KNOWLEDGE AS JUSTIFIED BELIEF
IN A TRUE, JUSTIFIED PROPOSITION

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ABSTRACT

When analyzing 'justified factual knowledge that h', we must speak of justified belief in h and also of h's being a justified proposition. Gettier-type problems can be dealt with by requiring that the belief in h be justified through its connection with a 'justification-explaining chain' related to h. The social aspects of knowledge can be encompassed by analyzing what it is for h to be a justified proposition in terms of h's relation to the rationality of an 'epistemic community'.

The discussion explains these analyses, and shows how to concept of a justification-explaining chain is related to Ernest Sosa's concept of a 'tree of knowledge'. The present account of justification is seen to be preferable.

A rationale for appealing to justification-explaining chains emerges from Popper's concern with another type of knowledge, namely, sets of propositions embedded in systems used by epistemic communities in pursuit of epistemic goals.

In conclusion, the present approach is related to a number of examples found in the literature concerning the social aspects of knowledge.
Knowledge as Justified Belief
in a True, Justified Proposition

One has justified factual knowledge if and only if one has a certain kind of justified belief in a true, justified proposition. In order to specify more precisely the relevant kind of justified belief,\(^1\) we need to restrict our consideration to the pursuit of epistemic goals, rather than goals such as moral or religious ones. We also need to indicate how the belief is connected with the justified proposition in question. The double mention of justification in the analysans will not be redundant provided that the term "belief" applies to a state of the knowing subject rather than to a proposition.

What I shall call 'justified factual knowledge that h' includes only some of the examples to which we ordinarily apply the phrase, "knows h." We are often willing to apply the latter expression (and perhaps even the expressions, "knows it to be a fact that h," and "knows it to be true that h") even in cases where the person does not believe or accept the proposition that h.\(^2\) In the present discussion, I shall consider only justified factual knowledge. I shall follow Keith Lehrer in seeking conditions that are individually necessary and jointly sufficient for knowing that h in contexts where propositional attitudes are at stake and we are concerned with questions and answers that form "the basis for critical discussion and confrontation in cognitive inquiry" in such a way that we require our interlocutors to have justified belief in their answers.\(^3\)

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\(^1\)For simplicity, I shall ignore any differences between accepting and believing a proposition. See Keith Lehrer, "The Gettier Problem: a Final Solution," in George S. Pappas (ed.) Justification and Knowledge (forthcoming).

\(^2\)For example, I may say that S knows it to be a fact that the person we were just speaking about is a liar, even though I do not presuppose that S realizes that we were speaking about the person, nor presuppose that S accepts the proposition: 'They were just speaking about so-and-so and so-and-so is a liar'. For additional considerations, see my "Recent Work on the Analysis of Knowledge" (forthcoming).

\(^3\)Knowledge (Oxford: Clarendon Press, 1974), p. 9. However,
Any suitable analysis of justified factual knowledge needs to avoid Gettier counterexamples when dealing with non-basic knowledge. Some philosophers have argued that Gettier-type examples are not ones in which the person actually has

Merrill Ring has argued that there are no contexts in which knowing includes believing, and that there is a categorical difference between the two, on the grounds that so many things said of belief do not make sense when said of knowing, and conversely. (See "Knowledge: the Cessation of Belief," The American Philosophical Quarterly 14 (1977), pp. 51-60) He admits that a number of the grammatical differences which he lists would be less telling if knowing were to entail belief without being a species of belief. However, he criticizes Roderick Chisholm for defending this view by means of an analogy to the way arriving entails traveling without being a species of traveling. (see Perceiving (Ithaca: Cornell University Press, 1957), pp. 17-18) Ring objects that when one has arrived one is no longer traveling; similarly, when one knows one no longer believes.

Since my own analysis of justified factual knowledge treats it as entailing belief but not as a species of belief, I should point out that the following analogy is preferable to that offered by Chisholm: One's getting married entails that someone else has certain intentions regarding one. (Depending on the customs of the country, the other person will be the prospective spouse, or the spouse's parents, or some authority, or all of these.) Yet one's getting married is not a species of someone else's having certain intentions regarding one.

The various grammatical differences mentioned by Ring can be interpreted so as to be compatible with my analysis. For example, we can speak of "beliefs" but not of "knowledges." But this need not rule out believing as a necessary condition for knowing. A necessary condition for S's having indigestion is that S has ingested something. Nonetheless, although we can speak of a number of ingestions of chili which occurred during X's dining in the past week, we cannot speak of "indigestions" that S had. Just as we speak of various "cases of indigestion," so we speak of various "instances of knowing." I shall not pursue here the extended discussion that would be required to deal with all the grammatical points mentioned by Ring.

For a discussion of the attempt by Zeno Vendler in Res Cogitans (Ithaca: Cornell University Press, 1972) to show that believing and knowing are categorically exclusive, see
justified belief. But there is significant disagreement on this point. Instead, I shall deal with Gettier-type examples by utilizing the concept of a 'justification-explaining chain' and applying it by means of the following epistemic principle (The Principle of Sufficient Justification): If a proposition is 'derivatively justified,' that is, if something makes the proposition justified, then there exists at least one justification-explaining chain related to that proposition. Gettier-type difficulties will be avoided by requiring that when S has non-basic knowledge that h S's belief in h is justified through its connection with a justification-explaining chain related to the proposition that h.

Thus, the analysis that I shall defend may be expressed more precisely and phrased so as to cover both basic and non-basic knowledge as follows: S knows h if and only if (i) h, (ii) S's believing h is justified in relation to epistemic goals either through its connection with a justification-explaining chain related to the proposition that h or without anything making it justified, and (iii) the proposition that h is justified.

Another set of examples with which any adequate account of knowledge must accord concerns what have come to be called the 'social aspects' of knowing. I shall deal with these examples by explaining clause (iii) in the preceding analysis by means of an analysis of what it is for a proposition to be justified. The latter analysis will consider the relation of the proposition to the rationality of members of an 'epistemic community,' thereby bringing in the pertinent social considerations.


4I shall avoid taking sides in the debate between foundationalists and their opponents by stating the analysis broadly enough to apply to any basic knowledge that might exist.

5For the remainder of the discussion, I shall restrict the reference of "knows" and its cognates to the possession of justified factual knowledge.
I shall explain these analyses in the first section. In the second section, I shall take account of certain similarities that the concept of a justification-explaining chain bears to Ernest Sosa's concept of a 'tree of knowledge.' I shall argue that my analyses are better able to deal both with certain Gettler-type example, where false propositions but no false beliefs are involved, and with the relevance of epistemic communities to an analysis of knowledge. In the final section, I shall take note of Karl Popper's concern with another sense of "knowledge," which does not label a state of the knower but instead a socially created structure of propositions arranged in explanatory systems that are built by epistemic communities in their quest to achieve epistemic goals. Consideration of the epistemic goals that guide this social effort will provide a rationale for the way in which my account of knowing deals with the role of false propositions in putative justification-explaining chains, and thus with the way in which it avoids refutation by Gettler-type examples. I shall then illustrate the way in which my account relates to a variety of examples found in the literature concerning the social aspects of knowing.

I

Since I have elaborated elsewhere the way in which my analysis of knowing deals with Gettler-type examples, I shall only provide one illustration in this section, by discussing a case that will later prove useful when criticizing Sosa's analysis of knowing.

Consider the case of the clever reasoner, described by Keith Lehrer: A teacher has among his pupils Mr. Nogot and Mr. Havit. The teacher possesses evidence, E, sufficient to justify his believing $K$: 'Mr. Nogot owns a Ferrari', but no evidence bearing on $T$: 'Mr. Havit owns a Ferrari'. The evidence consists in Mr. Nogot's having said to the teacher this morning that he owns a Ferrari, having shown him papers saying he owns one, having been honest in his past dealings with the teacher, and so forth. But $K$ is false and $T$ is true. The teacher is not interested in who the Ferrari owners in his class are but only in whether $H$ is true: 'Someone in the class owns a Ferrari'. Lehrer says that the teacher is a clever reasoner who realizes that although his evidence supports the proposition that Mr. Nogot owns a Ferrari, "there is at least the possibility that someone else owns one, and, hence, it is safer to accept the more general statement that

\[\text{See "Knowledge and Falsity," Philosophical Studies (forthcoming).}\]
at least one person in his class owns a Ferrari than the quite
specific claim that Mr. Nogot owns one." While refraining
from accepting proposition \( K \), the clever reasoner bases his
belief in \( H \) on his belief in the following, true proposition:

\[
\begin{align*}
\text{C} & \quad \text{Someone in the class other than Mr. Nogot may, for all} \\
& \quad \text{I know, own a Ferrari; moreover, evidence } E \text{ is sufficient} \\
& \quad \text{to justify any belief } I \text{ might have in } K, \text{ and the latter} \\
& \quad \text{proposition does entail } H. \quad 8
\end{align*}
\]

Since \( C \) only speaks of a belief which the teacher might have
in \( K \), it is compatible with the fact that he comes to have true,
justified belief in \( H \) while lacking belief in \( K \). Nonetheless,
he obviously does not know that \( H \) is true.

One way of attempting to defend the traditional analysis of
knowledge against this counterexample would be to distinguish
saying that a belief is justified from saying that a belief is
held on good evidence.9 If the clever reasoner is to have
inferential knowledge that \( H \) is true then he must have good
evidence for \( H \), in a sense of "evidence" in which a proposition
that describes evidence is always true. So the only candidate
to be good evidence for \( H \) is \( E \). But if \( E \) is good evidence for
\( H \) then it is so only because it is good evidence for \( K \) and \( K 
\text{entails } H. \quad 10\) In that case, \( E \) is good evidence for \( H \) only
because \( K \) is good evidence for \( H \). But \( K \) is false and cannot
describe evidence, in the relevant sense, for anything.
Therefore, the teacher lacks evidence for his conclusion and
does not know it to be true.

However, this way of dealing with Lehrer's example appears
to be based on the assumption that whenever \( p \) is good evidence
for \( r \) only because \( p \) is good evidence for \( q \) and \( q \) entails \( r \),


8Lehrer may wish to include as a conjunct of \( C \) the statement,
'it is safer for me to accept \( H \) than to accept both \( H \) and
\( K \)', i.e., in so doing I take less risk of believing
something false.

9See John H. Dreher, "Evidence and Justified Belief,"
Philosophical Studies 25 (1974), pp. 435-439; also see
Irving Thalberg, "Is Justification Transmissible through
for a contrast between being strategically justified in
believing a proposition and being evidentially justified.

10Dreher follows the present argument only to this point.
I have discussed his own way of completing it in
"Knowledge and Falsity."
then it is also true that \( q \) is good evidence for \( r \). That assumption is too strong. Suppose I do have good evidence, \( P \), for the true proposition, \( Q \): 'Mr. Havit owns a Ferrari'. \( P \) will also be good evidence for \( R \): 'Either Mr. Havit owns a Ferrari or he owns a Lincoln'. But it is an abuse of language to say that \( Q \) is good evidence for \( R \).

One might respond that the term "evidence" is too restrictive and that in order to deal with Lehrer's example we need only to point out that what makes a proposition justified cannot involve false propositions. However, it is not correct to say that part of what makes \( R \) justified is the fact that Mr. Havit owns a Ferrari, even though that is what makes \( R \) true.

It will be useful, nonetheless, to speak in what follows of a justified proposition, rather than of a proposition believed on good evidence. For we wish to provide an analysis of knowledge that is broad enough to cover basic knowledge, if there is any, and when one has basic knowledge there does not have to be any evidence available on the basis of which one forms one's belief.\(^{11}\)

I suggest that we deal with Gettier-type examples by employing the concept of what I shall call a justification-explaining chain. A justification-explaining chain related to proposition \( h \) is an ordered set of propositions such that (a) the first member, \( m_1 \), is a true proposition of the form:

\[ f_1 \text{ and that makes } h \text{ justified}, \]

where \( f_1 \) describes something sufficient to make proposition \( h \) justified, (b) for any member, \( m_j \), the successor of \( m_j \) is determined as follows: (i) there is no successor of \( m_j \) if and only if \( m_j \) is justified without anything making it justified and (ii) when something makes \( m_j \) justified then the successor of \( m_j \) is a true proposition of the form:

\[ f_{j+1} \text{ and that makes } m_j \text{ justified}, \]

where \( f_{j+1} \) describes something sufficient to make \( m_j \) justified, (c) each \( f_j \) is a proposition that is a disjunction of conjunctions of propositions which take any of the forms described below (allowing disjunctions and conjunctions to contain only one member):

1. \[ \text{'}P_2 \text{ is evidence for } P_1\text{'} \]
2. \[ \text{'}P_2 \text{, and } P_2 \text{ entails } P_1\text{', where } P_1 \text{ does not entail } P_2 \]

\(^{11}\)This is so even if we follow the practice of some philosophers in speaking of a proposition that \( S \) knows to be true as an 'evident' proposition, or as 'evident to \( S \)'.

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(3) 'p_i is evidence for p_{i-1}, and p_{i-1} is evidence for p_{i-2}, and..., and p_3 is evidence for p_2', where \( 3 \leq i \leq n \)

(4) 'p_2 entails p_1', where p_1 does not entail p_2

(5) a form described as in any of the above but with phrases of one or more of the following types substituting at one or more places in the description for the phrase, "is evidence for":

"is good evidence for," "is evidence of such-and-such a strength for," "justifies," "justifies to such-and-such a degree"

(6) any form other than one logically equivalent to a disjunction of conjunctions of propositions that take any of the above forms (allowing disjunctions and conjunctions to contain only one member)

and (d) for any one of p_1, ..., p_n that is false, some member of the chain entails its falsity.

This definition of a justification-explaining chain needs to be employed in conjunction with the following epistemic

This list of substitute phrases is intended to cover 'reasonable,' 'acceptable,' and 'evident' propositions as philosophers commonly describe them. If it does not, then further appropriate substitute phrases should be added to the list.

Such a chain must not be confused with what might be called a 'justification-making' chain related to h, that is, a string of evidence leading up to h, or a succession of items each of which makes its successor justified (for example, by describing adequate evidence for its successor) and one of which finally makes h justified. On my definition, no member of a justification-explaining chain is something that makes h justified or merely a description of evidence leading up to h. Such evidence, or a string of such evidence, can figure in the first conjunct of a member of a justification-explaining chain. But every member has a second conjunct affirming that the first conjunct accounts for some other proposition's being justified. The degree of complexity in the members of a justification-explaining chain allows us to avoid certain Gettier-type examples, including an earlier version of Lehrer's Nogot example. (For a discussion, see "Knowledge and Falsity.")
principle, which I shall call the Principle of Sufficient Justification: If \( h \) is a 'derivatively justified' proposition, that is, if something makes \( h \) justified, then there exists at least one justification-explaining chain related to proposition \( h \).

Let us notice why it is not possible to deal with Gettier-type examples by utilizing the Principle of Sufficient Justification in conjunction with the following, inadequate analysis of knowing: \( S \) knows \( h \) if and only if \( S \) has justified belief in \( h \) and \( h \) is a true, justified proposition. There are two problems with such an analysis:

(A) When a speaker claims in a context where \( S \)'s factual knowledge is at issue that \( S \)'s belief is justified, he is claiming that believing is the justified propositional attitude for \( S \). This is stronger than claiming that believing is to some degree justified or that the belief is "well-taken."\(^1\) This distinction parallels one between saying that a person was justified in performing a certain action insofar as there were some good considerations in its favor and saying that the action was the one which was justified. In speaking of \( S \)'s action or propositional attitude as the one which was justified, a person is saying that by holding that attitude or performing that action instead of some alternative,\(^1\) \( S \) manifested his rationality more fully in relation to certain goals which the speaker has in mind. However, the speaker may happen to have non-epistemic goals in mind, for example, moral goals, which are not relevant in this context to the type of justified belief involved in knowing.\(^1\)

(B) Although the above analysis requires there to be a justification-explaining chain related to a known proposition whenever the latter is derivatively justified, it fails to


\(^1\)The alternative propositional attitudes when \( S \) is justified in believing \( h \) include at least the following: disbelieving \( h \); what some philosophers call 'withholding' \( h \), that is, neither believing nor disbelieving \( h \); being prepared to bet that \( h \) is true while at the same time withholding \( h \). In some cases, the alternatives also include offering \( h \) as a guess in answer to a question while at the same time withholding \( h \).

require that the justification of S's belief is dependent on what makes the proposition justified. It is the latter requirement that will provide a means of ruling out Gettier-type examples.

For these reasons, when treating factual knowledge as a type of justified belief in a true, justified proposition, it is better to accept the following analysis:

\[ S \text{ knows } h \text{ if and only if } \]
\[ (i) \quad h \]
\[ (ii) \quad S' \text{ believing } h \text{ is justified in relation to epistemic goals either through its connection with a justification-explaining chain related to } h \text{ or without anything making it justified}^{17} \]
\[ \text{and (iii) the proposition that } h \text{ is justified.} \]

Clause (iii) is satisfied in the case of the clever reasoner. For proposition H: 'Someone in the class owns a Ferrari', is, indeed, a justified proposition, thanks to information possessed by Mr. Havit and others. But clause (ii) is not satisfied. For the teacher fails to grasp the relevant portions of the corresponding justification-explaining chain. He does not more fully manifest his rationality in relation to epistemic goals when he goes so far as to believe his conclusion while being oblivious of evidence involved in any genuine justification-explaining chain related to it. His own reasoning, utilizing proposition C, does not employ portions of any such chain. For proposition K: 'Mr. Nogot owns a Ferrari', cannot be used to occupy the place of \( p_2 \) in a proposition of form (4), or in an

\[ ^{17} \text{I shall not attempt here to decide whether there are beliefs that are justified without anything making them justified, and have added the second disjunct to clause (ii) for the sake of generality. Some philosophers would maintain that even in an example of basic knowledge, e.g., where S knows p: 'S is thinking of Paris', something makes S's belief justified, e.g., p's being believed by the person whose mental contents are described by p. If a similar point can be made concerning all cases of basic knowledge, or if there is never any basic knowledge, then the second disjunct in clause (ii) may be omitted. This would also make inclusion of clause (iii) superfluous, since satisfaction of the first disjunct in (ii) requires satisfaction of clause (iii), thanks to the definition of a justification-explaining chain.} \]
analogous proposition of form (5), because K is false.\(^{18}\)

When speaking of a proposition as justified, as we do in clause (iii) and in the definition of a justification-explaining chain, we need to draw a distinction analogous to the one concerning belief mentioned above, and to note that a proposition can be to some extent justified without being a justified proposition, tout court. When we say that a proposition is justified or warranted in the latter sense, we have some epistemic community in mind, and we are saying that the disposition or state which we call rationality that is possessed by members of that epistemic community would be more fully manifested in relation to epistemic goals by their accepting that proposition instead of competing propositions and instead of withholding acceptance of any of these propositions. Epistemic communities attempt to train their members to become generally reliable sources of information regarding various subject matters, and whether it would be more rational for members of the community to accept a proposition depends to some extent on their taking account of the propositions, especially the observational propositions, which various members accept.\(^{19}\)

We shall eventually see that explaining clause (iii) by reference to the rationality of members of an epistemic community allows the preceding analysis of factual knowledge to deal with examples in which the social aspects of knowing are especially relevant.\(^{20}\)


\(^{19}\)In order to apply my account of justification, we may need to allow for hypothetical members of epistemic communities in unusual cases, e.g., when a person is permanently marooned or the last person alive. We can consider, for example, how such a person's observational reports would be received upon his (re)joining a hypothetical group.

\(^{20}\)In "The Conditional Fallacy in Contemporary Philosophy," The Journal of Philosophy 75 (1978), pp. 397-413, and in "Recent Work on the Analysis of Knowledge," I criticize a number of epistemological analyses for the particular manner in which they depend upon subjunctive conditionals. I believe that my own use of a conditional in order to characterize justified propositions is not open to
I shall not attempt here to consider whether what constitutes 'acceptance' of a proposition might vary from one epistemic similar objections.

A case that might appear to create a difficulty is one where, at time $t$, $S$ knows $z$: 'S is the only member of the epistemic community who is thinking at $t$', and where the rest of the epistemic community is asleep and thinking of nothing. My conditional analysis of justified propositions might appear to commit me to saying that if others in the community were presently to accept $z$ rather than to withhold it—as they actually do while asleep—then that would be more rational for them. (Compare my criticism of Roderick Chisholm in "The Conditional Fallacy....") However, the antecedent of my conditional is to be understood as permitting at least a brief interval between the time at which we speak of the proposition as justified and the time at which members of the epistemic community who actually do not accept the proposition are imagined to accept it after consulting various other members. One obvious reason for permitting this is that observational propositions require time to be reported to other members of the epistemic community who are not making such observations. Time must therefore elapse before the latter members could be said to manifest rationality by accepting such a proposition on the observer's say-so.

Another case that might initially appear to constitute a counterexample is one where a scientist threatens to destroy the human race, e.g., by bacteriological contamination, if a scientific community does not accept his theory, $T$, in some area of research instead of the presently justified hypotheses in that area. If he has the power to carry out his threat then it will be in the community's interest to give the appearance of co-operation, should that be enough to satisfy him. But members of the community would not actually be able to regard themselves as sincerely testing or assessing the truth of other theories by means of $T$. For they would realize that the decisive factor in their behavior involves a disregard of the evidence bearing on $T$ and on its competitors. So they would not be doing more than pretending to accept $T$ in the relevant sense, i.e., as a basis for testing or critically appraising other theories.

Finally, because we do not regard rationality as a perfect guide in the search for our epistemic goals, it is no objection to my present explanation of justified propositions that the world might accidentally be destroyed as a result of our accepting and using in our research a particular justified proposition, thereby preventing human epistemic communities from attaining their epistemic goals.
community to another, e.g., whether acceptance by members of a scientific community differs from acceptance in an everyday context as a reflection of commonsense opinion. Nor shall I be concerned here to present principles which specify what portions of a justification-explaining chain related to $h$ must be possessed by $S$ when $S$'s belief in $h$ is justified. My present aim is to compare my account with Ernest Sosa's treatment of knowledge,\textsuperscript{21} which also contains a cursory discussion of epistemic communities, and to argue that my analysis gives a more satisfactory treatment both of the Gettier problem and of the relation of epistemic communities to knowing. After that, I shall demonstrate the ability of my account to deal with a variety of examples concerning the social aspects of knowing.

II

Sosa introduces the technical concept of a tree of knowledge in order to analyze knowledge as follows:

$S$ knows that $p$ iff
(a) $S$ correctly believes that $p$; and
(b) there is a tree of knowledge for $S$ and the proposition that $p$. (p. 122)

The following diagram, fashioned after one offered by Sosa, will allow us to discuss trees of knowledge in sufficient detail to bring out certain important features of Sosa's analysis of knowledge:

\begin{center}
\begin{tikzpicture}
  \node (p) at (0,0) {$p$};
  \node (p11) at (-1.5,-1) {$p_{11}$};
  \node (p111) at (-3,-2) {$p_{111}$};
  \node (p112) at (-1.5,-2) {$p_{112}$};
  \node (p113) at (-1.5,-3) {$p_{113}$};
  \node (p12) at (0,-1) {$p_{12}$};
  \node (p121) at (1.5,-2) {$p_{121}$};
  \node (p122) at (0,-2) {$p_{122}$};
  \node (p123) at (1.5,-3) {$p_{123}$};
  \node (p13) at (1.5,-1) {$p_{13}$};
  \node (p14) at (3,-2) {$p_{14}$};
  \node (p15) at (3,-3) {$p_{15}$};
  \node (p16) at (3,-4) {$p_{16}$};
  \node (p17) at (3,-5) {$p_{17}$};
  \node (p18) at (3,-6) {$p_{18}$};

  \draw (p) -- (p11);
  \draw (p11) -- (p111);
  \draw (p11) -- (p112);
  \draw (p11) -- (p113);
  \draw (p12) -- (p121);
  \draw (p12) -- (p122);
  \draw (p12) -- (p123);

  \draw (p111) -- (p121);
  \draw (p112) -- (p122);
  \draw (p113) -- (p123);

  \draw (p121) -- (p13);
  \draw (p122) -- (p13);
  \draw (p123) -- (p13);

  \draw (p13) -- (p14);

  \draw (p111) -- (p15);
  \draw (p112) -- (p15);
  \draw (p113) -- (p15);

  \draw (p121) -- (p16);
  \draw (p122) -- (p16);
  \draw (p123) -- (p16);


\end{tikzpicture}
\end{center}

\textsuperscript{21}"How Do You Know?" The American Philosophical Quarterly 11 (1974), pp. 113-122; reprinted in Essays on Knowledge and Justification, ed. by George S. Pappas and Marshall Swain (Ithaca and London: Cornell University Press, 1978), pp. 184-205. All page references to Sosa in the body of my paper are to the original appearance of his article.
Suppose that this diagrams the beginning of a tree of knowledge which continues to grow beyond what is shown at the top of the diagram. The first four 'ranks' of the full tree, RI, RII, RIII, and RIV, are the sets of propositions diagrammed to the right of the letters for those ranks. The bottom rank has as its only member the proposition, 'p is evident to $S$', diagrammed by "p". The second rank, RII, is the set of propositions whose truth makes p evident to $S$.

Branches of the tree continue to grow only beyond those members (call them 'nodes') that are what Sosa technically labels "$S$-epistemic propositions," defined as follows:

$S$-epistemic propositions: of these (i) some are to the effect that some other proposition $x$ has some epistemic status relative to $S$ (i.e., to the effect that $S$ believes $x$ and how reasonably); and (ii) others are to the effect that $S$ is in a position to know whether a certain proposition is true. (i) and (ii) are varieties of "positive $S$-epistemic propositions." Logical compounds of such propositions are also $S$-epistemic, but no other propositions are $S$-epistemic. (p. 120)

Thus, the propositions that are diagrammed above by "P13", "P113", and "P122" are shown as not being $S$-epistemic. Because the portion of the tree extending beyond rank RIV is not shown, the diagram does not attempt to indicate whether or not the various propositions in rank RIV are $S$-epistemic.

The fact that a proposition in the tree is a terminal node means that it is a non-$S$-epistemic proposition whose truth makes, or helps make, the node on the next lower rank to which it is a successor a true $S$-epistemic proposition. For example, if $S$ sees that a red tie is in front of him and knows from its red appearance that the tie is red, then "p" diagrams the proposition, 'It is evident to $S$ that the tie is red', and the terminal node diagrammed by "P13" might be the proposition, 'S is not red-green color-blind', or some conjunction of non-$S$-epistemic propositions entailing that proposition. Sosa lists other forms which non-$S$-epistemic nodes may take. (see p. 120)

The diagram shows P11 and P12 as propositions of rank RII that are not terminal nodes and that are therefore $S$-epistemic propositions. If one or both of those propositions are of type (i) then there is need to show on the diagram of the next rank what makes such a proposition have the degree of justification it has for $S$. Should a proposition, for example, P11, be of type (ii) then its successors on the next rank (those propositions on the next rank which are diagrammed as
connected to it by lines\textsuperscript{22} show what puts $S$ in a position to know.

Sosa adds a further detail in order to deal with Gettier-type examples. He believes that the most plausible attempt to construct a tree of knowledge above the proposition, 'It is evident to the teacher that someone in the class owns a Ferrari', would fail because one would include on rank RII a proposition of the form: 'S believes, with such-and-such a degree of justification, that Mr. Nogot owns a Ferrari'. Sosa topples such pseudo-trees by adding a requirement that the nodes in a tree of knowledge "must attribute no false belief to $S$." (p. 122)

However, my earlier discussion allows us to see that this is insufficient to stop a clever reasoner, who avoids such a false belief, and who instead includes propositions of the following forms in rank RII of his putative tree of knowledge:

\begin{itemize}
  \item $Se_1$ $S$ believes the following proposition, $r$, which is evident to $S$:
    \begin{quote}
      'The proposition, $v$: "Mr. Nogot is a person in the class who owns a Ferrari", is evident to $S$'
    \end{quote}
  \item $Se_2$ $S$ believes the following proposition, $w$, which is evident to $S$:
    \begin{quote}
      'The proposition, $p$: "Someone in the class owns a Ferrari", is entailed by $v$'.
    \end{quote}
\end{itemize}

On Rank RIII of the clever reasoner's putative tree of knowledge, one of the successors of $Se_1$ is a proposition to the effect that $S$ believes, and it is evident to $S$, that Mr. Nogot behaved in a certain manner, e.g., by claiming that he owned the Ferrari, and so forth. Thus, no false belief is attributed to $S$, yet $S$ does believe in a certain connection between his evidence for proposition $v$ and the proposition that someone in the class owns a Ferrari.\textsuperscript{23}

\textsuperscript{22}For a technical definition of "successor," see p. 122.

\textsuperscript{23}In "A Proposed Definition of Propositional Knowledge," \textit{The Journal of Philosophy} 68 (1971), pp. 471-482, Peter D, Klein has explicitly held that something may be evident to one even though one does not happen to believe it. This point seems at least implicit in Sosa's own earlier characterizations of the evident; for example, see "Two Conceptions of Knowledge," \textit{The Journal of Philosophy} 67 (1970), pp. 59-66, especially p. 64.
Of course, Sosa's account can be amended so as to deal with the case of the clever reasoner. For Sosa explains how successors of a node are connected with that node by saying that those successors make the node true via epistemic principles. (see p. 121) For example, if the node has the form, 'p is evident to S', "that p is evident is then entailed by a set of propositions [namely, the set consisting in the successors of that node] together with some epistemic principles, but not by the set alone, nor by the principles alone."24 Thus, Sosa can attempt to deal with the case of the clever reasoner by maintaining the following generalization about epistemic principles:

G For any false proposition, f, no epistemic principle permits the derivation of a proposition of the form, 't is evident to S, and S believes t', from a set of propositions, Ø, when Ø contains as a non-superfluous member a proposition entailing one of the form, 'S believes, and it is evident to S, that f entails t' or of the form, 'S believes, and is justified to such-and-such an extent in believing, that f entails t'.

But I shall show that even with this alteration, Sosa's account is subject to various difficulties, including residual Gettier-type problems, connected with what he calls being in a position to know.

Sosa emphasizes that knowing has certain social aspects which make it relative to epistemic communities. Accordingly, he utilizes the expression, "being in a position to know from the point of view of a K," e.g., from the point of view of a normal human being, or from the point of view of an expert concerning the subject matter at hand. He then suggests that epistemologists should no longer interchange the phrases, "justified belief," and "evident belief," when discussing the traditional definition of knowledge. Instead, Sosa says that "a proposition is evident (from the point of view of a K) to a subject only if both he is rationally justified in believing it and he is in a position to know (from the K point of view) whether it is true." (p. 118) Sosa suggests that the concept of being in a position to know can be clarified in a

24"On Our Knowledge of Matters of Fact," Mind 83 (1974), pp. 388-405: p. 394. Sosa's more technical definition of the validation of an S-epistemic proposition, on p. 120 of "How Do You Know?", overlooks the fact that just as there can be misleading defeaters of the confirmation of a proposition, so there can be misleading restorers of the confirmation. (See Peter D. Klein, "Knowledge, Causality, and Defeasibility," The Journal of Philosophy 73 (1976), pp. 792-812: p. 808)
non-circular fashion "in terms of the principles of reasoning or epistemic principles that define its area of application." (p. 119)

If we are interested in whether a statement of the form, 'S knows p', is true, we must find out what epistemic community or what point of view the speaker has in mind. For in Sosa's definition of knowledge, "the relativity of knowledge to an epistemic community is left implicit, as it normally is in ordinary thought and speech." (p. 121n) Assuming that a given speaker has in mind the human point of view, one epistemic principle that provides content for the concept of being in a position to know, according to Sosa, is the following: "to be in a position to have human knowledge whether p you must not miss any crucial information that a normal human in your situation would gather." (p. 119) Although epistemologists usually discuss knowledge from the human point of view, "other points of view are possible even in ordinary conversation. The expert layman distinction is replicable in many different contexts..." (p. 118)

Sosa relativizes attributions of knowledge in a manner analogous to that used by some philosophers to explain the nature of singular causal statements of the form, 'c was the cause of e'. Different speakers may have in mind different statements when uttering a given sentence of that form. One speaker may make a true statement and the other a false statement by uttering one and the same sentence. Even when the sentence is used by each speaker to make a true statement, they may have different causal contrast situations in mind and be making different statements. Thus, speaker S₁ could make the metalinguistic remark that when the sentence in question was uttered by speaker S₂ it expressed a true statement but that it would not have done so if uttered by S₁. ²⁵

Sosa unfortunately blurs the significance of relativizing knowledge attributions in an analogous fashion during his discussion of what he calls "Magoo situations." These are

situations

where S lacks adequate [cognitive] equipment to begin with (relative to the question in hand: whether p). It is because of this type of lack that despite his extensive experience with cable cars, [the deaf and extraordinarily nearsighted] Mr. Magoo does not know that his cable car will arrive safely when, unknown to him, bombs are raining all around it. Of course, even if you have less than 20-20 vision you can still know that there is an elephant in front of you when you see one there. So not just any defect will make your equipment inadequate for a judgment on the question whether p. I would venture that it must be a defect that prevents you from acquiring information that (i) a normal inquirer in the epistemic community would acquire in that situation and (ii) makes a difference to what you can reasonably conclude on the question whether p (or at least to how reasonably you can draw the conclusion). (p. 117)

Sosa seems prepared to allow that, for certain attributions of knowledge, an epistemic community might consist solely of S himself:

It may be (and not just appear) evident to Magoo from his point of view that he will reach the other side safely, but it seems wrong to say of Magoo as he steps into the cable car with bombs raining all around that it is quite evident to him that he will arrive safely. It seems wrong for whom to say this? For one of us, naturally; that is, for a normal human from his point of view. And since a normal human could not help seeing and hearing the bombs, from the human point of view Magoo is not in a position to know that he will arrive safely.... (p. 118)

In allowing that it is evident to Magoo from his point of view that he will arrive safely, Sosa is--given his own analysis of knowledge--conceding the truth of Magoo's knowledge claim, while adding that Sosa himself would make a false claim by uttering the sentence, "Magoo knows that he will arrive safely." For Sosa would have in mind a different point of view when uttering that sentence. But I believe that our intuition is, instead, that Magoo's own knowledge claim is false even as Magoo intends it.

Sosa may have been misled by the phrase, "point of view," which can ordinarily be construed in such a broad sense as to cover simply the situation in which one finds oneself. But knowledge is relative to an epistemic community, and it is less misleading to employ the phrase, "being in a position to know as a member of epistemic community C." This would help to remind us that epistemic communities are composed of a
a number of actual or possible inquirers besides S, who have common epistemic goals and a social structure for relying on reports of information gathered by other members of the group.

A further unsatisfactory aspect of Sosa's preceding remarks is his statement that Magoo is not in a position to know from a human point of view because a normal human in his situation would gather crucial information that Magoo lacks relative to the question whether p.

Let us alter the example so that Magoo is alone in a room, looking into a magnifying mirror at the surface of one of his eyes. Let us further suppose that one reason for Magoo's near-blindness is that the surface of his eyes is very cloudy. Magoo carefully looks into the mirror and makes the judgment: 'What is reflected in the mirror from this point is cloudy'. A normal human being who was in Magoo's situation would, indeed, gather crucial information Magoo lacks concerning that proposition. For such a person would not have eyes like Magoo and they would not cast a cloudy reflection. But that information is surely irrelevant to Magoo's judgment. Thus, the phrase, "in Magoo's situation," appears rather murkly.

Suppose that we allow Sosa to use the latter phrase so that the normal person is, instead, imagined to be beside Magoo, and thus able to obtain information as to how Magoo's eyes look by direct inspection of them. Even under such an interpretation, Sosa's epistemic principle will still not handle a case where Magoo, being alone in the room, looks about him and judges: 'The room around Magoo is empty'. If there were a normal person beside Magoo, then he would gather information about himself that Magoo presently lacks which would be crucial for the question whether the room is empty around Magoo. But that information is irrelevant to Magoo's actual judgment.

Finally, in order to avoid this objection, suppose we assume that Sosa intends to refer only to actual information existing in Magoo's situation. Then we can object by presenting an example where Magoo is walking about the room, examining it, and judges correctly that it is safe for him to move about in the room. However, he misses the following piece of actual information: the floor is too weak to support two persons. If a normal person were beside Magoo, that person would quickly gather this crucial information and it would bear adversely on Magoo's judgment. Perhaps, some special way of construing the term "information" will save Sosa's principle, but I am not farsighted enough to discern it.26

26Notice that restricting the information to basic statements will probably mean that it is no longer actual information which the hypothetical second person would gather.
Apart from difficulties concerning Sosa's principles for assessing the statement that a person's cognitive equipment is adequate for the question in hand, there is a problem about the role of that statement in Sosa's treatment of knowledge. Suppose that S looks at a tie in front of him and knows from its red appearance that the tie is red. On rank RII of the relevant tree of knowledge will appear the S-epistemic proposition, 'S is in a position to know whether the tie is red'. A successor of this S-epistemic proposition on rank RIII will be a proposition, a, to the effect that S's cognitive equipment is adequate for a judgment on the question whether the tie is red.

Proposition a will be a terminal node occupying a position such as that of \( P_{122} \) in the diagram. Sosa only requires that a is true; he does not require that a is believed by S. This is appropriate, since a child might know that the tie is red but be too unsophisticated to have a concept of his cognitive equipment's being adequate for a judgment on the question. Some philosophers speak of a as the type of proposition which concerns one of the background conditions required for perceptual knowledge, but which need not be believed by the knower.  

However, Sosa's account is seriously defective in failing to require that a be a justified proposition. The requirement is entailed by my definition of a justification-explaining chain related to the proposition, 'The tie is red', provided that we are considering a chain in which a figures as one of those propositions of form (6). If we do not require that a be a justified proposition, then a problem arises concerning the impact of the social setting on S's knowledge that the tie is red. In fact, it is rather akin to a problem about the social aspects of knowing which Sosa's account is intended to handle. Sosa reminds us of Gilbert Harman's newspaper example, where S reads in a generally reliable newspaper that a famous person has been assassinated but fails to be aware of certain other news reports appearing in generally reliable sources and received by those around S which deny the success of the assassination attempt, reports circulated because of an unsuspected conspiracy on the part of eye-witnesses aimed at avoiding a coup; the latter reports lead those around S to disbelieve in the assassination or to withhold judgment on the

question whether it occurred. (see p. 117)\(^{28}\)

Sosa agrees with Harman that S fails to know that the person was assassinated. Sosa's explanation is that S is not in a position to know from a human point of view whether the assassination occurred because S's belief on that question violates the following epistemic principle: "to be in a position to have human knowledge whether p you must not miss any crucial information that is generally known to those who have taken an epistemic stand [possibly including withholding judgment] on the question whether p." (p. 119)

But suppose that in the previous example, where p is the proposition, 'The tie is red', S misses no generally known information which crucially bears on the question whether the tie is red. Yet S happens to be one of those who have recently undergone eye-examinations in a traveling eye-testing clinic, and S is awaiting the results, never having had his eyes tested before. Meanwhile, unknown to him, the generally reliable town newspaper has published a list which purports to be a report of those found in the tests to have various eye problems. It lists S as someone found to be red-green color-blind. Suppose that S has not seen the paper, but most other people in town have, and since S is a member of a prominent family, they have noticed his name on the list and now believe that his cognitive equipment is not adequate for determining whether something is red just by looking. Thus, proposition a is not a justified proposition. The rationality of the members of S's everyday epistemic community would not manifest itself more fully by their accepting a in the face of the newspaper report. Yet let us suppose that owing to some accidental and unsuspected phenomenon which occurred during the testing, S was incorrectly diagnosed and proposition a is actually true. This case is relevantly similar to Harman's example, and a similar intuition leads us to say that S does not know that the tie is red.\(^{29}\)


29For another example in which views held by those surrounding a person concerning his cognitive apparatus deprive him of knowledge, see the initial treatment by his fellow scientists of the character, Berton, in Stanislaw Lem, Solaris, trans. by Joanna Kilmartin and Steve Cox (New York: Berkeley, 1971), pp. 87-95.
I must acknowledge that my objection might not stand if we were to accept Sosa's definition of what it is for there to be crucial information missed by $S$:

Information is crucial relative to your knowing whether $p$ provided that adding that information to your evidence base would induce a fall in the epistemic status of your belief either that $p$, or that not-$p$ to such an extent that where previously that belief was rationally justified it no longer is so. (p. 119)

If we were to add to $S$'s evidence base the information that the report in question appeared in the generally reliable town newspaper then that might very well prevent $S$ from being justified in judging that the tie is red. For it would give him good reason to think he is red-green color-blind, and we are assuming in the example that $S$ presently has no independent source of information about the true color of the tie.

But we must reject Sosa's attempt to define "crucial information" by means of the subjunctive conditional stated above. Suppose that $S$ believes some false proposition, $f$, without having any reason to think it is false, and let him also know that the following psychological proposition, $t$, is true of himself: 'I believe $f$'. Suppose that a generally known piece of information in his epistemic community is not-$f$. When the antecedent of Sosa's conditional is satisfied by adding this piece of information to $S$'s evidence base, $S$'s belief in $f$ is replaced with a belief in not-$f$, and this renders $S$'s belief in $t$ no longer justified. So, according to Sosa's definition, not-$f$ is crucial information bearing on $t$, that is, on whether $S$ actually believes $f$. Because $S$ misses this information, we are incorrectly forced to deny that $S$ knows $t$. For one of Sosa's requirements for being in a position to have human knowledge whether $t$ is that $S$ not miss such crucial information.

To be sure, this counterexample may be avoided by construing the phrase, "induce a fall," in Sosa's definition of "crucial information" as entailing that the information is relevant to the proposition in question. In the previous example, not-$f$ may be imagined not to bear on the proposition that $S$ believes $f$, especially if not-$f$ is a piece of information which $S$ has as yet had no opportunity to acquire or which is being withheld from $S$. In that case, however, Sosa's requirement for having human knowledge will not succeed in preventing my example of the red tie from running counter to his definition of knowledge. For in that example, the presence of the report concerning $S$'s eyesight in the town paper is not itself evidence relevant to
whether the tie is red.  

I am not prepared to offer my own definition of what it is for information to be crucial for one's being in a position to know. One reason for this is that I am not entirely sure how to construe the phrase, "being in a position to know," as Sosa intends it. I am inclined to say that inasmuch as S is in fact not deficient in his cognitive equipment in the tie example, his relation to the fact that the tie is red is such that he is at least in a position to know it. Moreover, the information gathered by the other readers of the town newspaper is not a piece of evidence directly bearing on whether it is a fact that the tie is red, and not a piece of supporting or negative evidence which S lacks concerning the question whether the tie is red. In that respect, too, S does not fail to be in a position to know the answer to that question.

The reason S does not know that the tie is red is highlighted by my analysis of factual knowledge and its accompanying Principle of Sufficient Justification: S is not appropriately related to any genuine justification-explaining chain. The proposition, 'The tie is red', obviously could not count as basic knowledge for S. But the first member, m1, of any putative justification-explaining chain to which S might seem

Peter D. Klein has pointed out that we should not deny a person knowledge even though generally known information would defeat that person's justification, in cases where this defeat would occur only because the information would justify the person in believing a false statement bearing on the original belief. (See "Knowledge, Causality...", p. 809) An analogous point may be made about denying that a person is in a position to know in cases where proposition a is not a justified proposition. However, such intuitions have been challenged by Douglas Odegard in "A Knower's Evidence," The American Philosophical Quarterly 15 (1978), pp. 123-128. Odegard defends the following condition as necessary for knowledge: If S's knowledge is based on evidence e then, for any further evidence e', if S were to have e', e would justify S's knowledge claim. (see p. 123) But in advancing this conditional, Odegard commits the conditional fallacy. In "Recent Work on the Analysis of Knowledge," I criticize various proposals, including Odegard's, which use subjunctive conditionals in their accounts of knowledge, and I argue that there is no obvious way to amend these conditionals so as to avoid counter-examples similar to the ones I have brought against Sosa's definition of "crucial information for being in a position to know."
to be relevantly related would have the form:

'\text{f}_1 \text{ and that makes the proposition, "The tie is red" justified}'.

Either \( m_1 \) or some later member of the chain, \( m_1 \), will include the conjunct, \( c \): 'S's cognitive equipment is adequate for judging whether the tie is red' (where we construe \( c \) in such a way that it rules out red-green color-blindness of the type at issue in the example). Any successor, \( m_2 \) (or \( m_{1+1} \)) of \( m_1 \) (or of \( m_1 \)) in the putative justification-explaining chain would be of the form:

'\text{f}_2 \text{ and that makes } m_1 \text{ justified}'

(or of the form:

'\text{f}_{1+1} \text{ and that makes } m_1 \text{ justified}').

But there is no such \( m_2 \) (or \( m_{1+1} \)) forming part of a genuine justification-explaining chain related to the proposition 'The tie is red' within \( S \)'s grasp. For a conjunction cannot be justified unless each conjunct is justified, and some further putative member of the chain, say, \( m_3 \) (or \( m_{1+2} \)) would have to purport that something makes conjunct \( c \) justified. But in fact, conjunct \( c \) is not justified because of the newspaper report and its effect on the townspeople. So \( m_3 \) (or \( m_{1+2} \)) would be false—which is prohibited by the definition of a genuine justification-explaining chain.

Once we see that the social aspects of knowing affect the status of proposition \( a \), it becomes clear that Sosa's account is further damaged by the fact that Gettier-type problems can re-emerge concerning the justification of proposition \( a \). There are cases where \( S \)'s epistemic community would accept \( a \) because it appeared to them that it was the rational thing to do but where it would be a sheer accident that they were correct in thinking \( a \) to be true.

This may be illustrated by altering the case of the red tie in a fashion prompted by an example originating with Bertrand Russell. Sosa himself has elaborated Russell's example in an earlier paper as follows: a man looks at a clock which is not going but he justifiably believes that it is running, and believes that the time is what the clock indicates. As luck would have it, it happens to be that very time of day.\(^{31}\)

Suppose, analogously, that S has volunteered for a scientific experiment, the nature of which has been concealed from him, save for the fact that it is harmless. S is now in what he takes to be a waiting-room, seated upon an ordinary-looking chair, expecting the experiment to be conducted in another room. The chair is secretly connected to a machine which can alter the subject's perceptual capacities, thanks to electronic equipment concealed in the chair, odorless chemicals it releases into the air, or some other technique not readily detectable by the subject. The machine is built to switch at random among various settings. In setting 1, the subject is left quite unaffected, retaining his usual visual capacities. In setting 2, the subject is made red-green color-blind. In setting 3, some other alteration occurs, and so forth. The machine is in a separate room, and displays an array of lights designed to inform the scientists of its setting. At the moment, although the scientists are justified in supposing that the monitor is working properly, it is not, and the light indicating setting 1 would have been on no matter what the true setting of the machine. Looking at the light, the scientists accept proposition a': 'S's visual capacities are normal'. As luck would have it, the machine has switched itself to setting 1 and a' is true. Suppose that S, glancing at a tie on another volunteer who has just entered the room, believes that his tie is red on the basis of its red appearance to S. S's cognitive equipment is adequate for deciding the question whether the tie is red, and all the scientists think that it is. Yet, as in Russell's example, it is the merest accident that the scientists are right in believing this. In such a situation, S does not know that the other volunteer's tie is red.32

My account handles this case easily, by pointing out that a' is not a justified proposition. For a putative justification-explaining chain related to the proposition that the tie is red of which S has hold would need to include—at some point where it should not—the false proposition, 'The monitor is working properly'. It would have to include it in attempting to indicate what justifies some m1 which contains the conjunct, 'The machine is on setting 1'. Since Sosa's account would require further elaboration to meet this

32 Of course, this example has no special bearing on Sosa's use of 'trees' if the reason S lacks knowledge is merely that S does not even have justified belief because there is an unusual risk of S's having abnormal perceptual capacities. However, I think it is far from obvious that this is a proper interpretation of the example. For a somewhat similar example employed for a different purpose, see Allen Buchanen, "Basic Knowledge," Philosophy and Phenomenological Research 37 (1976), pp. 101-108: p. 107.
objection by introducing further principles concerning being in a position to know, my own simpler account is preferable.  

III

Karl Popper has suggested that a consideration of the epistemology of science will illuminate the epistemology of everyday belief. But Popper himself expresses little interest in discussing knowledge as a state of a person, and prefers to emphasize a sense of the term "knowledge" that refers to combinations of propositions, e.g., theories, organized into explanatory systems by groups of inquirers in a co-operative effort to achieve their epistemic goals.

Attention to such goals and systems will, nonetheless, support my analysis of what it is to be a knowing subject. The reason false propositions are to be prohibited at those places where my characterization of justification-explaining chains excludes them is because of their potential role in the type of explanatory structures of which Popper speaks, and because the rationality of our beliefs in an epistemically ideal situation—one in which we attained our epistemic goals—would partly depend upon our believing only true propositions. If the

33 My objections to Sosa have concerned his treatment of Gettier-type examples and the social aspects of knowledge. But my account yields the same results as Sosa's own analysis in all other cases of knowledge or the lack of it. For example, whenever Sosa is able to show that S does not know h because a pseudotree would attribute to S a false belief in x, my account will show that a putative justification-explaining chain which supposedly allows S to have justified belief would contain x at a prohibited place. Thus, my approach inherits whatever success Sosa has attained in dealing with "several varieties of empirical knowledge: (a) advance knowledge based on causal indicators, (b) knowledge based on familiar, common-sensical correlations, such as smoke-fire, (c) classification of things into kinds, and (d) identification of persons and other entities." ("On Our Knowledge...", p. 404) I shall not attempt here to appraise Sosa's treatment of those varieties of knowledge.


35 This is not to say that the only interesting type of explanation is one which explains why a proposition is justified.
The proposition involved in the Nogot example, 'Someone in the class owns a Ferrari', is to be embedded in the type of explanatory system of which Popper speaks, its truth is not satisfactorily explained via the false proposition, 'Mr. Nogot owns a Ferrari', and to believe the latter would partly be to fall short of our epistemic goals. Similarly, hypotheses in such structures will succeed in explaining evidential propositions only when the latter are true (whether or not that is required by the very sense of the term "evidence").

I shall now show that my analysis accords with our intuitions about various examples from the literature where the social aspects of knowledge are quite important, provided that we once again keep in mind the way in which rationality is manifested in analogous situations in scientific inquiry. I have explained clause (iii) in my analysis of factual knowledge by means of an analysis of justified propositions that speaks of the rationality displayed by members of epistemic communities. I shall thus find it useful, when dealing with certain examples, to follow the common assumption that epistemic procedures within scientific communities reflect what are presently our best (corrigible) judgments concerning the way in which the disposition or state that we call "rationality" manifests itself in the pursuit of our epistemic goals. By treating everyday epistemic contexts analogously, we shall be able to account for our intuitions about an otherwise bewildering variety of everyday examples.

When discussing these examples, I shall be considering what are the more rational epistemic attitudes for members of an epistemic community. In this regard, I should like to echo a remark that Sosa made when he discussed a person's being rationally justified in believing or being in a position to know: "Doubtless we cannot hope here for such precision as is attainable in explaining, e.g., what it is to be a chess bishop." (p. 119) Nonetheless, we noted earlier that epistemic communities attempt to train their members to become generally reliable sources of information. The extent to which it manifests the rationality of members of the community to accept a proposition depends upon how they take account of the propositions, including observational propositions, that various members have actually presented to the group as ones they accept. Barring countervailing considerations, there is an initial rational presumption that a member's acceptance of a first-person observational proposition is trustworthy, at least to some degree. But countervailing considerations may be present affecting the degree of trustworthiness, and they are, in fact, relevant to the first two examples in a series that I shall consider as a means of testing the present
El: At close range, S watched his acquaintance, Tom Grabit, steal a library book. In response, S formed his present belief that Tom removed the book. Unknown to S, Tom has an identical twin, John, who was in the library that day and who stole a copy of the same book.

E2: As in El, but John was merely on his way to the library on that day and never got there because of an automobile accident.

In El, there is no justification-explaining chain related to S's conclusion of which S has hold. Countervailing considerations prevent the observational proposition that he accepts from generating such a chain. The latter proposition, to be sure, is one which Tom Grabit knows to be true, namely, that Tom removed the book. But S's belief in the proposition is not justified through any connection with further links in the chain of which Tom has hold. Those links might mention that Tom's cognitive equipment is adequate for judging what Tom sees and what Tom does, and so forth, but none of this will make S justified in believing Tom's conclusion. Here, there is no additional justification-explaining chain related to that conclusion that describes the adequacy of S's cognitive equipment for seeing what happens in front of him, and so forth. Such facts concerning S do not suffice to make the proposition, 'Tom removed the book', a justified proposition. For those facts would not make it more rational for the members of S's epistemic community to accept S's report on what happened in the library regarding the book, when those members try to take account of observational statements that people in the epistemic community accept. After all, in his observational situation, S lacks the ability to detect the difference between Tom's stealing the book and John's doing so. If an observer reports that a particular entity was involved in a certain state of affairs but the observer lacks the ability to discriminate between the involvement of that entity in the state of affairs and the involvement of other entities contained within the observational situation or 'observational space' then it is not more rational for members of the epistemic community to accept such a report.

36Examples El, E3-E7, and E10-E12 are similar to ones mentioned by Klein in "Knowledge, Causality,...". Examples E1-E4 and E9 are discussed by John A. Barker in "What You Don't Know Won't Hurt You?" The American Philosophical Quarterly 13 (1976), pp. 303-308. Sosa mentions E6 and E14 on p. 117 of "How Do You Know?" Some of the examples are also considered by other authors.
community to accept the report merely on the observer's say-so.37

The notion of being contained within one's observational situation or observational space is vague and dependent on pragmatic considerations, including assessments of the risk of confusing various entities. This accounts for the corresponding lack of firmness in our intuitions as to whether S knows in example E2. As John Barker said when pointing out this lack of firmness, it is desirable for an analysis that purports to capture our present concept of knowing to retain the same degree of vagueness that is actually an aspect of our present concept.38

Moreover, I also agree with Barker's intuition that the closer the accident occurred to the library (and, perhaps, the closer it occurred to the time of Tom's theft) the less we are inclined to grant S knowledge.39 This is because we take more

37By this last qualification, I mean to allow that the community might already independently know that the other entities were not in fact observed by S. In some such cases, to be sure, it is rational for members of the community to accept the observer's report. But they do not accept it merely on the observer's say-so.

My emphasis on how the rationality of other members of the epistemic community is displayed in trusting an observation report differs significantly from that of Odegard in "A Knower's Evidence." Odegard says that if you are concerned about my particular credentials for making a knowledge claim, and you are aware of additional evidence possessed by those surrounding me (even if it is misleading evidence) "then you can challenge me by introducing the...[additional] evidence on its own. When I fail to cope, you can conclude that I do not know." (p. 124) The evidence possessed by others is relevant to defeating a knowledge claim, according to Odegard, because the putative knower would not fully manifest his rationality by continuing to believe if he had this evidence; whereas, I am stressing the way in which various members of the epistemic community would or would not manifest their rationality, given certain evidence. Odegard's view is based on the erroneous subjunctive conditional mentioned in n. 30, above.

38"What You Don't...", p. 306.

seriously the possibility of including John within S's observational space and the risk of his having been confused with Tom, especially if we presume that John was traveling with a firm larcenous intent.

E3: John exists, but was nowhere near the library. Between the time of the theft and the present, Ms. Grabit, who is the mother of the twins and who wishes to protect Tom, testified to authorities in a public hearing that John was in the library that day.

E4: As in E3, but John never existed and is only the figment of Ms. Grabit's demented mental condition.

E5: As in E4, and a number of Ms. Grabit's relatives share her delusion about a fictitious John.

Seen from the perspective of the everyday epistemic community to which she and S belong, Ms. Grabit's remarks might initially appear to constitute a critical challenge to S's opinion about the theft and to prevent S's conclusion from being a proposition which is justified because of S's acceptance of it, the adequacy of S's cognitive equipment for judging the question, and so forth.

However, even if Ms. Grabit's views are repeated by her relatives, they are no more serious or truly relevant here than analogous challenges in a scientific community where, merely out of fear or even mental illness, one or more scientists suggest, without further substantiation, that another scientist's observational report was based upon a confusion of different entities within his observational situation—yet where those other entities are wholly fictitious. Members of a scientific community are regarded as being rational in dismissing such flimsy challenges, and a similar point holds about the everyday epistemic community in relation to examples E3 through E5. A justification-explaining chain is not destroyed by such unsubstantiated challenges.

E6: Harman's newspaper example, as previously described in section II.

E7: As in E6, but only one news account has appeared that denies the assassination, and it achieves the same effects on those surrounding S as in E6.

40 This is not to deny that if S were to know of the remarks of Ms. Grabit and her relatives but not to know of their full setting then S would no longer think himself justified in believing that Tom stole the book.
In the original version of Harman's newspaper example, the denials can ultimately be traced to someone's intent to deceive, and the case has that much in common with E3. But the denials in the news reports purport to have originated from observations of eye-witnesses to the attempted assassination, and this is one important difference from all the Grabit cases. A second difference is that the newspapers or broadcasting stations issuing the denials are appropriately regarded as generally reliable sources of information, so that those around $S$ who respond by not believing in the assassination are depending on background information about their sources of information that the epistemic community does not possess about Ms. Grabit. Even if mothers generally tell the truth about their children, those around $S$ have not studied Ms. Grabit's reliability.

We may thus compare examples E6 and E7 to a situation where a putative experimental result is presented to a scientific community and appears to challenge the results of an earlier experiment. We regard it as more rational for the community to return to the basic issue and to investigate further, rather than simply to accept the original results and to base their appraisal of other hypotheses upon them. Even if the motivation of the scientists who presented the recent conflicting report was to lie and to deceive, the community needs to discredit their results before proceeding as before and trusting the earlier experiments. For the scientists who present the recent report are generally known to have been trained with the aim of making them reliable sources and to have been duly accredited as such. Moreover, since even one experimental investigation in science can call earlier results into question, E7 differs in no crucial respect from E6.

E8: As in E3, and Ms. Grabit includes in her testimony the claim that Tom was thousands of miles away that day.

E9: As in E3, except that $S$ was not present in the library and only read in a reliable newspaper that Tom committed the crime.

In example E8, Ms. Grabit offers a reason for supposing not merely that $S$'s observations were open to error but that $S$'s conclusion was actually erroneous, and E8 is thus closer to E6 and E7. We must remember, however, that even if Ms. Grabit was brought up by her parents to tell the truth, there is no social structure closely monitored by the everyday epistemic community that exists to certify the type of training she has in this respect or her disposition as a result of having

\[41\] Thus, I do not agree with Klein that one who shares Harman's intuition concerning E6 should also grant that $S$ loses knowledge in E5, assuming that Ms. Grabit's deluded relatives are numerous. (See "Knowledge, Causality...", p. 811)
undergone it. Even the public scrutiny of news media is
greater, and the social context within which reporters are
trained and monitored on generally reliable newspapers and
broadcasting stations is at least somewhat more akin to that
in a scientific community. Of course, I should not wish to
overemphasize this comparison. Nonetheless, I think it
explains why we are not so strongly inclined to say that $S$
fails to know in example E8 as in E6 or E7. But since mothers'
reports of their children's whereabouts are generally reliable,
at least regarding thousand-mile increments in those
whereabouts, I agree with Barker\(^{42}\) that we are less strongly
inclined to say that $S$ has knowledge in case E8 than in E4 or
E5. For it is less clear how to balance the general
reliability of such mothers' reports against the existence of
$S$'s own observations.

I also agree with Barker\(^{43}\) that we are less strongly
inclined to say that $S$ knows in case E9 than in E3, even
though we do grant $S$ knowledge in E9. The reason, I think,
is that in E9 any justification-explaining chain connected
with $S$ does not contain the contribution made to the
justification of the proposition, 'Tom removed the book'.
that his observations did contribute in example E3.

E10: As in E7, but the denial is written by a reporter who
happens to be a hitherto undetected pathological liar.

E11: As in E10, but there is no conspiracy of eye-witnesses
and the reporter who advances the denial does so merely as a
manifestation of a demented mental state.

In both these examples, the news source in question remains
a generally reliable source of information and, once again in
contrast to the Grabit cases, it is putatively transmitting
information obtained from eye-witnesses. It helps to compare
these examples to a case in which a scientist offers an
experimental report running counter to previous results but
which is riddled with falsehoods and motivated not by rational
fear of the consequences of the earlier line of research or by
a rational desire for fame, but by a deranged mental state and
loss of touch with reality. Does the scientific community
manifest its rationality less fully when it pays attention to
that report (assuming that it has no way of knowing that the

\(^{42}\) "What You Don't...", p. 306. Barker does not mention Ms.
Grabit's claim that Tom was far away, but does cite sources
for his example which include that detail. (See Harman,
Thought, p. 142; Sosa, "Two Conceptions...", p. 62)

\(^{43}\) "What You Don't...", pp. 306-307.
investigator is ill). I think that our intuitions are uncertain or wavering because our concept of rationality and its attendant principles are to some extent vague. The community abides by its methodology in reopening the issue, yet at the same time is crucially influenced by the extreme irrationality of one of its members. We can account analogously for what I take to be our unclear intuitions about case Ell.

To the extent that E10 differs from E11 by assuming that the reporter's pathology does not affect his motivation for putting forth the report, it appears to me not significantly different from the original newspaper example.44

E12: As in E4, except that those surrounding S believe Tom is innocent because they have read an account in a generally reliable newspaper of Ms. Grabit's testimony.

This case is sufficiently similar to E4 to prompt similar treatment. Since a justification-explaining chain concerns justified propositions, it concerns propositions that would be accepted were the community to be rationally guided. When those around S believe Ms. Grabit's remarks they deviate from their rational commitment to follow up only genuine critical challenges. Thus, I do not think we can say that when a sufficient number of hitherto reliable people around S accept a proposition that is in conflict with what S justifiably believes, this by itself is always sufficient to destroy the relevant justification-explaining chain and to deny S knowledge.

However, the next two examples may appear to conflict with such a view:

E13: As in E6 or E7, but where the denials are reported only in newspaper editions of which nobody happens to buy copies, and the denials receive no general attention.

E14: As in E6, but where the denials are reported only in newspaper editions read by few people before those editions are recalled.

One might initially think that S retains knowledge in both of these examples, and that this difference from some of the previous examples can be explained by the mere fact that in E13

44 This is not to deny that if those who surround S were to know that the reporter is a pathological liar, but not to know that his pathology failed to manifest itself when he wrote the report, then they would be less justified in taking that report seriously.
and El₄ fewer people around S refrain from believing that Tom is the culprit. However, El₃ is similar to an experimental report's being published by a scientific journal yet lying unread by the scientific community at large. Whereas, El₄ is similar to a situation where the journal retracts publication of that report. Once we realize this, I believe that our intuitions are to grant S knowledge in El₄ but not in El₃. For only in El₃ would the epistemic community follow its usual methods in assessing items in the news by rejecting or withholding judgment on the claim that the assassination occurred. That community takes it to be a generally reliable procedure to discount reports that have been retracted by a generally reliable source.

Employing analogies to scientific contexts introduces a certain amount of complexity when dealing with the above examples. But it is preferable to the over-simplified approach that William G. Lycan has taken toward several of those examples. For instance, Lycan admits that his own sampling shows opinions to be about evenly split as to my possession of knowledge in E₈. Yet Lycan insists that E₈ is an example of knowing, and that "the alleged 'social aspect' of knowing is merely a degenerate case of a simple principle about accessibility," which Lycan attacks, namely:

\[ H \] I know h on the basis of evidence e only if there is no evidence e' such that (a) e' potentially defeats my justification of h on the basis of e; (b) though I do not possess e', e' is readily accessible to me; and (c) there is no further evidence, equally accessible to me, that defeats e' in turn and is itself undefeated. [p. 117]

Lycan characterizes evidence that is easily accessible to me as evidence that I could (and will, if events continue in their normal course) come to possess with a minimum of effort on my part. [see p. 116]

He suggests that it is the ease with which I could learn of Ms. Grabbit's testimony which is crucial in case E₈, and that the common awareness of her testimony makes it potentially defeating evidence for me. Lycan employs this interpretation in order to argue against principle H and to support the view that E₈ presents an example of genuine knowledge. For "the marks of accessibility...are evidently matters of degree" but no procedure comes to mind for even beginning to decide where to draw the line between extraneous facts that undermine a

\[ ^{45}\text{"Evidence One Does Not Possess," The Australasian Journal of Philosophy 55 (1977), pp. 114-126. Bracketed page references are to this article.} \]
knowledge claim and those that do not. [pp. 120-121]
According to Lycan, the mark of accessibility in E8 is the fact that there is common knowledge of Ms. Grabit's testimony. But, Lycan objects, "how many people must accept Tom's mother's testimony before my knowledge that Tom stole the book is supposed to be undermined?" [p. 120]

However, Lycan is forced to admit that the original description of example E8 by Gilbert Harman did not specify that many other people believe Ms. Grabit's testimony. [see p. 116] My own discussion of the example has not turned on such a detail, nor has it depended on principle H. Instead, the difference between E8 and, say, E3 concerns a difference in one's relation to a mother's testimony; the question is whether (to put it in Lycan's own words) one is in some way "obligated to have checked on evidence of that sort." [p. 122] I have not attempted to provide general principles regarding such 'epistemic obligations,' but have relied on analogies to examples where scientific inquirers manifest their rationality by holding themselves responsible for checking on evidence of analogous sorts.46

Moreover, instead of ignoring the division of sampled intuitions concerning E8 and agreeing with Lycan that it is an example of knowing, I have followed Barker's suggestion that an analysis of knowing needs to account for the existence of variations in the strength of such intuitions.47

46 When discussing E6, Lycan overlooks the need to pay attention to putative eye-witnesses and to reliable sources of information, and he shifts the emphasis to the mere accessibility of the potentially defeating fake reports. [see p. 118]

47 Lycan also reports divided intuitions concerning another example due to Harman, where I believe that my friend Donald is at a location he said he would visit at this point of his vacation, but where Donald has sent misleading letters to the contrary, letters which now lie unopened on my hall table in the morning mail. This example is somewhat similar to E13. Since I do not receive the reports from Donald until the mail is delivered, the delivery may be treated as analogous to the publication of scientific results, and we may ignore Lycan's concern that a matter of degree slips into the situation because, prior to delivery, "the letters get closer and closer to my hall table." [p. 119] The mixed intuitions that Lycan reports may be accounted for by the fact that Harman's description of the example leaves Donald's motivation for writing the misleading letters unspecified, and it is thus not clear whether to liken the case to E3, E4, or E8.
In this section, I have often drawn upon the manifestations of rationality in science as a means of understanding the epistemology of everyday knowledge. I should like to conclude by admitting that some puzzles arise when one approaches the epistemology of the knowing subject from a perspective in the epistemology of science that is sensitive to the social dimensions of scientific inquiry.

Suppose that a scientist has performed experiments which give excellent reasons for his conclusion concerning the cause of a particular disease. But no one has yet done the various follow-up studies that the profession requires before it will accept his findings. Should we adopt that community's perspective as a guide and say that he does not yet know what the cause of the disease is, or should we say that he already knows but that his hypothesis does not yet form part of the body of scientific knowledge, in Popper's sense of the term "knowledge." If we do say that he knows, from the perspective of what epistemic community do we speak.

Again, suppose that a team of scientists sends a probe to Mars and that it conducts five experiments attempting to determine whether there is life on that planet. One of the experiments suggests that there is but the other four do not, and, in view of the total findings, the group as a whole refrains from publicly defending any conclusion about the existence of life on Mars. Suppose that the scientist who was in charge of developing the one positive experiment decides to assume that all the other experiments went awry in some presently unfathomable way, or even thinks of a presently unconfirmable manner in which this might have happened, so that on the basis of his experimental results he believes there to be life on Mars. Should we say (assuming that his belief is true) that he knows there is life on Mars because 'he has placed his confidence in the right place.' What if he decides to disengage himself from that epistemic community for the moment and holds himself ready to institute a splinter group to build upon his findings. Does he know from the point of view of the latter epistemic community.

48 Keith Lehrer suggests that if Harman's newspaper case is changed so that S thinks it possible that other eye-witnesses might deny the success of the assassination attempt and S decides to trust the reporter he has read and "not to let the doubts of others shake this confidence," then S does know that the assassination occurred because "he has placed his confidence in the right place." (Knowledge, p. 223)
I shall not attempt to solve these problems in the present discussion. In philosophy, as in science, a proposed solution to an important problem--such as the problem, 'What is justified factual knowledge?'--is apt to bring with it additional problems for continued investigation.

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