logic in Hintikka's sense was greatly influenced by the advances in modal logic. Specifically, standard systems of modal logic were given epistemic interpretations, and some main technical results of epistemic logic could then be extracted. The point of departure here was not an interest in the ordinary concept of knowledge but a sense that something reminiscent of it could be formalized in the apparatus of modal logic. In standard modal logic, the necessity operator is interpreted as "being true in all possible worlds". More precisely, □A is true in a world w if and only if A is true in all possible

[7] This point is argued at length in Olsson (2015).

worlds accessible from w. In epistemic logic, a similar operator is introduced with the interpretation that A is true in all possible worlds compatible with what A knows. To the extent that epistemic logic is not interested at all in ordinary use, or interested only in a very qualified sense, it is merely a limiting case of explicationist epistemology and not a *bona fide* example thereof. The hard core epistemic logician is concerned with maximizing exactness, simplicity and fruitfulness (in the formal sense that many interesting theorems can be derived). Arguably, however, most practitioners of epistemic logic or formal epistemology, more generally, are interested in securing some relationship between the outcome of their activities and concepts in ordinary language. Whether a given practitioner of formal epistemology is pursuing explicationism depends on the extent to which he or she is giving sufficient emphasis on the goal of preserving the similarity to the explicandum in relation to Carnap's first requirement.

4. Explicationist epistemology and pluralism

As the reader can probably anticipate, explicationist epistemology represents a pluralist approach to epistemology. In fact, there are several senses in which this is true. First of all, explicationism allows for a *plurality of epistemological projects*. The initial step of elucidating the explicandum involves selecting pre-systematic concept to be explicated among several such concepts. Following Bach (1980) and many others,[8] it is not unreasonable to think that there are two pre-systematic conceptions of epistemic justification – one externalist and the other internalist. If this is true, then it is completely legitimate from the present perspective to focus on one of these conceptions without also spending time and energy on the other. Similarly, if Goldman is right in thinking that there is a strong and a weak sense of knowledge, it would be rationally permissible to devote attention to one of them in the context of a particular epistemological investigation. There are many epistemological projects that can be fruitful and enlightening, depending on which pre-systematic concept (possible explicata) we decide to explicate.

A natural resource to turn to when explicating a given epistemological term is the map of meanings listed in an authoritative dictionary based on lexicology, which is the relevant empirical discipline for identifying word meanings in a systematic fashion. Such a map can be viewed as a list of possible explicanda, and the definitions given as "elucidations" of those explicanda. For example, Oxford Living Dictionaries (Oxford University Press) lists a number of "definitions of knowledge in English"

[8] See Bach (1985), p. 248: "… there surely are two conceptions of justified belief involved in the debate, the internalist and the externalist conception. Laurence BonJour has contrasted them nicely. Internalism requires that a person have 'cognitive grasp' of whatever makes his belief justified. Being justified depends on how rational and 'epistemically responsible' (whatever this means more precisely) he is in coming to hold the belief. In contrast, the externalist (reliabilist) conception allows that the source of justification can be 'external to the person's subjective conception of the situation'." The BonJour reference here is to his 1980 article.

that are useful to contemplate in this connection.[9] As a starting point, is noted that the term can be used as a (mass) noun. As such, it can refer to "[f]acts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject". Examples of this use would be "a thirst for knowledge" or "her considerable knowledge of antiquities". The term can also denote "the sum of what is known", as in the expression "the transmission of knowledge". A further sense is knowledge as "information held on a computer system". An example of this use is: "The server now has sufficient knowledge to honor a data transfer from the client". The dictionary also lists, under the same mass term heading, a particular use explicitly noted as belonging to philosophy: "True, justified belief; certain understanding, as opposed to opinion". One cited example is: "As a rationalist, he believed that the only path to true knowledge was through logic". According to the same source, knowledge can signify "[a]wareness or familiarity gained by experience of a fact or situation", as in "the programme had been developed without his knowledge" or "he denied all knowledge of the incidents".

Now any of these senses of "knowledge" could be the starting point of a potentially interesting epistemological project culminating in a more precise and (for a particular purpose) useful explicatum that also respects the goals of faithfulness to ordinary use and simplicity. If, for example, our aim is to explicate knowledge in the sense of "the theoretical or practical understanding of a subject", the resulting explicatum would naturally involve an account of the structure of a person's belief system and of how its elements fit together. The net result may very well be a coherentist account of systems of (true) beliefs tied together through inferential or explanatory connections. By contrast, knowledge as "the sum of what is known" would point more obviously in the direction of the "output aspect" of knowledge, i.e. something like Goldman's account in terms of "true belief". The computer sense of knowledge naturally suggests a Hinikka-style account in terms of excluded possibilities. The input aspect of belief, how the belief was obtained, would be salient if the project were one of explicating knowledge in the sense of "awareness or familiarity gained by experience of a fact or situation". An approach that takes into account the cognitive process and its relevant features would be a natural point of departure.

To continue the illustration, once a definite pre-systematic conception of an epistemological term has been selected for further explication, there is room for a *plurality of explicata*. The crucial observation here is that the goodness of an explication is a matter of satisfying all four desiderata, as a package, to as high a degree as possible. The desiderata may, however, work in opposite directions. For instance, a more fruitful explicatum may be less consonant with ordinary use (as the previous whale example illustrates in a scientific context). Carnap does not give any rule for how to weigh the different

[9] See https://en.oxforddictionaries.com/definition/knowledge, retrived on May 15, 2017. The sense in which the term applies to computer systems was added recently. When I first consulted the dictionary, in April of 2017, that sense was not yet listed.

considerations against each other in cases where there are different plausible ways of explicating the same explicandum. His only advice, as we saw, is that simplicity should generally be the least important concern. It would be just as rational, from a Carnapian perspective, to favor fruitfulness over faithfulness to ordinary use, as it would be to entertain the opposite preference. This said, it is plausible to think that the relative weight of the desiderata will be, to some extent, guided by the context. Thus, one context may require a very exact explication of knowledge, e.g. for the purpose of AI programming. In another context, a relative unpolished explicatum may be sufficient if it proves to be empirically or otherwise fruitful.

Thus, even if we agree to attend to knowledge in the sense of "the theoretical or practical understanding of a subject" there are many ways in which this idea could be made more precise along Carnapian lines, even if we limit our attention to variants of coherentism. How we choose to proceed depends considerably on the purpose of the investigation. If our goal is a general philosophical one that focuses on the broader philosophical understanding of the concept, we might be satisfied with a rather rough characterization. For example, BonJour (1985) defines coherence in terms of the following aspects:

1. A system of beliefs is coherent only if it is logically consistent.

2. A system of beliefs is coherent in proportion to its degree of probabilistic consistency.

3. The coherence of a system of beliefs is increased by the presence of inferential connections between its component beliefs and increased in proportion to the number and strength of such connections.

4. The coherence of a system of beliefs is diminished to the extent to which it is divided into subsystems of beliefs which are relatively unconnected to each other by inferential connections.

5. The coherence of a system of beliefs is decreased in proportion to the presence of unexplained anomalies in the believed content of the system.

Yet BonJour has little to say about the details of these aspects and how they are interrelated. If system A is contains more inferential connections than system B, but B is less anomalous than A, which system is more coherent, all things considered?[10] BonJour's relative silence on this matter and other similar intricacies reveals, on a charitable reading, that his theory is not intended to provide guidance for deciding concrete cases, but to shed light on the nature of belief systems and the human epistemic condition for general philosophical purposes, in particular the prospects of defending one's totality of beliefs against global challenges.

A strikingly different account of coherence has been advanced by Paul Thagard (e.g. Thagard, 2000). His "principles of explanatory coherence" are listed below:

[10] See Olsson (2017) for a fuller discussion of BonJour's coherence theory. See also Olsson (2005), Ch. 4.

Principle E1 (Symmetry) Explanatory coherence is a symmetric relation, unlike, say, conditional probability. That is, two propositions A and B cohere with each other equally.

Principle E2 (Explanation) a. A hypothesis coheres with what it explains, which can either be evidence or another hypothesis. b. Hypotheses that together explain some other proposition cohere with each other. c. The more hypotheses it takes to explain something, the lower the degree of coherence.

Principle E3 (Analogy) Similar hypotheses that explain similar pieces of evidence cohere.

Principle E4 (Data Priority) Propositions that describe the results of observation have a degree of acceptability on their own.

Principle E5 (Contradiction) Contradictory propositions are incoherent with each other.

Principle E6 (Competition) If A and B both explain a proposition, and if A and B are not explanatorily connected, then A and B are incoherent with each other (A and B are explanatorily connected if one explains the other or if together they explain something).

Principle E7 (Acceptance) The acceptability of a proposition in a system of propositions depends on its coherence with them.

Thagard has achieved even greater precision by translating his principles into computer code, allowing a computer to answer questions like "Is system A more coherent than system B?" in relation to specific issues (e.g. Thagard, 2000).

The bottom line is that BonJour and Thagard can be viewed as taking the same exlicandum as the starting point of their respective investigations and yet ending up with radically diverging accounts, whereby the theories differ perhaps most saliently in the level of exactness reached. On an explicationist reconstruction, the differences observed in the final results are plausibly due to variations in aims and purposes affecting the relative weight assigned to the Carnapian requirements.[11]

For another illustration of the plurality of explicata, consider reliabilism as an account of the sense of knowledge of "awareness or familiarity gained by experience of a fact or situation". Reliabilism states that knowledge, in much this sense, amounts to reliability acquired true belief (e.g. Goldman, 1986). It is arguably easier to assess, or intersubjectively agree upon, whether someone possesses a reliably acquired true belief than it is to assess whether the person is in a state of "awareness or familiarity gained by experience of a fact or situation".[12] It is plausible, therefore, to view reliabilism as a more exact version of the latter concept. Yet different theories may still disagree about the precisification of "reliable". A first, rough answer is that a process of belief acquisition is reliable just in case it tends "to produce beliefs that are true rather than false" (Goldman, 1979/1992, 113). However, this account could be understood either in a modal or purely probabilistic way depending on what class of beliefs

[11] See Olsson (2017) for more details on Thagard and coherence theories in general. See also Olsson (2005), Ch. 9.

[12] Conee and Feldman (1998) have forcefully questioned the possibility of reaching intersubjective agreement on matters of reliability except in special circumstances. The empirical study in Jönsson (2013) concluded, by contrast, that people often converge on judgements of reliability in normal cases. See also Olsson (2016) for a discussion of this aspect of the so-called generality problem for reliabilism.

we are considering as a reference. Do we mean all beliefs – past, present and future – ever acquired by the subject? Do we mean only actually acquired beliefs or should we also count possibly acquired beliefs, i.e. the employment of the process not only in the actual but also in some possible worlds (for instance, the closest ones to the actual world)? Having reflected on these issues and concluded that the probabilistic account needs to be combined with a contextual choice of reference class, Peter Baumann draws the following enlightening conclusions:

> Finally, what about the alternative between modal interpretations and probabilistic interpretations of "reliability"? Aren't they more or less on a par, at least with respect to the issues discussed here? I don't think so. I think there are clear advantages on the side of the probabilistic version. Let me quickly mention two. First, closeness rankings of possible worlds seem restricted to ordinal rankings while the apparatus of probability theory can capture more than that and represent relations between differences of probabilities. Second, probability theory is closer to home if you're a naturalist than modal logic. The natural sciences are happy to use probability theory but seem to have little use for modal notions. I would therefore propose three things (in the light of all of the above); stick with reliabilism, go for a probabilistic version of it, and accept the contextualist implications of all that.

If this is correct, then how we choose to make the reliabilist account more precise will in the end depend on the purposes of our investigation, thus leading to a possible manifold of different potentially interesting explicata.

In fact, I believe that there is a third sense in which explicationist epistemology is plausibly pluralist, although I will not argue this point at length here. The sense I have in mind is that explicationism allows for a *plurality of sub-methodologies*. The thought is that ordinary language philosophy, experimental philosophy etc. need not be seen as competing enterprises but rather as complementary parts of a larger explicationist enterprise. A resource such as the Oxford Living Dictionary will only get you so far in mapping out the meaning of central epistemological terms. Ordinary language and intuition-based epistemology, as well as experimental work, are obviously useful for spotting more fine-grained epistemological distinctions or proposing hypotheses in this direction. They are thereby relevant for identifying the relevant explicandum with greater precision and for contrasting it with related, though distinct, concepts in a more extensive fashion than a general dictionary admits. These methodologies are also potentially useful when assessing how close a given proposed explicatum is to a given explicandum and thus relevant for evaluating the extent to which a given candidate explicatum satisfies the first Carnapian requirement. Formal epistemology, by contrast, has so far given rise to a rich catalogue of potential epistemological explicata (cf. Hendricks, 2006) – a welcome resource when deciding how to explicate a given explicandum for a particular purpose requiring formal precision. Some researchers may be more drawn towards one sub-methodology rather than another. For example, some are interested in experimental work, others in thought-experiments and intuition-based methodology. All this is fine form the explicationist perspective. The results of these diverse activities, properly conducted, are useful in the explication of central epistemological concepts for various contexts and purposes.

5. Comparison with Alston's theory of epistemic desiderata

Epistemic pluralism has been advanced by other researchers without reference to Carnap. One well-known case in point is William Alston's theory of "epistemic desiderata" (Alston, 1993). It is interesting to compare Alston's approach with explicationalist epistemology, as outlined above.

Alston is, in his study, concerned not with the concept of knowledge but with that of (epistemic) justification. Traditionally, it has been held that there is one concept of justification, and that identifying and shedding light on that concept is a, or perhaps even *the*, central task of epistemology. Alston takes issues with this school of thought. His starting point is a survey of what epistemologists have been proposing to be necessary conditions of justification. Thus, some have suggested that the belief in question must be based on grounds of the appropriate sort. Others have emphasized truth-conducivity: "[t]he reason or its content must be so related to the target belief and its content that, given the truth of the former, the latter is thereby likely to be true" (p. 528). Still others have maintained that what justifies a belief must be accessible to the subject. There are also higher-level requirements of the sort that the subject knows, or is justified in believing, that the ground of her belief is an adequate one. Finally, having coherent beliefs has been advanced as a necessary condition for justification, as has satisfying certain intellectual obligations. Observing the diversity of these conditions, Alston concludes (p. 534):

> If we take the full range of parties to the disputes we have been considering, some of whom have had their thinking about 'epistemic justification' nourished primarily by some of the roots just mentioned and others about others, there does not seem to be enough commonality in their pre-theoretical understanding of the nature of epistemic justification to warrant us in supposing that there is some uniquely identifiable item about which they hold different views. It seems, rather, that they are high-lighting, emphasizing, 'pushing' different concepts, all called 'justification'. It seems, to switch to the perspective of this paper, that they are selecting different epistemic desiderata, or packages thereof, as deserving of the honorific title 'justification'.

In place of the traditional epistemological enterprise Alston proposes that we should seek to "disentangle the various epistemic desiderata involved in these discussions, aim at a penetrating understanding of each and of their interrelations, and explore the implications of this for epistemology" (p. 538). A few pages later (p. 542), these new tasks are organized under four heading (original emphasis): "the *elucidation* of desiderata; their *viability*; their *importance*; their *interrelations*". The elucidation of the desiderata involves "understanding the nature of each of the epistemic desiderata that have figured in that discussion" (ibid.). The viability of a desideratum concerns the possibility of actually satisfying it in practice. By importance Alston understands the "relative importance or centrality of one or another desideratum" (ibid.) in comparison with other desiderata. Alston states that he has nothing to say in the article about the interrelations between the desiderata.

How does Alston's account compare with explicationalist methodology á la Carnap? Let us focus first on the communalities. First of all, Alston, like Carnap, does not assume that just because there is a term in ordinary language – be it "knowledge" or "justification" – this means that it signifies a unique concept or idea. Rather, both thinkers are open to the possibility that words in ordinary language can have a variety of meanings that are more or less interrelated. Second, Carnap would have welcomed Alston's list of "epistemic desiderata" as presenting, in his terminology, a collection of possible explicanda in relation to "justification", i.e. a set of pre-systematic meanings of the latter that can constitute the starting point for further conceptual endeavors. In this sense, both perspectives imply the existence of a plurality of legitimate and potentially interesting epistemological projects that can be pursued under the heading "epistemic justification", and I take it that Alston would agree that the same is true regarding other epistemological terms.[13]

Furthermore, Alston takes the new goal of epistemology vis-à-vis justification to be not only the attainment of a deeper understanding of the various meanings of "justification" and their interrelations, tasks that are naturally viewed as belonging, in Carnap's framework, to the initial step whereby the explicandum is elucidated, but he also thinks – as did Carnap – that there are further goal to pursue once this clarificatory step has been completed. Yet this is where the similarities between Alston and Carnap seem to end. For Alston, the additional aims involve shedding light on the viability and importance of the meanings, or desiderata, in question. Alston's own preliminary investigations into these matters regarding "justification" essentially consist in distinctly philosophical reflections on well-known distinctions in epistemology, as traditionally pursued, such as externalist vs. internalist justification and global vs. local skepticism. For Carnap, by contrast, what remains is the task of actually explicating the concept that has been singled out as the explicandum, i.e. transforming the latter into an exact concept that is adequate and fruitful for specialized purposes. Carnap's focus is on reconstructing and improving our pre-systematic concepts for use in circumstances that require greater precision. Carnap thought that serious philosophy presents just the kind of context requiring increased exactness and conceptual development with respect to crucial terms, and that this was one way in which philosophy could advance beyond the stage of persistent disagreement to a scientific discipline. Alston, it seems, would disagree.

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[13] See Peels (2010) for a contrasting assessment. Peels argues that Alston's theory of epistemic desiderata is not as pluralist as Alston claims it to be.

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