May 15th, 9:00 AM - May 17th, 5:00 PM

Logic, Coherence and Psychology

Robert C. Pinto
University of Windsor

LOGIC, COHERENCE AND PSYCHOLOGY

Robert C. Pinto
Department of Philosophy
University of Windsor

Abstract:
This paper will argue that (a) some notion of coherence and/or explanatory coherence is essential to understanding epistemic justification and to clarifying the rational support that our beliefs or commitments lend to each other, and that (b) the requisite notion of coherence cannot be fully explicated on the basis of logic and/or epistemology. Two candidates for explicating coherence will be examined: narrative coherence and the sort of coherence that obtains when gestalt closure is achieved. The paper will attempt to determine under what conditions acceptance that is determined or guided by these sorts of coherence can be construed as rational acceptance.

***

1. Whether or not one abandons a foundationalist theory of epistemic justification in favor of a coherence theory of justification, it is still tempting to think that considerations of coherence do play, and ought to play, an important role in determining what it is reasonable for us to believe. Even as thoroughgoing a foundationalist as Roderick Chisholm explains how important kinds of statements about the external world come to be beyond a reasonable doubt by appealing to the fact that they fit together in sets of propositions that exhibit the property he calls "concurrence" (Chisholm, 1977, pp. 82-84).1

It is not hard to see the intuitive appeal of the idea that when perceptions or pieces of evidence "hang together like links in a chain"2 they lend rational support both (a) to propositions that no one of them supports individually to any significant degree and (b) to each other. Consider, for example, the way a prosecutor tries to build a criminal case, assembling items of testimony and physical evidence that, if accepted and interpreted as she wants us to interpret them, will point to the guilt of the accused. Typically, the force of each individual item lies in the contribution it makes to an overall story, a story that can be told only if all or most of the items are taken together and taken to be interconnected in the way the prosecutor wants us to see them interconnected. And typically most of the items considered individually will be open to challenges that can be overcome by appeal to other bits of concurring evidence which themselves are open to challenge if considered only individually.

Consider, as another example, reports of Elvis sightings. When they occur, as they seem to, in no discernable order, they are easily dismissed as fabrications or delusions. But suppose such reports occurred on 40 successive days, each report emanating from a different city, but always a city within 100 miles of the city from which the previous day's report had come. In that case the reports couldn't be readily dismissed as fabrications or delusions. Most of us, I suspect, would try to explain them by positing the existence of an Elvis look-alike or impersonator travelling from city to city over the 40-day period. Such a reaction, to my mind a rational one, would be motivated by two facts: (i) the individual reports cohere or concur with each other in definite and discernable ways, and (ii) the existence of a *real* Elvis in those cities at those time does not cohere or concur with a host of other things that most of us currently believe.

Of course, examples like these don't prove that coherence *as such* plays a role in determining what it is reasonable for us to believe. There may be other, better ways of explaining or describing what happens in cases like these, explanations that don't appeal to anything that could be called coherence as a distinct and decisive factor. I have no way to show that that isn't so. And as I am about to indicate, I think there are considerable problems in rescuing the notion of coherence from vagueness and imprecision. Nevertheless, in the remainder of this paper, I assume that the concept is a valuable one and try to point toward a direction for pinning it down.

2. What is coherence? Gilbert Harman in recent years has insisted on coherence as a central factor in rational belief change. In *Change in View,* increasing the coherence of one's view is virtually the only justification for changing one's view. Yet in that book, about the only passage that attempts to say what coherence is runs as follows:

> Coherence in a view consists in connections of intelligibility among the elements of the view. Among other things these include explanatory connections, which hold when part of one's view make it intelligible to one why some other part should be true. In such cases one believes not only *P, Q* and *R* but also *R because P and Q.* (Harman 1986, p. 65.)

Though most of Harman's examples of coherence are examples of explanatory coherence, and though he suggests that perhaps all relations of coherence which support inference might turn out to be explanatory (see p. 75), he leaves open the possibility that there are relations of coherence which aren't.[3] The official notion is that of "connections of intelligibility"—a notion that remains very general and very imprecise. Moreover, even if we narrow our focus to cases in which the connections of intelligibility are in some sense explanatory, explanation remains a theme to be developed rather than a notion that has been articulated with sufficient precision that it can play the role of an unambiguous criterion.

My aim here is not to criticize Harman for failing to give a more precise account of coherence or to condemn him for appealing as centrally as he does to a concept that he hasn't articulated more fully. If those are sins, you will see that they are sins which I am guilty of as well. I am simply calling attention to what I consider to be the state of play. And my aim in what follows won't be to fill in the gaps, but rather to make sense of the fact that there are such gaps to be filled.

Of course, the literature contains not a few attempts to give more detailed and more precise accounts of coherence. Rescher's *Coherence Theory of Truth* is a pluralistic, exploratory account of coherence that is rich in detail and full of promising suggestions. In addition, Lehrer's *Knowledge* and Bonjour's *Structure of Empirical Knowledge* are noteworthy among attempts to articulate coherence theories of justification in more precise detail. Yet despite these and other efforts, I am inclined to think that Harman's reticence about making his account of coherence more precise is wise.

I want to make clear that the gap I'm calling attention to does *not* consist in the absence of a proper definition of coherence. To see what I mean, consider Chisholm's strategy for explaining *concurrence* in the second edition of *Theory of Knowledge*.[4] Chisholm first introduces the notion that *e* supports *h* by saying that "it tells us in effect that knowledge of *e* would give one some reason for accepting *h*" (Chishom 1977, p. 71; a more formal definition occurs on p. 72). He then defines *concurrence* as follows:

> *A* is a set of *concurrent* propositions =Df *A* is a set of two or more propositions each of which is such that the conjunction of all the others tends to confirm it and is logically independent of it. (p. 83)

You might well take the concept of concurrence, so defined, to be the notion of coherence you are looking for. But if you did, virtually all the interesting and important questions about coherence would still be left unanswered. For you would still be left with the problem of how to determine, in a principled way, when the requisite confirmation relations obtain. In the absence of a successful logic of nondeductive support, that is something we're just not in a position to do. In short, what is missing is an articulated account or theory of coherence that will explain both (a) our intuitive judgements of when coherence obtains and (b) the role that coherence appears to play in determining what it is reasonable for us to believe.

By the way, my instinct is to try to understand non-deductive support in terms of coherence, rather than to proceed as Chisholm does by trying to clarify coherence in terms of non-deductive support. But I will not press that point here.

3. In what follows, I am going to draw on three ideas.

> (i) The first idea is that reasoning always takes place against the background of and on the basis of an understanding of the domain that we are reasoning about, an understanding that involves an overview of that domain as a whole
>
> (ii) The second idea is that the required overview is something for which there is no adequate propositional or sentential representation
>
> (iii) The third idea is that the processes by which such understanding is generated and modified, though rational and in principle subject to criticism, are currently not well understood.

On the basis of these three ideas I am going to hypothesize that we lack a satisfactory account of coherence because we don't understand the nature and causes of the understanding that orients our inferences.

In developing these ideas, I find myself envying those who are between a rock and a hard place, for at least they are bumping their heads up against something solid and determinate. I feel as though I'm navigating on open seas, on waters perhaps too deep to drop an anchor in.[5]

4. Reasoning, I've said, takes place on the basis of an understanding that involves an overview of the domain we are reasoning about. This first idea is familiar enough in the present philosophical climate, though it's not completely uncontroversial. In my scheme of things, the preferred philosophical arguments in its favor would appeal to a mild form of the network theory of meaning. But in face of current attacks on "meaning holism" by the likes of Fodor and Putnam, I would develop a case that depends on two less controversial assumptions:

> (a) to make intelligent nondeductive inferences from any body of data we need a grasp of what the plausible alternatives are to the hypothesis we are adopting, and we can't have that without some *general* understanding of the field we are reasoning about
>
> (b) to make intelligent deductive inferences from any set of assumptions or premisses, it is not enough to assure ourselves that our conclusion follows from premisses we have strong reason to accept; we also need assurance that our conclusion doesn't run counter to propositions that are more entrenched than the premisses from which our inference begins; and to have such assurance we need a *general* understanding of the field we are reasoning about.

5. The second idea—that the requisite understanding does not admit of an adequate propositional or sentential

representation—is a tougher sell, to say the least. To defend it philosophically I would draw largely on notions taken from left wing philosophy of science[6] —which means, on ideas whose appeal is far from universal. Here I only indicate the sorts of consideration that, if conceded, militate in favor of this second idea. First of all, two notions drawn from Kuhn: the thesis that paradigms can and do guide research in the absence of explicitly formulable rules, and the thesis that learning to practice science on the basis of a new paradigm requires something like a "conversion" in which one comes to be able to see and make sense of the world on the basis of the new paradigm. Next, a thesis drawn from Michael Polanyi, and endorsed by Kuhn as well, that the practice of science depends crucially on tacit knowledge (see, for instance, Polanyi 1967 and the Postscript to Kuhn 1970). Finally, several notions elaborated by Paul Churchland. The thesis broached in Churchland 1979, and developed further in Churchland 1989, that the representational states which make up our cognitive lives are only very inadequately conveyed in the natural language sentences we employ to express their content.[7] And the admittedly speculative but highly suggestive proposals developed in chapters 9 and 10 of Churchland 1989, illustrating ways in which constructs drawn from connectionist AI might make better sense of the role of theory in science and of the nature of explanation than do standard accounts of these matters in terms of propostions, propositional content and sentence-like entities.

There is a further case to be made for the second idea based both on loose and on strict phenomenologies of coming to understand a new domain. For a loose phenomenology, I refer to what I believe is a common experience. One reaches a point where suddenly things seem to fall into place and one no longer feels lost and overwhelmed by what is going on in a heretofore unfamiliar domain—it often seems that one finally sees how it all fits together, even if the details are not all in focus. What appears to me noteworthy in these "aha" experiences is that they often presage a quantum leap in one's ability to *manage* within a new domain, but are seldom accompanied by an ability to give very informative verbal expression what it is that one has come to see or understand. Of course, loose phenomenologies of this sort, reported anecdotally, prove little or nothing when taken just by themselves. But where they reinforce and are reinforced by more developed considerations—perhaps even by left wing phil of science—they are not entirely without probative value. For a strict phenomenology, consult the critique of "intellectualist" accounts of understanding that pervades Merleau-Ponty's *Phenomenology of Perception*.[8]

6. The third idea is that the processes by which one achieves an overview of a domain are rational and in principle subject to criticism, but are not currently well understood.

To develop this third idea, I need to invoke two notions about argument and argumentation that I have sketched elsewhere, but whose bearing on the issue at hand won't be immediately apparent.

The first notion is that an argument is best viewed as an invitation to inference, that it lays out grounds or bases from which those to whom it is addressed are invited to draw a conclusion (see Pinto 1996).[9] I have suggested that the *logical appraisal* of arguments deals with issues raised by questions about whether the *inferences* invited by arguments ought to be made—and, more particularly, whether such inferences ought to be made by those to whom the arguments are addressed.[10] On this conception, the premisses offered by the purveryor of an argument are intended as starting points for inferential acts to be made by those to whom the argument is addressed.

A corollary, so to speak, of this view of the nature of argument is a view about what inferences are—namely, that inferences are what arguments invite us to make. That being so, one way to get a handle on inferences is to investigate the arguments that invite them. And that of course is how the logical tradition has, for the most part,

tried to understand inference: by trying to understand the arguments that precipitate inference, and in particular the bearing those arguments have on the outcome of inference.

The second notion I want to draw on is that the tradition has conceived argument very narrowly, and that we need to generalize the notion of argument beyond cases where argument aims to elicit assent to a propositional content (Pinto 1990). There are arguments which aim to induce doxastic attitudes other than assent: some arguments aim to get us to withdraw our assent from a proposition, others to get us to accept a proposition as a working hypothesis, still other to get us to consider a proposition a "live option," and so on. In addition, there are arguments that aim to induce propositional attitudes other than doxastic attitudes toward propositional contents. That Labor wins the 1997 British election, is a propositional content. There are arguments directed to segments of the British electorate which aim to induce *fear* that Labor will win, other arguments which aim to induce *hope* that Labor will win, and so on. Moreover, I would maintain, there are still other arguments which aim to modify our attitudes to things other than propositional contents. If you are inclined to vote Tory because of your respect and admiration for John Major, I can try to give you reasons for changing your attitude toward Major, to give you reasons for being suspicious and distrustful rather than respectful and admiring. There are large classes of arguments about ethical matters and about esthetic matters that are most profitably conceived as attempts to get us to view certain actions, certain people or certain works of art in a certain manner and in a certain light.

Or so I would maintain. For there is, of course, a debate about whether the goal of such arguments ought to be "propositionalized," whether they can most profitably be viewed as attempts to establish the *truth of propositions* like "Major is worthy of respect" or "Major ought not to be trusted" or "*The English Patient* is not that good a movie" or "Child pornography is really disgusting."

About that debate I want to say: if arguments are invitations to inference, then determining how best to construe the aim of those arguments requires us to achieve a better understanding of the cognitive processes such arguments evoke in individuals whose rationality is not permanently or temporarily impaired. Coming to understand that will require developing both a normative and an explanatory theory, or at least developing a theory which has both a normative and a causal/explantory dimension. That isn't a task that can be achieved by psychologists who are innocent of logic. But neither, I submit, can it be achieved by logicians who are innocent of psychology.

I don't think that right now I can prove or come close to proving that arguments and inferences which aim at changing your attitude toward a movie should not be propositionalized. But I do not think that those who take an opposite view can right now come close to establishing the superiority of their view either. Nor, finally, do I take the issue to be simply a matter of opinion; I take it to be an issue whose resolution awaits further developments in logic and psychology.

7. What does all this have to do with whether the processes by which one achieves an overview of a domain are rational and subject to criticism, but not currently well understood. Well, I want to maintain, there are plenty of examples of attempts to alter the view someone takes of a domain—attempts to alter the understanding of what the elements of the domain are and of how those elements hang together and interrelate. If you want sexy examples you can start with the sorts of arguments Kuhn discusses in section XII of Kuhn 1970-—arguments that attempt to persuade members of a scientific community to take one or another side during a period of what Kuhn calls scientific revolution. Three things seem tolerably clear to me about such arguments. First, typically they are not and cannot be conclusive; they can invite but not compel a change in view (or invite but not compel retaining a current view).11 Second, they are clearly subject to rational appraisal and criticism; their strengths

and weaknesses can be pointed out and catalogued to a not inconsiderable extent. Third, there are at least two different ways of construing what the arguments in such debates aim at. On one construal, they aim at inducing or reinforcing a way of looking at things, and arguments for change succeed only where they evoke what Kuhn calls a conversion to the new way of looking at things. On that construal, such arguments will comprise another class of arguments whose aim is *not* captured in a modification of attitude toward a propositional content. But there is another construal, in which the aim of such arguments is propositionalized—one is trying to persuade another of the truth of a certain theory, or perhaps of the truth of the claim that a heliocentric astronomy will eventually lead to more accurate predictions and better explanations than will a geocentric astronomy. Now I would hold, with respect to these two construals, that we cannot at the present time prove that one or the other is preferable. A reasoned choice between these two construals awaits further developments in logic and psychology. If that is true, then I think I am justified in maintaining that the processes by which we achieve an overview of a domain are rational and subject to criticism, but not currently well understood.

8. Let me come finally to the hypothesis that we lack a satisfactory account of coherence because we don't understand the nature and causes of the sort of understanding which orients our inferences. Recall the example with which I began—a prosecutor building a criminal case by assembling items of testimony and physical evidence which, if accepted and interpreted as she wants us to interpret them, will point to the guilt of the accused. It was offered an example of a conclusion (the guilt of the accused) which becomes reasonable to accept because it follows from, or perhaps forms part of, a coherent story many of whose elements owe their believability partly to the fact that they fit that very story. Why do we say that the elements of such a story exhibit coherence or form a coherent whole? In a case like this, I submit, there is no difference between the elements forming a coherent whole and the elements forming a story. But what is it for the elements to form a story? It is, I submit, for those elements to be interpreted and understood in a certain fashion. In this case, at any rate, coherent is what elements are when they are understood.

Of course, acquiring the sort of understanding that the prosecutor wants us to acquire is a matter of apprehending the items which comprise the evidence within the scope of a narrative. Obviously, that won't be so in every case. Achieving an understanding of the natural numbers sufficient to sustain elementary arithmetic inference will not, presumably, be a matter of apprehending *them*, or facts about them, within the scope of a narrative. But here again it is surely tempting to say that coherent is what the elements of the realm of natural numbers are when those elements are understood.

Now recall Harman: "Coherence in a view consists in connections of intelligibility among the elements of the view." How different is that from saying: coherent is what the elements of a view are insofar as those elements are understood?

If coherence is, as it were, the objective correlate of understanding—is what one apprehends when one has a viable overview of a domain—and if the nature and causes of understanding are not well understood, then it should be no surprise that coherence remains elusive. And if understanding is, as I argued earlier, a necessary prerequisite of successful reasoning, then coherence is a concept essential to our understanding of reasoning, despite the fact that it remains elusive.

Notes

1. See also C. I. Lewis' account, in *An Analysis of Knowledge and Valuation,* of the role that coherence or concurrence plays in the knowledge derived from memory. That account seems to be a model for the role that Chisholm accords to concurrence in the knowledge derived from perception.

2. To use a phrase which Chisholm (1977, p. 69) quotes from Carneades.

3. Harman had earlier defended the view that "all inductive inference infers the truth of an explanation" (Harman 1968), but had presumably been forced to acknowledge counterinstances to that generalization by the time he wrote *Change in View*.

4. The intended application of the notion is an a epistemic principle which states: "Any set of concurring propositions, each of which has some presumption in its favor for S, is such that each of its members is beyond a reasonable doubt for S" (Chishom 1977, p. 83).

5. This is the place for an in-joke about rafts and pyramids. But I will spare you that.

6. Left wing? Lakatos, who brands Kuhn an elitist, might well call it right wing. At any rate, the appeal to tacit knowledge and to representations for which linguistic encodings are inadequate vehicles is not, I think, centrist.

7. Here's a sentence that gives something of the flavor of what Churchland wants to say: "According to the new theory, any declarative sentence to which a speaker would give confident assent is merely a one-dimensional projection—through the compound lens of Wernicke's and Broca's areas onto the idiosyncratic surface of the speaker's language—a one dimensional projection of a four- or five-dimensional solid that is an element in his true kinematical state. (Recall the shadows on the wall of Plato's cave). Being projections of that inner reality, such sentences do carry significant information regarding it and are thus fit to function as elements in a communication system. On the other hand, being *sub*diminensional projections, they reflect but a narrow part of the reality projected. They are therefore *un*fit to represent the deeper reality in all its kinematically, dynamically, and even normatively relevant aspects." (Churchland 1989, p. 18.)

8. A citation that some will say is just one further sign of the author's misspent youth!

9. Such a perspective offers, among other things, a useful way of understanding the connections and differences among the variety of ways arguments can be evaluated—logical, rhetorical, dialectical, moral, pedagogical (and other ways as well, perhaps).

10. In my view, it is an open question whether the *logical* appraisal of arguments ought to concern itself with the acceptability of premisses, as well as with the question of whether the premisses provide a suitable basis for drawing the conclusion that the argument invites. Those who take classical formal logic as a paradigm for logical appraisal typically view the evaluation of premisses as lying outside the scope of logic. Informal logicians, on the other hand, frequently view the determination of the acceptability of premisses as an important part of the logical appraisal of arguments.

11. My reasons for thinking this are of a piece with Kuhn's. What is at stake in such debates is a decision about how to practice science in a given domain. One of the issues that lies close to the heart of that decision concerns

which way of practicing science will in the future prove more fruitful. And about that there can be no certainty in the present. 

Bibliography

BonJour, Laurence (1985). *The structure of empirical knowledge*. Cambridge, Mass.: Harvard University Press.

Chisholm, Roderick (1977). *Theory of Knowledge*, second edition (Englewood Cliffs, NJ: Prentice Hall).

Churchland, Paul M. (1979). *Scientific realism and the plasticity of mind*. Cambridge; New York: Cambridge University Press.

Churchland, Paul M. (1989). *A Neurocomputational Perspective: The Nature of Mind and the Structure of Science*. Cambridge, MA: MIT Press.

Harman, Gilbert (1968). "Knowledge, Inference and Explanation." *American Philosophical Quarterly* 5, 164-173.

Harman, Gilbert (1986). *Change in View*. (Cambridge, Mass.: MIT).

Kuhn, Thomas S. (1970). *The structure of scientific revolutions*, 2d ed. Chicago : University of Chicago Press.

Lehrer, Keith (1974). *Knowledge*. Oxford: Oxford University Press.

Pinto, Robert C. (1991). "Generalizing the Notion of Argument." *Proceedings of the Second International Conference on Argumentation*, edited by van Eeemeren, Grootendorst, Blair and Willard (Amsterdam: SICSAT).

Pinto, Robert C. (1995). "Logic, Epistemology and Argument Appraisal." In R. H. Johnson and J. A. Blair, *New Essays in Informal Logic*. Windsor, Ontario.: Informal Logic.

Pinto, Robert C. (1996). "The Relation of Argument to Inference." In van Benthem, van Eemeren, Grootendorst and Veltman, *Logic and Argumentation* (Amsterdam: Royal Netherlands Academy of Arts and Sciences).

Polanyi, Michael (1967). *The tacit dimension*. London : Routledge & Kegan Paul.

Rescher, Nicholas (1973). *The coherence theory of truth*. Oxford: Clarendon Press.

View Commentary by J. Adler
View Index of Papers and Commentaries
Return to Main Menu