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May 14th, 9:00 AM - May 17th, 5:00 PM

Logic in Context

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For the past 25 years, I have been developing an agenda of relevance to argumentation theory that challenges many of the basic verities of informal logic and critical thinking (Weinstein, 1987, 1991, 1994, 1995, 1999). The position, well known in the field, was generally not remarked upon in the theoretic literature until Ralph Johnson epitomized and criticized my views in his recent book *Manifest Rationality* (Johnson, 2000). Johnson, using a phrase from my early work sees me as taking an 'ecological approach,' proposing that 'the study of arguments in their disciplinary environment as the proper way to proceed' (Johnson, 2000, p. 301). He rightly assimilates my view to both Toulmin (Toulmin, et. al., 1979) and McPeck (1981) and identifies my practical agenda. "Weinstein's broad concern is educational reform. He believed that critical thinking, as an educational ideal is a serviceable construct for the purpose of educational reform, but that critical thinking should be seen within the context of the disciplines" (*ibid.*). Less happily he disregards my theoretic agenda completely.

My position is vulnerable to what Johnson calls the standard objection: "the fact that many arguments are not housed in any particular domain but borrow elements from several domains" (*ibid.* p. 306). Johnson sees my position as less vulnerable to the objection than Toulmin's and McPeck's might be, and after offering a somewhat elaborated perspective, modifies my view to be that "all significant standards are discipline specific." I agree; with the caveat that both argument theory, formal and informal logic are among the disciplines. My view, as he notes, requires that in a given argumentation context a decision as to what standards from which disciplines need to be applied to deal with which significant aspects of the argument must be made. He asks: "To what (transdisciplinary) standards will the evaluator appeal to decide this matter…from whose perspective will this meta-evaluative question be asked?" (*ibid.*). The answer to the question is fairly straightforward: It depends.

In what follows, I will attempt to reconstruct an argument for that indeterminate response. Rather then rehearse my foundational arguments, which have so far proved less than persuasive. I will attempt to show how my position fits within the dialectical context that three recent contributions to argument theory provide. Along with Johnson and the dialectical tier, I will look at Robert Pinto's expansive project in *Argument, Inferences and Dialectic* and Christopher Tindale's discussion of audience in *Acts of Arguing* (Pinto, 2000; Tindale, 1999). Paradoxically, despite the fact that my view grows out of a concern for how argument is managed in context, I will then, in a brief postscript, recommend the revisiting of deep foundational notions. Understanding the complexity of arguments in context needs the rational reconstruction of social practices of inquiry and it is my

intuition that the most epistemologically adequate of these can be rationally reconstructed so that the deep logic of inference will become visible.

The New Contextualism

Ralph Johnson, in his recent book, *Manifest Rationality* has added to the standard concerns of informal logicians the interplay between an argument and its surround through the concept of the dialectical tier (Johnson, 2000). The dialectical tier is Johnson's addition to the standard analysis of argument as premises and inference, the "illative core," "a set of premises adduced in support of some other proposition that is the conclusion" (Johnson, 2000, p. 150). Johnson sees the illative core to be insufficient for argumentation since the arguer in a dialectical situation is "under a rational obligation to address these dialectical obligations: alternative positions and standard objections" (op. cit. p. 165). Johnson seems to presuppose that the argument given in a dialectical situation makes the class of objections fairly clear and sees the main issue to be the 'specification problem,' that is, the extent of the objections that the arguer has a dialectical obligation to address. Johnson offers three alternatives: "…all possible and actual objections… objections that she or he knows how to address…those objections that the audience will want to see addressed" (p. 328). Johnson sees two families of objections, objections to the illative core that challenge "truth or acceptability of one (or more) of the premises…the inference…an unstated premise…an implication or consequence…" or clarity (p. 328). And objections that challenge at the level of the dialectical tier, construed as above to be alternatives and standard objections to the argument, and differentiated from the illative components (ibid.). Johnson looks carefully at recommendations for solving the specification problem (pp. 329ff), but sees the issue as one of the 'open questions' his view highlights. But whatever the solution to the specification problem the objections to both the illative core and the dialectical tier points to the essential role of context in the evaluation of arguments. Johnson sees this as an issue for the dialectical tier, but I see it as an issue of the illative core as well, for standards of truth, inference, premise sufficiency, the drawing of implications and consequences and clarity are often open to dispute indicating available alternatives and even standardized objections as when determining the appropriate statistical test given population parameters. I see the role of the dialectical tier as limited if such illative considerations are not considered as part of the dialectic of argument and would challenge the standard view that sees the lack of objections to illative concerns as a necessary presupposition of rational persuasion as in some construal of the Pragma-dialectical position that sees the opening stage to elicit agreement as to illative standards prior to the argument stage. (See Eemeren and Grootendorst, 1984 for the analysis of the role of the stages of argument.)

The notion of the dialectical tier is, however, a welcome addition to the pervasive analysis of argument found in both formal and informal logic that sees arguments as linguistic artifacts, or at best, exchanges between a protagonist and antagonist. The concern with context, in my opinion, is a major advance in argument theory, and one that I identified as early as the first ISSA conference in 1986 (Weinstein, 1987). To me, the cognitive community sets the dialectical tier construed broadly as including problematic

aspects of the illative core. What objections need to be addressed for the argument to be taken seriously determines, to a much greater extent than Johnson would appear to allow, such illative factors as: what the rules and procedure of appropriate argument are, the sorts of reasons that can be put forward, requirements of truth and likelihood, and the standards of presentation and refutation. Such an expanded notion of a dialectical tier is essential in argument production, including the development of hypotheses, and, of course their evaluation, within the context of argument (and theory) creation. (See Magnani, 2001.) To see why this might be seen as correct we turn to the more expansive concept of context found in the work of Robert Pinto and his emphasis on the cognitive communities that define the critical practice within which argument takes place (Pinto, 2000). Johnson opens the door to the consideration of context, but it is Robert Pinto who traces the scope of the concern.

Pinto develops the notion of critical practice identified with a cognitive community in contrast to the view, typical of much of the tradition that flows from Plato's *Gorgias*, that sees "at least some standards appraisal … [to] … get the only force of validity they have from the fact that those who engage in argument choose to endorse them" (Pinto, 2000, p. 134, citing p. 5). That is to say, standards are local to the argument context, as for example, in the basic model that sees an antagonist and protagonist agreeing upon standards as part of the opening stage of argumentation. Pinto sees such views as inconsistent with the view "that standards . . . are in fact always open to challenge within the context of a dialogue" which need not bring the "dialogue to an impasse" (Pinto, 2000, p. 134). Views that see the dialectic as 'strictly an affair between two parties' are 'misleading' since they "deny the constitutive role that potential argument and reasoning play in conferring validity upon standards in use and because they do not acknowledge the constraints imposed by membership in a cognitive community and by that community's tradition of critical practice" (*ibid.*). Pinto reports that his view was in response to Rescher, who sees "A shared procedure for the assessment of plausibility and the allocation of presumption . . . as a critical factor in dialectic" (Rescher, 1977, p. 45). He agrees that "there is an important sense in which a shared framework of assessment *is* indeed a 'critical factor'" (p. 135). But he sees it to be achieved "within the context of any dialogue if it is to proceed to a successful conclusion" (*ibid.*). However, it is seen to "presuppose an existing, shared agreement on at least a few *other* issues concerning standards" (*ibid.*). He quotes Sellars (1967, p. 170) approvingly that discourse about standards "is rational, not because it has a *foundation* but because it is a self-correcting enterprise which can put *any* claim in jeopardy, though not *all* at once" (*ibid.*). The project to cash out talk about 'objectivity' in terms of intersubjective validity . . .(which depends)…whether adherence to them is sustainable within the broader cognitive community…perhaps even to countenance the possibility that a 'regulative ideal' of rational discourse is to *seek* a set of epistemic criteria which are sufficient to our purposes and which *all* rational agents could be persuaded to adopt. (*op. cit.*, p. 135). This leads to 'sophisticated epistemic relativism.' "There is no set of epistemic standards or criteria of which it can be said that it is uniquely correct *sans phrase*" (*op. cit.,* p. 136). But "one set of standards can be better or worse than another, and two differing sets can have counterbalancing strengths and weaknesses. In short, on this view, the differences between differing sets of epistemic standards are supposed to *matter*, even thought there's no such thing as *the* right set" (*ibid.*). This view differs from

relativism in that "flat-out relativism provides no space in which competing epistemologies can compete in a *rational* way, no room for human persons of different cultures and epistemic persuasion to seek a *rational* accommodation of their differences" (*ibid.*).

The view is abbreviated in terms of 5 theses supported by arguments in the 17 years of essays that constitute the volume:

T1.   The standards for assessing adequacy of arguments and inferences are themselves items that can and often must be addressed in the course of arguing and reasoning.

T2.   When questions about standards become the issue, the ultimate 'criterion' must be whether and to what extent a particular formulation of standards can be sustained in dialectical interchange with other members of the cognitive community (p.136).

T3.   In the cognitive community that matters to us, we do not presently have a set of epistemic criteria that is *objectively valid and complete*.

T4.   There is no compelling reason to suppose that, within the cognitive community that matters to us, we can arrive at [a] single set of epistemic criteria that is *objectively valid and complete.*

T5.   There *is* compelling reason to suppose that, within the cognitive community that matters to us, we *cannot* arrive at a single set of epistemic criteria that is *objectively valid and complete* (*op. cit.*, p. 137).

Where, a set of epistemic criteria is "*objectively valid and complete* for a community if and only if (i) it is sufficient to the purposes of that community and (ii) it can be sustained in dialectical interchange throughout that community" (*ibid.*).

For Pinto the most controversial are T4 which he sees as supported by 'the history of epistemology,' a history that is characterized by 'epistemic revolutions' claiming that he sees no reason "that this continuing historical development will or can reach an end point" (*ibid.*). Arguments for T5 are similar, that despite 'local' resolutions, "debate among philosophers about broad issues of epistemological principle seem seldom to result in a meeting of the minds" (*op. cit.*, p. 138). Historically contingent conditions make accommodation across 'diverse cultural conditions' difficult in that our "historical rootedness can never be entirely left behind" (*ibid.*). This is complicated by divergence of relevant 'non-epistemic standards' (*ibid.*). He notes that this renders T5 problematic, since it is not impossible that such issues will be resolved, and they are not difficult in principle, but merely in practice (*op. cit.*, p. 139). But the deep reasons for the view grow out of a commitment to a particular view of critical practice:

1)   The practice of criticism is not something that stands apart from argument and inference, but is itself an intrinsic and essential component of arguing and of reasoning.

2)   The articulation and elaboration of standards for the appraisal of arguments and inferences is in no sense a *fait accompli*, rather, it is an on-going process that is also an intrinsic and essential component of arguing and of reasoning.

3)   The initial position from which arguers and reasoners begin lies in the historically contingent practice of criticism into which each has been initiated.

4)   Although as arguers and reasoners we have *started from* one or another historically contingent critical practice, we are not prisoners of such practices, since most of us currently follow practices that we have arrived at by modifying initial positions through rational means.

5)   Our standards and our reasonings achieve objectivity and intersubjective validity to the extent that we succeed in securing broader acceptance of those standards and reasonings through dialectal interchange rationally conducted (*op. cit.*, p. 140).

Grounding argument standards and assessment within a critical practice has obvious consequences for argumentation theory and informal logic as usual. At the very least it requires a broadening of perspectives and the proliferation of actual and realistic examples. But there are deep theoretic concerns as well.

In the standard model, discussants identify themselves through speech acts and thus their identities, and so at least in principle, the standards for argumentation (as well as beliefs), as well as the procedures for establishing agreement, can be taken as granted. They can be taken as granted as either known in the abstract sense—the role of logic, informal logic and pragma-dialectics—or as in principle articulatable by the interlocutors. Any similarly denotative construct could, again in principle, yield some claim to resolution of what in pragma-dialectics is called the opening stage, but the results (tacit or overt) of opening stage adjudication become less clear as the extent of the community increases. So, for example, identifying the community through sociologic constructs like professions frequently yields standards, but as frequently shows complexities beyond simple portrayals of univocal standards in use. Case studies frequently show overlapping communities, especially in complex arguments about multi-logical issues such as policy deliberations (see Tindale, 1999, chapter 5). Such complexity might be seen as grounds for seeing the task as hopeless, especially as reflected in the educational uses to which informal logic and the theory of argument are put. But it offers an essential challenge for theorists.

The main theoretical challenge comes from Pinto's rejecting the adequacy of formal and semi-formal constructions such as argument schemes for argument analysis and assessment. The argument is too complex to reconstruct here but a relevant sense of the issues can be seen by looking at semantic entailments. Pinto considers "what role it is reasonable to expect logical form to play in the practice of criticism or critical reflection" (*op. cit.*, p. 81) as regards entailments. Pinto had already argued that "entailment is

neither a necessary nor a sufficient condition for premises to be suitably linked to their conclusion" (*op. cit.*, p. 82 also Chapters 3 and 4). He moves to the broader question, "whether *logical form* holds the key to validity," where validity is construed broadly as the theoretic basis for our assessments of premise-conclusion links, in some general sense not limited to deductivism (*ibid.*).

Drawing on the fundamental views of Quine and Hintikka, he recalls the distinction between logical and non-logical constants (*op. cit.*, pp. 83-4) and then turns to semantic entailment, offering the standard analysis that requires an additional premise, a meaning postulate, that supports the entailment. Pinto offers the following 'inconclusive,' but compelling construction. "Let (A1) be a sentence such as 'The person standing next to the Prime Minister is his sister,' and (A2) 'The person standing next to the Prime Minster is female,' and AMP, a sentence to the effect that 'Anybody who is somebody's sister is female'" (*op. cit.*, p. 85). Pinto outlines four assumptions—with suitable qualifications as the basis for the analysis:

1) "…the issue of whether A1 is suitably linked to the conclusion A2 reduces to the issue of whether A1 entails A2"

2) "the relevant concept of entailment is…strict implication…"

3) "it is a truth of modal logic that *if* (p and q) strictly implies r *and* it is a necessary truth that p, *then* q strictly implies r"

4) "the 'meaning postulates' which we would add as premisses…[e.g. AMP]…qualify as necessary truths" (*op. cit.*, p. 86).

He draws his conclusion: "From assumptions (1)-(4) it follows that wherever A1 & AMP entail A2, and AMP is a meaning postulate, then A1 by itself entails A2. In other words, semantic entailments hold *without* the inclusion of meaning postulates as additional premises. From this it follows that inferences which hinge on semantic entailments are not dependent on the logical form that is exemplified when a meaning postulate is brought into the picture" (*ibid.*). He notices that the controversial assumption is (4).

He then indicates a variant of the argument from Hitchcock (1994, p. 59) that sees the core of validity to rely on a core intuition. Quoting Hitchcock: "An argument is conclusively valid if and only if it has no analogue that is a counterexample" (*op. cit.*, p. 87). An analogue is a counterexample to a validity claim that mirrors the form of the original argument in terms of the status of the 'variables of the argument's associated material conditional.' Although Pinto doesn't elaborate the view, he notes that Hitchcock is indifferent to the status of what in the standard view would be the missing premises (it can be a 'logical truth,' 'a semantic postulate,' or a 'covering generalization'). Pinto sees Hitchcock's work as trading between the notion of form and that of analogue since "whether a component should be interpreted as a variable depends on whether the result of substituting for it produces a genuine analogue of the argument" (*op. cit.*, pp. 88-9).

This raises an essential foundational issue motivated in terms of the suspect assumption (4) and in light of Hitchcock's distinctions among what we might call, after

Toulmin, warrants. It seems to me that there is no clear sense in which the full range of warrants, construed as generalizations that support inferences, could be accommodated to any univocal sense of necessity. This is immediately clear from the distinction between logical truths and nomic generalizations. Clearly, the former holds in all possible worlds and the latter only across all physically possible worlds. A difficult issue is that of—'ordinary language' warrants such as 'x is colored implies x is extended'—the very sorts of meaning postulates that exercised early discussions of entailments. It is just not clear to me what the range of possible worlds is in which such entailments hold. The domain across which ordinary language extends is metaphysically opaque. And a commitment to draw inferences in ordinary discourse seems limited to language community users in fairly radical ways, as recent work in linguistics and socio-linguistics points out (See Gee, 1996). Moreover, the traditional optimism that terms in ordinary language denote concepts and that philosophers can somehow intuit conceptual relationships among them is just as robust as the results that philosophers have agreed on over time. That is to say, hardly robust at all.

The example of sister and female is less problematic, since we can envision an anthropological theory that defines systems of kinship which constitute an equivalence class of societies, construed as possible worlds, in which such kinship relations hold. Of course such statements are generally construed as being warranted by the meaning of ordinary language rather than by anthropological theories, in which case the problem reduces to the first. There are no univocal theories of ordinary entailment, merely more or less contentious instances.

The range of entailment kinds raises a possibility that I have argued for, for many years (Weinstein, 1991). If we look across the range of putative entailments the nature and logical force of such arguments range from logical implications, putatively necessary semantic entailments, restricted entailments across a chosen set of models as in many scientific theories, non-monotonic entailments that only hold *ceterus paribus,* to weak entailments that are no more than suggestive, as in 'if we construe x to be y, then z.'

This suggests to me that an essential move in the development of theories of entailment is to characterize entailment kinds (families of entailments that function in the same way). Given some rough and intuitive analogy with the relation between logical entailment and implication, we might expect for each entailment kind a linked implication relation based either on an appropriately modalized warrant, or alternatively, on appropriately characterized inference tickets. I have explored in detail how such a relationship could be given rigorous metamathematical content for entailments that depend on theoretic depth and breadth, modeled on entailments within mature physical sciences. Theoretic breadth, the consequences across fields of concern, supports the analysis of the force of an implication by indicating the range of models across which the implication holds, and theoretic depth reflects the truth-likeness of the implication by identifying the stakes across connected theories (and their models) of the acceptance or rejection of a particular warranted inference as a function of disequilibrium across the system (see Weinstein, forthcoming). Broadening such a theory beyond systems that could have articulable model relations (such as mature physical science), in search of a general theory of semantic entailments, is an enormous task. It seems to require, at least, the identification of families of entailment kinds along with the dialectic appropriate to each.

Pinto's perspective brings into question the justification of elementary informal logic as relevant to ordinary life and argument. Are there critical practices and critical communities in any logically relevant sense in ordinary life? And if there are (as in, for example, political discussions among citizens) are these redeemable in terms of normatively sound and supportable accounts of the norms properly in use? Is informal logic as currently construed the critical practice of ordinary life? The question is made enormously more complex by Pinto's identification of a range of doxastic states and stakes required to assess an inference. The stakes set the standard that the inference must achieve (Pinto, 2000, pp. 12ff). Compare assessing inferences in an undergraduate course by applying a fallacy label, where argument assessment requires relatively superficial analysis since the application is geared to the identification and utilization of tools, as contrasted with the analysis of the argument in a serious professional context where the charge of fallacy would have to be supported with sufficient nuance to engage with the complexity of the evolving situation and complex knowledge structures employed. The mere fact that doxastic adequacy is a function of the significance of the conclusion makes the straightforward application of even the most intuitive fallacy difficult to apply in a univocal way across varying epistemic needs and resources. At the very least, in the most mundane terms, in informal logic courses the range and complexity of examples needs to be expanded, or a careful argument for the merit of relatively superficial assessment in the name of the development of tools and skills needs to be made. Certainly informal logic, even in elementary texts, seems to have a great deal to offer to beginning reasoners, although I doubt that much doxastic weight should be put on the result of such deliberations. Is informal logic or some plausible extension of current understanding sufficient for a critical practice about ordinary affairs or does it need to be enriched by the considering the practices of more disciplined critical communities?

And we must move the discussion of fallacies beyond a singular focus on past and present work in informal logic and address how the fallacies (and correlative argument schemes) are to be understood and employed in discourse contexts to which they are essential. So, just as examples: Can appeal to expert opinion function in argument evaluation without understanding the role of expertise in a field (roughly construed as the overlap between method and concerns), for example, the testimony of psychologists in court cases as opposed to testimony by a forensic chemist? And given the subject of testimony, the degree of reliability of even chemical experts could vary widely. How can we evaluate appeal to popularity without taking into account what social psychologists know about the accretion of public opinion, without appreciating the construction of opinion by shared presupposition, available and manipulated information? How does the art and science of polling affect the reliability of descriptions of public opinions? How can we evaluate putative slippery slopes without having some sense of the causal gradient relative to the topic under discussion? Can we determine the 'one-sidedness of arguments' without specifics as to the status and availability of relevant alternatives? There are always alternatives; relevant alternatives are a function of the problem situation and so transcend the mere logic of the situation. Can we ascertain burden of proof in contexts of 'ignorance' without having determined the particulars of how reliable the search for evidence is? It is obvious that many negatives can be proved, but there is no general way short of the specifics to ascertain when an appeal to ignorance is warranted. Can *post hoc* even be meaningfully discussed without taking into account the variety of

normative strictures placed on causal arguments in theoretically mature sciences like physics and chemistry as contrasted with descriptive and stochastic inferences, as in many social sciences?

What is required in addition to logical constraints can be best seen through the work of Christopher Tindale, where in *Acts of Arguing* he offers the seminal notion of "shared cognitive environment" (Tindale, 1999). Tindale summarizes the concept: "a cognitive environment is a set of facts and assumptions that an individual, or in the case of shared cognitive environments, a number of individuals, is capable of mentally representing and accepting as true" (*op. cit.* p. 106). The notion had been developed as an account of how 'to gain the adherence of an audience in a *reasonable* way.' And required that "argumentation must be contextually relevant (i.e. relevant to the audience in a particular context) and comprise premises that are acceptable to the particular audience and to the universal audience formed from it" (*op. cit.* p.95). The notion of 'universal audience,' following the models of Perelman and others, among other things, needed to counter charges of relativism.

Following Grice's maxim of relevance the protagonist in presenting an argument tries to alter the cognitive environment. "The first intention, utilizing the cognitive environment, is a matter of relevance (particularly audience relevance); the second intention, convincing the audience in light of the alteration of the environment is a matter of the acceptability of the argumentation that has been used to do so" (*op. cit.* p. 107). The argument addresses the assumptions that are manifest in the audience's cognitive environment "by providing further evidence for old assumptions or evidence against old assumptions" (*op. cit.*, p. 108). Tindale sees this to permit of degrees of relevance and includes the possibility of testing for hidden premises (*op. cit.* pp. 110-1). The cognitive environment plays a role in the acceptability of argumentation as well since they "address what is commonly believed" (*op. cit.*, p. 114).

Tindale adds to the notion of the cognitive environment a construction based on Blair and Johnson's (1987) community of model interlocutors, who see such a community to "hold well-informed beliefs about the subject under discussion" (*op. cit.* p. 116). Tindale elaborates: "As a theoretical model, the community of model interlocutors is highly accomplished. Its members possess the required background knowledge, are reflective and good discriminators, are open, unprejudiced and willing to modify their beliefs, and in knowing what to look for they are dialectically astute" (*ibid.*). The link with the universal audience is apparent, requiring that model interlocutors attempt to "distance themselves from their own prejudices" (*op. cit.*, p. 118). That is to say universal audiences are constructed upon the basis of real audiences by raising a series of questions against the reasoning involved. "The universal audience sifts through the various ways of *seeing* the argument to arrive at that which is most reasonable" (*op. cit.*, p. 119). Tindale summarizes "producing and evaluating argumentation involves learning about what is reasonable, rethinking it, adding to it and taking from it. The development of the reasonable is an ongoing project" (*op. cit.*, p. 120).

Any attempt to develop a sense of normative standards from actual critical practice faces considerable difficulties. Could any actual group of discussants be adequate to the role that Pinto and Tindale see it playing? My sense is that it couldn't, for inquiry moves in the most surprising ways and so it is hard to argue that at any point the actual interlocutors can be a surrogate for potential interlocutors whose insights may

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prove essential to the evaluation of the argument. This is captured by Pinto's insistence that standards are themselves open to change and that no set of standards is adequate '*sans phrase*.' I see the problem as deeply rooted in the philosophical intuition that would caution moving from the 'is' of any particular example to the 'ought' required if the judgement is to function as a norm, that is, appropriate across a range of relevantly similar situations. This, of course, moves the discussion from actual interlocutors to various constructions of an ideal audience. Clearly as Tindale indicates, an ideal audience is constructed based upon the actual audience, for it is only from the actual context of argument that the cognitive environment can be draw. But the sorts of dialectical traits he identifies are empty unless the tissue of logical and epistemological standards is available. For if as Pinto maintains the main task of argument appraisal, and therefore reasonable acceptance, is to evaluate inferences it is not enough to rely on the audiences beliefs about that facts of the case. These beliefs must be the result of appropriate standards of inquiry and reflect adequate methodological constraints relevant to the topic at hand.

The problem for ideal models drawn from rhetorical considerations alone is that without an adequate abstract theory of inquiry it is hard to capture the normative *bona fides* of such groups. And although with care we can extrapolate sets of ideal conditions from actual debates, without a sense of what about the practice supports normativity, the extrapolation is unmotivated. While such ideals are harder to define than to indicate, it seems to me that except for fundamental logical principles they are best identified and refined by drawing upon the specifics of the discourse of available groups who might plausibly serve as exemplification of best practice. But we are caught in the circle. If the basis of normativity is critical practice, we want to have some sense of which critical practice it is and how such practices are identified. Without a procedure for identifying the discussants, the scope of the community from which standards (as well as other things) are drawn is, in principle, in doubt.

An easy answer, given the discussion earlier, is to let the cognitive community identify itself by actual participation. This in some profound sense is true, since it is mainly against actual objections that argument moves. But this raises the issue that is at the center of any criticism of descriptive or denotative characterizations, since we see our standards as standards that extend beyond their actual use, minimally to other possible uses, and maximally to the vast domain of human discussion most of which, if the race is blessed, is yet to be engaged in. So which community and for which arguments, in which context and over what interval? The question reflects the basic normative insight, that to function as a norm, a standard must be applicable across the range of its possible instances. And so we are forced to identify constraints, at least. Here, logic and the general theory of argument are essential in defining general constraints, but if I read Pinto correctly, we must insist that, even if necessary, such constraints are insufficient to the task of evaluating inferences, and therefore inadequate as the basis for theory.

Johnson, Pinto and to a lesser extent Tindale seem to address their remarks to the community of logicians, philosophers and argument theorists relying on philosophical examples and reasoning about ordinary affairs. But are these the cognitive communities to which Pinto alludes when he appeals to critical practice as a condition for the evaluation of arguments across the board? The community of argument theorists is clearly inadequate to Tindale's sense of the cognitive environment since audiences are

defined in terms of the content of the argumentation rather than its logical properties alone. My sense, judging from his discussions of causal attributions is that even Pinto requires a broader sense of the available critical communities than philosophers and other argument theorists provide. But whether he does or not, that is where his intuition leads. This has been the focus of my recommendations over the years. The cognitive communities required for the evaluation of the overwhelming majority of arguments that should be the concern of enlightened and informed citizens and liberally educated students draw essentially from what I call disciplined (or well-managed) discourse communities, that is, discourse that is informed by an effective critical practice, that identifies, applies and modifies norms (Weinstein, 1990). As I have said in many papers and for many years, the practices of philosophers, epistemologists and logicians are relevant to the critical evaluations of arguments, but are not uniquely so. Rather, I think that the content of the argument, what Pinto may intend when he speaks of 'background knowledge,' and certainly what Tindale must include in the cognitive environment and Johnson plausibly require for aspects of the illative core influences normative judgments, including both the specifics of the substance and the utilization of appropriate norms in an effective manner. That is, the content, illuminated by disciplinary context, determines the arena from which normativity should be drawn. This has enormous consequences for logical theory. The adequacy of a critical account must ultimately be evaluated in terms of its descriptive adequacy in the following new sense. The description of a critical practice must identify the grounds of normativity in use, construct a clear theory, if you will, or at least an image of the argumentation within reflective critical practices, and display how normative coherence as well as dialectical change evolves.

This reflects on Pinto's concern with the theory of inference. If the available theories of formal or informal logicians are contrasted with the needs of ongoing critical practice, it seems obvious to me, and perhaps to Pinto, that there is little or no hope of capturing the logic of argument. But I believe a theory (evolving and changing, of course) must be attempted. And for many years I have identified three components—entailment, relevance and truth—as the key desiderata for such a theory (Weinstein, 1994). As I have worked on the problem over the years I remain convinced that this requires a new style of meta-mathematics: a flexible and multidimensional field of models that permits of degrees of entailment, and indexes of relevance in terms of the impact of an inference on the field. Whether my work is a mere pipe-dream remains to be seen, but the absence of a theory of inference, if your limits are truth functional logic, argument diagrams, and elementary argument schemata with or without a few telling critical questions, says little or nothing about the possibility of a theory of inference that uses the full panoply of logical tools. It is interesting to contemplate whether in the rejection of formalism and the commitment of informal logicians to offering clear and useful tools for argument analysis to undergraduates, the theory of argument has unfortunately relinquished the sophisticated, flexible and normatively transparent meta-mathematical apparatus invented to understand mathematical argument. For these tools enable enormous structures to be constructed that offer transparent metaphors for logical practice. The informal logic and argumentation movements have identified the range of cognitive practices that must be addressed. The move to considerations of context has raised the stakes as to what such an address requires.

The concern with context supports Pinto's intuition that no theory is available. I see the issue somewhat differently. I certainly agree with Pinto, that a general theory of inference is lacking, and therefore that attention must be paid to logical practice. But I see the failure of theory to be more contingent on the attempt to develop a single theory of inference, general in respect of all practices, or alternatively, a general theory adequate to some nebulous sense of reasoning as an everyday practice. That of course raises deep meta-epistemological issues. Does the normative core of the theory of inquiry need to be universal? Does it need to be univocal? If there is a fairly univocal core that is general in respect of much argument, what role does this core play in argument evaluation (and critical practices of various sorts)? What is the best theoretic model of the logical core? Is it best described informally, or does the complexity of practice point to the need for a powerful and flexible language such as meta-mathematics? From which critical tradition should exemplifications of critical adequacy be drawn? Formal logicians see mathematics as the practice against which the adequacy of the theory is to be ascertained. My hunch is that it is rather physical chemistry, since that permits much of the new sense of argumentation to be captured in rigorous ways (dialectical advance, modified entailments, and epistemic adequacy). Or is it against philosophical intuitions alone that our argument theories must be judged?

Foundational Postscript

As at its beginnings, informal logic is focused on two poles: fallacies and argument analysis. Enriched by the work of the Amsterdam school (Eemeren, et. al. 1984) informal logicians have offered a rich outpouring of detailed work on particular fallacies, particularly Douglas Walton (for example, Walton, 1989) and the underlying representations based on Stephen Thomas (1973) have seen significant structural and functional advance in the work of James Freeman (1991). Both of these sorts of efforts, however, bypass the reconsideration of the logical core of argument. That is, informal logicians have left undisclosed the very areas upon which formal logicians have expended most of their efforts: accounts of entailment, truth and relevance. There seem to be a variety of reasons why disregard of the logical core might be justified within informal logic. These include the adequacy of the account found in formal logic, and the irrelevance of matters of the logical core to argumentation. Other less pressing reasons might be division of labor, personal preference and the like. And yet given the depth of the difference in perspective between formal and informal logic as theories of argumentation one should expect real differences on foundational matters, including three main foundational concepts: entailment, truth and relevance.

The formal core of argument, traditionally construed, includes two main theoretic structures. Implication as the support of the notion of argument validity-- and the syntactic apparatus developed sufficient for half of completeness; and truth as the support for the model theoretic apparatus that bonded implication to entailment offering the converse. The problem was that the formal core was subject to manifest irrelevancies, paradoxes of implication from material to strict.

The reason is not hard to see. Although champions of formal logic still propose and depose formal theories of relevance, it is my contention that formal logic is doomed

to irrelevance because of the deepest structural properties of formal theory. Extensionality underlying the model theoretic theory of truth, and atomism underlying the syntactic apparatus, the massive achievements of Tarski and Russell, doomed formal logicians to irrelevance for reasons that informal logicians should be able to see clearly, if only informal logicians would see clearly.

The reasons were already available in the work of Carnap. Carnap in his effort to develop a theory of entailment based on formal logic metaphors had to distinguish two sorts of syntactic bases for the semantic correlate of implication. A logical core supported by truths of logic alone, and an extra-logical core, the wide variety of extra-logical postulates needed to support inference in any argumentation context that transcended logical truths alone. As the history of axiomatizations of portions of mathematics and natural science showed extra-logical postulates were describable, and necessary, if models of formal subject matter that went beyond pure logic were to be available. Even the most cursory survey of the functionally analytic elements across the range of knowledge and argumentation, that is, to use the old language, meaning postulates, and inference tickets (tacit or overt) that support the extra-logical core of inferences, points to many types that transcend the extensional constructions that mathematical logic requires.

Such functionally analytic elements, include the meaning of ordinary and technical terms; chemical formulas; physical laws; statistical and others less formal varieties of empirical generalizations in the social sciences; graphic structures such as scalagram analysis in Anthropology and Punnett Squares in Biology; and many kinds of figural models that support inference in particular domains of discourse.

What characterizes inferences of the sort just indicated is that they do not fit into the idealized set-theoretic apparatus that gave mathematical content to the basic set theoretic apparatus understood since Aristotle. To put it in intuitively obvious terms: the problem with formal logic is readily seen as the core problem with the square of opposition. Most generalizations are not strictly universal, so the formal theory of refutation by a single counter-example is irrelevant to most subjects about which we reason. The reasons for the failure of the classic model of refutation by counter-example is clear (with the exception of mathematics construed as a sub-region of logic). Generalizations only hold true universally within models, and models tend to fit the object of the discourse with degrees of approximation. And yet we must reason with generalizations and instances if we are to reason at all. If there is logic to all of this, it is to be found in the exploration of the warrant kinds that support the practice of generalization (example and counter-example). My conjecture is that these are to be found in the various systems of knowledge that we have developed. That is, the systems of thought that support argumentation practices in the various sciences, and other well-governed discourse practices. That is, the clue to understanding argumentation is to be found in systems of thought and practice of the various sorts that humans have created utilized and improved.

If we are to understand inferences in systems we need to look closely at the limits of inferences within them. The work of Toulmin (1958) offers a first step in understanding this. In the *Uses of Argument* Toulmin begins to catalogue the several of disclaimers that challenges to generalizations permit. As typical of Toulmin's work there, the analysis is ordinary language based and invariably insightful. In his books on the history of science the effort is more diffuse, but perhaps even more profound. Toulmin

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shows how throughout the history of science, generalizations resisted or succumbed to counter-examples, showing how in case after case the reasoning offered warranted either the resistance of theories and models to inconsistent data or to their replacement, or permitted counter-examples to be reinterpreted in theoretically favorable ways. And even how sufficient restructuring of theory gave evidentiary precedence to the same putative counter-examples and conundrums as the advance of understanding proceeded.

Formal logic has been captured by a mathematical version of the most pervasive metaphor underlying theories of truth. Tarski semantics offers a clear analogue to the notion of correspondence, but at an enormous price. The power of Tarski semantics-- the yield being completeness, that is, all formally valid proofs yield logical true conditionals-- requires that the models be extensional, requires that all function symbols in the formal language are definable in terms of regular sets. That is sets closed under the standard operations of set theory, and definable completely in terms of their extensions.

The problem, of course, is that the overwhelming majority of both ordinary and theoretic terms have no obvious extensional definition. Thus, co-extensionality is a poor surrogate for many substantive equivalence relations. The impoverishment of extensional models (and the analogous standard interpretation of syllogism) is interestingly illuminated by the solution to modalities (necessity, possibility, and variants such as physical possibility) offered by formal logicians: that is relationships among worlds as in Kripke semantics. This moves the focus from truth within models, extensionally defined, to relationships among selected worlds. Such relationships may vary widely, each one specific to a relationship, as in the analysis of physical causality in terms of a function that maps onto physically possible worlds. Little can be said about the general restrictions on mappings across worlds, for inter-world relationships, if we take the intuition behind accounts of physical causality, are broadly empirical-historical. That is, what makes a world physically possible is relative to laws of physics being interpreted as restrictions on functions across possible worlds.

This should be good news for informal logicians. If my intuition about entailment is correct, informal logicians rooted in the realities of argument have no choice but to take the world of actual warrants seriously. This enables us to get much more serious about truth. There are at least two uninteresting sorts of truths: statements of the cat on the mat variety and logical truths. Everything else relies heavily on movements across inference sets. Sentences ranging from 'the light is red' to 'John has pneumonia,' in their standard occurrences, are warranted as true (or likely, or plausible etc.) because countless other statements are true (or likely or plausible etc.). To verify each of these, or any other interesting expression, is to move across a wide range of other statements connected by underlying empirical and analytical theories (systems of meaning, generalizations etc.). All of these have deep connections with observable fact, but more importantly are connected by plausible models of underlying and related mechanisms. These include all sort of functional connections that enable us to infer from evidence to conclusion, and to question, in light of inconsistencies connected to elaborate networks of claims and generalizations of many sorts. For most estimations of the truth of a claim offer a rough index of our evaluation of the context that stands as evidence for it. Under challenge, that body of evidence can be expanded almost indefinitely, all of this still governed by the available meaning postulates and inference tickets cited, assumed, or added as inquiry

and argumentation proceed. A similar account needs to be given for other normative judgements, including ethical and legal claims based on non-epistemic warrants.

Just as informal logicians need to look to families of interesting warrant kinds in support of entailments, informal logicians should look to the strength of inferential connections, as kinds of truth-connected inference relations are described and better understood. Likelihoods, probabilities, plausibilities, and even limited ranges of possibility (e.g. physical possibility) to be understood, need to be articulated as a reasonable family of kinds, for without an understanding of these kinds and how the transfer of truth, plausibility, likelihood and the like to claims based upon evidence, is inferentially well-managed there is no hope of an informal *logic*.

Relevance, in the logician's sense, leads us to similar terrain. Relevance as a syntactic restriction is either hopeless, or as Walton (1982) suggests, primitive. But yet judgements of relevance are made all of the time. As informal logicians rightly see, judgements of relevance are part of the practice of argument evaluation. But where are the principles governing relevance to be found? I say look to the context. Look at the sorts of relevance decisions made. Inherently pragmatic, and bound to various systems of referee, relevance is the most clearly institutional of the three foundational concerns (Weinstein, 1995). This is horrible news for formal logicians interested in syntactic accounts, but it should be grist for the mill of informal logicians. Since relevance is so often an institutional outcome, frequently subsumed with clear rules of procedure as in the law, the obvious step is to look at the various practices for clues to an adequate account. But are we to be condemned to some sociology of relevance?

Our prior discussion offers the possibility of a unifying theory. With a theory of entailment that describes the various sorts of analytic relationships between constituent elements which govern the practice of positive inference and counter-example in place (the warrant kinds that indicate the strength of generalizations *viz. a viz.* instances); and with an account of how various sorts of truth-like properties are inherited across the chain of various sorts of inference, we can begin a normative theory of relevance in light of which practices can be assessed.

As Trudy Govier (1987) has rightly seen, relevance both affects and reflects the estimation of truth. Generalized to a wide range of truth-like predicates, with a clearer sense of what sort of truth is contained in any particular line of defense or attack, and what the consequences for the networks of supporting ideas are across the evidentiary bases, as well as estimations of the robustness of the theoretical connections among items, we can see the affects of particular lines of defense and attack: that is we can give a principled account of our judgements of relevance.

The foregoing has done little more than reiterate deep challenges to informal logic as currently construed. It is rooted in a deep sense of the correctness of the informal logic revolution, but it is deeply critical of the complacency of much of the work in the field, work that incorporated deep logical structures from the formal theory of argument without significant reconstruction. And that, in the name of pedagogical efficiency, disregarded the richness of contextual understanding that the evaluation of inferences requires.

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