Erik Olsson’s Against Coherence: Truth, Probability, and Justification is an important contribution to the growing literature on Bayesian coherentialism. The book applies the formal theory of probability to issues of coherence in two contexts. One is the philosophical debate over radical skepticism, and the other is common sense and scientific reasoning. As the title of the book suggests, Olsson’s view about coherence is negative on both accounts. With regard to radical skepticism, Olsson states that “the connection between coherence and truth is […] too weak to allow coherence to play the role it is supposed to play in a convincing response to radical scepticism.” (viii) Olsson also states, with regard to common sense and scientific reasoning, that “there is no way to specify an informative notion of coherence that would allow us to draw even the minimal conclusion that more coherence means a higher likelihood of truth other things being equal”. (viii) I want to begin with the second point, which is the more surprising of the two.

Olsson’s negative view of coherence in common sense and scientific reasoning is based on the following Impossibility Theorem (135):

There are no informative coherence measures that are truth conducive ceteris paribus in a basic Lewis scenario (given independence and individual credibility).

A basic Lewis scenario here refers to a simple probabilistic model in which two independent and somewhat credible witnesses produce reports that are in complete agreement, and the ceteris paribus condition stipulates that the degree of individual credibility of the reports must be held equal (for a fair assessment of the impact of coherence per se). To describe Olsson’s reasoning for the theorem informally, since the two reports in a basic Lewis scenario are in complete agreement, the degree of their coherence solely depends on the prior probability of the reported content. (Presumably, the lower the prior probability is—i.e. the more specific the reported content is—the higher the degree of coherence is between the agreeing reports, but Olsson’s reasoning does not depend on this presumption.) Now, if more coherence means higher likelihood of truth, as common sense suggests, then the posterior probability of the reported content (after receiving the agreeing reports) should either unequivocally rise or unequivocally fall as the prior probability of the reported content (the sole determinant of the degree of coherence) rises, other things being equal. Olsson demonstrates otherwise. This is because depending on the level at which the individual credibility is held equal by the ceteris paribus condition, the posterior probability can move in the opposite directions. More specifically, it turns out that given two basic Lewis scenarios, a and b, in which prior probabilities of the reported contents are different, there is a degree of individual credibility that makes the posterior probability higher in a than in b, but there is also a degree of individual credibility that makes the posterior probability lower in a than in b. This means that coherence per se (no matter how it is measured) is not truth conducive since the prior probability of the reported content is the sole determinant of the degree of coherence in a basic Lewis scenario.
An obvious worry about this reasoning is the extreme simplicity of Olsson’s model, in particular, the assumption that the two reports are in complete agreement. Some would say that in all cases of complete agreement the degree of coherence is the same at the highest possible level. Indeed by one of the coherence measures Olsson discusses earlier in the book (measure $C_1$ on page 99), the degree of coherence in any basic Lewis scenario would be the same. If we adopt some such measure of coherence, a basic Lewis scenario is of no use in the assessment of the impact of coherence on confirmation since the scenario allows no variation in the degree of coherence. Those sympathetic with Olsson’s reasoning may ask in response: If the degree of coherence remains the same in any basic Lewis scenario, then why does the posterior probability of the reported content change even when the degree of individual credibility is held equal by the \textit{ceteris paribus} condition? Isn’t difference in the degree of coherence the reason for the difference in the posterior probability? This question brings us to the heart of the contention about Olsson’s Impossibility Theorem, namely, what should be included in the \textit{ceteris paribus} condition? Olsson thinks that only the degree of individual credibility should be held equal by the \textit{ceteris paribus} condition, but others (including Bovens and Hartmann in \textit{Bayesian Epistemology}) believe that the prior probability of the hypothesis (the prior probability of the reported content in a basic Lewis scenario) should also be held equal. According to Bovens and Hartmann, the posterior probability of the hypothesis depends on three factors: (i) the prior probability of the hypothesis, (ii) the degree of the reliability of information, and (iii) the degree of coherence of information.\footnote{Luc Bovens and Stephan Hartmann, \textit{Bayesian Coherentism} (Oxford: Oxford University Press, 2003) pp. 10 – 11.} From this perspective, Olsson’s basic Lewis scenario is inappropriate for assessing the impact of coherence \textit{per se} since it fails to distinguish the effects of the two factors (i) the prior probability, and (iii) the degree of coherence—i.e. it is unclear whether change in the posterior probability in a basic Lewis scenario is due to change in the degree of coherence, change in the prior probability, or both. Olsson is well aware of this objection and defends his version of the \textit{ceteris paribus} condition in Section 7.2 of the book.\footnote{For further discussions of Olsson’s \textit{ceteris paribus} condition, see Michael Huemer, “Review of \textit{Against Coherence: Truth, Probability, and Justification} by Erik Olsson”, \textit{Notre Dame Philosophical Reviews}, May 2006; Tomoji Shogenji, “The Role of Coherence of Evidence in Non-Dynamic Model of Coherence,” \textit{Erkenntnis} 63 (2005), 317-333.}

The other major undertaking in Olsson’s book is to demonstrate inadequacy of coherentism as a response to radical skepticism. This negative assessment may not be a great surprise for many epistemologists. What distinguishes Olsson’s work is careful and sympathetic interpretations of leading coherentists’ claims and their formal repudiation couched in the probability calculus. Olsson takes up three major works: C. I. Lewis’s \textit{An Analysis of Knowledge and Valuation}, Laurence BonJour’s \textit{Structure of Empirical Knowledge}, and C. A. J. Coady’s \textit{Testimony: A Philosophical Study}. Of these, BonJour defends the purest form of coherentism: Coherence among beliefs makes them very likely to be true (under certain favorable conditions) even if each belief taken by itself has no credibility at all. Lewis and Coady, on the other hand, assign to coherence a more limited role: Coherence among memories/testimonies makes them very likely to be true (under favorable conditions) provided each memory/testimony taken by itself has some credibility. Lewis’s primary subject of interest is memory while Coady’s is testimony, but
their views about the role of coherence are similar and Olsson’s central point against them is essentially the same. So, I will focus here on Lewis and BonJour.

According to Lewis, the role of coherence (“congruence” in Lewis’s terminology) in justification of memories is to enhance individual credibility of memories. Lewis thinks coherence plays no role in their justification unless each memory has some individual credibility of its own. Naturally, Lewis argues that each memory has some individual credibility of its own, but he also thinks it is impossible to assign any degree of individual credibility to them. This is not a problem in Lewis’s view. He considers such an assignment unnecessary because no matter how small the (positive) degree of individual credibility is, there is always the degree of coherence sufficient to raise the probabilities of memories up to the threshold of “rational and practical reliance”. Olsson disagrees. Olsson argues in Section 3.4 that we still need to assign a degree of individual credibility to each memory because there is no degree of coherence such that for any (positive) degree of individual credibility, it raises the probabilities of memories up to the threshold of rational and practical reliance. This means that if we only know the degree of coherence and are ignorant of the degree of individual credibility, we cannot judge whether or not the probabilities of the memories have reached the threshold. Olsson supplements this argument later in Chapter 8 by considering, and rejecting, the idea of saving Lewis’s approach by assigning the degree of individual credibility by the Principle of Indifference.

Unlike Lewis, for whom the role of coherence is to enhance justification, BonJour advocates justification by coherence “from scratch”. This means that coherence among beliefs makes them very likely to be true (under certain favorable conditions) even if each belief taken by itself has no credibility at all. Crucial among the “favorable conditions” is the inclusion of “cognitively spontaneous beliefs” among coherent beliefs. BonJour’s reasoning is that provided cognitively spontaneous beliefs are obtained independently of each other (not, for example, obtained by inference from each other) the only plausible explanation of their coherence is their general credibility. This holds true in BonJour’s view even if each belief taken by itself has no credibility at all.

It looks as though the absence of the individual credibility requirement makes BonJour’s view a genuine alternative to foundationalism in theory of epistemic justification, while Lewis’s view seems to be a version of weak foundationalism, but we need some caution here. BonJour makes the “Doxastic Presumption” that we have justified meta-beliefs about the contents of our own beliefs so that we can evaluate coherence of our own beliefs. Many opponents of coherentism, including BonJour of recent years, would protest that these meta-beliefs serve as “basic beliefs” in the traditional form of foundationalism. From the perspective of traditional foundationalism, the role of coherence in BonJour’s “coherentism” is to translate justification of meta-beliefs about the contents of our own beliefs into justification of beliefs about the external world. Whether or not we understand BonJour’s reasoning in this way as part of the foundationalist project, Olsson argues formally in Section 4.2 that justification by coherence from scratch is impossible.

Crucial to BonJour’s reasoning is the condition that cognitively spontaneous beliefs arise independently of each other, for their mutual dependence would immediately explain their coherence, making any further consideration (such as their general credibility) unnecessary. In formalizing BonJour’s reasoning, Olsson takes E₁ and E₂ to
be independent pieces of evidence for hypothesis H if and only if they are probabilistically independent on condition of H and on condition of \( \neg H \), i.e. 
\[
P(E_1, E_2|H) = P(E_1|H)P(E_2|H) \quad \text{and} \quad P(E_1, E_2|\neg H) = P(E_1|\neg H)P(E_2|\neg H).
\]
The idea is to eliminate any direct connection between \( E_1 \) and \( E_2 \). If obtaining \( E_1 \) affects the probability of obtaining \( E_2 \), it is only through their respective connections to H. Consequently, if you already know the truth or falsity of H, obtaining one piece of evidence should have no influence on the probability of obtaining the other. This is the standard formalization of evidential independence in the literature on Bayesian coherentism. Given this interpretation of evidential independence, Olsson's formal proof leaves no doubt that BonJour's claim is false: Coherence (agreement) of independently produced beliefs (which serve as pieces of evidence) does not make them more probable unless they have individual credibility of their own. However, we can still ask whether the standard interpretation of evidential independence is appropriate in formalizing BonJour's reasoning.

Interestingly, Olsson discusses a different version of evidential independence earlier in the book (Subsection 3.2.3) where the sources of evidence are assumed to have the same reliability profile. As a result of the shared reliability profile, even if we already know the truth or falsity of the hypothesis, obtaining one piece of evidence has influence on the probability of obtaining another. To see why, suppose we know that two sources of evidence share the same reliability profile but we do not know whether they are both reliable or both unreliable. Under this condition if it becomes known that hypothesis H is true, and if evidence from one of the two sources supports H, then we expect evidence from the other source to support H as well because they share the same reliability profile. The two pieces of evidence are, therefore, not independent by the standard interpretation of evidential independence, but they are still independent in the sense that there is no direct connection between them. Obtaining one piece of evidence affects the probability of obtaining the other piece only through their respective connections to H and the shared reliability profile. In general, pieces of evidence can be considered independent if probabilistic influence among them is always mediated by the truth and falsity of the hypothesis and the reliability profiles of their sources. The assumption of the shared reliability profile, which is disallowed by the standard interpretation of evidential independence, is consistent with this alternative formalization.

In his formal argument against BonJour, Olsson does not consider the alternative formalization of evidential independence, and this makes his refutation of justification by coherence from scratch incomplete. Indeed when we assume that the sources of evidence share the same reliability profile, it turns out that justification by coherence from scratch is possible, i.e. it is possible that 
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P(H|E_1, E_2) > P(H)\quad \text{even if} \quad P(H|E_1) = P(H) \quad \text{and} \quad P(H|E_2) = P(H).
\]
The question we need to ask here is whether the assumption of the shared reliability profile is plausible in the context of BonJour’s coherentism, and it does seem unreasonable for the coherentist to make this assumption—how can the coherentist assume the shared reliability profile when she is supposed to start with no beliefs with individual credibility? However, it is not necessary for the coherentist to make this

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3 Wouter Meijs, “Coherentism and Justification” presented at the workshop Coherence and Truth: Interpreting the Impossibility Results held in Lund, Sweden, in March 2006. Meijs also points out (in personal communication) that Olsson’s refutation leaves the possibility open that some other condition disallowed by the standard interpretation of evidential independence but consistent with the alternative formulation, may also make justification by coherence from scratch possible.
assumption at the outset. The coherentist could argue with considerable plausibility that coherence among pieces of evidence with no direct connections among them provides strong empirical support for the hypothesis that their sources share the same reliability profile, and this hypothesis in turn could be used for justification by coherence from scratch. As Olsson points out, there are many other questions the coherentist needs to address, most notably the possibility of hidden dependence among pieces of evidence, perhaps in the form of deception by the Cartesian demon. There is an added problem, when we consider the hypothesis of the shared reliability profile, that the sources of evidence may share the same bias and produce a uniformly distorted picture of the world.

In sum there is no question that Olsson’s systematic and rigorous arguments place heavy pressure on the projects of coherentism, but they are not crushed yet. Friends of coherence still have some room to work with.

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