Abstract

This paper investigates Robert Brandom’s programme of *logical expressivism* and in the process attempts to clarify his use of the term *practice*, by means of a comparison with the works of sociologist and anthropologist Pierre Bourdieu. The key claim of *logical expressivism* is the idea that logical terms serve to make explicit the inferential relations between statements which already hold implicitly in a discursive practice that lacks such terms in its vocabulary. Along with this, it is claimed that the formal validity of an argument is derivative on so-called material inference, in that an inference is taken to be logically valid only if it is a materially good inference and cannot be made into a bad inference by substituting nonlogical for nonlogical vocabulary in its premises and conclusion. We note that no systematic account of logical validity employing this substitutional method has been offered to date; rather, proposals by e.g. Lance and Kremer, Piwek, Kibble and Brandom himself have followed the more conventional path of developing a formally defined system which is informally associated with natural language examples. We suggest a number of refinements to Brandom’s account of conditionals and of validity, supported by analysis of linguistic examples including material from the SNLI and MultiNLI corpora and a review of relevant literature. The analysis suggests that Brandom’s expressivist programme faces formidable challenges once exposed to a wide range of linguistic data, and may not in fact be realisable owing to the pervasive context-dependence of linguistic expressions, including ‘logical’ vocabulary. A further claim of this paper is that a purely assertional practice may not provide an adequate basis for conditional reasoning, but that a more promising route is provided by the introduction of *imperatives*, as in so-called “pseudo-imperatives” such as *Get individuals to invest their time and the funding will follow*. We conclude the resulting “dialogical” analysis of conditional reasoning is faithful to Brandom’s Sellarsian intuition of linguistic practice as a game of giving and asking for reasons, and conjecture that language is best analysed not as a system of rules but as a Wittgensteinian repertoire of evolving micro-practices.

**Keywords** dialogue, inference, commitments, conditionals, logical expressivism, Brandom, Bourdieu, Wittgenstein
1 Introduction

This paper investigates Robert Brandom’s notion of discursive practice and in particular his programme of logical expressivism. Brandom (1983; 1994; 2000; 2008) sets out to show how one can develop an account of linguistic meaning grounded in normative social practice, eschewing semantic or intentional concepts, and in particular how formal logic can be shown to supervene on everyday linguistic practice. Following Sellars (1997), Brandom sees linguistic practice, and rational social interaction generally in terms of a game of “giving and asking for reasons”. To help get a handle on how linguistic interaction can be analysed in terms of social practice, we begin by drawing some parallels between Brandom’s s approach and that of the French sociologist and anthropologist Pierre Bourdieu (following on from (Kibble, 2014)). Bourdieu’s highly influential work on the logic of practice (Bourdieu, 1977; Bourdieu, 1991) focusses on a notion of practices as the fundamental level of description of the behaviour of individuals in social contexts. Rouse’s (2007a) survey of practice theories places Bourdieu and Brandom in distinct camps: according to him, Bourdieu is one of the theorists who “make central to their discussion of practices those aspects of human activity which they regard as tacit and perhaps inexpressible in language”, while Brandom belongs to the party who “treat language itself (or ‘discursive practice’) as a paradigmatic application of practice talk”. Further, a practice for Bourdieu may consist of a frequently repeated performance or sequence of actions, while for Brandom it is essentially normative, something which may be done correctly or incorrectly according to communally accepted standards (Rouse, 2007b). In fact a close reading of two key texts (Bourdieu, 1977; Brandom, 2008) suggests that the two scholars have a number of concerns in common:

1. Commitments and objective intentions. For Brandom, to make an assertion is to take on a commitment to justify that assertion if challenged; commitments are a matter of social, normative status rather than psychological states, with practical commitments taking the place of intentions. Thus an agent may be assessed by others as being committed to propositions which are entailed by their overt commitments, whether or not they acknowledge such commitments. Levesque (1984) sought to capture this distinction with a “logic of implicit and explicit belief”. Brandom claims to follow Kant and Frege in insisting on the primacy of the propositional, as the smallest linguistic unit for which we can take responsibility. There is an echo here of Bourdieu, who speaks of agents having “objective intentions” which always outrun “conscious intentions” since actions are “the product of a modus operandi” over which the agent has no “conscious mastery” (Bourdieu, 1977, p. 79).

2. Communication as challenge and riposte. Bourdieu (1977, p. 14) claims that this is “the limit towards which every act of communication tends” while Brandom’s notion of autonomous discursive practice requires a speech act of challenging entitlement to propositional commitments (Kibble, 2004; Kibble, 2006; Wanderer, 2009; Brandom, 2009a). A key difference is that Bourdieu appears to see every social encounter as a potential occasion for expressing dominance or deference, while Brandom tends to abstract away from questions of power imbalance among participants in a dialogue and to assume something like a Habermasian ideal speech situation (Habermas, 1973).
3. Background knowledge in the form of habitus or material inference. For Bourdieu, individual practices are both constrained by and contribute to the habitus, defined as “Systems of durable, transposable dispositions . . . Objectively ‘regulated and regular without being in any way the product of obedience to rules . . .” (quoted by Grenfell, 2011) The reader may be reminded of Foucault’s discursive formations (Foucault, 1972). For Brandom, command of a language involves the practical ability to deploy a particular vocabulary, including the ability to make and endorse inferences such as that from This coat is scarlet to This coat is red, or from It is raining to The streets will be wet.

4. Generative schemes and algorithmic elaboration. Both authors outline ways in which basic or core practices can be combined to generate new practices appropriate to particular situations. For example, Bourdieu discusses how the gravity of a theft and the concomitant severity of punishment are determined among the Kabyle of Algeria on the basis of “a small number of schemes that are continually applied in all domains of practice” (Bourdieu, 1977), while Brandom argues that certain “primitive practices-or-abilities” can be algorithmically elaborated into more complex ones by procedures equivalent to transducing automata (Brandom, 2008).

5. Explicitation. Both authors are concerned with the issue of codifying or explicating practices. Bourdieu argues that “practice has a logic which is not that of logic” while Brandom (Brandom, 2008, p.33) claims to offer a “logic of practical abilities”. However, they differ over the extent to which practices can be made fully explicit: Bourdieu maintains that clusters of practices cannot always be explicitly codified without distortion or logical contradiction while Brandom is generally more optimistic, maintaining that logical vocabulary (such as conditional connectives) serves to make explicit inferential moves which are already implicit in any autonomous discursive practice that lacks this vocabulary (Weiss, 2009; Brandom, 2009b).

6. Both situate themselves in relation to the later Wittgenstein, particularly the sections of the Philosophical Investigations on rule following. Bourdieu (1977, p. 29) quotes with approval Wittgenstein’s remarks that someone who appears to be acting in a predictable, rule-governed manner might be unable to expound any rule they are deliberately following, and argues that to consider a regularity in behaviour as evidence of a consciously proclaimed ruling or unconscious regulating is “to slip from the model of reality to the reality of the model”. This anticipates Brandom’s Wittgenstein-inspired critique of regulism and regularism, the notions that social norms are to be respectively identified with explicit rules or statistical regularities (Brandom, 1994).

This paper takes a close look at some empirical aspects of logical expressivism and in particular at the expressivist account of formal validity: inferences involving logical vocabulary are said to be formally good if they are both materially good, and cannot be made materially bad by uniform substitution of nonlogical for nonlogical vocabulary in the premises and the conclusions (Brandom, 2000, p. 55). We should note to begin with that as far as I am aware, neither Brandom nor any of his commentators have offered a fleshed-out demonstration of how this substitutional
methodology would work. There have been various formal accounts with varying degrees of faithfulness to Brandom’s account: Lance and Kremer (Lance and Kremer, 1994; Lance and Kremer, 1996; Lance, 2001) employ modal and relevance logics, Piwek (2014) gives a proof-theoretical account involving defeasible inference, Kibble (2004; 2006; 2007) uses Amsterdam-style dynamic semantics, and Brandom himself (Brandom, 2008) defines an “incompatibility semantics” as an algebra over certain stipulated basic operations. However, none of these are explicated by starting with natural language and using substitutional techniques to isolate the logical vocabulary; rather, each presentation only informally associates formulas from the formal system with selected (typically, constructed) natural language expressions. In fact, Lance and Kremer (1994, p. 373) deliberately eschew expressivism understood as an encoding of “social criteria of inferential appropriateness” on the grounds that it could entail cultural relativism, while Kibble (2006) suggests that Brandom’s mechanism of deontic scoreboards can be detached from the inferentialist project. I suggest in what follows that such a thorough-going expressivist programme would in fact face significant difficulties, arising from the pervasive context-dependence and idiomaticity of natural language expressions even including logical terms, and the difficulty of identifying logical vocabulary itself.

A second major theme of this paper is Brandom’s rational reconstruction of the genesis of conditional constructions in natural language: the claim is that any discursive practice must include a “core” of assertional practices, since assertions are the only speech act that can be performed without mastery of any other types of locution, and that those engaging in such an autonomous discursive practice or ADP will be able to recognise and endorse inferential links between assertions, which are codified or made explicit by the introduction of logical vocabulary (Brandom, 2000, pp. 45–78). I will argue that it is not clear whether speaker/hearers would be reliably capable of distinguishing between elaborative (providing further information) and inferential links, and will propose an intermediate stage involving imperative acts of the type which have been called pseudo-imperatives in the literature (Fox, 2015), such as Write a song about Pale Fire and he’s yours!. The first strand in this argument will be supported with reference to a corpus study of elaborative and argumentative discourse relations (Scholman and Demberg, 2017), and the second will draw on a number of examples from the MultiNLI1 corpus (Williams, Nangia, and Bowman, 2017). In the course of this thesis I will also argue for a different way of thinking about commitments, entitlement and action, involving a more uniform treatment of propositional and practical commitments.

It should be noted that a purely assertional ADP seems lacking for the game of “giving and asking for reasons”, since it would include no locutions for asking - the only way to challenge a commitment is by asserting an incompatible. Wanderer (2009) argues for the inclusion of a “challenge” location and this is conceded by Brandom (2009a) - note that this development is in fact anticipated by Kibble (2006; 2007). A related consideration is that a purely assertional ADP would be essentially monological, whereas the core of our argument will be that conditional reasoning is fundamentally rooted in dialogical practice. We should also note Belnap’s (1990) trenchant arguments that any analysis of language restricted to the declarative form is fundamentally impoverished.

1Multi-Genre Natural Language Inference
2 Discursive practice

Rouse (2007a) identifies the role of language as a contentious issue in practice theory, and argues both that “to use and respond to words and sentences as semantically significant is to engage in discursive practice” and that discursive and non-discursive practices are ultimately inseparable. Bourdieu (1991) develops a notion of “symbolic power”, according to which the meanings of utterances and the efficacy of speech acts derives from the “social power” of speakers (Leezenberg, 2013). Brandom takes a more nuanced approach, seeking to show how semantic meanings can be grounded in social practices of “normative pragmatics”, without the requirement of any explanatory role for semantic or intentional concepts. As we shall see, his approach involves a somewhat rarefied, abstract and irreducibly normative account of what constitutes a “practice”: in particular he tends to disregard questions of an imbalance of power among discourse participants, though Rouse (1994; 2002) contends that Brandom’s framework is in fact quite compatible with Foucault’s and other contemporary accounts of interpersonal power.

2.1 Deontic scoreboards

Brandom’s approach is concerned with “deontic” attitudes of hearers, and of speakers as self-monitors, rather than intentional attitudes of speakers as in classic Speech Act theory (Searle, 1969). In place of beliefs and desires, Brandom discusses “doxastic” and practical commitments, corresponding to beliefs and intentions respectively, which interacting agents may acknowledge or ascribe to one another. The normative dimensions of language use according to Brandom comprise responsibility - if I make a claim, I am obliged to back it up with appropriate evidence, argumentation and so on - and authority - by making a claim to which I am assumed to be entitled, I license others to make the same claim. The essential idea is that making an assertion is taking on a commitment to defend that assertion if challenged. There are obvious shared concerns with the notions of commitment developed by Hamblin (1970) and Walton and Krabbe (1995), and subsequently taken up in multi-agent systems (Singh, 2000) and computational linguistics (Matheson, Poesio, and Traum, 2000). Brandom’s elaborations include the notion of entitlement to commitments by virtue of evidence, argumentation etc; the interpersonal inheritance of commitments and entitlements, and the treatment of consequential commitments and incompatibility. The mechanism for keeping track of agents’ commitments and entitlements consists of deontic scoreboards maintained by each interlocutor, which record the set of commitments and entitlements which agents claim, acknowledge and attribute to one another (claims and acknowledgements are forms of self-attribution). Scoreboards are perspectival and may include both explicitly claimed commitments and consequential commitments derived by inference. In the pure model, each agent maintains their own scoreboard and none has any privileged authority: in practice, agents will often defer to others on grounds of specialist knowledge, experience, status or indeed, power. Agents may be in a position of claiming incompatible commitments but may not be assessed as entitled to more than one of them (if any).

In Brandom’s model, entitlement to a commitment mostly arises in one of two ways: by inference from a commitment to which one is already entitled, or by deferral to the testimony of an interlocutor who is entitled to the commitment. Stated thus simply, there is an obvious
threat of infinite regress on both scores, since it appears we may not in general acquire any entitlements unless there are already commitments that we or our interlocutors are entitled to. Brandom finesses this danger by proposing a “default and challenge” model: entitlement to a commitment is often attributed by default, though remaining potentially liable to be challenged by the assertion of an incompatible commitment.

2.2 Action and practical commitments

Brandom’s account of action and intention is initially quite similar to the doxastic story in its overall structure: the role of intentions is taken by practical commitments which can stand in inferential relations to doxastic or to other practical commitments, and to which one may be entitled or not entitled. It is notable that practical commitments can be inferred from doxastic commitments as in examples like:

1. Only opening my umbrella will keep me dry, so I shall open my umbrella.
2. I am a bank employee going to work, so I shall wear a tie.

(Brandom, 2000, p. 84)

Brandom argues that these inferences are not enthymematic, relying on suppressed premises “I wish to stay dry” or “Bank employees should wear ties”, but that (1) and (2) are in fact examples of what he (following Sellars) calls “material inference”: the consequent follows from the antecedent by virtue of its content, and the putative “suppressed premises” are ways of making explicit the implicit norms or preferences that make the inferences go through.

Many people encountering Brandom’s work find the notion of material inference puzzling and suspicious, particularly in the way it seems to provide free inference tickets for deriving “ought” from “is”. In fact, it seems that the disposition to make or endorse such inferences is taken to be part of the practical ability involved in the mastery of a particular vocabulary or field of activity, as is the ability to recognise incompatibilities among commitments. The bank clerk who puts on a tie in the morning is not necessarily following a rule of appropriate dress for bank staff (even though such a rule may turn out to be codified in the staff handbook) but is conforming to a practice – because “This is what I do” – just as he does not intentionally consult any explicit rule when deciding whether to put on a pair of shoes rather than trainers or hiking boots.

Practical commitments are taken to stand in inferential relations with both doxastic and other practical commitments, and an action is taken to be rational if it fulfils a practical commitment for which the agent can give a reason. For example: “Why are you wearing a tie?” “I’m on the way to work”. Putting things a little more technically: to demonstrate entitlement is to offer a chain of reasoning which terminates in a practical commitment which is compatible with one’s other acknowledged commitments, and actions result from “reliable dispositions to respond differentially to the acknowledgement of certain sorts of commitments” (Brandom, 2000, p. 83). Scorekeepers are licensed to infer agents’ beliefs from their intentional actions [Ibid.].

2See (Wittgenstein, 1971, s. 217).
I would like to propose a slightly different way of thinking about action commitments. To begin with: Brandom’s deontic scoreboards keep track of propositions which an agent is committed to, and commitments to which the agent is entitled according to the scorekeeper. The different ways an agent can claim entitlement to a commitment boil down to the following four:

**entailment** - the proposition is entailed by something to which the speaker is already assessed as entitled;

**justification** - the agent offers a claim which supports their previous assertion, and is more likely to be accepted by the scorekeeper;

**deferral** - the assertion is supported with reference to testimony from a reliable and trusted source;

**default** - in everyday practice, entitlement is typically granted by default. This parallels Davidson’s thesis that “all beliefs…have a presumption in favour of their truth” (Davidson, 2001).

This scorekeeping practice involves “doxastic” or propositional commitments. It is noteworthy that although Brandom approaches a particular cluster of problems from a different direction than mentalistic/intentional approaches, he ends up carving the domain along similar lines: thus doxastic commitments correspond to beliefs, practical commitments to intentions, and “intentions are to reasons as commitments are to entitlements” (Brandom, 2000, p. 84). It is not a priori obvious that a framework derived from social interaction and deontic status should be expected to map neatly onto a scheme of putative mental states. It may seem that in order to handle actions, we need to take account of a different species of practical commitments, commitments to do something. But a doxastic commitment is also a commitment to do something, i.e. to perform an appropriate speech act. I propose an adjustment to the framework which involves a somewhat different way of thinking about what it means to be committed or entitled to a proposition. This is partly in response to a worry of Joseph Rouse (2002), who notes that Brandom treats perceptions and actions as peripheral appendages of discursive practice, namely as discourse entry- and exit-transitions respectively, and argues that practical-perceptual skills are central to human interaction. I suggest that a further way of showing entitlement to the commitment that φ is by means of a non-discursive action, which to avoid confusion I will henceforth dub a deed: this action may for example have the effect of bringing it about that φ, or of carrying out an experiment whose results provide evidence for φ. A further addition to the array of grounds for entitlement will be observations or percepts. These two modifications bring us closer to the concept of an autonomous agent assumed in mainstream AI (Russell and Norvig, 2009), as an entity which perceives its environment through sensors and acts on it through effectors. This means that the notion of a commitment would cut across the traditional, mentalistic distinction between beliefs and intentions: for an agent to be committed to φ is equivalent to saying either that they believe φ to be the case, or they intend to perform some deed whose effect will be the state of affairs described by φ. My new proposal will put deeds and observations on a par with utterances as moves in a dialogue game. Accordingly, I will argue below that an imperative Do φ has the
effect of bestowing a propositional commitment to $\phi$ on the hearer\textsuperscript{3}. So if I, for example, tell you to shut the door, and our relative social standing makes it appropriate for me to give you such directives, your options are to offer evidence that the door is already shut, or to shut the door within my sight.

### 2.3 Compositionality

Finally, material inference has a role to play in analysing the semantic content of subsentential expressions:

> Two subsentential expressions of the same grammatical category share a semantic content just in case substituting one for the other preserves the pragmatic potential of the sentences in which they occur a pair of sentences may be said to have the same pragmatic potential if across the whole variety of possible contexts their utterance would be speech acts with the same pragmatic significance

(\textit{Brandom, 1994, pp. 128-9})

So for example, one might say that two terms have the same denotation (representation) if replacing one with the other makes no difference to the appropriate circumstances in which a speech act may be uttered and its pragmatic consequences, in terms of the speakers deontic score (see \textsuperscript{[8]} for extended critical discussion of this approach). Much of the second half of \textsuperscript{[1]} consists of elaborations of this substitutional technique to handle the traditional subject matter of formal semantics such as reference, anaphora, deixis, quantification and propositional attitudes.

\textit{Kremer (2009) questions Brandom’s reading of Kant and Frege and offers a detailed examination of the decompositional strategy of analysing the content of subsentential expressions, and identifying different subcategories such as terms and predicates according to the contribution they make to the inferential potential of propositional utterances. For example: the fact that one can infer \textit{Thora is a mammal} from \textit{Thora is a dog}, but not vice versa, indicates that \textit{mammal} and \textit{dog} are predicates which licence asymmetric substitution inferences, rather than terms which may license symmetric inferences (\textit{Brandom, 1994, pp. 133ff}). Kremer argues that Brandom’s account is plagued with circularity, since it claims to define syntactic categories in terms of substitution inferences but turns out (on Kremers account) to assume a prior grasp of these very categories. One could add that the substitutional techniques are presented in rather general terms, using simple examples, and would constitute a formidable machine learning problem if applied to corpora of actual discourse. For one thing, it is unlikely that any corpus would provide instances of all possible contexts for any given sentence-pair (see above). This suggests some interesting directions for future applied research. As noted, I argue below that Brandom’s programme severely underplays the pervasive nature of context-dependence in natural language

\textsuperscript{3}I should note that Belnap (1990) considers and discounts this approach, contending that whatever kind of commitment results from an imperative cannot be propositional. My strategy here is to see how much mileage can be gained by doing things this way, and engage with his arguments in future work. The gist of my argument would be that commitments resulting from assertions and those resulting from commands are both commitments to some kind of \textit{action}.\textsuperscript{8}
understanding, such that it is problematic to posit invariant semantic content/inferential potential for particular words or phrases even including “logical” expressions.

### 2.4 Summary

In summary, participation in a discursive practice in Brandom’s terms minimally involves:

- ability to deploy a vocabulary in ways which are acceptable to other members of a speech community;
- ability to make and endorse a variety of *material inferences*;
- ability to keep score of commitments undertaken by interlocutors and oneself, to recognise incompatible commitments, and to ascribe both entitlements and consequential commitments to participants in a discourse;
- ability to challenge other practitioners who are assessed as not entitled to particular commitments.

Note that none of these bullet-points specifically mentions meanings, beliefs or intentions, but it is claimed that a practice involving these abilities can count as a linguistic or discursive practice. Note also that the practice involves an abstract notion of a “scoreboard” and is essentially normative, concerned not so much with observed practices as with what agents ought to be able to do to count as engaging in dialogue. I have sketched some elements of an alternative account which sees a closer intertwining between discursive and non-discursive practices, such that claims to entitlement to a commitment can be advanced by means of deeds as well as words.

### 3 Elaboration and Explication

Brandom’s ambitious programme, most fully set out in (Brandom, 1994), is to start from a pragmatist approach to language use involving practices such as assertion and inference, and the assessment of oneself and others as committed or entitled to putting forward claims, and to show how one can proceed in a top-down manner to account for phenomena that are more conventionally studied under the banner of linguistic semantics such as: the “meaning” or inferential roles of nouns and verbs; anaphora; quantification; de re/de dicto distinctions, and so on. The avowed aim of (Brandom, 2008) is to contribute to the development of an “analytic pragmatism”. In this paper we are concerned with one particular aspect of this programme, *logical expressivism*: this is essentially the thesis that logical operators serve to make explicit patterns of inference which are already available in a “base” language that lacks this vocabulary, and that the introduction of these operators is semantically transparent and inferentially conservative in that it does not license any inferences which were not previously available.

In (Brandom, 2008) the expressivist project is presented in terms of the notions of *elaboration* and *explication*. The idea is that a set of basic abilities can be marshalled into a process which implements a higher-level ability (elaboration), and that one can then define a vocabulary
that specifies or codifies this set of practices (explication). In the particular case of logical expressivism, the argument is that this elaboration/explication or LX relation enables speakers to say whether a particular inference is good or bad, rather than simply treating it as such.

### 3.1 Generative Schemes and Algorithmic Elaboration

One specific type of elaboration focussed on in (Brandom, 2008) is the introduction of conditionals. Suppose an agent has the ability to assert $p$ and $q$, and to “respond differentially to the inference from $p$ to $q$ by accepting or rejecting it”. These abilities can be considered to function as automata, the argument goes, and the automaton can be rewired so that it will respond to the conditional assertion “if $p$ then $q$” in the same way as it would have done to the inference from $p$ to $q$. Turner (2008) notes that practices can be “underdetermined” and it may not always be obvious which practice is instantiated by a particular performance. In this instance, it is not necessarily clear how one could infallibly recognise a practice of “accepting or rejecting an inference”. Returning to the example:

(a) I am a bank employee going to work. (b) I am wearing a necktie.

there is clearly scope for ambiguity over whether the speaker is expressing an inference from (a) to (b), or simply providing more information about his current activities. That is, the relation between (a) and (b) could be analysed in RST terms as Elaboration rather than, say, Volitional Cause (Mann and Taboada, 1987; Taboada and Mann, 2006). Scholman et al (2017) noted that there is in fact substantial disagreement among annotators over whether implicit relations between text spans should be classed as “elaborative” or “argumentative”, looking in particular at annotations of the Wall Street Journal corpus using the PDTB (Prasad et al., 2008) and RST (Carlson, Marcu, and Okurowski, 2003) frameworks. In sections 4.2.1 and 5 we will outline an alternative rational reconstruction of the introduction of conditional reasoning into a discursive practice, building on a basic practice which is taken to include assertions, challenges and commands.

### 3.2 Explication and Logical Expressivism

Bourdieu problematises the explicitation of practices on two scores:

1. Attempts to collate and set down on paper various collections of practices, as for example in the different ways subjects observe the agrarian calendar, can lead to distortion or incoherence: features which are “compatible practically” may turn out to be “logically contradictory” (Bourdieu, 1977, p. 107). That is, individual subjects may pursue practices that do not interfere with each other, but attempts to codify and harmonise their combined implicit knowledge may show up inconsistencies. This objection can be summed up as “practice has a logic which is not that of logic”.

2. Once a practice has been codified and set down on paper, reflection on the practice may lead agents to go back and revise it: explicitation is not a one-way street (Bourdieu, 1977, p. 20).
Brandom seems to be more optimistic on point (1): he argues that logical vocabulary must be “semantically transparent” and “inferentially conservative” with respect to material inferences that can be exhibited in the base language. However, he seems to come closer to Bourdieu’s stance on point (2), acknowledging that

Once the logical vocabulary has been introduced, it may induce practitioners to alter their prior practice, in the light of what it now allows them to say about that practice.

(Brandom, 2009b, p. 354)

This does in fact seem quite consonant with Bourdieu’s notion of “the dialectic between the schemes immanent in practice and the norms produced by reflection on practices” (Bourdieu, 1977, p. 20); both authors appear to be in agreement that explication of practices is not just a one-way process but can feed back into modification of those practices. This may also be contrasted with Lance and Kremer’s (1994) objection that the role of logic is purely normative, setting standards for rational argumentative discourse, and should not be identified with an abstraction from actual discursive practice as it is possible for an entire speech community to reason incorrectly. Their approach still seems to be faced with the question of what the sources of normativity actually consist in, if not some form of mathematical platonism.

A difficulty for Brandom’s programme of logical expressivism is that we can only verify this by observing inferential practices before and after the introduction of logical vocabulary. However, the idea that this vocabulary is “introduced” into a linguistic practice which had previously lacked such terms is a fiction. All we have to go on is up-and-running practices involving both logical and non-logical vocabulary: as far as we know there is no natural language or any historical record of one which lacks negation or conditional locutions, for example. Logical expressivism therefore has to be interpreted as a claim that logical vocabulary allows us to codify practices which can be manifested in a language that has been stripped of such vocabulary. In this situation, it is hard to see how one could identify the “basic” or “core” practices as distinguished from practices that may have been altered in the light of reflections facilitated by logical vocabulary.

A more technical point: Weiss (2009) discusses the logical consequence relation defined in (Brandom, 2008) which is based on a primitive notion of incompatibility, and assumes that speakers are able to determine “a fully determinate incompatibility relation between arbitrary finite sets of sentences”. He raises the issue that this may be beyond the reasoning capacities of speakers of the base language, but that the introduction of logical operators may enable them to “decide undetermined incompatibility relations” (emphasis in original). It is not clear that Brandom satisfactorily addresses this specific point in his reply to Weiss (Brandom, 2009b).

3.3 Idealisations in expressivism and score-keeping

Chapter 4, Section IV of Making it Explicit includes detailed instructions for deontic scorekeeping, including the requirement that if speaker B claims that p, scorekeeper A must add p to the list of commitments attributed to B and should also add “commitments to any claims q that are committive-inferential consequences of p” (my emphasis). It appears from this that agents are obligated to be “perfect reasoners” when scorekeeping even if they are not when speaking. This
seems to threaten to revive the issue of “omniscience”, displaced onto the scorekeeper rather than the speaker, and has implications for the computational complexity of scorekeeping (as argued by Kibble (2015)). Levesque (1984) shows that for his formal system, the time taken to calculate what an agent believes grows linearly with the size of the KB (in the propositional case), while the time taken to calculate the implications of the belief grows exponentially. Of course these results do not necessarily carry over to Brandom’s setup, but they are certainly suggestive. It is undeniable that the requirement to calculate all committive-inferential consequences is an idealisation of actual practice, as is the expressivist project of seeking to isolate invariant uses of logical terminology across any substitution of nonlogical for nonlogical vocabulary.

4 Material inference and discursive practice: context-dependence of interpretation

Material inference is somewhat cursorily introduced as follows:

The kind of inference whose correctnesses determine the conceptual content of its premises and conclusions may be called, following Sellars, material inferences. (Brandom, 2000, p.52)

Examples given are: “Pittsburgh is to the west of Princeton, so Princeton is to the east of Pittsburgh” and ”Lightning is seen now, so thunder will be heard soon”. The key point is that these inferences are seen as primitive bits of knowledge, and do not involve tacit formal reasoning involving a hidden premise or enthymeme such as “If lightning is seen, thunder is heard shortly after”. Rather, such conditional statements are seen as formally making explicit the content of the inference, with the result that inferences themselves can become topics of scrutiny and discussion. Brandom’s “origin myth” for formal reasoning postulates an introduction of logical vocabularysuch as conditionals into a language in which inferences may be performed but not talked about, so that we are subsequently able to say what we can only do using the relatively impoverished language. This is subject to a principle of conservativeness, in that the new vocabulary must not license any new inferences involving the old vocabulary (op cit, p. 68). This theme is systematically developed in (Brandom, 2008).

4.1 On ‘Boche’ and the like speaker/hearer relative consequences of application

Following Dummett (1981, p. 454), Brandom (2000, pp. 69ff) discusses the conditions and consequences of application of the term ‘Boche’, a contemptuous term for German soldiers which was current from the late C19 up to WWI. Dummett’s analysis, which Brandom endorses, is that the adoption of this term constituted a non-conservative extension to the language: the conditions of application being that the person referred to was German, the consequences being the implication that he [almost invariably] was “barbarous and more prone to cruelty” than other
Europeans (see also Jorgensen, 2008). Brandom argues that anyone who does not endorse this implication must eschew use of the term, as with other loaded terms such as the “N-word”. He disregards the fact that the consequences of application may also depend on the status or identity of the speaker: while white people generally feel unable to use the N-word, it is arguably acceptable when used in a spirit of camaraderie among African-Americans (Anderson and Lepore, 2013) and has somewhat different consequences of application than it would if uttered by a white supremacist, for example.

The following example further illustrates how the consequences of a statement can depend on the speaker’s role or interests:

3. (a) Joyce is a difficult author.
   (b) Joyce is difficult.
   (c) Joyce’s work is difficult to read.
   (d) Joyce is difficult to work with.

If we say someone is “difficult”, how is this difficulty manifested? An undergraduate student of English who utters (3a) is likely to be implying (3c): James Joyce’s major works involve a fractured narrative structure, idiosyncratic vocabulary and syntax, unclarity as to which characters are speaking in a conversation or entertaining particular thoughts, as well as demanding a detailed knowledge of episodes of Irish history, the Dublin literary scene of the early C20, and so on. On the other hand, Joyce’s agent or publisher might well utter the same sentence with the implication that (3d) holds: Joyce can never meet a deadline; when sent galley proofs to check, he will instead insert copious amounts of new material in barely legible handwriting, etc.

Of course Brandom does acknowledge that all participants in a conversation will bring their own bundles of pre-existing collateral commitments, which will not wholly mesh together. But he does not, as far as I know, consider the ways these commitments can be shaped by membership of particular ethnic, national, gendered, professional etc groupings. So his definition of validity in terms of invariance under substitution perhaps also needs to be extended to invariance across speakers and contexts.

4.2 Context dependence of logical vocabulary

Logical expressivism seems to promise that we can isolate uses of terms like if, not, and, or, all/every, must, may, and so on which obey e.g. Natural Deduction introduction and elimination rules, DeMorgan’s Laws or syllogistic inferences regardless of any substitution of nonlogical for nonlogical vocabulary.

This section approaches the issue from two directions. On the one hand, we investigate whether it is in fact possible to identify formally valid inference patterns in natural language according to Brandom’s substitution method; it turns out that with some ingenuity, counter-examples can be constructed that invalidate a variety of inferences which appear materially good on first inspection. On the other, we discuss whether the types of inferences licensed by Natural Deduction etc are actually manifest in NL, using connectives which are commonly associated with Boolean operations.
\(\wedge\text{-}\text{Introduction}\; \phi, \psi \vdash \phi \wedge \psi\)

\(\wedge\text{-}\text{Elimination}\; \phi \wedge \psi \vdash \phi; \phi \wedge \psi \vdash \psi\)

\(\lor\text{-}\text{Introduction}\; \phi \vdash \phi \lor \psi\)

Both strategies are concerned with the question of whether there really is a route from natural language discourse to at least some of the commonly accepted inference rules for formal logics, without the digression of constructing and stipulating interpretations for artificial formal languages.

### 4.2.1 And

Well-known issues involve non-intersective adjectives: while (4b-4f) can all be inferred from (4a), the same does not hold for (5) with the non-logical term ‘brilliant’ substituted for ’Irish’, which implies that the inferences in (4) are not all formally valid.

4. (a) Joyce is an Irish author and a father.
   (b) Joyce is Irish and Joyce is an author.
   (c) Joyce is Irish.
   (d) Joyce is an author.
   (e) Joyce is a father.
   (f) Joyce is an Irish father.

5. (a) Joyce is a brilliant writer and a father.
   (b) Joyce is brilliant and Joyce is a writer.
   (c) Joyce is brilliant.
   (d) Joyce is a writer.
   (e) Joyce is a father.
   (f) *Joyce is a brilliant father.

(Kamp, 2004) assumes the following classification of adjectives:

**predicative:** If every \(N_1\) is an \(N_2\), then every \(AN_1\) is an \(AN_2\). Examples: *fourlegged, superconductive.*

**privative:** No \(AN\) is an \(N\): *fake, false, former(?)*

**affirmative:** Every \(AN\) is an \(N\): *big, pink, clever*

\(^4\)Though arguably, if a past US President becomes president of a university, they are both a president and a former president.
extensional: Every AN is A: red, female … “Clearly, all predicative adjectives are extensional. Non-extensional adjectives are, for example, affectionate and skillful” (op cit: 543).

Clearly, goodness of material inference under substitution of nonlogical terms depends on selecting adjectives from the appropriate class, rather than freely substituting nonlogical vocabulary. So the inferences in (4) go through because Irish is treated as extensional, while (5) fails because brilliant is not. We should note that Kamp carefully qualifies these distinctions with the phrase “in an interpretation”: adjectives need not manifest the same behaviour in all contexts. In fact it is debatable whether any adjectives are truly extensional: e.g., colour terms are highly context-dependent - compare white paper, white wine, white coffee, white rhino, while Posner (2004, p. 640) reports that the same colour can be called rot “red” or braun “brown” in German, depending whether it occurs on a cotton coat or a plastic wall respectively.

Inferences under conjunction

Conjunction in ordinary English typically licenses various inferences which are not reducible to the accepted truth-functional definition (examples in (6) and (7) adapted from (Posner, 2004)).

Successivity

There is a strong implication that conjoined sentences narrate events in the order of occurrence: so (6c) implies (6e) while (6d) implies (6f). Neither (6e) nor (6f) can safely be inferred from commitment to (6a) and (6b) separately.

6. (a) Annie married Peter.
   (b) Annie had a baby.
   (c) Annie married Peter and had a baby.
   (d) Annie had a baby and married Peter.
   (e) Annie had a baby after she married Peter.
   (f) Annie married Peter after she had a baby.

Connexity

There is an implication that conjoined sentences relate to the same situation. So (7d) is felt to imply (7f) while (7e) implies (7g). It would be uncooperative to utter either (7d) or (7e) if one is committed to all of (7a-c).

7. (a) The door is open.
   (b) The window is open.
   (c) There is a draught.
   (d) The door is open and there is a draught.
(e) The window is open and there is a draught.

(f) There is a draught from the open door.

(g) There is a draught from the open window.

Note that these implications are cancellable: one may say for example, “Annie married Peter and had a baby, but not in that order”, or “The door is open and there is a draught, but it’s not from the door”.

When and behaves like ✹

Examples below are taken from the SNLI and MultiNLI corpora (Bowman et al., 2015; Williams, Nangia, and Bowman, 2017). These corpora were constructed to support the development of techniques for recognising entailments in NL text, providing a copious variety of inferentially linked sentence-pairs based on corpus data and incorporating native speaker judgments. Both corpora include instances of NL text that were originally constructed for other purposes (referred to below as premises), and each example was given to participants who were asked to produce new sentences which were entailed or contradicted by, or merely compatible with the original example (referred to as conclusions). Instructions were given in non-technical language: participants were asked to say whether their sentence was definitely correct, might be correct or was definitely incorrect in the specified context. The data thus allows insight into informal everyday inference with minimal contamination from expert ideas about entailment, deduction or what have you. In particular, this somewhat ecumenical treatment shows that naive informants are prepared to treat non-declarative utterances as premises in an inference, pace Belnap (1990). Subjects seem to have interpreted the instructions differently; some have effectively given a paraphrase of the original rather than an entailment. Some examples appear to be incorrect, illustrating the fact that decontextualised inferential reasoning doesn’t always come naturally – especially when it involves negation:

1. (a) “All non-urban areas are rural.”
   (b) “If an area isn’t non-urban it is rural.”

The SNLI corpus consisted entirely of descriptive captions for photos on the Flickr website, while MultiNLI uses written and transcribed material from a variety of genres. The material is provided in plain text, JSON and parsed variants.

The examples discussed in this section were obtained by writing a Python script to extract sentence pairs with the following characteristics:

- The pair is flagged as ‘entailment’
- The premises do not contain the word ‘if’

Belnap calls the assumption that all utterances share a cluster of properties, including the potential to act as premises for inference, the “Declarative Fallacy”
• The premises may consist of two or more clauses (as a rough and ready test, we looked for the word \textit{and})

• The conclusion begins with 'If'.

A selection were manually extracted for discussion in this paper. It was hoped that this would furnish instances of the introduction of logical vocabulary to form a conditional where the premise contains inferentially linked conjuncts, and this hope was satisfied to an extent. However there is a key difference in that while Brandom envisages conditionals as arising within a purely assertional practice, many of our examples consist of an imperative followed by an assertion, which is interpreted as entailing a conditional: \( \text{Do } X \text{ and } Y \rightarrow \text{If(Done } X \text{) then } Y \). Importantly, these constructions are not necessarily interpreted as entailing either of the conjuncts independently, as might be expected via \&-Elimination: e.g., the speaker of (3) is probably not advising the hearer to sneeze or develop a fever.

2. (a) 'Get individuals to invest their time and the funding will follow.'
   (b) 'If individuals will invest their time, funding will come along, too.'
   (c) 'entailment'

3. (a) 'Sneeze in the middle of the night and your Edokko neighbor will demand the next morning that you take better care of yourself; stay home with a fever and she will be over by noon with a bowl of soup.'
   (b) 'If you develop a fever which results in you staying home, your Edokko neighbor will arrive by midday with soup.'
   (c) 'entailment'

4. (a) 'Truce. You stop this train, everyone lives.'
   (b) 'If you stop this train everyone will live.'
   (c) 'entailment'

5. (a) "it's it's so easy to get caught up on reading just for your work or you know self improvement and you kind of forget the fun of reading"
   (b) "If you’re mostly reading for work, you can forget that reading can be fun, too. ”
   (c) 'entailment'

6. (a) "oh yeah suppose uh well you know they they had a group who were construction oriented and they went and they they built uh can’t think of a good example a swimming pool or anything you know and one you can you can only build it in one place you know and know matter where you build it somebody else is going to scream well you didn’t build one over here"
   (b) 'If a pool is built in one location, there may be some arguing because everyone wants the pool near them.'
   (c) 'entailment'
Literary examples and proverbs

7. (a) Use every man after his desert, and who should 'scape whipping? (*Hamlet*)
    (b) If you treated everyone as they deserved . . .

8. (a) Feed a cold and starve a fever.
    (b) If someone with a cold is well fed, this will starve the fever (prevent it from developing).

The reader may consider that I am using the term ‘entailment’ rather loosely in talking about the entailments of an imperative. Without committing to a precise technical definition, I think it is instructive to isolate and compare cases where to utter *Do X and Y* is to tell or advise the hearer to do X and those where it is not, and we will return to this in section 5.

4.2.2 Or

When *or* behaves (somewhat) like \(\land\)

Jennings (2004) discusses this connective at some length and contends that it does not typically behave like truth-functional disjunction, even in the context of selected examples from logic books. For instance, he argues that *or* in example (9), attributed to Patrick Suppes, is not a case of exclusive disjunction as Suppes maintains:

9. Father to child: “You may go to the movies or you may go to the circus this Saturday but not both”. (op cit, p. 665)

This is not a disjunction because the child may legitimately infer that they have permission to go to the movies, and that they have permission to go to the circus. However, the truth-functional definition of XOR does not licence \(P \text{ XOR } Q \vdash Q\), or \(P \text{ XOR } Q \vdash P\). The meaning of (9) can be more accurately captured as: \(\text{MAY(movies AND NOT circus)} \land \text{MAY(circus AND NOT movies)}\), where there is no disjunction in sight. Jennings (Jennings, 2004, p. 671) claims that “All the connective vocabulary of any natural language has descended from logical vocabulary” e.g. *or* from OE *oþer* “other”, *but* from OE *butan* “outside”, while “much of the vocabulary retains residual nonlogical . . . uses (*since*, *then*, *therefore*, . . . )”. While Brandom’s story of logical vocabulary being introduced into a language lacking such terms is not to be taken too literally, it may well be the case that a class of lexical terms have acquired logical uses in the course of a language’s history but a residue persists of non-logical uses.

Interrogative use of *or*

Belnap (1990) offers the following example:

10. Is it declaratives or interrogatives that have inverted word order?

He considers it “obvious” that this is not a simple yes/no question, but that the connective *or* is “working interrogatively to determine what is to count as a possible answer”.

18
4.2.3 If/then

We would like to think that a simple conditional “P if Q” will always imply “If Q then P”, but it’s not so simple as Lakoff showed in his paper on “Natural Logic” (Lakoff, 1970):

11. (a) I think Sam will smoke pot, if he can get it cheap.
    (b) If he can get it cheap, then I think Sam will smoke pot.
12. (a) I realize that Sam will smoke pot, if he can get it cheap.
    (b) *If he can get it cheap, then I realize that Sam will smoke pot.

(The reader may object that this is not a simple conditional, but the conditional occurs as the complement of an attitudinal verb. Nevertheless the fact remains that what is a good inference in one case is turned into a bad one simply by switching the attitudinal verb.)

4.2.4 Modality and Negation

We would expect to treat inferences of the form Must P if Q implies May not Q if not P as formally valid. However:

13. (a) Shoes must be worn in the library.
    (b) You may not use the library if you are not wearing shoes.
14. (a) Dogs must be carried on the escalator.
    (b) *You may not use the escalator if you are not carrying dogs.

Clearly, the distinction relies on cultural knowledge about expected behaviour in different contexts.

4.2.5 Quantification and compound nouns

15. (a) All horses are animals. So, all horse tails are animal tails. (De Morgan, quoted by van Benthem (2007)).
    (b) *All horses are animals. So, all horse boxes are animal boxes.
    (c) All dogs are animals. So, all dog coats are animal coats.
    (d) *All minks are animals. So, all mink coats are animal coats.

According to van Benthem, example (15a) was routinely presented to Dutch logic students in the 1960s as part of their initiation into the predicate calculus. The inference (15b) fails, I contend, because a horse box is not the same kind of thing as an animal box: the former is not a box at all, but a van-type vehicle for transporting horses, while the latter is a box of treats for pet animals

\textit{pot}: cannabis (archaic).
such as “toys, accessories and hygiene products” (https://animalbox.co/en) or perhaps a small container for carrying pets. Likewise (15d) fails if we read “animals coats” in a natural way as “coats for animals” as in the unobjectionable (15c): the natural reading of “mink coat” is of course a coat made from the pelts of minks.

Bauer (Bauer and Tarasova, 2013) discusses nominal compounds, using the following classification from (Levi, 1978):

16. N1 CAUSE N2 sex scandal, withdrawal symptom
   N2 CAUSE N1 tear gas, shock news
   N1 HAVE N2 lemon peel, school gate
   N2 HAVE N1 camera phone, picture book
   N1 MAKE N2 court order,
   N2 MAKE N1 computer industry, silk worm
   N2 USE N1 steam iron, wind farm
   N2 BE N1 island state, soldier ant
   N2 IN N1 field mouse, letter bomb
   N2 FOR N1 arms budget, steak knife, machine oil
   N2 FROM N1 business profit, olive oil
   N2 ABOUT N1 tax law, love letter, business news

Bauer’s discussion exclusively concerns endocentric compounds: that is, every N1 N2 is an N2. So while horse tails, animal tails, mink coats are endocentric, horse boxes are not, which may account for the failure of (15b). And while animal coat, dog coat are instances of N2 FOR N1, mink coat is a case of N2 FROM N1, and thus (15d) is blocked. As with the different types of adjectives mentioned in section 4.2.1, material goodness of inference can only be preserved under inference if substituted items are limited to an appropriate class; a difficulty is that these associations are often idiomatic and idiosyncratic and can’t be reliably predicted from the content of the two nouns on their own.

4.3 Saving expressivism?

To summarise: in this section we have considered various examples which appear to challenge the notion that logical connectives can be extracted from natural language practice by identifying invariant uses under substitution of the accompanying non-logical vocabulary, owing to the pervasive influence of linguistic and non-linguistic context on the behaviour of lexical items including even “logical” terms. Pinning down ‘invariant’ uses would require quite a fine-grained tracking of context involving appropriate classification of adjectives, nominal modifiers and so on in terms of the inferences they license. Presumably Brandom is already committed to some such restrictions on substitution of non-logical vocabulary to the extent that substitution should involve words of the same syntactic category, otherwise it would be simple to turn good inferences into gibberish. But this move already exposes him to Kremer’s charge of circularity, which would only gain greater force if extended to cover the distinctions between such phrases as olive oil and machine oil. The evidence above suggests that when we look closely at the behaviour
of so-called ‘logical’ connectives, we do not find uses which are invariant under substitution but rather, clusters of evolving micro-practices associated with the use of particular items and constructions. In the next section I investigate one of these practices, proposing a non-standard account of commands and commitments which may offer a plausible model for the conditional sense of complex imperatives.

5 Commands, commitments and conditionals

5.1 A closer look at complex imperatives

It is a constant refrain in Brandom’s work that language games (or autonomous discursive practices, ADPs) must include “practices of giving and asking for reasons, because assertions, the most basic kinds of sayings, must be capable of both serving as and standing in need of reasons” (Brandom, 2008, p. 43). (Although in fact Brandom’s basic assertional practice does not appear to provide a means of asking for reasons, as noted above.) Another kind of saying or discursive practice which can lead to demands for reasons is giving commands or orders; thus it seems desirable that any practice which includes commands should also include assertions. The MultiNLI corpus includes numerous examples where the premise consists of a command followed by an assertion which can be construed as immediately giving a reason to follow the command:

17. (a) “Walk through the gateway and you’ll find yourself in an immense open space the largest temple courtyard in the country.”
(b) 'If you walk through the gate, you will be in the largest temple courtyard in the country.'
(c) 'entailment'

Many of these kind of examples, which are quite common in the corpus, can be interpreted as entailing the first conjunct, in contrast to some examples we considered above: the speaker of (17) does appear to be advising the hearer to walk through the gateway. The second conjunct is arguably also entailed if we treat this as a kind of dynamic conjunction: the assertion is claimed to be correct or licit in the context created by executing the command. Note that adding commands to an assertional practice introduces the notion of a hypothetical (irrealis) state of affairs, since it is clearly desirable that we can envisage and reason about the expected consequences of following a command. The second conjunct thus has the dual role of describing the consequences of executing the command, and giving a reason to do so. Interpreting the sentence in this way thus involves conditional reasoning, although no explicit conditional construction is present.

These constructions are known in the literature as pseudo-imperatives (Fox, 2015), which have the sense of conditionals rather than actual commands or instructions. However, we can identify a subclass which function as genuine imperatives, as noted above: the speaker is in fact instructing or advising the hearer to do something. I will dub these cases as complex imperatives, to be distinguished from pseudo-imperatives, and will suggest that they be treated as a basic form

[7] Assuming the permissive notion of “entailment” discussed above.
from which the latter derive. The effect of a complex imperative is to utter a command, request or suggestion and immediately give some reason for executing it, as if anticipating a query or objection from the addressee. Thus they can be seen to encapsulate Brandom’s Sellarsian notion of discourse as a game of giving and asking for reasons. This is in the spirit of Kibble (2007), where it was proposed that discourse structure could be analysed as the outcome of an “inner dialogue”, where the speaker pre-empts or anticipates such demands for reasons. For instance, a dialogue like (18) could be collapsed into a monologue (19) if the speaker anticipates their interlocutor’s contributions at (18b,18d). The resulting monologue (19 has been marked up with RST relations (Mann and Taboada, 1987; Taboada and Mann, 2006):

18. (a) A: You should take an umbrella.
   (b) B: Why?
   (c) A: It’s going to rain.
   (d) B: It doesn’t look like rain. It’s sunny.
   (e) A: I heard it on the BBC.

19. **Motivate**

   **Nucleus** You should take an umbrella

   **Satellite**

   **Evidence**

   **Nucleus**

   **Concession**

   **Nucleus** It’s going to rain

   **Satellite** even though it looks sunny

   **Satellite** I heard it on the BBC

My conjecture is that pseudo-imperatives may have originated as genuine (complex) imperatives, which sought to forestall the hearer’s challenge or clarification request, and were subsequently generalised to conditional uses where the command is not separately entailed by the conjunction. Logical vocabulary makes this conditional sense explicit, and thus avoids commitment to the command on its own. So we can broadly trace this development in terms of the following augmentations to a purely assertional practice:

1. Introduce *commands* which have the effect of adding to the hearer’s *commitments*;
2. Introduce a practice of *challenging* commands, i.e. demanding *reasons*;
3. Introduce a practice of following commands with some justification, pre-empting challenges;
4. Introduce logical vocabulary which expresses the conditional implied by complex imperatives;
5. Eventually the conditional sense becomes primary, and is read back into the original construction.

This will be spelled out in terms of schematic dialogue acts, commitments and entitlements in the remainder of this section.

5.2 Specifying dialogue acts

This section outlines elements of a formal account of the dialogue phenomena that we have discussed from a more intuitive point of view. As a preliminary, we consider how *imperatives* may be handled in a Brandomian framework. Although Brandom posits a purely assertional practice as an ADP which one could carry out if one performed no other discursive practices, it is unlikely that this would suffice to maintain any kind of social interaction. It is well known that to imagine a language is to imagine a form of life (Wittgenstein, 1971), and it is hard to imagine a form of social life which does not involve agents telling or asking other agents to do things. So I would maintain that a minimal discursive practice must include imperatives or commands in addition to assertions. As noted above, Belnap (1990) persuasively challenges the notion that declaratives play a more fundamental role than imperatives or interrogatives.

The framework will be based on the following assumptions, adapted from (Kibble, 2006):

1. For an agent $A_i$ to *assert* or *pledge* $\phi$ is to acknowledge commitment to $\phi$; other agents may also attribute consequential commitments to $A_i$ on the basis of prior commitments. For an agent $A_i$ to *command* agent $A_j$ to bring it about that $\phi$. These acts differ in the way agents may claim *entitlement* to commitments: an assertion of $\phi$ will typically be supported by offering evidence for $\phi$, while a pledge or command calls for an action or deed that brings $\phi$ about. However, other variations are possible: if an agent has asserted $\phi$ and turns out to be mistaken, it may be in their interest to act to bring $\phi$ about; while an agent who has pledged $\phi$ may subsequently find that $\phi$ has independently come about and so they can claim entitlement without taking further action.

2. Agents play one of three (dynamically assigned) roles at any given point in a dialogue: **Speaker, Addressee, Hearer** (not directly addressed).

3. Each agent $A_n$ in a dialogue keeps a score of commitments and entitlements for every participant $A_i$ including itself, as follows:

   $C_{Ack}(A_i)$ Commitments $A_i$ acknowledges.

   $C_{Attr}(A_i)$ Commitments $A_n$ attributes to $A_i$ (including consequential commitments derived via “material implication”).

   $E_{Attr}(A_i)$ Entitlements $A_n$ attributes to $A_i$.

---

8This seems to correspond to Belnap’s *stit* (for “see to it that”) operator (Belnap, 1990)
Where \( i = n \), the scoreboard includes agent \( A_n \)'s self-attributed commitments, the closest thing to private beliefs in this framework.

4. Commitments and entitlements are stored as labelled formulas \( L:\phi \) where the label records a (possibly empty) set of justifications or warrants for this deontic status (cf (Walton, 1999; Chesnevar and Simari, 2005)). It is important to keep track of not only what agents are committed and entitled to, but how.

5. When calculating consequential commitments and entitlements, scorekeepers consult a set of background assumptions or auxiliary hypotheses \( \Sigma \). These may vary from one scorekeeper to another and the consequential attributions will vary accordingly.

5.3 Interactions

The full framework, to be outlined in a future paper, will include specifications for the following interactions among others: assert, endorse, challenge, respond, retract, pledge, deed. Informal specifications for these acts are given below. In what follows \( \text{Sp} = \text{speaker}, \text{Ad} = \text{Addressee}, \text{Hs} = \text{Hearers}. \)

assert(\text{Sp}, \phi, \text{Ad}, \text{Hs}) publicly undertake commitment to justify a propositional claim \( \phi \). This is recorded in the commitment store as \( \{\text{asserted}(A_i, \phi) : \phi \} \) where \( A_i \) is the Speaker.

pledge(\text{Sp}, \phi, \text{Ad}, \text{Hs}) publicly undertake commitment to the proposition \( \phi \). This is recorded in the commitment store as \( \{\text{pledged}(A_i, \phi) : \phi \} \) where \( A_i \) is the Speaker.

command(\text{Sp}, \phi, \text{Ad}, \text{Hs}) publicly bestow a commitment to the proposition \( \phi \) on Addressee. This is recorded in Addressee’s commitment store as \( \{\text{commanded}(A_i, \phi) : \phi \} \) where \( A_i \) is the Speaker.

challenge(\text{Sp}, \phi, \psi, \text{Ad}, \text{Hs}) require \text{Ad} to justify or abandon a commitment to \( \phi \) or a challenge to \text{Sp}’s commitments. \( \psi \) (optional) is a claim which is meant to be incompatible with \( \phi \).

respond(\text{Sp}, \text{challenge(Ad, \phi, \psi, Sp, Hs)}, \chi, \text{Ad}, \text{Hs}) publicly commit to a proposition \( \chi \) which supports the challenged proposition \( \phi \) and rebuts the challenger’s counter-commitment \( \psi \) if present, or the argument that \( \psi \) itself rebuts \( \phi \).

retract(\text{Sp}, \phi, \text{Ad}, \text{Hs}) publicly disavow commitment to \( \phi \).

deed(\text{Sp}, \phi, \text{Ad}, \text{Hs}) Perform an action which entitles \text{Sp} to a commitment that has been made to \text{Ad}.  

24
5.4 From complex imperatives to conditionals

Consider again examples of the form \( \text{Do } \phi, \text{ and } \psi \). Our tentative analysis proceeds as follows:

1. \( \phi \) and \( \psi \) are added to Addressee’s commitments, but not necessarily entitlements. Speaker’s claim is that a deed that brings \( \phi \) about brings with it entitlements to both \( \phi \) and \( \psi \). These are recorded in the entitlement store as \( L : \phi, L' : \psi \) where \( L \subseteq L' \). That is: entitlement to \( \phi \) warrants entitlement to \( \psi \), while the agent may be entitled to \( \psi \) for independent reasons. Hence the subset relation.

2. Addressee may not be able to claim entitlement to \( \psi \) until after committing the \( \phi \) deed, whose consequences may take some time to manifest; unless as noted, there are independent warrants for \( \psi \).

3. We have now arrived at a conditional reading of the original sequence: if the agent does \( \phi \), then they are claimed to be entitled to commit to \( \psi \).

6 Conclusion

This paper has considered Brandom’s expressivist programme in some detail, against the background of Bourdieu’s practice theory and in confrontation with empirical data which attest to the actual use of logical connectives in everyday language, and concluded that it remains unproven. We have proposed a re-orientation of Brandom’s normative pragmatics which seeks to integrate practical-perceptual actions with discursive practice, and outlines a speculative origin story for conditionals as a routinisation of a family of micro-practices. Clearly much work remains to be done in fleshing out the details of this proposal, and extending this style of analysis to the behaviour of other so-called logical connectives which poses problems for a classic truth-functional analysis. We have also shown how the MultiNLI corpus provides a valuable resource for investigating “natural inference” as practised in everyday language, which may help to clarify the role of “material inference” in a Brandomian framework. So when Belnap (1990), for example, declares that imperatives cannot form the premises to an inference, he perhaps means that he can’t think of any examples - despite the wide range of ingenious and persuasive examples he offers in his important though under-valued paper.

Brandom reminds one of Goethe’s Faust, lamenting that two souls contend within his breast:\footnote{“Zwei Seelen wohnen, ach, in meiner Brust…”
In me there are two souls, alas and their
Division tears my life in two.
One loves the world, it clings to her…
The other longs to soar beyond the dust
Into the realm of high ancestral minds. (Faust part I, tr David Luke).}
the one clinging to everyday multivariable practice, the other seeking the clarity and consistency of logic, with the universalising requirements of expressivism, calculating consequential commitments and so on. Alternatively one may compare Brandom to his hero Hegel, whose early followers were divided between the Left Hegelians who focussed on the dialectical method and...
the Right Hegelians for whom the resulting system was what mattered (Engels, 1966). The argument in this paper suggests that these two souls or factions cannot be reconciled, and our overall stance could be described as “left-Brandomian”, tending towards a Wittgensteinian view of linguistic behaviour as a repertoire of evolving micro-practices (or language games). In this view, formal systems do not emerge transparently from quotidian practice but are constructed and stipulated for specific purposes. Everyday rationality is dialogical and bounded; the better or best among contestable arguments prevails rather than the One and the True. We maintain that this is firmly in the spirit of Brandom’s Sellarsian vision of language as game of giving and demanding reasons.

A  Examples from MultiNLI corpus

1. (a) ‘Get individuals to invest their time and the funding will follow.’
   (b) ‘If individuals will invest their time, funding will come along, too.’
   (c) ‘entailment’

2. (a) “it’s it’s so easy to get caught up on reading just for your work or you know self improvement and you kind of forget the fun of reading”
   (b) “If you’re mostly reading for work, you can forget that reading can be fun, too. ”
   (c) ‘entailment’

3. (a) “oh yeah suppose uh well you know they they had a group who were construction oriented and they went and they built uh can’t think of a good example a swimming pool or anything you know and one you can you can only build it in one place you know and know matter where you build it somebody else is going to scream well you didn’t build one over here”
   (b) ‘If a pool is built in one location, there may be some arguing because everyone wants the pool near them.’
   (c) ‘entailment’

4. (a) ‘Do begin again, and Prudie predicts 1999 will be your year.’
   (b) ‘If you start over again, Prudie insists that the year 1999 will be a lucky one for you.
   (c) ‘entailment’

5. (a) “Lucinda– Write a song about Pale Fire and he’s yours!”
   (b) “If you write a song about Pale Fire, he’s yours.”
   (c) ‘entailment’
6. (a) 'Ignore the proprieties or offend the pride of an Edokko and he will let you know about it, in no uncertain terms; respect his sense of values and you make a friend for life.’

(b) 'If you offend an Edokko, he will let you know that he is upset at you.’

(c) 'entailment’

7. (a) 'cut twelve people up into little bitty pieces and bury them in your back yard then are you can can you be helped you know i have i have my doubts you know’

(b) “If you cut people up and bury them in your backyard, I think you’re beyond helping.”

(c) 'entailment’

8. (a) “just stir that in and you’ve got a very colorful side another dish”

(b) 'If you want a colorful side dish, then stir that in.’

(c) 'entailment’

9. (a) 'they get into a wrong crowd first and then they start a drug problem’

(b) 'If you get into the wrong crowd then they start with the drugs.’

(c) 'entailment’

10. (a) 'Subtract the shock value, and what you have here is the salon painting of the 1990s.’

(b) 'If you minus the shock value, you have a salon painting from the 1990s.’

(c) 'entailment’

11. (a) 'Follow the N-332 a little farther to Vera, then take the road to Garrucha and the coast (the N-340 continues inland until Almeraa).’

(b) 'If you follow the N-332 a little longer, it will lead you to a road you can take to Garrucha and the coast.’

(c) 'entailment’

12. (a) 'Sneeze in the middle of the night and your Edokko neighbor will demand the next morning that you take better care of yourself; stay home with a fever and she will be over by noon with a bowl of soup.’

(b) 'If you develop a fever which results in you staying home, your Edokko neighbor will arrive by midday with soup.’

(c) 'entailment’

13. (a) “yeah scrape it and paint it put primer on it then paint it don’t put paint over else it’ll just continue rusting under it yeah”

(b) 'If you paint over it without scraping and putting primer, it will continue rusting underneath.’
14. (a) ‘Give them something to watch and remember and they will forget what you don’t want them to see,” said Jon.’
(b) ‘If you offer them an alternative, they will not remember anything else.’
(c) ‘entailment’

15. (a) 'Take a left turn here on the B6318 and after 6 km (4 miles) you will see the sign for Birdoswald.
(b) “If you travel for 6 kilometers after taking a left turn you’ll see the sign for Birdoswald.”
(c) ‘entailment’

16. (a) 'From here, the best idea is to backtrack along the main road towards Funchal, either heading inland to Pa??l da Serra or heading a bit farther east on your way toward Serra de ??gua and Sao Vicente.’
(b) “If you’re leaving from here, going back to Funchal is the best idea.”
(c) ‘entailment’

17. (a) “As for people you deal with regularly (like doormen, since you’re a Manhattanite), grease their palms once every several encounters, or else you’ll go crazy and broke.”
(b) “If you don’t grease the palms of people you deal with, you’ll go crazy and broke.”
(c) ‘entailment’

18. (a) 'You must join the masses traveling the streets and freeways to get the feel of the place.’
(b) ‘If you travel the streets, you see what the place is like.’
(c) ‘entailment’

19. (a) 'These people simply decided a man was well and ordered him out.’
(b) ‘If the people decided a man was well, they ordered him to leave.’
(c) ‘entailment’

20. (a) “Walk through the gateway and you’ll find yourself in an immense open space the largest temple courtyard in the country.”
(b) ‘If you walk through the gate, you will be in the largest temple courtyard in the country.’
(c) ‘entailment’

21. (a) “As I said, get me to Sydney, get me to the opening ceremony and the torch and the hymns, and I’ll be fine.”
22. (a) 'Get the properties and you can go right ahead!’ Dr. Hall found his voice.
(b) 'If the person Dr. Hall is speaking to gets what they need they can go right ahead.'
(c) 'entailment'

23. (a) “Click Nobel Prize Internet Archive Hayek Page, and you’ll find yourself .”
(b) 'If you click the Nobel Prize Internet Archive...'
(c) 'entailment'

24. (a) “Respond in kind and you’ll soon feel at home.”
(b) “If you treat them similarly you’ll feel right at home in no time.”
(c) 'entailment'

25. (a) 'More fathers need to buckle down on the home front, which would improve the attitude and motivation of mothers too.'
(b) 'If fathers buckle down on the home front, mothers will be motivated.'
(c) 'entailment'

26. (a)
(b) 'Pay us for that with your service, and that new life will be truly precious.'
(c) 'If they help the others with their work, they will be much better in their life.'
(d) 'entailment'

27. (a) "Someone once said, 'Get a job you love, and you'll never work a day in your life,' Zucker said."
(b) "If you like what you do, you’ll never think of it as a job."
(c) 'entailment'
References


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