

Is Logic Demarcated by its Expressive Role?

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1. How and Anti-realist might read Brandom

Michael Dummett and Robert Brandom, though sharing a good deal in their approaches to language and to logic, also differ markedly in their respective views. Although that is not an observation that is likely to strain one's capacity for philosophical insight, the differences are worth noting and understanding.

Brandom distinguishes logic by means of its expressive role. Logic plays a role in enabling the expression of the inferential commitments of any practice as claimings. Or in Brandomese: since inferential practice is PP-necessary for any autonomous discursive practice, the role of logic is in articulating those practices which are necessarily involved in being able to say anything. Logical vocabulary is deployed by practices that are algorithmically elaborated from practices that are PV-necessary for deploying every autonomous vocabulary and suffices to specify those PV-necessary practices. In the earlier work the role of logic is linked with the project of making explicit, in the later work it is linked with the project of analytic pragmatism. In *Making it Explicit* logic enables the expression of inferential commitments as claimings and thus as subject to the business of asking for and giving reasons. It thus exposes those commitments to the glare of reflective rationality. In the later *Between Saying and Doing* the interest shifts to resolving what Brandom calls the logicist's dilemma, namely, explaining logical vocabulary in a way that ensures it does not contribute any significant *content* to the analyses in which it is caught up—that it is semantically transparent—while also ensuring that it is analytically efficacious—it must make a distinctive contribution to the *process* of analysis. The resolution is that logical vocabulary adds nothing to the, that is, any, target vocabulary because the capacities involved in deploying it emerge by algorithmic elaboration from the capacities required to deploy *any* vocabulary. It is analytically efficacious because it fulfils an expressive function enabling one to talk about the analytic articulation of any vocabulary and this—the ability to articulate what follows from what—is an essential part of being able to find expressions in one vocabulary which express the same contents as expressions in another. Though there are interesting differences between the accounts¹ the upshot is similar: in order to perform its expressive function logic is required to be semantically transparent; however logic still has a purpose because that expressive role feeds into the business of analysis or the business of reflecting on one's inferential practice.

Michael Dummett poses a different, though in some respects similar, dilemma. His focus is not so much logical vocabulary as logical inference. He notes that our attempts to justify deduction pull in two directions: in an effort to see deductive inference as valid we tend to think that, in some sense, whatever is required to recognise the conclusion as true is already accomplished in recognising the premises as true; conversely we are tempted to think that there must be some gap here else we will have no way to account for the epistemic usefulness of deduction. As in the Brandomian dilemma the tension arises from both wanting to see logic as, in a sense, vacuous and as having a purpose. But unlike Brandom's way of dealing with the tension, which promises complete resolution, Dummett sees the tension as irresolvable: we can only conclude that deductive inference forces us to admit a gap between the truth of a sentence and its capacity to be recognised as such (at least by direct—non-inferential means). So on Dummett's view, the admission of deductive inference into a practice necessitates a conception of contents expressible in that practice which would not have been required but for deductive inference. Thus whereas Brandom sees logic as being semantically transparent Dummett thinks that deductive inference places a metaphysical demand on content. The demand is metaphysical since the reconception of content derives from the very nature of deductive inference and involves construing content in terms that tend to be favoured by realists, though it doesn't demand a *fully* realist reconstrual of content.

I want to spend some time here simply exploring logic in the framework provided by these two dilemmas.

¹ The latter envisages as distinctively theoretical role for logic and along with this is concerned to develop different sorts of metavocabulary. The former sees things from a much less theoretical perspective and thus emphasises object language extensions; rather than metalanguages.

Conservative Extension

The notion of conservative extension is crucial to both philosophers. For Dummett the requirement is that logic conservatively extend the non-logical practice in the sense that the meanings of terms in the original non-logical fragment are unaffected by the extension of the language to include logic. Thus if we take meaning to be determined by, say, assertion conditions then the insistence will be that no expression in the extended language becomes assertible, if it had not been so before. The requirement is, as we have seen, part of Dummett's conception of how one validates deductive inference but it is also of a piece with his view of the molecularity of language: in order to see mastery of language as accruing in stages we need to be able to think of each stage as establishing a stable set of meanings which survive the introduction of more complex reaches of language.

On Brandom's account the expressive role of logic demands that its introduction constitutes a conservative extension. Since the content of an expression is determined by its inferential role and since we want, in the logical language, to be able to express inferential relations that that expression bears to other expressions we had better not alter the content of the expression, and thus its inferential powers in relation to the old vocabulary, by introducing logical vocabulary. [In addition, if our aim is to articulate just those inferential patterns which are taken to be good in the original vocabulary we had better be sure that logical vocabulary does not forge any new such connections.] Brandom thus achieves a kind of local molecular view in the context of a global holism about content.

I'm not certain that the feat is pulled off quite so easily—not certain, that is, that logical expressivism requires inferential conservativeness. After all, if content is determined by inferential role conceived of holistically then it is not clear that expressions in the logical language would bear *the same* content as they do in the pre-logical language, although obviously the translation of expressions of the original language into the extended language would be homophonic; perhaps the requirement should rather be that the introduction of logic be such as to preserve the homophonic scheme of translation. [And, on the second sort of argument, which aims to ensure that new inferential connections are not forged, so that we aren't confused about which connections we are articulating—it is not clear that there is a problem that needs to be avoided by insisting on conservative extension. Given that the same material inferential connections survive into the extended language we simply need to distinguish between those inferences which explicitate pre-logical inferences and those which do not. Insisting on conservative extensions simply obviates the need for marking this distinction.]

A further point is that the expressive role might be accomplished not through an extension of the language but through a metalanguage. In this case the preservation of content would be accomplished very simply indeed, namely, by using a metalinguistic expression to refer to expressions in the object language. Of course the metalanguage would contain logical vocabulary enabling the expression of entailment relations but I see no reason why and little way to comprehend the requirement of conservative extension; rather we would face a choice about our logic justified presumably in orthodox fashion by appealing to the semantics of the object language. Well perhaps one might simply concede that that metalinguistic project is legitimate but simply not Brandom's and perhaps too we should allow him to choose his project: the distinctive feature of logical vocabulary is thus in facilitating the expression of those inferential relations which obtain in any language *through an extension of that language*. In order to achieve this the insertion of logical vocabulary must be conservative relative to inferential relations in the language.

Let us return to Dummett's account. Matters there were left considerably vague since we simply noted that for him, the extension of the language to include logical vocabulary needs to be conservative relative to the content of terms in the original language. As is quite obvious, the notion of conservative extension is relative and, in taking the relativisation simply to be relative to *a* conception of content, we haven't succeeded in making the notion precise. But it can be made so by specifying a conception of content. Dummett's thought is that deductive inference demands a conception of content which is not a product merely of the use of the original language. If we look at that language we will be unable to discern any reason to justify taking a sentence to be assertible other than when a warrant is actually available for its assertion. As soon as deductive inference is admitted we shall need to think of sentences as being assertible merely when a warrant is, *in principle*, available. Thus deductive inference demands a certain conception of content. Dummett writes,

The relation of truth to the recognition of truth is the fundamental problem of the theory of meaning, or, what is the same thing, of metaphysics... What I am affirming here is that the justifiability of deductive

inference—the possibility of displaying it as both valid and useful—requires *some* gap between truth and its recognition; that is, it requires us to travel some distance, however small, along the path to realism, by allowing that a statement may be true when things are such as to make it *possible* [my emphasis] for us to recognise it as true, even though we have not accorded it such recognition.^{2,3}

An example: in order to see disjunction as having an epistemic function we need to see a disjunction as assertible when we have a method, effective in principle, for determining which disjunct is true. Thus, if the truth of the disjunction requires the truth of one or other disjunct, a sentence may be true when it is only in principle possible to know its truth.

Another example: the technical appendices to *Between Saying and Doing* contain a deduction of classical logic. The basis for the deduction is an incompatibility relation defined on finite sets of sentences which is determinate on the finite power set of sentences in the language⁴. Clearly detection of these incompatibility relations will be something we are only *in principle* capable of doing. It is, of course, open to Brandom to allow the incompatibility relation to be less than fully determinate and thus to achieve a weaker logic. But Dummett's point is that if the logic is to be epistemically useful we will need an incompatibility relation that is determinate even when it is only, in some sense, *in principle possible* for us to detect its obtaining.

Thus, on Dummett's view, we are forced by the need to validate deductive inference—and its various locutions—to admit a notion of content according to which a sentence is true just in case it is in principle possible for one to obtain a direct warrant for it. But, off course, *relative to that conception*, deduction will be conservative. So is there a tension here with Brandom's view?

There are actually two worries one might have with this juxtaposition of Dummett and Brandom. The one just alluded to is that the Brandomian view of logic providing a conservative extension is restored on the final Dummettian view. The second—one that may have been troubling my audience for some time now—is that Dummett's account focuses on deductive inference not directly on logic. Brandom refuses to consider inference-free regions of language.

I don't think that the second worry ought to detain us long—the sorts of inference which concern Dummett are inferences which essentially involve logical vocabulary. Indeed it seems that the very phenomenon we are concerned with requires the formality of logic which, precisely in view of that formality, extends beyond our mere parochial doings; to see an inferential scheme as formally valid is to see it as having some generality of application and capturing that generality requires logical machinery. Put in more Dummettian terms, we are interested in the possibility of achieving indirect warrants for assertion of a statement by means of logical inference. We can distinguish between these indirect warrants and direct warrants, where the latter may include *both* non-inferential warrants and warrants accruing through materially good inferences.

² T&OE 314

³ Later Dummett castigates realism for forcing a conception of truth on us which compromises molecularity in that it is entirely unjustified relative to the use of the pre-logical fragment of language. A realist notion of truth is thus implausibly imported simply to justify classical modes of inferring. Just how is the present position disanalogous? Two points are worth noting: (i) the gap between truth and its recognition is a product of the need to validate deductive inference, not specific modes of inferring, or it's a requirement on seeing a locution such as disjunction as having any role; (ii) the conception of content is built upon the use of the sentence in relation to its direct warrants: the indirect warrant is explained in terms of the in principle availability of its direct warrant.

⁴ The deduction of classical logic is impressive, at first sight, given such slim (intuitionistically acceptable) assumptions but shouldn't really be surprising. What we have is a definition of the conditional in terms of incompatibility as follows:

$$p \rightarrow q \text{ iff } (\forall x)(\text{if } q/x \text{ then } p/x)$$

But a more orthodox intuitionistic reading of the conditional would be:

$$p \supset q \text{ iff } (\forall x)(\text{if } W(x,p) \text{ then } W(x,q)), \text{ ' } W(x,p) \text{ ' is ' } x \text{ warrants } p \text{ ' .}$$

What we then have is:

$$\begin{aligned} & p \rightarrow q \\ & \text{iff } (\forall x)(\text{if } q/x \text{ then } p/x) \\ & \text{iff } (\forall x)(\text{if } \text{In}\{x,q\} \text{ then } \text{In}\{x,p\}) \\ & \text{iff } (\forall x)(\text{if } W(x,\sim q) \text{ then } W(x,\sim p)) \\ & \text{iff } \sim q \supset \sim p \end{aligned}$$

The seemingly distinctively classical ' $\sim p \rightarrow p$ ' becomes the intuitionistically acceptable ' $\sim p \supset \sim p$ ' [and ' $p \rightarrow \sim p$ ' becomes the intuitionistically acceptable ' $\sim p \supset \sim p$ '].

The first worry should also be dismissed. Insisting on conservative extension is indeed a very weak requirement—see Field (*Science Without Numbers*)—one which seemingly any logic that is capable of being seen as good will satisfy. (To see this simply note that if one takes content to be determined by truth conditions then conservative extension relative to content so construed simply amounts to soundness.) Brandom's point should thus be seen as making a more substantial claim: logic is introduced subject to the constraint of conservative extension relative to a conception of content that can be substantiated independently of the requirements of logic. The difference between Dummett and Brandom lies precisely here. According to Brandom logic makes no demands on content; according to Dummett it does.

The difference is important and takes us to a deep difference in the respective conceptions of logic and its philosophical importance. In Brandom's view the fact that logic makes no demands on content entails that it can function as a neutral medium for various programmes of analysis: its very neutrality, its lack of metaphysical substance is what renders semantic logicism plausible. Logic is seen as a tool for analysis. In contrast, on Dummett's view logic just is the crystallisation of metaphysics. Indeed it wouldn't be unfair to say that for Dummett the question of one's choice of logic gives the operational content of the metaphysical question. Logic enables the expression of certain sorts of distinctive complex contents and the space of those possible complex contents encapsulates a metaphysical view about the contents which form the base.

Perhaps the most promising line for a Brandomian to pursue is to argue that we have quite independent reason for discerning content which satisfies logic's requirements. So its demands on content would be vacuous. The place to look is the various objectivity proofs to which our attributions of content are subject.

Objectivity Proofs

Deep into *Making it Explicit* we find Brandom attempting to validate his pragmatic conception of content by showing that content, so conceived, is objective. The objectivity of content emerges from structural elements of the social deontic score-keeping practice. Not only can we *distinguish* a content both from the claim that I know that content and from the claim that everyone knows it, but we can also refute any conditional linking these contents. The business of keeping track of perspectives through such means as de re and de dicto ascriptions of propositional attitudes enforces a conception of another's perspective which may differ from the truth, as one takes it to be. So, in general, the articulation of the sociality of content ascription into an *I-Thou* sociality allows for the distinction we want, without appealing to an extra-perspectival reality.

The first objectivity proof allows for communal ignorance and communal error and is based on the articulation of the practice of ascribing commitment and entitlement. One can both be committed and entitled to assert a content without seeing anyone else as committed and entitled to assert that content. The second objectivity proof seemingly has a more difficult task because one has to make a similar distinction in relation to oneself. But here the articulation of deontic statuses into commitments and entitlements plays a role: one may be *committed* both to 'p' and 'I believe p' yet not be *entitled* to both and this difference in commitment can be revealed by considering a third person's evaluation of the my situation, such a character may be both committed and entitled to:

S claims that I believe p and S claims that not p.

The objectivity proofs are impressive in their ability to reconstruct features of objectivity that one typically associates with representationalism but to do so by means of the structural relations between perspectives.

What I don't see is how such proofs can be made to work productively in the face of Dummett's dilemma. How can a claim about the structural features of keeping score on perspectives entitle any view about the determinacy of incompatibility relations or the truth of claims where these outrun our actual ability to determine them? Because our actual abilities are exceeded no license for a claim of determinacy can be arrived at from looking at an exercise of those abilities. It is one thing to deny a connection between truth and one's own or our communal recognition of truth but quite another to make the positive claim that truth outruns what we are actually capable of recognising.

If there is a way out of this bind I think it will lie in the notion of algorithmic elaboration since the very notion of elaboration incorporates an idea of that certain capacities *in principle* suffice for development of

others. Speakers will have the ability to determine whether certain sets of sentences are incompatible with one another and we might algorithmically elaborate this ability to yield an ability to tell whether or not any two finite sets of sentences are incompatible. But how could we do this? As Brandom points out, a sentence may be incompatible with a set of two sentences without being incompatible with either: take ‘This is a blackberry’ and {‘This is red’, ‘This is ripe’}. The result is surely general: one set of sentences may be incompatible with another without there being any incompatibility between subsets. In fact that ability to detect incompatibilities between *sets of sentences* is not algorithmically elaborated from any more basic set of abilities, such as the ability to detect incompatibilities between *sentences* (not anyway, unless we help ourselves to logic). In addition, the idea is that we algorithmically elaborate those capacities that are PV-necessary for deploying a given vocabulary. So the business of algorithmic elaboration kicks in after one has settled on those PV-necessary capacities—it cannot therefore be used to beef them up. Clearly though there would be a tension in allowing them to play a role in elaborating capacities PV-sufficient for deploying the explicating vocabulary but to disallow them to feature in the specification of the nature of the capacities PV-necessary for deploying the original vocabulary. Perhaps that speaks against Brandom’s conception of algorithmic elaboration.

2. Multi-premise Inferences

Brandom offers the following account of the algorithmic elaboration of the abilities required to use the conditional. The abilities arise by response substitution of abilities involved in any ADP.

Circumstances:

The response of finding good the inference from p to q is replaced by the response of being prepared to assert ‘ $p \rightarrow q$ ’.

Consequences:

The response of being prepared to assert ‘ $p \rightarrow q$ ’ is replaced by the response of finding good the inference from p to q .

Finding good the inference from p to q is explained as being disposed to assert q , if disposed to assert p .

From the algorithmic elaboration in this simple case one can read off the expressive relation: the sentence ‘ $p \rightarrow q$ ’ expresses the inference which it is related to by response substitution. But this simple case is exceptional. I shall point out first that when we move over to consider cases involving more than one premise we cannot read the relation of expression off the algorithmic elaboration because the expressive relation is the upshot of recursions based on the elaboration.

Conjunction

Brandom presents the following MUD for the conditional—see figure 1. The ADP will, in general, include multi-premise inferences. One way of coping with this is to add conjunction in order to factor these in as conjuncts in a conjunctive antecedent, which then expresses the multi-premise inference. So we arrive at Figure 2. I simply want to probe the role of conjunction here. My hold on these matters is less sure than I’d like and not sure enough to know whether there is a genuine difficulty here. But I can’t see my way clearly through the MUD.

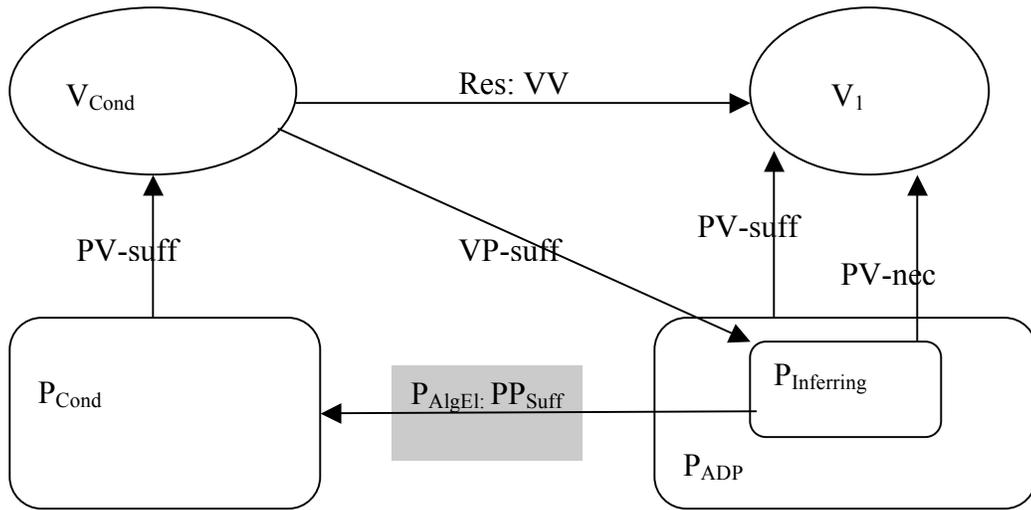
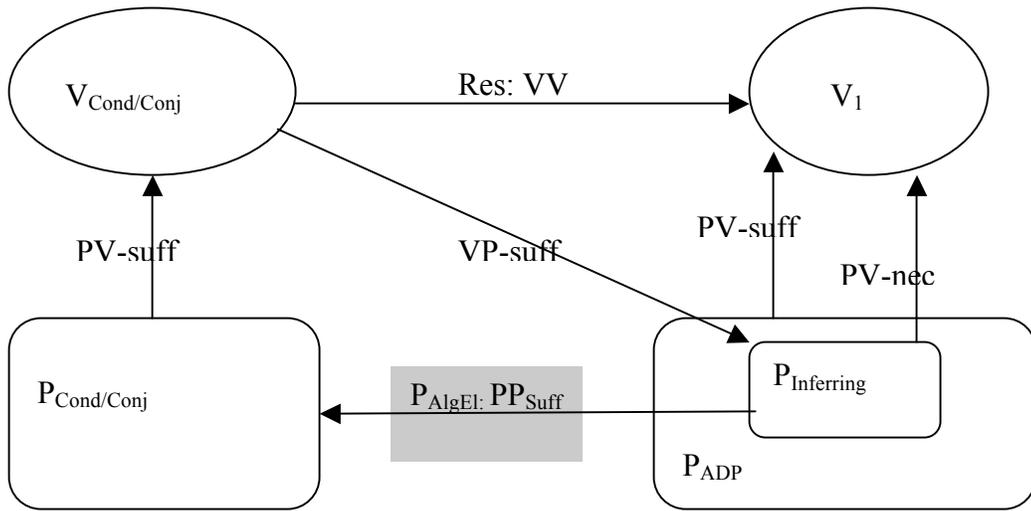


Figure 1



Figure

One might then suppose we could have the following MUD:

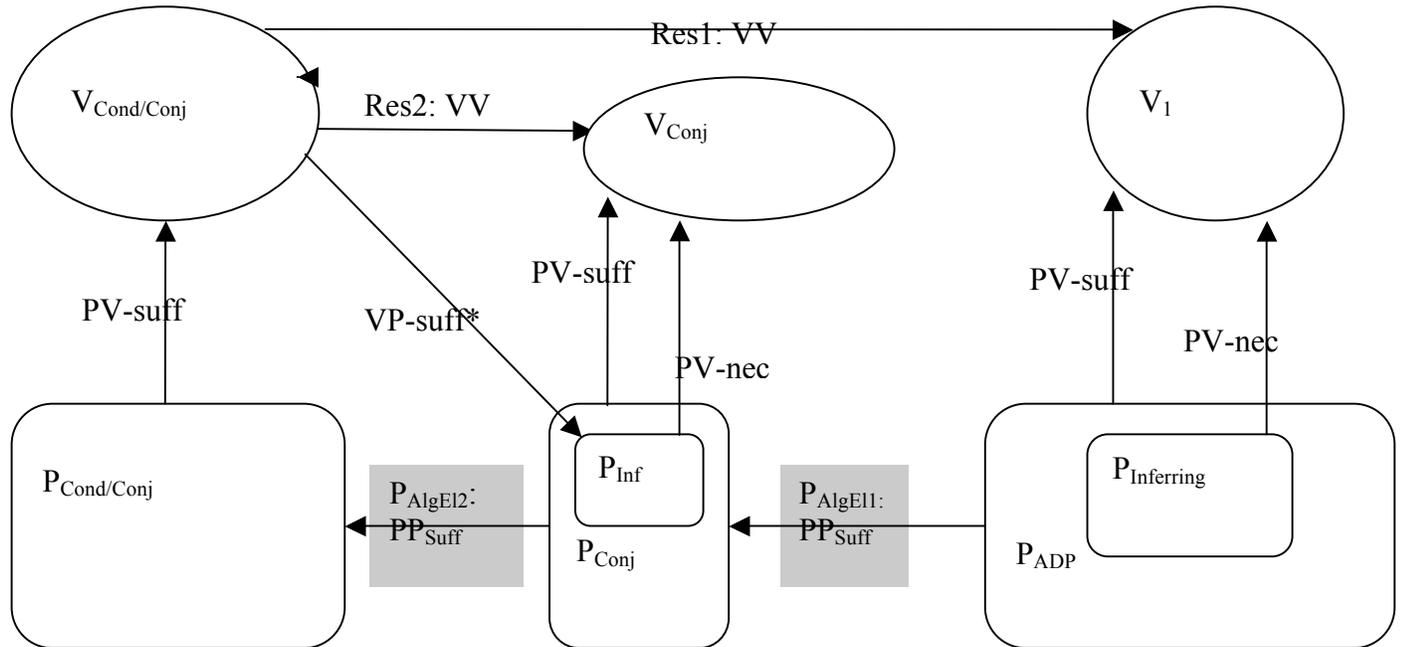


Figure 3

Now the expressive relation involved in VP-suff* is not itself given by the algorithmic elaboration; rather it is based on it. Take the following inferences involving three sentences:

$$p, q \mid - r \qquad p \& q \mid - r$$

Both of these inferences will be expressed by the conditional $(p \& q) \rightarrow r$. Now, in itself, that may be a cause for concern but I shan't treat it as such—perhaps there's no need for a conditional to be uniquely expressive of an inference. Rather my worry emerges when we think of how this will be algorithmically elaborated. Presumably what we shall have is something like the following transitions:

Circumstances:

$$\begin{aligned} \text{Preparedness to infer: } p, q \mid - r &\Rightarrow \text{Preparedness to assert: } (p \& q) \rightarrow r \\ \text{Preparedness to infer: } p \& q \mid - r &\Rightarrow \text{Preparedness to assert: } (p \& q) \rightarrow r \end{aligned}$$

Consequences:

$$\text{Preparedness to assert: } (p \& q) \rightarrow r \Rightarrow \begin{aligned} &\text{Preparedness to infer: } p, q \mid - r \\ &\text{and preparedness to infer: } p \& q \mid - r \end{aligned}$$

The number of inferences expressed by a conditional with conjunctive antecedent will depend on the number of conjuncts in the antecedent. So this transduction from the inferential to the assertive practice will require a distinct elaboration in each case. There is no algorithmic elaboration which *directly* specifies every case. Thus we cannot legitimate the MUR VP-suff*, that is, the relevant expressive relation by giving a single expressive algorithm. The expressive relation cannot, in general, simply be read off the algorithmic elaboration of the relevant capacities.

The problem is highlighted in the relation between $P_{\text{Cond/Conj}}$ and P_{Conj} because the conditional with conjoined antecedent expresses a number—which number is determined by the number of conjunctions in the antecedent—of inferences. But the problem might seem to be present, in a sense, in the relation

between $P_{\text{Cond/Conj}}$ and P_{ADP} since we seem to need separate clauses for algorithmically elaborating inferences involving n premises, for each n . In effect this is, of course, to treat each

$(_ \& _ \& _ \dots _ \& _) \rightarrow _$ as a distinct connective. Of course we don't attempt to do anything quite this silly; rather we give a recursive account of conjunction (replacing preparedness to assert P and to assert Q with preparedness to assert $P \& Q$, and vice versa) and then offer the straightforward algorithmic elaboration of the capacities involved in the conditional by treating these as expressive of single premise (though possibly conjoined) inferences. So we might have the following MUD:

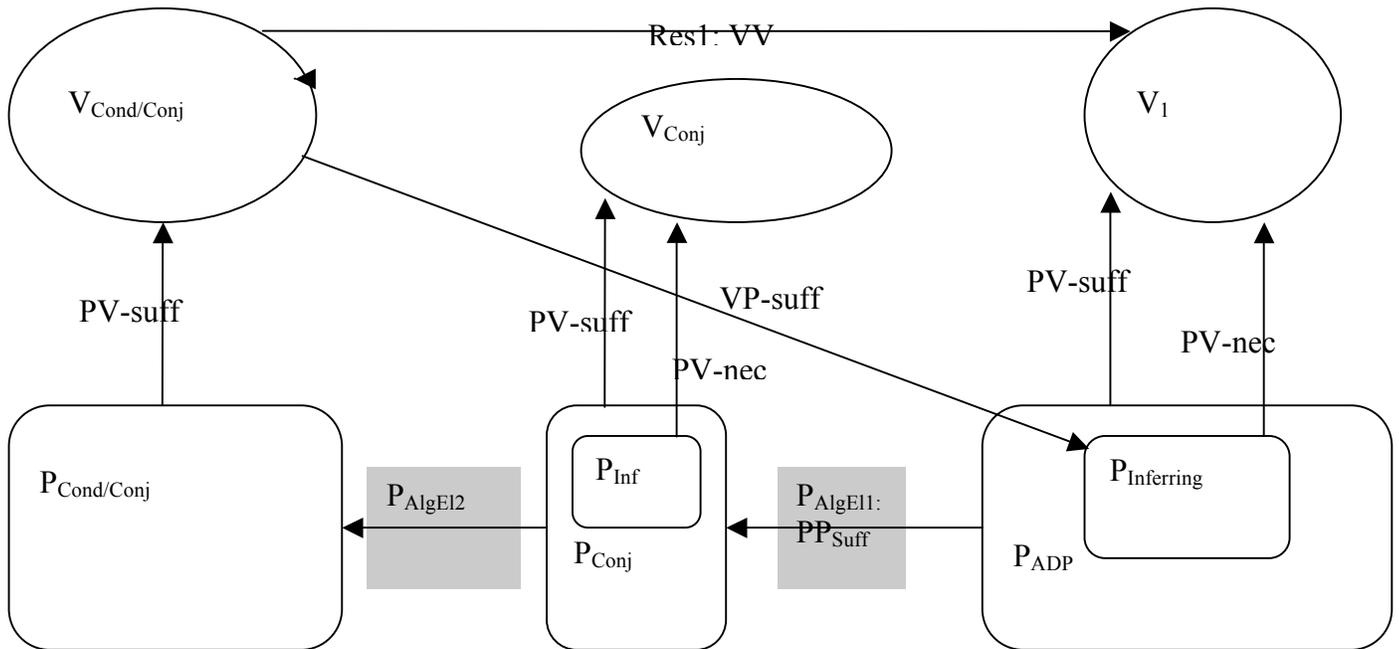


Figure 4

Two worries:

(i) The facility of the conditional to express inferences accepted in the autonomous practice is now built on a role for conjunction which is not, in this sense, expressive. Conjunction is here used to express certain forms of logically complex content—which are *then* placed as the disposal of the expressive project.

(ii) The account is intended to apply to any ADP but, if so then it should apply to a practice that includes both multi-premise inferences *and* conjunction. But we have argued that there are strains in seeing how this can be the case—there is no algorithmic elaboration of the requisite abilities that is itself a transduction of the inferential into the expressive abilities. If this is a failure of VP-suff* it is a counter-example to the general claim of VP-suff in figure 4.

The Conditional and Multi-premises

We are not obliged to express multi-premise inferences by means of a conditional with conjoined antecedent; rather we might instead nest conditionals. In this case we would have:

Circumstances:

The response of finding good the inference from p_1, \dots, p_n to q is replaced by the response of being prepared to find good the inference from p_1, \dots, p_{n-1} to $p_n \rightarrow q$.

Consequences:

The response of finding good the inference from p_1, \dots, p_{n-1} to $p_n \rightarrow q$ is replaced by the response of finding good the inference from p_1, \dots, p_n to q .

As in the case of conjunction there is no reading off the expressive function of the conditional directly from this algorithmic elaboration of the abilities requisite for its deployment. The reason is even more obvious. *Expression* is a relation between a *sentence* and an *inference*; here we directly establish a relation between one *inference* and another. This, of course, need not be fatal to the expressive *project*⁵ provided we can see the expressive role of logical vocabulary emerging from the manner in which those capacities necessary for its deployment are algorithmically elaborated. But note that we must concede here—as we did with conjunction—that the conditional has a role independent of expression, on which its expressive role is based: the conditional enables the expression of conditional contents as conclusions of inferences.

Although the account is not itself expressive, we explained inference in terms of being disposed to assert one sentence on condition that one is disposed to assert another (or some others). So it yields an expressive relation because, at a certain point, one will achieve a sentence that one is prepared to assert unconditionally. That sentence can be taken as expressive of the original inference.

What worries me in this account is that one's preparedness to assert a sentence unconditionally may be a consequence of interference from other inferences one is disposed to find good. Take it that the following inferences are good:

$$\begin{array}{l} q|r \\ p,q|r \end{array}$$

The first inference is unproblematically expressed by the conditional $q \rightarrow r$. When we turn to the second inference we shall perhaps arrive at the following:

$$p|q \rightarrow r$$

Which is explained in terms of abilities as follows: one is disposed to assert ' $q \rightarrow r$ ', if disposed to assert p . But the condition here fails to impose any substantial constraint on assertion of ' $q \rightarrow r$ ' because one is already disposed to assert it. Thus it seems we have arrived at a sentence we are prepared unconditionally to assert and thus will be expressing the inference $p,q|r$, counter-intuitively, by means of the conditional ' $q \rightarrow r$ '. That is the picture when we focus on circumstances of assertion. In order to consider consequences of assertion take the following two dispositions:

$$\begin{array}{l} \text{Disposed to assert } (p \rightarrow (q \rightarrow r)) \\ \text{Disposed to assert } (q \rightarrow r) \end{array}$$

The first is unpacked inferentially as the disposition to find good the inference from p and q to r ; the second as the disposition to find good the inference from q to r . But, given that the second holds, the first will clearly and vacuously hold. Thus, in these circumstances, the inferential abilities associated with the preparedness to make either assertion are the same. So the two assertions have the same expressive power.

Guess there are two ways of making my complaint. The first is to argue that there is no reason to think that the conditional taken to express the inference will be the 'right' one—so the upshot promises to be counter-intuitive. The other is to point out that, in the circumstances, the two assertions have the same grounds and consequences of assertion. Were different expressive powers to accrue to each this would be thoroughly mysterious.

That they have the same expressive power emerges from the manner in which the abilities governing the assertion of conditionals have been algorithmically elaborated and, importantly, explained in terms of simply being disposed to make conditional and unconditional assertions. That seems to be the nub of the problem. For once we take this extensional reading of the nature of the relevant capacities there is nothing to aid us in distinguishing a capacity that is genuinely unconditional from one whose conditions impose no

⁵ Note that I say 'fatal to the expressive *project*'; I've just argued that there may be grounds here for questioning the completeness of the expressive conception of logic.

constraints. Of course it is not, in general true, that the abilities (in terms of conditional dispositions to assert) associated with being prepared to assert a sentence of the *form* $(p \rightarrow (q \rightarrow r))$ and being prepared to assert a sentence of the *form* $(q \rightarrow r)$ can be identified, nor true that the assertive dispositions associated with an inference of the *form* $q|r$ and one of the *form* $p,q|r$ can be identified. But that does nothing to refute the claim that, *in the envisaged circumstances*, there is no pulling them apart. Insisting on the right sort of generality in the way we associate inferential and assertional abilities here is of course what we should be aiming at. The worry is that it is hard to see how we can achieve the right sort of generality without helping ourselves to the notion of formal validity. After all, what seems to go wrong is that neither the inference $q|r$ nor $p,q|r$ is *formally* valid but the movement from the former to the latter inference *is* formally valid. The consequence of this is that there is no distinguishing the former from the latter inference in terms of (conditional) dispositions to assert, given that one accepts the former inference.

Another way of making this point is to note that the argument proceeds under the assumption that we are in conditions in which the inference $q|r$ is taken to be good. So one might hope to respond to it by saying that we need to consider the inference $p,q|r$ in all circumstances, including those in which this inference cannot be assumed to hold good. But then the question is what we mean by ‘all circumstances’: *all possible circumstances* may not include any in which the inference fails (depending on the nature of the inference) and *all logically possible circumstances* just invites in the notion of formality through the back door.

3. The Formality of Logic

Logical vocabulary is that vocabulary required to express as claimings the inferential relations of any ADP. But how do we recognise this feature of logic? Is the claiming an explicitation when it transforms the original inference into a formally valid inference or do we have an independent handle on explicitation which yields an explanation of formality?

Consider the following ‘conditional’ defined in terms of the logical conditional as follows:

$$p \Rightarrow q \text{ iff } (p \& \text{ water is H}_2\text{O}) \rightarrow q$$

Now our question is whether ‘ \Rightarrow ’ deserves to be called a piece of logical vocabulary. One might suppose that we can surely rule that out because ‘ $p \Rightarrow \text{water is H}_2\text{O}$ ’ will always hold. But, in general, this need not affect the explicating powers of ‘ \Rightarrow ’ since the locution will still be conservative relative to the vocabulary from whence p is drawn. So we rule out its credentials by showing that it fails its explicating function when p is drawn from the same vocabulary as ‘water is H_2O ’—say talk of physical stuffs.

Mercury is an element \Rightarrow Water is H_2O ,

will hold although the following inference is not accepted,

Mercury is an element $|$ - water is H_2O

Thus here conservativeness fails. So the account has the resources to stave off the counter-example because logic must fulfil its expressive role with respect to *any* vocabulary. The generality of this requirement plays an important role in delivering the formality—thought of as the topic neutrality—of logic. But now consider an arithmetic sentence so obviously true that it will be inferred from any other arithmetic sentence, e.g., ‘ $1=0+1$ ’⁶.

If we now define ‘ \Rightarrow ’ as:

$$p \Rightarrow q \text{ iff } (p \& 1=0+1) \rightarrow q$$

then the counterexample will go through provided that practitioners accept:

⁶ An obvious analytic truth would do equally well.

$r \vdash 1=0+1$, where r is any arithmetic proposition.

To stave off the problem it would seem the expressivist will have to argue that arithmetic vocabulary is itself logical, in that case we could simply accept ' \Rightarrow ' as a piece of logical vocabulary. But even if logicism about arithmetic is true one would not expect it to be a consequence of expressivism about logic⁷.

So what is wrong with ' \Rightarrow '? My sense is that we reject this connective as being logical not because of its expressive role but because the inference:

$(p \ \& \ 1=0+1) \rightarrow q, p \vdash q$

is not (unlike MP) *formally* valid.

Conclusion

According to the first argument here if expressivism entails inferential conservativeness then the expressive function of a piece of vocabulary is not necessary to its logical role; logical vocabulary, in general, fails to have such a role (if logical inference is epistemically useful). According to the second and third arguments the notion of expression needs to be explained in terms of formal validity. Thus even if logical vocabulary is distinctively expressive we cannot use that role in order to distinguish it; since comprehending it as expressive presupposes an ability to distinguish it. Finally I've also suggested that the expressive function of logical locutions is built on a more fundamental (perhaps also more general) role in expressing complex contents—though I haven't attempted to argue the point, it may well be that that more fundamental role is the site in which to seek logic's distinctive character.

How to decide?

- Multi-premises and conjunction
- Objectivity of content: Do Brandom's objectivity proofs give us enough?
Algorithmic elaborations which function in principle?
 - Should one's philosophy of logic apply to those who have an erroneous conception of content? Dummett allows this: realist content/classical logic; anti-realist content/intuitionistic logic
 - VP sufficiency: does this appeal to formality or is the application to any practice enough? [Probably nothing here.]

⁷ This defence would face more severe difficulties had we chosen an analytic truth.