The Knowledge Argument

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Frank Jackson first presented the Knowledge Argument (henceforth KA) in "Epiphenomenal Qualia" (1982). The KA is an argument against physicalism, the doctrine that (very roughly put) everything is physical. The general thrust of the KA is that physicalism errs by misconstruing or denying the existence of the subjective features of experience. Physicalists have given numerous responses, and the debate continues about whether the KA ultimately succeeds in refuting any or all forms of physicalism. Jackson himself has recently (1998a) recanted: he now rejects the KA and endorses physicalism. One point should be acknowledged by all sides: in formulating the KA, Jackson clearly and forcefully articulated a deep-seated, intuitive reason why even some scientifically-minded analytic philosophers have resisted physicalism. The KA has been sufficiently influential that it is even discussed in writings aimed at general audiences that include non-philosophers; for example, it is discussed in E. O. Wilson's Consilience (1998).

What follows is an overview of the literature on the KA. I will begin in section 1 with a sketch of the KA, followed by a discussion of the historical background in section 2. In section 3, the third and longest section, I will provide a taxonomy of objections to the KA, along with brief descriptions of them. In section 4 I will compare the KA to related arguments. I will close in section 5 by briefly raising a question about the extent to which the KA can be generalized.

1. The Basic Idea of the KA

The basic idea of the KA can be put abstractly as follows: one might know all the objective, physical facts about human conscious experiences, and yet fail to know certain facts about what human conscious experiences are like subjectively; therefore, there are facts about human conscious experiences that are left out of the physicalist's story, and so physicalism is false.

The KA's persuasive force derives chiefly from Jackson's clever thought experiment involving Mary, the super-scientist. (The Mary case is one of two of Jackson's original cases. The other involved Fred, who could see more colors than normal humans can. The Mary case is simpler and thus more often discussed.) Mary spends her life in a black-and-white room and has no color sensations. She watches science lectures on black-and-white television and learns everything about seeing in color that can in that way be learned. This includes mastering the completed science of human color vision. If physicalism were true, she would know all the facts about color experiences, because physicalism entails that all such facts can be expressed in the colorless language of science. But, one thinks intuitively, when she ventures into the colorful outside world and has color experiences for the first time, she learns something: she learns what it's like to see in color. Therefore, Jackson concludes, physicalism is false.
In short:

1. Before Mary leaves the room, she knows all the physical facts about color experiences.

2. When Mary leaves the room, she learns new facts (i.e., facts she did not know previously) about color experiences – facts about what it’s like to see in color.

3. Therefore, there are non-physical facts about color experiences.

4. Therefore, physicalism is false.

The argument can be formulated using the term ‘information’ instead of ‘facts’; Jackson uses both locutions.

The preceding compressed summary of the KA is convenient for conveying the basic idea, and it is accurate insofar as it goes. But it hides some implicit assumptions, as will be made clear below.

Before proceeding, however, it should be noted that the Mary case involves at least some idealization and possibly oversimplification. First, the assumption that science is complete-able, even in a limited realm like the science of color vision, is not trivial. Second, several special implicit stipulations must be made in order to ensure that Mary’s pre-release visual experiences are not in color. For example, we must assume that she never presses on her eyes in such a way as to produce flashes of yellow. Alternatively, we could dispense with the device of the black-and-white room, and assume instead that she is congenitally colorblind and, after completing her science lessons, acquires color vision. Third, it may be naive to assume that Mary’s visual experiences would be very much like watching black-and-white television; for (anecdotal) reasons against that assumption, see Sacks 1995. However, none of these three points should be mistaken for substantive objections to the KA. There are, of course, substantive objections, as we shall see in section 3 below.

2. Historical Background

Something close to the KA can be found in writings that preceded Jackson 1982. As Jackson himself acknowledges, “Epiphenomenal Qualia” owes a great deal to Nagel 1974. Indeed, David Lewis (1983) describes Jackson’s KA as a purified version of an argument in Nagel 1974, and there is much truth in Lewis’ description. Thus, authors sometimes employ phrases like ‘the Nagel-Jackson Knowledge Argument’, and some (e.g., Pereboom 1994) argue that Nagel’s and Jackson’s arguments are at root identical. The KA did not elicit an enormous response until Jackson 1986, in which Jackson presented the KA for a second time and defended it against objections raised in Churchland 1985.

For the reader unacquainted with the history of Twentieth Century analytic philosophy of mind, it is worth noting that the dominant theories have all been physicalist – or in the case of functionalism, compatible with physicalism – and they have usually taken a reductionist form (see Searle 1992). That is the principal reason why arguments like the KA
are regarded as important: the KA is an intuitively forceful attack on the entire reductionist-
physicalist approach, rather than on one particular form of reductionist-physicalism, such as philosophical behaviorism.

3. Objections to the KA

3.1. Outline of Objections

Objections to the KA have been many and varied, and I will describe them below, begin-
ning with section 3.2. In this section, I will classify the objections by explaining how their proponents would respond to a series of questions about the KA (a similar taxonomy appears in van Gulick 1993). My basis for choosing these questions in particular is as follows. The KA is driven by the intuition that Mary learns something, i.e. that she acquires knowledge, when she leaves the room. Objections may thus be divided into two groups: (i) those that reject Jackson’s intuition that Mary gains knowledge when she leaves the room, and (ii) those that accept Jackson’s intuition, but reject the consequences that he infers from it. Group (i) is represented by a negative answer to Question 1 below, and group (ii) is represented by negative answers to Questions 2, 3, or 4. (Authors are sometimes listed more than once, either because they propose explicitly different views or because their views can be understood in different ways.)

Question 1: When Mary is released, does she acquire knowledge (in any sense)?

   No. We think so only because we fail to appreciate how much the pre-release Mary knows. (Dennett, Churchland, Foss, Jackson?)

Question 2: But does she acquire factual (propositional) knowledge?

   No. She gains only know-how, which is not propositional. (Nemirow, Lewis, Mellor)

   No. She gains only acquaintance knowledge or indexical knowledge. (Conee, Bigelow and Pargetter, McMullen, Papineau, Yi)

Question 3: But does her new knowledge consist in learning new facts (facts she did not previously know)?

   No. She represents old facts in a new way. (Horgan, Churchland, Tye, Lycan, Loar, Pereboom, Bigelow and Pargetter, van Gulick, McMullen, Papineau, Teller)

Question 4: But is physicalism thus refuted?

   No. All the facts about qualia are, though inaccessible to the pre-release Mary, facts about the brain, and the existence of such facts is consistent with non-reductionist forms of physicalism. (Searle, Flanagan, Alter)

In the preceding chart, authors who accept the KA’s anti-physicalist conclusion are not
listed. Such philosophers include Robinson (1996), Chalmers (1996), Gertler (1999) and (until recently; see section 3.2 below) Jackson (1982, 1986). Chalmers’ discussion is arguably the most thorough and vigorous defense of the KA as a refutation of physicalism.

Let us now consider each question in turn.

3.2. Does Mary Acquire Knowledge When Released?

Most of those discussing the KA are willing to grant that Mary learns something when released. But not everyone accepts that premise. Foss (1989) argues that the pre-release Mary lacks no knowledge about color experiences, because she could know everything that the color-sighted people who reside in the colorful outside world would (or even might) say about colors. Foss’s strategy has not been popular, presumably because, as Chalmers (1996) notes, it is far from clear that knowing everything about the verbal behavior of those who have had color experiences is sufficient for knowing what it’s like to see in color.

Other reasons for doubting that Mary learns anything when she is released may be found in Churchland 1985, Stemmer (1989) and in Dennett 1991. The position is somewhat clearer in Dennett 1991, since Churchland concentrates on another objection to the KA (see section 3.5 below). Dennett argues that, prior to leaving the room, Mary is already capable of identifying the kinds of color experiences she is about to have by using technical instruments like cerebroscopes – she would be able to recognize the brain patterns stimulated by her first color experiences, and so she would hence not be fooled by a blue banana.

One problem with Dennett’s argument is that it seems to presuppose that having certain recognitional capacities is equivalent to knowing what it’s like to see in color. That presupposition clearly requires defense and would beg the question against Jackson if not defended on independent grounds; see below, section 3.3. For other criticisms of Dennett’s discussion of the KA, see Robinson 1993 and Jacquette 1995.

Nevertheless, there is an important moral to be drawn from Dennett’s discussion: we should take seriously the possibility that our intuitive judgment – that Mary learns something when released – is based on ignorance of what Mary’s vast knowledge would involve. After all, her pre-release knowledge includes everything in completed physics and neurobiology. Our confidence in any conclusions we draw from the Mary case should be limited accordingly.

Jackson himself has recently rejected the premise that Mary learns anything when she leaves the room, partly based on similar considerations. In Jackson 1998b) he argues that we should be suspicious of giving "intuitions about possibilities [like the Mary case] too big a place in determining what the world is like" (43-4). And in Jackson 1998a he states that, in his view, Mary does not gain knowledge when she leaves the room. He thinks that the real puzzle is to explain why the intuition to the contrary is so strong. He suggests the following explanation. Learning a physical fact often involves making inferences; it is often a long and complex process. By contrast, when Mary leaves the room, her gain in knowledge is almost immediate. We therefore infer, wrongly but naturally, that the knowledge
gained cannot be knowledge of physical facts.

3.3. Does Mary Gain Only Abilities When Released?

If it is granted that Mary gains knowledge when released, the question arises as to what kind of knowledge she gains. It is generally agreed that if she gains knowledge, the knowledge she gains is knowledge of what it’s like to see in color, in Nagel’s (1974) sense of the phrase. (Nida-Rumelin (1998) argues that the phrase ‘knowing what it’s like’ should not be used in formulating the KA, but I will ignore this complication.) But what kind of knowledge is knowing what it’s like?

Jackson assumes that knowing what it’s like is a kind of propositional knowledge, but others disagree. In his review of Thomas Nagel’s Mortal Questions, Laurence Nemirow proposed that knowing what it’s like is a kind of know-how – it consists only in the possession of abilities, such as the ability to identify red objects as red, to imagine or remember having a red experience, and so on. Nemirow (1980, 1990) and Lewis (1983, 1988) adopt the ability analysis of knowing what it’s like and use it to block the KA. Mellor (1993) also defends a version of the view. These philosophers argue as follows. When Mary is released, she learns what it’s like to see in color, just as Jackson says. But what this means is that she acquires new abilities, not new information: she learns no information or facts that she did not previously know. Therefore, they conclude, the Mary case provides no basis for doubting physicalism’s truth, even though the pre-release Mary does not know what it’s like to see in color.

Challenges to the ability analysis of knowing what it’s like are found in Conee 1994, Alter 1998, Loar 1990, Raymont 1999, and Lycan 1995 and 1996. Conee and Alter argue that having the abilities Nemirow and Lewis mention is neither necessary nor sufficient for knowing what it’s like. For example, against sufficiency Conee notes that one can have an ability without ever exercising it, and such could be Mary’s pre-release state. Both Conee and Alter argue that in principle one could know what it’s like to see red while seeing a red tomato and never possess the ability to imagine, remember, etc., such experiences; and that therefore possessing such abilities is not strictly necessary for knowing what it’s like. Raymont 1999 offers similar arguments and defends them against objections. The general strategy here is to argue that knowing what it’s like cannot be identified with having abilities because there are conceivable cases in which one can know what it’s like without having the relevant abilities and vice versa.

Lycan offers a barrage of criticisms of the ability analysis – ten in all, some of which involve close semantic analyses of the relevant linguistic expressions. One of these semantically-based criticisms was originally given by Loar, who in turn modeled his objection on one of Geach’s (1960) objections to ethical emotivism. Loar and Lycan argue that ordinary English claims expressing knowledge of what it’s like can be embedded in conditionals in a straightforward way, and that the same cannot be said of ordinary English expressions of the possession of the relevant abilities.
One aspect of the Lewis-Nemirow strategy that has not been much discussed is the assumption that know-how consists entirely in the possession of abilities, as opposed to propositional knowledge. That assumption has been forcefully challenged by Noam Chomsky (though not in connection to the KA). See, for example, Chomsky 1994. There Chomsky discusses brain injuries that result in a temporary loss of an ability, such as the ability to ride a bicycle, which is regained after recovery. As Chomsky writes, "what remained intact was the cognitive system that constitutes knowing how to ride a bicycle; this is not simply a matter of ability, disposition, habit, or skill" (Chomsky 1994, 11). Chomsky is concerned principally with linguistic know-how, of course, but (as his bicycle example indicates) his arguments are general and therefore apply to the Lewis-Nemirow ability analysis of knowing what it’s like: if there is more to know-how than possessing abilities, then one could question whether the Lewis-Nemirow strategy succeeds in preserving the intuition that Mary gains knowledge in any sense, even if it were granted that knowing what it’s like is a kind of know-how. This criticism is pursued in Alter n.d.

3.4. Does Mary Gain Only Acquaintance Knowledge or Indexical Knowledge When Released?

A variation of the Lewis-Nerimow strategy is to argue that, upon her release, Mary gains neither propositional knowledge nor know-how, but rather acquaintance knowledge – that she comes to know color experiences in the sense that one comes to know a person or a city (Conee 1994). Herbert Feigl (1967, esp. p. 68) once proposed such an account of knowing what it’s like, and other authors have made similar proposals. Conee (1994) applies the acquaintance analysis specifically to the KA.

Conee’s view is criticized in Alter 1998, where it is argued that, although Mary may acquire acquaintance knowledge upon her release, it is implausible that all she gains is acquaintance knowledge, and that this conclusion is supported by a careful examination of Conee’s analogy between becoming acquainted with a person or city and becoming acquainted with color qualia. However, the acquaintance knowledge analysis of knowing what it’s like cannot be easily dismissed; it should be regarded as a contender view.

Some perceive a connection between Mary’s situation and a lack of indexical knowledge, and that connection forms the basis of an objection similar to the one based on the acquaintance knowledge analysis. These objectors (McMullen 1985, Bigelow and Pargetter 1990, Papineau 1993, Yi n.d.) concede that Mary gains knowledge when she leaves the room, but they argue that her gain is comparable to, and no more puzzling than, the absent-minded U.S. historian who learns that today is July 4th, America’s Independence Day. This strategy is criticized by Chalmers (1996).

One difference between the indexical knowledge strategy and Conee’s acquaintance knowledge strategy is that advocates of the former tend not to deny that knowing what it’s like consists (at least in part) in propositional knowledge. Their tendency is to argue that the comparison of the Mary case to other examples of gaining indexical knowledge shows that Mary’s apparent gain in factual knowledge does not indicate that color experiences are
non-physical. See section 3.7 below for similar criticisms of the alleged anti-physicalist implications of the Mary case.

3.5. Does Mary Just Come To Know Old Facts Under New Guises?

Several of the KA’s critics admit that the knowledge Mary gains when released is propositional in kind, but deny that she learns any new facts – facts that were not known to her prior to her release. According to these critics, what happens is that Mary comes to represent differently facts she already knew. On their view, the facts about color experiences are captured completely and accurately by the completed science that the pre-release Mary learns. Those same facts can be represented under phenomenal guises, but the pre-release Mary does not so represent those facts. The pre-release Mary lacks knowledge about color experiences in something like the way that Jones, who is up on his sports history but has never heard the name ‘Cassius Clay’, lacks knowledge of Clay’s boxing talents. Jones does not lack any pugilistic knowledge; he simply fails to represent the relevant facts using the ‘Clay’-guise. Likewise, the objectors argue, the pre-release Mary knows all the facts about color experiences; she simply fails to represent them under the relevant phenomenal guises.

The old-fact/new-guise analysis was first used as a criticism of the KA by Terence Horgan (Horgan 1984). Versions of it have since been developed by several authors, including Churchland (1985), Pereboom (1994), Tye (1986), Bigelow and Pargetter (1990), van Gulick (1993), Lycan (1990, 1996), Loar (1990), McMullen (1985), Papineau (1993), and Teller (1992).

It is argued in Alter 1998 and Chalmers 1996 that the analogies drawn to cases like the Ali/Clay case do not support the old-fact/new-guise theory. Alter and Chalmers each argue that, even if Mary gains “only” new phenomenal guises when she leaves the room, she nevertheless learns new facts involving those new guises. That criticism is not sufficient to undermine Loar’s sophisticated version of the old-fact/new-guise analysis, as Chalmers points out; but Chalmers also argues that even Loar’s version of that the theory does not stand up to further scrutiny. A criticism of Tye’s version of the theory is presented in Raymont 1995; a criticism of Pereboom’s version is presented in Alter 1995a; and at the 1999 Pacific Division APA meetings, A. Anchustegui argued that the theory succumbs to Kripke’s modal argument against type-identity theory. However, the old-fact/new-guise theory of Mary’s post-release knowledge remains the most widely held view among the KA’s critics.

3.6. A Semantic Objection to the KA

Some adduce considerations from the philosophy of language against the premise of the KA that Mary learns new facts when she leaves the room. Those objectors reason as follows. There is no reason why the pre-release Mary cannot communicate with color-sighted people who reside in the colorful world outside her black-and-white room. Those colorsighted people can express in language precisely the facts about knowing what color expe-
riences are like that Mary is supposed not to know. For example, they might say or write, "Seeing red is like this", intending the demonstrative to refer to color qualia. Indeed, such a sentence might appear in one of Mary’s science lectures. According to the objectors, some such communication would provide Mary with access to any facts about color experiences that she does not learn from her science lectures. After all, the objectors reason, contemporary theories of reference suggest that historical chains of communication enable those who know virtually nothing at all about Cicero to refer specifically to him (see, for example, Kripke 1972); why, then, wouldn’t Mary’s communication with those who have had color experiences provide her with cognitive access to the facts in question?

Versions of this semantically-based objection to the KA are presented in Tye 1986 and Conee 1994. Alter (1998) counters, however, by arguing that the objection depends on confusing different senses of ‘having access to a fact’ and on related mistakes. But the objection raises important issues about the extent to which language can enable one to grasp propositions about that with which one is unacquainted – a topic of particular interest to Bertrand Russell and other central figures in philosophical semantics. See Russell 1910-11. For more recent discussions of the issue, see Donnellan 1979 and Kaplan 1989.

3.7. Is Physicalism Thus Refuted?

The KA is sometimes portrayed as an argument for something akin to Cartesian Dualism. Whether or not the KA could be used for such a purpose, Jackson makes clear that he never had any such intention. In Jackson 1986, he suggests that the KA may be used to support property dualism, and David Chalmers (1996) concurs (see also Furash 1989 and Robinson 1996). Unfortunately, Jackson does not explain exactly what he means by ‘property dualism’. Minimally, property dualism implies that (certain) mental properties are not identical to any neural properties. But that non-identity thesis is consistent with the weaker physicalist thesis that mental states are constituted by or realized in brain states; and the non-identity thesis is also consistent with the thesis that disembodied minds are impossible.

If Mary learns new facts when released, does it follow that physicalism is false? That depends on what physicalism entails. Jackson (1986) defines physicalism as the doctrine that all facts are physical (in Jackson 1982 he formulated the physicalist thesis with ‘(correct) information’ instead of ‘facts’, but he treats the two formulations as equivalent). And he claims that if physicalism is true, then all the facts about color experiences would be known to the pre-release Mary – a claim that may seem trivial, but is not. What may be trivial, because it is stipulated and seems coherent, is the claim that the pre-release Mary knows everything that can be conveyed to and understood by a human being by black-and-white television lectures. But why should we believe that all physical facts can be conveyed to a human being – or any creature – through a black-and-white medium?

That question has not received a tremendous amount of attention, perhaps because Jackson formulates his stipulation by saying that Mary learns all of the physical facts while in the room. Yet one may legitimately wonder whether the latter stipulation is coherent – whether
anyone, even a superscientist, could learn all of the physical facts about color experiences without having any color experiences herself. All Jackson does to defend the coherence of his stipulation is to offer the following quick reductio ad absurdum argument: if it were impossible to learn all of the physical facts about color experiences without having any color experiences, then the Open University would have to be broadcast in color, which is absurd. (The Open University is a British University in which classes are conducted almost entirely over television.) But Jackson’s reductio argument is not compelling. As odd as it may sound, perhaps some physical facts about color experiences cannot be conveyed accurately and completely in black-and-white – or perhaps some such facts cannot be understood if conveyed in black-and-white. Perhaps the Open University would have to be broadcast in color, if the goal is to convey all the facts about color vision. Owen Flanagan (1992) makes this point, arguing that the pre-release Mary "does not have complete physical knowledge" (100). Similar points are made in Alter 1998, Horgan 1984 and Searle 1992. Bealer (1994) also uses similar reasoning, along with a comparison of the KA to the paradox of analysis, to conclude that the KA poses no threat to the mental-state/brain-state identity thesis.

In a short postscript to Jackson 1986, Jackson (1995) elaborates on his view that the epistemological premises of the Knowledge argument support substantial metaphysical conclusions. More specifically, he argues that, "materialism is committed to the a priori deducibility of our psychological nature from our and our environment’s physical nature" (189). He elaborates on this point in Jackson 1998b. And some authors do take the KA to refute, or at least provide a serious challenge to, physicalism of any kind. But the question of what exactly follows from admitting that Mary learns new facts when released remains unresolved.

In Jackson’s original article, facts about functional roles were counted among the physical facts, and the implication seems to be that Jackson did regard the KA as refuting functionalism (for concurring opinions, see Vidal 1995 and Robinson 1993). Jackson (1982) could reasonably be read as implying that the KA leaves us with epiphenomenalism; in that article, immediately after presenting the KA, he defends epiphenomenalism against objections. But whether the KA implies epiphenomenalism is a substantive issue; see Searle 1992. Indeed, Watkins (1989) argues that Jackson cannot consistently accept epiphenomenalism and irreducibly non-physical qualia. More generally, there is no consensus about what, if any, substantial metaphysical theses follow from granting that Mary learns new facts when she is released.

4. The KA, Nagel’s Argument, and Kripke’s Modal Arguments

I noted in section 2 that the KA bears much similarity to arguments presented in Nagel 1974. Some differences between the KA and Nagel’s arguments are worth mentioning. First, Nagel’s argument involves claims about the essence of mental and physical processes. The KA involves no such claims. In fact, in a review of a book by Brian O’Shaughnessy, Jackson (1982b) suggests that although mental states have qualia, qualia may be inessential properties of those states – a view that directly contradicts Nagel’s opinion on this matter.
Second, unlike Nagel’s arguments, the KA does not involve empirical theses about what humans can and cannot imagine (Jackson emphasizes this point in both Jackson 1982 and Jackson 1986). Third, unlike Jackson, Nagel does not purport to show that physicalism is false; Nagel’s conclusion is rather that physicalism is, though possibly true, presently unintelligible. This last point may, however, be a distinction without a difference. Nagel can plausibly be read as arguing for the falsity of reductionist forms of physicalism that deny the subjectivity of the phenomenal features of mental states, even though he regards non-reductionist forms (such as dual aspect theory) as possibly true though presently unintelligible. The KA could perhaps also be seen as directed only at such reductionist versions of physicalism.

It is also important to distinguish the KA from Kripke’s (1972) famous anti-physicalist arguments. As Jackson (1982) notes, the KA is not a modal argument in the sense that Kripke’s arguments are. Unlike Kripke’s arguments, the KA could consistently be given by Quinean skeptics about de re modality or by contingent identity theorists.

However, John Searle (1992) claims that Jackson’s KA, Nagel’s bat-arguments, Kripke’s modal arguments, and certain arguments of his (Searle’s) own can be seen as variations on a single theme: Twentieth Century materialist theories, from behaviorism to the identity thesis to functionalism to eliminative materialism, all err in denying the irreducible subjectivity of mental states (see Holman 1987). Put more positively, the KA could be seen as one variation of an argument for irreducible qualia. As Searle emphasizes, that conclusion is at least prima facie consistent with the claim that qualia are features of the brain.

5. Generalizing the KA

Jackson writes that the KA can be deployed, "for the various mental states which are said to have (as it is variously put) raw feels, phenomenal features or qualia" (1982, 130). Surprisingly, the question of exactly how far the KA extends has not been seriously investigated. Virtually all of the published discussions of the KA follow Jackson’s in focussing exclusively on perceptual experiences and sensations. (Janet Levin’s (1985) paper on the KA, “Could Love Be Like A Heatwave?”, is no exception: love is mentioned nowhere in the text of her article.) But there is a substantive issue about whether Jackson’s reasoning, to the extent that it is sound, can be extended to other aspects of consciousness, such as emotions and propositional attitudes. A brief discussion of that issue occurs in Alter 1995b, and a more detailed account appears in an as yet unpublished paper by Alter, "What a Vulcan Couldn’t Know”.

A tempting conclusion to draw from the foregoing overview is that the issues surrounding the KA have been thoroughly canvassed. But who knows? As Yogi Berra allegedly said (according to Pinker 1997), it is hard to make predictions, especially about the future.

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