Case Studies About the Conditions for Knowledge
These examples both reinforce the PE definition and defend it from counterexamples.
(1) Lottery paradox I (p. 1)
(2) Lottery paradox II (p. 2) (Harman 1973, Hawthorne 2004)
(3) Agatha's cup (p. 4) (Bonjou 1980)
(4) Window facades (p. 7)
(5a) Do I see Joe Klein? Empirical proposition (p. 9) (Everitt and Fisher 1995)
(5b) Do I see Joe Klein? Lottery proposition (p. 11) (Everitt and Fisher 1995)
(6) The Gadwall Duck (p. 13) (Dretske 1981)
(7) Sam and the failed airplane diversion (p. 16)
(8) Does Samantha know that she sees a Goldfinch? (p. 17) (Austin 1979)
(10) Does Simon know that it will rain? (p. 23) (Harman 1973)
(11) Does Norman know that the President is in NYC? (p. 25) (Bonjou 2002)

(#1) The Lottery Paradox- ‘This Lottery ticket will not be a winner’

The 'lottery paradox' has attracted a wide interest since the publication of Henry Kyburg's *Probability and the Logic of Rational Belief* (1961). Kyburg's paradox was concerned with probabilistic justification, but it has implications for knowledge. The paradox is as follows. Suppose that there is a fair lottery where 100 tickets are issued (each having a unique number from 1 to 100). Sue purchases one ticket, and the lottery is to be held on the next day. Sue is well-aware of the statistical probability that her ticket will lose, and on this basis, dismisses the small probability of the ticket being a winner, stating \( p \): 'My ticket #27 is a losing ticket.' Does Sue know \( p \)?

The widely accepted response is that Sue does not know that her ticket is a loser. The PE definition explains why. The reason that Sue doesn't know \( p \), despite the high probability that \( p \) is true, is that Sue's evidence for believing \( p \) isn't connected to any particular ticket (including her own). With a fair drawing S can never be in a position to possess relevant premises for believing \( p \) is true. Knowledge condition 3 is not satisfied. Even after Sue examines the statistical evidence, and resolves and discards the small chance that the ticket may win, and has a personally justified belief, Sue cannot know \( p \).
(2) Another Lottery Paradox: 'S knows she will never be a multimillionaire'

A lottery paradox is developed by Harman (1973) and John Hawthorne (2004) with a form described by Elke Brendel and Christoph Jager (2004, p. 148):

Let us assume S bought a ticket in a fair lottery and the chances of this ticket winning are very low-- 1: 10 million. If S is the lucky winner, she will get ten million dollars. Although there is overwhelming statistical evidence for the belief that S's ticket will lose, many people share the intuition that S nevertheless does not know that her ticket will lose. Let us assume furthermore that, given S's meager income and her lack of rich relatives, S claims to know that she will never be a multimillionaire. Now we have a problem: S's knowing that she will never be a multimillionaire seems to imply her knowing that she will not win the lottery-- which contradicts the intuition that S fails to know that she will lose.

One very simple resolution to this paradox would be to maintain that S doesn't know p ('she will never be a multimillionaire'). Since S has played the lottery, S may win the lottery, and so S doesn't know she'll never be a millionaire. (This is a plausible response and is ultimately the correct one).

But this conclusion might not seem entirely intuitive. It might seem plausible that S can know p (i.e. 'she will never be a multimillionaire') based upon her strong reasons: (1) I have a low-paying job with no hope or desire for advancement, (2) I have no rich relatives from which to expect inheritance, nor pending legal settlement case, nor any reason for expecting financial windfall, and (3) I know that the chances of my winning the lottery are infinitesimal. (4) Therefore, I know I will never be a multimillionaire.
These three reasons certainly seem to constitute strong evidence to support S's claim that she will never be a multimillionaire. Condition 4a is satisfied. But are these reasons 'relevant' for S's claim to know that she won't be a multimillionaire after the drawing?

Not with the strong sense of 'relevant.' As was shown in the previous example, S cannot know that her lottery ticket will not win, because she cannot have a relevant (truth-connecting) belief that her ticket will lose; violating condition 3.

However, given S's financial circumstance, S can have 'relevant' reasons (in the wider sense of relevant) to believe (but not know) that she will never be a multimillionaire. With a wider sense of 'relevance,' the possibility of winning the lottery is relevant only if there is some strong reason to think that the possibility is (or could become) true. This wider sense of 'relevance' was already discussed in the house fire example (in the main text). At the start of an inquiry into a house fire, the investigators' attention was to consider all 'relevant' states-of-affairs that might have potential significance (or probability) to cause a fire (e.g. electrical problem, arson, careless smoking) before determining the 'relevant' true cause (e.g. an upended candle). Similarly, in this lottery case, S's concern is with the probability (and counter-possibilities) that contribute to her conclusion that she won't become a multimillionaire. With an infinitesimal probability of winning, S concedes that the potential to win the lottery is 'irrelevant' when considering all existing states-of-affairs, and eliminates it as having potential significance for becoming a millionaire.

This second description uses a wide (probabilistic) sense of 'relevant' (with respect to all states-of-affairs) that affirms that S has strong evidence, but still doesn't
know she won't be a multimillionaire. *The paradox is explained by recognizing that there are these two ordinary language senses of 'relevant.' In one sense, S cannot have 'relevant' (truth-connecting) evidence to *know* she won't win the lottery and become rich, but in another sense, S has 'relevant' (wider, related) probabilistic evidence that there is little reason to believe that winning the lottery would become true. S may (falsely) claim to know that 'she will never be multimillionaire' based upon relevant reasons in the 'wide' sense, but a claim to knowledge isn't literally true, given her participation in the lottery. S has a personally justified belief based upon widely relevant reasons, but not knowledge.

(#3) Does Agatha Know that 'She is Seeing a Cup'?

Let us consider another case from Bonjour (1980) that involves both a perceptual situation and a lottery proposition:

Agatha, seated at her desk, believes herself to be perceiving a cup on the desk. She also knows, however, that she is one of a group of 100 people who have been selected for a philosophical experiment by a Cartesian evil demon. The conditions have been so arranged that all 100 will at this particular time seem to themselves to be perceiving a cup upon their respective desks, with no significant differences in the subjective character of their respective experiences. But in fact, although 99 of the people will be perceiving a cup in the normal way, the last one will be caused by the demon to have a complete hallucination (including perceptual conditions, etc.) of a non-existent cup. Agatha knows all of this, but she does not have any further information as to whether she is the one who is hallucinating, though as it happens, she is not (p. 29).
In this situation, it is *true* that Agatha is seeing a cup, Agatha has strong statistical reason (99% probability) for believing that she sees a cup, and her visual apparatus and the existence of the cup provides a truth-connecting reason for why she should believe that she sees a cup. Does Agatha know that she sees a cup?

The PE definition maintains that Agatha *doesn't know* that she sees a cup, because conditions 3 and 4b are not satisfied. Condition 1 is satisfied, since it is true that Agatha sees a cup. Conditions 4a and 2 are satisfied, because Agatha has strong statistical evidence and direct visual perception to believe that she sees a cup.

Why are conditions 3 and 4b not satisfied? The short answer is that Agatha's empirical evidence (although truth-connecting relevant) has been undermined by her knowledge that she is confronted with a lottery proposition. She understands that there exists an actual defeating possibility (a 1% chance) that her perception is not veridical. Although Agatha is in a material situation to possess relevant perceptual evidence for seeing a cup, she simultaneously is not in a perceptual position to possess relevant reasons for discounting the 1% lottery possibility of a complete hallucination. Agatha cannot have a justified (truth-connecting) belief she is not being deceived by hallucination and cannot acquire any evidence to resolve this counterevidence. Agatha's true empirical belief is defeated by a lottery proposition. In this Cartesian evil demon lottery situation, Agatha's high probability premise by itself isn't sufficient to know that she is seeing a cup.

To emphasize why a high probability premise (by itself) isn't enough to yield knowledge in a particular situation, consider this example of a probabilistic inductive
argument: (1) 99% of the people in Springfield own a dog. (2) Mr. X is a resident of Springfield. (3) Therefore, Mr. X owns a dog. The two premises strongly support this conclusion, but they are not strong enough to be truth-connecting for knowing that 'Mr. X owns a dog.' The probability premise functions as a lottery proposition. A person is personally justified in believing that Mr. X owns a dog on this information, but one does not know that Mr. X owns a dog. In the same way, Agatha is personally justified in believing that she sees a cup, but she doesn't know it.

The lesson of these examples is that although probabilistic premises (i.e. both lottery and empirical probabilities) with high probabilities can be strong evidence in an inductive argument for why a proposition should be believed, probabilistic premises are not by themselves sufficient (and relevant) to be truth-connecting to a particular state of affairs. A strong inductive argument that is substantially based upon a probabilistic premise (less than 100%) is not sufficient to yield knowledge about a particular case. In order to possibly know that Mr. X owns a dog, one would need additional fallible evidence, such as testimony from Mr. X stating that he owns a dog, or by seeking other evidence. As a comparison, in the parked car case, as discussed in the main text, in addition to believing that there is a 99% chance that one's car hasn't been stolen, one also needs to have strong empirical reasons, such as memory of where the car was parked, in order to know where a car is parked. S is able to know where his car is because of truth connecting memories generated by perceptions (if other material conditions are satisfied). In contrast, Agatha has no strong empirical reasons for believing 'she sees a cup' because her empirical evidence (the perceptual evidence of sight) is rendered trivial by the demon.
(#4) Window Facades: Do Undermining Possibilities Defeat Knowledge?

In the United States there presently exist (scattered) instances of two-story buildings in urban areas that have 'false windows' on their second story. These 'window facades' are mere paintings, deliberately designed to appear as a window for aesthetic reasons and for novelty. One cannot see out of them because they are made of concrete and paint. There is no glass or transparent material in their construction. Unless it is brought to one's attention that these are fake windows, it is normal for people to (falsely) believe that they see a window. If I am walking down the street in an urban area that I am unfamiliar with, and it appears that I see a window on the second story of a building, do I know 'I see a window on the second story of that building?' Does the remote possibility that I may be seeing a window facade defeat my visual evidence?

A critic of the no-defeaters condition (or a skeptic) might seize upon this example and argue that there always exists some undermining evidence for most of our beliefs and condition 4b is almost always violated, so knowledge rarely occurs. The experience of a window and a window facade are indistinguishable from the street level. If it is possible that I am seeing a window facade, then I cannot know that I am seeing a window!

The above objection assumes that 'If it is possible that ~p, then S cannot know p since the reasons for believing p do not rule-out the possibility of ~p.' This is the principle of infallibilism. We have discussed (and dismissed) this principle in connection with examples of knowing where your car is parked in the main text, but a response to this objection is worth repeating. In order for the first sentence of condition 4b to be satisfied, there just needs to exist no facts (e.g. the existence of nearby window facades)
which would undermine S's set of reasons for believing that he sees a window. S can know p (viz. 'I see a window') when S's belief p is the product of a set of strong relevant premises for why p should be believed (conditions 4a\(^1\) and 3 are satisfied), and the possible nearby existence of window facades when added to the stock of S's existing evidence doesn't lead S to doubt his affirmative evidence for p, and there is (in fact) no nearby window facade. The first sentence of condition 4b is *contingently satisfied* if S is (in fact) not in close proximity (e.g. in visual range) to a window facade.

This analysis of how one can know that one is seeing a window on the second story of a building in an urban area is analogous to how one can know where one's car is parked. The *possibility* that there may exist undermining (or defeating) evidence that would undermine S's strong evidence of believing p is not sufficient grounds for a condition 4b violation. Williams (2001) correctly contends that "A defeater does not come into play simply by virtue of being mentioned: there has to be some reason to think

\(^1\) Among the tacit evidential propositions for believing that 'I see a window' that satisfy condition 4a are:  a) I am having the visual experience of a window, b) I am in close spatial proximity to what appears to be a window, c) I have previous experience seeing and utilizing windows, d) it is normal for a window to be on the second story of a building, e) my vision is good, f) the lighting and environment appear to be normal, g) I am well-rested and alert, h) I have no evidence to suspect that the apparent window is actually a painting, i) I understand the concepts of 'window' and 'painting,' j) I am not under the influence of strong hallucinogenic or intoxicating drugs, k) there exists very few (maybe .0005%) instances of window facades in the United States.
that it might obtain... If we insist on ruling out very remote error-possibilities, we are imposing severe standards for knowledge and justification" (p. 161).

Let us briefly reconsider the objection made by Pappas and Swain (1978, pp. 26-30) against a no-defeaters condition, namely that there always exists a true undermining proposition \( q \) such that if \( S \) learned that \( q \), \( S \) would not be justified in believing \( p \). This objection seems plainly false. In a vast number of everyday situations, persons have knowledge that there is a window on the second story of an observed building. The fact that there exist window facades does not defeat every instance of \( S \)'s putative sighting of a second-floor window. There is not always a true proposition \( q \) (i.e. a fact) that will defeat or undermine \( S \)'s evidence for believing \( p \), unless one is extremely normatively sensitive to remote-error possibilities. Although someone can be extremely cautious and skeptical and perhaps make no claims to knowledge, this irrational standard should not prevent other persons from having knowledge (on less cautious standards).

**(#5a) Do I Know that 'I see Joe Klein'? (An Empirical Proposition)**

Given that 'undermining evidence' in condition 4b is understood as an objective phenomenon based upon existing material conditions, and 'doubt' about the strength of evidence in condition 4a is understood as a normative and psychological matter, we can expect that there will be debatable cases of what counts as 'defeating evidence' in some situations. This problem is easily illustrated with an example involving identical twins. Suppose that two people look so much alike that they can't be distinguished except by verbal conversation. If I live in New York City and I am well-acquainted with my neighbor, Joe Klein, but I also know that Joe has an identical twin (Tom Klein) living in
Australia, am I ever personally justified in looking out my home's third-floor window, and knowing (from a distance) that I see this neighbor Joe Klein on the front steps at the base of his first-floor house?

One cogent response is that I'm never justified and *never know* that I see Joe on his front steps at a distance away because twin Tom's existence is always 'unresolved undermining evidence.' Instead, I only have 'true beliefs' on the many occasions that I see Joe. These beliefs are typically based upon strong evidence (e.g. Joe appears to be on his front steps, Joe owns the house, Joe is often on his front steps, I talked to Joe casually this morning as he walked past my house). Someone who denies that I can know 'I see Joe' based upon long-range visual inspection, and admits only a possibility of my having a true belief, imposes a high standard for personal justification. The existence of the twin Tom is thought to *defeat* any possibility of long-range visual knowledge (at any time) that I see neighbor Joe on the front steps of his house. After all, Joe and Tom look so much alike they can't be distinguished except by verbal conversation.

Another cogent response is that I *frequently know* that I see Joe Klein, because Tom Klein is a resident of Australia, and rarely visits Joe. I know that I see Joe on his front steps in the morning when he is picking up his newspaper. The fact of Tom's existence is an undermining proposition, but Tom's far away existence doesn't defeat my knowing that 'I see Joe' based upon a long-range visual perception. That Tom lives so far away, allows me to discard the (remote) possibility that I see Tom. My belief would be undermined, if Tom was in town visiting Joe, but for the most part, this isn't the case.
Variations of this example are discussed by Nicholas Everitt and Alec Fisher (1995, pp. 26-28). These authors believe that the existence of the twin Tom, is not just 'undermining evidence,' but is always 'defeating evidence' against knowing that I see Joe from the distance of my window. I disagree. That 'Tom Klein exists' is an undermining proposition, but the undermining possibility that 'I see Tom' could be resolved or ruled-out because of its small probability. I would grant myself sufficiently strong perceptual evidence to know that I see Joe on most occasions, if there were no important practical consequences to my belief. But, if it was pragmatically very important that I know that 'I see Joe' when looking from my window, I would relent and agree that I just believe that I see Joe, without knowing. After all, Joe and Tom look so much alike they can't be distinguished except by verbal conversation!

(#5b) Do I Know that 'I see Joe Klein'? (A Lottery Proposition)

The above 'empirical' example can be amended to be equivalent to Bonjour's Agatha and the cup 'lottery' example. Suppose that in this embellished example:

(1) I am told that in the upcoming calendar year Tom Klein, the Australian, will visit and reside in Joe's house on four days, during which time Joe will be out of town on business trip(s). Four days translates to 1% of a calendar year when Tom will reside in Joe's house. Joe will live there the other 99% of the days.

(2) I do not know the dates of the four days when Tom's visit(s) will be.

(3) I look out my window on a given day, without having any recent verbal or other communication with Joe for many months, and I say 'I see Joe on his front steps' with no other empirical evidence that it is Joe that I see.
In this situation; do I know that I see Joe? No, I don't. The reasoning is the same as in the Agatha example above. In this embellished case, my perceptual reason for believing that I see Joe is defeated by knowledge that I am participating in a lottery situation. I understand that there is an actual defeating possibility (a 1% chance) that I may be mistaken in my visual belief, and I have no additional empirical premises on which to base my belief. The existing 99% probability that I see Joe by itself isn't sufficient for having relevant reasons for knowing I see Joe in a particular situation.

The parameters of a lottery situation have the following contrast with the original empirical question of whether I can know that I see Joe in #5. In the #5 example, it was assumed that I have additional empirical evidence for believing Joe is standing on his front porch (e.g. I talked to him this morning), in addition to a high probability that Joe is on his own front steps. The assertion that 'I see Joe' when based upon my visual perception can be a relevant (truth-connecting) reason for my belief that I see Joe, given that I have other strong contextual reasons for believing that I see Joe. The probabilistic inductive conclusions that 'my car is parked at the corner of Maple and Nelson' and that 'I see Joe Klein on his front steps' can be based upon strong probability, and strong and relevant empirical evidence, and can be known. In contrast, an inductive argument in #6 that primarily uses high probability lottery premise(s) or empirical probability statistic(s) as substantial evidence in indicating a probable conclusion about a particular state of affairs is not potentially knowable. The lottery predicament of Agatha who has a 99% favorable lottery probability that she sees a cup, and the 99% lottery probability that 'I see Joe Klein' in example #6 are not knowable.
(6) **Does the Amateur Birdwatcher Know that he sees a Gadwall Duck?**

Dretske (1981) presents the following example that illustrates a naturalist’s position that casts doubt upon the plausibility of a no-defeaters condition:

1) An amateur birdwatcher spots a duck on his favorite Wisconsin pond. He quickly notes its familiar silhouette and markings and makes a mental note to tell his friends that he saw a Gadwall, a rather unusual bird in that part of the Midwest. Since the Gadwall has a distinctive set of markings (black rump, white patch on the hind edge of the wing, etc.), markings that no other North American duck exhibits, and these markings are all perfectly visible, it seems reasonable enough to say that the birdwatcher *knows* that yonder bird is a Gadwall.

2) Nevertheless, a concerned ornithologist is poking around the vicinity, not far from where our birdwatcher spotted his Gadwall, looking for some trace of Siberian Grebes. Grebes are duck-like water birds, and the Siberian version of this creature is, when in water, very hard to distinguish from a Gadwall duck. Accurate identification requires seeing the birds in flight since the Gadwall has a white belly and the Grebe a red belly-- features that are not visible when the birds are in water. The ornithologist has a hypothesis that some Siberian Grebes have been migrating to the Midwest from their home in Siberia, and he and his research assistants are combing the Midwest in search of confirmation.

Given that there are nearby professional birdwatchers seeking rare Siberian grebes in the area of the amateur, does the amateur birdwatcher know \( p \): he saw a rare Gadwall duck?
Dretske says that most people would say that the amateur bird watcher did not know that he saw a Gadwall if there actually were grebes in the vicinity. This makes sense. If there exist nearby grebes and they are perceptually indistinguishable from a Gadwall (from most vantage points), then one's perceptual belief that one saw a rare Gadwall is undermined by the existence of nearby rare grebes. Dretske says that if there are grebes in the area, "It certainly sounds strange to suppose that he could give assurances to the ornithologist that the bird he saw was not a Siberian grebe (since he knew it to be a Gadwall duck)." Dretske's intuitions are correct, as condition 4b is violated, even if the amateur did in fact see a Gadwall. Dretske continues:

But what if the ornithologist's suspicions are unfounded? None of the grebes have migrated. Does the birdwatcher still not know what he takes himself to know? Is then, the simple presence of an ornithologist, with his false hypothesis enough to rob the birdwatcher of his knowledge that the bird on the pond is a Gadwall duck?

Let us eliminate the terminology about being 'robbed' and state a more neutral question:

If a conscientious S were told that a respected academic team was visiting the area to determine whether rare grebes from Siberia have migrated to the vicinity, and that grebes and Gadwall ducks are very similar visually, would S possess enough evidence to affirm a sighting of a rare Gadwall, and denial of seeing a rare grebe?

The answer to both versions of the same question, from the perspective I favor here, is an emphatic 'no.' If S was aware of this information about the existence of an academic team and their mission, and S dismissed his possible sighting of a rare grebe, then S
would be stubborn in retaining his belief or just disrespectful of academic hypotheses. In this situation, the PE definition suggests that existing misleading evidence that the amateur does (or doesn't) consider, would prevent S from having a strong justification for having knowledge that a rare Gadwall was observed. Condition 4b is violated.

Dretske uses the word 'rob' in line with other naturalist philosophers who believe that an unperceived ornithologist with a false belief should not (and cannot) make S doubt his own true perceptual belief. S holds a belief based upon reliable perceptual processes that are relevant for why p should be believed. Dretske’s naturalist intuition is that human perceptual knowledge is akin to animal knowledge and is a function of evolutionary discrimination mechanisms and surrounding material conditions. Animal knowledge is a function of how a belief arises and the surrounding material conditions.

While Dretske’s naturalistic intuitions may be true for human perceptual beliefs, most non-perceptual human beliefs are the product of the faculty of language acquisition. Human knowledge is not just animal knowledge. The PE definition allows that non-human animals can know p: if p is true, p is believed, p is believed upon truth-connecting reasons for why p should be believed, and if there are no undermining factors that would weaken a belief. For human knowledge, however, persons should additionally have premised reasons (or propositions) as part of a deductive, inductive, or abductive argument in order to defend a belief (or theory), especially if reasons are demanded by a sincere objector who wants to critically investigate a belief. Conditions 4a and 4b are necessary for human knowledge. It indeed might seem 'unfair' that the epistemically inaccessible spurious fact of a failed academic expedition can lead S to not know p, but
that is how it is. It is maintained here that if there exists a nearby academic team (with a
scientific, but false counterhypothesis), that this fact would (or should) lead $S$ to admit
that he might be wrong in his belief. $S$ does not know that he sees a Gadwall duck.

(#7) Sam and the Failed Hoax: An Airplane Flight is Not Interrupted

Suppose that Sam has a scheduled plane flight to fly from Atlanta to Los Angeles
at 11AM on a given day aboard a major commercial carrier. Sam wakes up at 7AM and
thinks 'There will not be mass panic aboard my flight because of a bomb threat today.'
He believes this because his airline is a reliable carrier, the security presence is strong,
and it is unlikely that there would be a bomb threat or a hoax.

But suppose that too, that on that morning, the crazy marketing department at
radio station KRZ in Dallas has decided to implement the socially irresponsible decision
to promote their new shock radio show, by employing a disc jockey to board the same
flight in Atlanta, and loudly scream a false bomb threat while the plane is in flight. The
plan is to divert the plane with an emergency landing to Dallas to promote the radio show
with sensational media coverage. Given that the stunt will likely be successful, since
security cannot detect a verbal hoax, Sam's belief that 'There will not be mass panic
aboard my flight because of a bomb threat today' is clearly undermined and may be false.
He does not know that he and others won't be fearful later in the day.

But what happens, if by chance, the disc jockey takes a taxi to the Atlanta airport,
and on the way to the airport the taxi breaks down with a flat tire. As a result, the disc
jockey is unable to board the plane on time and is left behind. In this situation, does the
unexpected breakdown of the taxi, now give Sam knowledge in his motel room that he
will not panic from a bomb threat? Although conditions 1, 2, 3, and 4a are all satisfied on Sam's successful and unimpeded flight to Los Angeles, Sam did *not know* that he wasn't going to be fearful. Condition 4b is violated. If Sam was to become aware of the planned KRZ radio stunt, either before (7AM) or after the flight (7PM), Sam would admit that his belief was not knowledge, but was a matter of luck. The existence of a planned hoax (even if it fails) prevents Sam from knowing that there would not be panic onboard. Unconsidered undermining evidence and inaccessible to S, can prevent S from knowing p (in some cases). This failed bomb hoax example is another ‘Harman case.’

(#8) Does Samantha Know that She Sees a Goldfinch?

The following case of Samantha and a goldfinch illustrates how it is possible that S can know p, but at the same time, not know that a defeating premise q is false. This example also shows how PE conditions 4a and 4b resolve an empirical problem:

(4) There exists no unresolved nor unconsidered undermining evidence, that would effectively lead S to doubt or disbelieve p, violating condition 2;
(4a) In situations of critical doubt, S must have 'adequate evidence' (i.e. strong reasons e1, e2, e3, etc.) for believing p, and S must be able to resolve (i.e. rule-out, discard) any actual or logical possibilities that would undermine (or defeat) the evidence possessed for p, and
(4b) There cannot exist undermining evidence (no matter whether S is aware of it or not) that would significantly weaken S's belief that p. If there does exist evidence q that suggests not-p, and if S was to be aware of this evidence, then S must (already) have/acquire evidence to dismiss resolve counterevidence q.
Suppose that Samantha is an ordinary observer looking at a prairie field near her home in North America. Samantha says to her young daughter that she sees a goldfinch, and points to it from a distance of fifteen yards away. A 'goldfinch' is a small yellow bird that is native and common to the area. Samantha asserts that she knows that she sees a goldfinch in the field.

But, when asked about how assured she is of her belief, Samantha candidly concedes that from her vantage point, she is not able to distinguish the sighted bird as being different from what could be a 'canary,' which is non-native to North America, and could appear in the prairie as a lost pet. With this admission, does Samantha still know that she is seeing a goldfinch?

One scenario is that Samantha cannot rule-out the unlikely possibility that the bird is a canary, and Samantha admits not knowing that she sees a goldfinch. If Samantha acknowledges that with her visual and statistical evidence that she is unable to discard this potentially defeating possibility, then PE conditions 4a and 4b are violated. Samantha would concede that she does not know that she is seeing a goldfinch and would continue to have a strong belief that she is seeing a goldfinch, without knowing it.

But alternatively, what if Samantha dismisses the remote possibility that she is seeing a canary, and steadfastly claims that she knows that she is seeing a goldfinch? For example, if Samantha believes that the possibility of seeing something other than a goldfinch is so small, and that her visual vantage point is 'adequate enough' to strongly believe that she is seeing a goldfinch does she now know that she is seeing a goldfinch?
In this situation of 'critical doubt' it might seem that the normative dimension of 4a and the subjunctive conditional 4b leave us at an impasse as to whether Samantha knows that she sees a goldfinch. But according to the PE definition, whether S knows that she is seeing a goldfinch is partially contingent upon her material surroundings. If S claims to know that she is seeing a goldfinch, the question of whether she really knows, depends partially upon the fact of whether there exists something nearby that is not a goldfinch, but resembles a goldfinch. Whether the first sentence of condition 4b (i.e. that there is no undermining evidence that would weaken S's belief) is satisfied contingent upon whether there is an entity, in direct view or in the vicinity that would undermine Samantha's strong belief that she sees a goldfinch. For instance, if someone's pet canary had escaped and flown into the air space only a half-mile from where S now stands, this fact would be undermining to S's belief, no matter whether S was aware of it or not. S would likely concede that she does not know that she was seeing a goldfinch if there actually exists a canary in the vicinity of where S now gazes, and if S was not in a visual position to distinguish a goldfinch from a canary. (The half-mile parameter is arbitrary and reflects S's tacit importance for p being true).

In sum, if S believes she sees a goldfinch, and if it is true that she is seeing a goldfinch, and if S's belief that she is seeing a goldfinch is from evidence that is relevant for why it should be believed that she sees a goldfinch, and if S's visual faculties and background beliefs are 'adequate' for her to rule-out the canary and other conflicting hypotheses, and if there are no nearby yellow birds (or goldfinch resembling objects) that could be mistakenly identified as a goldfinch; then S knows that she sees a goldfinch.
The PE definition states that if these material conditions are obtained, then 'S knows p' is true, where S designates Samantha and p designates 'I see a goldfinch in the field.' Although spatial considerations and characteristics of resembling objects are left very imprecise, the PE definition brings into account all of the factors for the possibility that Samantha knows that she sees a goldfinch, as well as the alternative possibility that she does not know that the is seeing a goldfinch.  

With respect to this example a staunch advocate of epistemic closure will maintain that when Samantha knows that she is seeing a goldfinch, she also knows that she is not seeing a canary. But is this correct? Is it true that if S knows p, then she must know that any and all undermining evidence (and potential defeaters) are false (or irrelevant) to the truth of p? We answer 'no' to this question and appeal to the principle of fallibilism and condition 4a. With 4a, it is stated that S must 'rule-out' possibilities (in a pragmatic and normative context) that imply ~p, as a necessary condition for knowing.

The reason why knowledge condition 4a is endorsed, and epistemic closure is rejected is that condition 4a allows S to fallibly rule-out and resolve actual and logical possibilities that would undermine (or defeat) S's premises for believing p. With condition 4a, S can tacitly or explicitly discard improbable undermining possibilities, and assume them false, without knowing them false. The acceptance of fallibilism where 'S can know p upon strong reasons, but S's strong reasons for believing p do not guarantee

\[2 \text{ J.L. Austin (1979) states that in order to know that one is seeing a goldfinch in a prairie, one doesn't need to prove that it isn't a stuffed goldfinch (p. 84). This is consistent with the position adopted here.}\]
the truth of \( p \)' describes the status of our ordinary inductive inferences. The doctrine of fallibilism has strong support among many epistemologists and is endorsed here. Two common statements of fallibilism in terms of 'justification' and 'evidence' are as follows:

a) For some \( p \), it is possible for \( S \) to know that \( p \) even if \( S \) could have exactly the same personal justification for believing \( p \) when \( p \) is false.

b) For some \( p \), it is possible for \( S \) to know that \( p \) even if one's evidence for \( p \) does not make certain the truth of \( p \).

By accepting condition 4a and the principle(s) of fallibilism, it is affirmed that \( S \) can know \( p \), based in part upon ruling-out potential defeating propositions that cannot be known to be false. Sherman and Harman (2011) similarly endorse this principle.

(#9) The Poison Overdose: Does \( S \) Know that 'Mr. Dunfor is Dead?'

This example is similar to that of Robert Shope (1983, p. 152), adopted from Marshall Swain (1978, p. 243) and discussed by Richard Feldman (2003, p. 85). This example is directed toward causal theories of knowledge, but it could be used as an objection to knowledge condition 3 in the PE definition:

\( S \) observes Mr. Dunfor taking a clearly fatal dose of poison, and \( S \) is a doctor, well-acquainted with the poison's properties, and believing that Dunfor is not going to receive an extremely rare antidote, comes to believe \( p \): 'Mr. Dunfor will die within two hours.' As it turns out, an hour before the poison would have killed him, Dunfor is struck and killed by a speeding truck. The pedestrian-truck accident and Mr. Dunfor's death are not at all a consequence of the poisoning.
Given that S believes that Dunfor will be dead within two hours after the poisoning, does S who doesn't observe the whereabouts of Dunfor after the poisoning know \( p \): 'Dunfor is dead,' two hours after the poisoning? There are two responses:

(a) S doesn't know that Dunfor is dead. S has a personally justified true belief but doesn't know \( p \) because of an apparent violation of condition 3 (the fatal dose of poisoning is not why \( p \) should be believed). Also, if S was to know \( q \): 'Dunfor didn't die from poison' (previously unconsidered undermining evidence), this might lead to condition 4a and condition 2 violations.

(b) S knows that Dunfor is dead. Because S has evidence that Dunfor ingested a clearly lethal dose of poison, it is implied that Dunfor will be dead within two hours, no matter whatever else happens (e.g. house fire, earthquake, sniper attack, heart attack, motor vehicle accident, etc.). The ingestion of poison is relevant (truth-connecting) for why Dunfor will be dead, no matter what else.

The reasoning behind each of these responses is extremely plausible!

The first response denying S's knowledge could be true if S should become aware that \( q \): 'Dunfor did not die from a poison overdose.' Given this fact, S could become doubtful about whether S was dead at all, despite what seemed to be extremely strong evidence. In this case, if S were to become aware of \( q \), this evidence undermines S's justified belief that \( p \) (i.e. 4a and 4b violations). And further, it seems that no matter whether S becomes aware of \( q \) (or not), this is a Gettier case where knowledge conditions 3 and 4b are violated. On this interpretation, S has a true belief based upon strong evidence, but doesn't know \( p \).
The second response maintains that S knows 'Dunfor is dead.' This response is correct if it is assumed that S's evidence for Dunfor's death is both (1) Dunfor has ingested sufficient poison that will be fatal within two hours, and (2) Nothing else can save Dunfor from dying within two hours. If S accepted both of these premises as reasons for believing that Dunfor is dead, then this second premise is in fact relevant, and PE knowledge conditions 1, 2, 3, and 4a would all satisfied. What is crucial in determining whether S knows p, would be S's response to the existing undermining fact q: 'Dunfor did not die from a poison overdose.' If S were to learn of this fact, and if S were to dismiss this counterevidence by resolving that S must still be dead (no matter what), condition 4b would be satisfied, and S knows that 'Dunfor is dead.'

What are we to make of these two persuasive arguments that yield conflicting conclusions as a solution to this example? Does this show that the PE definition yields a contradiction, and is inconsistent? I certainly hope not.

Instead of viewing these results as contradictory, these possibilities illustrate that whether 'S knows p' can be dependent upon S's reaction to an undermining proposition q. In the first case, S reacts with a defensive posture to q, becoming skeptical about the strength of his evidence. Although S has relevant reasons for believing 'Dunfor is dead,' S's conscious inability to resolve q, leads to a failure of knowledge. In the second case, S is more confident of his evidence, and with clearly stated premises that are strong and relevant for why p should be believed, and a discard of q, S knows p. The subjunctive conditional of 4b respects the reasonable and variable reactions to counterevidence, as a contextual element to whether S knows p.
(10) Does Simon Know that 'It will Rain'?

An example adopted and modified from Harman (1973, p. 133):

Simon believes that barometer readings fall before a rainstorm because there is an increase in the force of gravity. He believes that gravity initially pulls mercury down the tube (making the barometer reading fall) and when the force is great enough, gravity pulls rain out of the sky.

Let us assume for simplicity that Simon has observed that it rains 100% of the time in a 24-hour period after the barometer reading falls. Given that Simon is aware of this strong statistical evidence, but is unaware that it is actually a change of air pressure that causes the barometer to fall (and that there are other atmospheric factors that cause it to rain) is Simon justified in believing that it will rain whenever the barometer reading falls? Does Simon know that 'it will rain' whenever the barometer reading falls?

This example challenges the adequacy of PE condition 3, that states in order to have knowledge, S must have reasons that are substantially relevant for why p should be believed. As discussed, this condition doesn't mandate that all of S's reasons for believing p are relevant or true, but just states that 'substantial relevancy' is required.

Are Simon's two primary reasons for believing 'it will rain' when the barometer falls, relevant for why he should believe that it will rain?

1. Whenever the barometer falls, it rains. (A statistical premise from empirical observations, assuming that this is a case of physical causation).
2. Increased gravity will cause the barometer to fall and rain to fall from the sky. (A physical-causal hypothesis is inferred).
I believe that these two reasons (as a whole) are substantially relevant, and that PE condition 3 is satisfied, and that Simon knows that it will rain when the barometer falls. Harman agrees that Simon has knowledge in this case, saying that there are two explanations for why Simon believes that it will rain. One is the reason involving increased gravity, and the second explanation is an assumption that the barometer behaves in a way dependent upon environmental issues, and that there is a strong causal-statistical correlation between barometer readings and impending rainfall. Although Simon knows that it will rain (based on the first relevant reason), he clearly doesn't have scientifically relevant reasons for why it will rain.

A person can have a set of substantially relevant reasons for believing \( p \) even when not all of those reasons are true or relevant for why \( p \) should be believed. Similar to this example, it can be maintained that the ancients knew that the sun would rise in the eastern sky each day, even if they believed that the earth was at the center of the universe and had false causal explanations for why the sun appears as it does.

**(#11) Does Norman know that 'The President is in New York City'?'**

This example is from Laurence Bonjour (2002, p. 230). Norman is a genuine clairvoyant. \( N \) has a natural ability (by a mysterious physical-causal mechanism) to consistently form true beliefs about distant events on select topics. Although \( N \) possesses clairvoyant beliefs, he doesn't believe himself to be a clairvoyant. \( N \) has no belief or opinion whether clairvoyance is possible, and thus has no belief for or against his having a clairvoyant ability. As a matter of fact, \( N \) often forms reliable (and true) beliefs about the geographical whereabouts of the president of the United States. At time \( t \), \( N \)'s
clairvoyance causes him to form a belief $p$ that 'The President is now in New York City.' At time $t$, it is true that the president is in New York City. Does Norman know $p$?

Norman does not have knowledge that $p$. Conditions 1, 2, and 3 are fulfilled, since he possesses a truth-connecting causally reliable belief mechanism for having a true belief. But if the instinctual grounds for his beliefs are questioned by an observer, N's lack of reasons leaves condition 4a unsatisfied. Bonjour agrees that Norman does not have human knowledge and argues against reliabilism in part based upon this objection.³

(#12) Is it Possible to Possess Knowledge from a Single False Premise?

Ted Warfield (2005) and Klein (2008) have recently asked whether there are situations where $S$ believes an evidential proposition $e$, but $e$ is false, and $e$ is the single premise for why an inferred belief $p$ is believed true, and the inferred $p$ is (intuitively) an instance of knowledge. Is it possible for $S$ to gain inferential knowledge from a single 'relevant' false premise? Their answer is yes. Are they correct? I don’t believe so.

Let us consider examples from Warfield (pp. 407-408) and from Klein (p. 36):

(1) Counting with some care the number of people present at my talk, I reason: There are 53 people at my talk, therefore my 100 handout copies are

³ This example is analogous to the Mr. Truetemp example from Lehrer (2000, p. 187) where unknown to $T$, a tempucomp is secretly implanted in his head by an experimental surgeon allowing $T$ to always have a true belief about what the temperature is. But, because $T$ isn't aware of the reliability and truth of his beliefs, he doesn't possess defensible 'human' knowledge. If a surgeon's work is unknown to $T$, he only has 'animal' knowledge, because only the four primary PE conditions of knowledge are satisfied.
sufficient. My premise is false. There are 52 people in attendance—I
double-counted one person who changed seats during the count. And yet I
know my conclusion: My 100 copies are sufficient.

(2) I have a 7 PM meeting and extreme confidence in the accuracy of my
fancy watch. Having lost track of time and wanting to arrive on time for the
meeting, I look carefully at my watch. I reason: ‘It is exactly 2:58 PM;
therefore, I am not late for my 7 PM meeting.’ Again, I know my conclusion,
but it happens that it’s exactly 2:56 PM, not 2:58 PM.

(3) On the basis of my apparent memory, I believe that my secretary told me
on Friday that I have an appointment on Monday with a student. From that
belief, I infer that I do have an appointment on Monday. Suppose, further,
that I do have an appointment on Monday, and that my secretary told me so.
But she told me that on Thursday, not Friday. I know that I have such an
appointment even though I inferred my belief from the false proposition that
my secretary told me on Friday that I have an appointment on Monday.

The insight, according to Warfield is that in each example, S knows p, but this
knowledge is based on a single relevant false premise. Traditionally, it has been believed
that knowledge can't be based upon a set of (essentially) false premise(s). It has been held
that inferential knowledge of a conclusion always requires some set of true relevant
premise(s). For example, Gettier examples aren't cases of knowledge because S has a
personally justified true belief based upon false premises (i.e. irrelevant propositions).
But, the impact of these examples (and others like them) is intended to provide counterexamples to the *necessity* of true relevant premises, as a condition for knowledge, by showing how cases of *knowledge* can be generated from a *single false premise*. Warfield claims that we can have "knowledge from falsehood" and Klein suggests that "useful false beliefs" can allow a person to have knowledge. Warfield claims that there needs to be a reconsideration of the role(s) that false beliefs may play in attaining knowledge. He states (p. 408):

…the falsity of the premise in each case is properly stipulated in each example and the 'relevance' of that false premise is suggested by the fact that the premise is the sole material premise in the inferential episode leading to the conclusion. If the sole substantive premise isn't relevant, then someone has some explaining to do about the notion of 'relevance' involved in the widely held claim that: "Inferential knowledge of a conclusion requires true relevant premises."

Since we now have counterexamples, Warfield states that "these are cases of *knowledge from falsehood*" and so we must integrate this fact carefully no doubt, into our overall epistemological thinking" (p. 408).

When considering a situation where knowledge is based upon a single (essential) false premise, Warfield wishes to restrict our attention to cases in which a person has exactly one inferential argument for one's conclusion and the inferential argument consists of a single material premise and a suppressed conditional linking the premise to the conclusion via *modus ponens*. He says that in simplifying this way, we attend to (deductive) inferences where the surface form of reasoning is perspicuous. He says that
this simplification does not require taking a stand on the question of whether coherentist or other 'holistic' features play a justificatory role, nor does the simplification involve taking a stand on the epistemic role of 'the background' or anything else (p. 406).

In critical response we must ask, do these examples really illustrate instances of knowledge from a single false premise? Does S really infer (or reason) that p: (1) ‘he has enough copies,’ (2) ‘she won’t be late for a meeting,’ and (3) ‘he has an appointment on Monday’ from a single evidential premise via a modus ponens inference in context? Even if the modus ponens mode of deductive reasoning is the cognizant process for why S infers p, does S's belief p (in a context) emerge from just this single premise? I'm inclined to say no, since the single premise e is false (and irrelevant) for why p should be believed. This single premise cannot be the source of S's putative knowledge that p.

Warfield issues an explicit challenge (in the quote above) that if the sole substantive premise isn't 'relevant,' then someone has some explaining to do about the notion of 'relevance.' We have analyzed two senses of 'relevant' in the main text of "A Predominately Externalist Definition of Knowledge." In the case of determining the cause of a house fire, we distinguished a 'wide sense' of relevant evidence (or premises) that might be related to, or might have some significance, or are worthy of attention' in the initial investigation of the origin of the fire (e.g. an electrical problem, lightning, or fallen lit candle). We also noticed a second 'narrow truth-connecting sense' of 'relevant' when after an investigation, experts determine (from available evidence) that the 'relevant' (truth-connecting) cause of a fire was a fallen candle. Once the cause of the
fire is determined to be a lit candle, other possible causes are deemed irrelevant, in the truth-connecting sense.

With respect to the paper miscount case, it is acknowledged that the false premise 'there are 53 people at my talk' is relevant to S's true belief, in the wide sense, in that it is among the premises that could be (and is in fact) used to justify S's true belief. But since the premise e is false, it is irrelevant, in the narrow sense to the truth of p, since it is not truth-connecting for why p should be believed. Further it can be argued plausibly that there are other tacit background beliefs held by S (e.g. 'there is well under a 100 people in the room') that form the implicit set of premises that are relevant for believing p in question, and that this is the explanation for why p is known in each case. This kind of explanation is called the 'standard response' by Branden Fitelson (2018).

With PE condition #3 it is a necessary condition of knowledge that S's justificatory reason(s) for believing p must be substantially relevant (i.e. truth-connecting) for why p should be believed. In the examples above, the falsity of the single premise used by S when inferring p would be understood as 'undermining evidence' that if made available to S, could weaken S's belief that p. The crucial question, on the PE account, is that if S was to be made aware that the single premise is in fact false, how would S react to this counter-fact? In each epistemic context, it can be assumed that S believes p among a set of implicit reasons e1, e2… even though they are not the direct cognizant (or causal) reasons for why p is believed. In the above examples, these implicit (proxy) reasons would include that, for example: (a) the headcount of 53

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4 Fitelson notes the articulations of Klein (2008), Montminy (2014), and Schnee (2014).
persons is well short of the 100 copies available, (b) at mid-afternoon I have plenty of
time for an early evening meeting, and (c) my secretary told me (at some time) that I have
a meeting on Monday, and I know the student needs my attention. As argued earlier,
persons may (unintentionally) have false beliefs as 'evidence' (or reasons) for believing \( p \)
where some stated reason(s) are false, but in cases of knowledge, *one’s overall evidential
beliefs must be substantially relevant* (i.e. truth-connecting) for why a true \( p \) is believed.

To be specific, on the PE theory, the second sentence of condition 4b states that
"If there does exist evidence \( q \) that suggests not-\( p \), and if \( S \) was to be aware of this
evidence, then \( S \) must have (or acquire) evidence to dismiss (or resolve) counter-evidence
\( q \)." Presumably, in each case, \( S \) already possesses additional evidence, to immediately
resolve the falsity of the single premise that was used in reasoning to a true \( p \). If
challenged with the falsity of the single premise, \( S \) typically possesses additional beliefs,
besides the motivating false belief, to retain the inferred belief \( p \) (as known).

Warfield is aware of the kind of 'resistance strategy' and argues against it, saying
"mere dispositions to believe cannot play an epistemizing role in an inferential argument;
allowing them to do so grossly over-ascribes inferential knowledge" (p. 410). But this
intuition about inferential beliefs seems false. We do not typically make inferences, and
knowledge claims, and defenses of knowledge claims, with a single premise and
conditional *modus ponens* reasoning. Warfield's arguments against the resistance
strategy aren't convincing.

Contrary to Warfield's suggestion, the PE account of knowledge doesn't radically
challenge the long-accepted principle that "Inferential knowledge of a conclusion
requires true relevant premises" (p. 405). Knowledge cannot be generated from a single (or essential) falsehood, even if the falsehood is the initial causal source of one's true belief. These new examples are cases of knowledge despite falsehood, and not cases of knowledge from falsehood. Persons can have false beliefs (as evidence) on the way to possessing knowledge, but knowledge requires the (sometimes implicit) possession of relevant (truth-connecting) beliefs.

References


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