Modality and argumentative discourse relations: a study of the Italian necessity modal dovere.

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Abstract:

The paper presents a context-dependent relational analysis of two constructions of the Italian necessity modal dovere (‘must’) associated with an epistemic interpretation. The two constructions DEVE_{E} and DOVREBBE_{E}, based respectively on the indicative and the conditional mood, are examined as signals of argumentative discourse relations exploiting evidence from a journalistic corpus. The analysis, drawing from the theory of relative modality, shows that the context-dependent semantics of the modal construction is intimately tied to their functioning as markers of argumentative relations in discourse, and that subtle differences in discourse functioning can be accounted in terms of different underlying processes of meaning construction. The paper also shows that understanding the connection between modal meanings and argumentative discourse relations requires a clarification of the relationships that argumentation entertains with causality, on the one hand, and with evidentiality on the other.

Keywords: modality, Italian, discourse relation, argumentation, context-dependency, evidentiality

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Bio-note:

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1. Modal context-dependency and discourse relations

A number of context-dependent semantic accounts of modal expressions have been developed in order to cope with the striking polyfunctionality they manifest in many languages. The theory of relative modality developed by Angelika Kratzer (1981) is one of the best known and most influential. The central idea of this theory is that the modals are relational predicates of the form \( M(B, p) \). They take two arguments: the propositional content in their scope – the prejacent proposition \( p \) – and a set of propositions, called the conversational background \( B \). Modal expressions of necessity like Italian modal \textit{dovere} ‘must’ can be understood in terms of logical consequence of the prejacent from the conversational background, while possibility expressions such as the modal \textit{potere} ‘can, may’ are to be conceived in terms of logical compatibility between the prejacent and the background:

\[ Dovere \text{ ‘must’} (B, p) : p \text{ is a logical consequence of } B \text{ (henceforth, symbolically: } B \text{ ã } p) ; \]

\[ Potere \text{ ‘can’/ ‘may’} (B, p) : p \text{ is logically compatible with } B \text{ (symbolically: } B \text{ ◊ } p). \]

Assuming a possible world reading of logical consequence, saying that \( p \) is a logical consequence of \( B \) is equivalent to saying that \( p \) holds true in all the alternative worlds or situations where the propositions of the set \( B \) are true. While, in the case of logical compatibility, \( p \) will be true in at least one of the worlds or situations where the propositions of \( B \) are true. The obvious advantage of this kind of approach is that the variety of modal “flavors” results from an invariant modal force and a variety of conversational backgrounds reconstructed in the context of utterance.

(1) I rifiuti solidi urbani – secondo il piano del Governatore Vendola – dovranno [dovere.IND.FUT.3PL] essere riciclati al 55% entro il 2010 […] (Il Sole 24 Ore, April 14, doc. 64)

‘Urban solid waste – according to Governor Vendola’s plan – will have to be recycled to 55% by 2010.’

Example (1), for instance, selects a very restricted deontic \( B \), identified with the governor’s plan and the prejacent \( p \) will be true in every possible future development of the world where the governor’s plan is fully and successfully implemented. By providing contextually situated meanings, relative modality addresses not only the choice between broad categories such as deontic, alethic and epistemic (Cf. Kronning 1996) but also the fact that a category such as \textit{deontic necessity} can be further

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1 I follow von Fintel (2006) in recovering this term introduced by medieval logicians.
2 The theory proposed by Kratzer, actually involves two main components: relative modality and ordering semantics. Here I will be using only the first component. Ordering semantics involves additional formal machinery providing a ranking of the worlds in which the propositions of \( B \) are true, on the basis of a second set of propositions called the ordering source. The ordering is aimed at deriving graded notions of modality – such as comparative probability – and at preserving the consistency of complex conversational backgrounds involving different kinds of propositions (e.g. facts and values). Graded modality will not concern us here. As for complex conversational backgrounds, I will assume that preservation of their consistency depends on the general pragmatic process of interpretation driving the saturation and is not part of the semantics of the modals.
3 Here I shall adopt the notational convention (borrowed from Geurts 1999: 185) of using the symbols ‘\( ã \)’ and ‘\( ◊ \)’ as two-place connectives, so that ‘\( p ã q \)’ reads ‘\( q \) is a logical consequence of \( p \)’ and ‘\( p ◊ q \)’ indicates logical compatibility between \( p \) and \( q \).
subdivided in an indefinite number of sub-types, relative to *moral values, desires, goals, interpersonal commitments, social norms, laws, plans,* and so on. The same could be said for *alethic necessities,* spanning the full range from *logical* and *physical* necessity, down to what is necessary in view of the internal or external circumstances of an agent, according to what kind of *factual* propositions are allowed in the B. Phrases like *according to the governor’s plan, in view of the law* etc. (Cf. Kratzer 1981: 44-46) can narrow down the contextual selection of the B, which remains nevertheless a “black-box”: we don’t know exactly what propositions make up the governor’s plan. In other contexts, however, propositions can be explicitly added to a B through a *conditional protasis* (*If he is a bachelor he must be unmarried*) or anaphorically recovered from the previous co-text (*He is a bachelor. He must be unmarried, then.*).

In fact, examining the interaction between the contextual saturation of the B and the propositions manifested in the preceding and following co-text can offer a promising strategy to study how modal meanings contribute to discourse coherence, in particular with respect to the signaling of *discourse relations* relating the utterance where the modal appears with utterances in the preceding or following co-text. It is this line of research that is pursued here, focusing on the modal *dovere* as a signal of *argumentative discourse relations.*

2. **DEVE\(_E\) vs. DOVREBB\(_E\)**

Let us examine the so-called *epistemic-evidential* readings that this modal can acquire in the *present, imperfect* and *remote past* tenses of the *indicative* mood and in the *present* of the *conditional* mood. Henceforth, I will call these two form-meaning pairings DEVE\(_E\) and DOVREBB\(_E\) respectively. I will later propose that these pairings have the status of constructions in the strong sense of construction grammars. As illustrated by (2.a) and (2.b), they can function as indicators of argumentative relations where the prejacent is presented by the speaker as a conclusion as *inferable from a set of premises* that the addressee is invited to supply, and which are at least in part recoverable from the co-text. It becomes natural to think that these propositions are anaphorically included in or added to the B of the modal:

(2.a) Il monte Hiei, tradotto da Antonietta Pastore (e purtroppo il suo impegnativo, accurato, lavoro *deve* aver subito l’intervento di qualche malaccorto redattore che ha fatto scempio di nomi e concetti letterari e del buddismo esoterico) è anch’esso un romanzo autobiografico.(Il Sole 24 Ore April 23 Doc. 18)

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4 The defining characteristic of an *alethic* B is that it only contains propositions that are true in the actual world \(w\). An alethic B is a set of facts in \(w\). Obviously, it may well not be the set of *all* facts in B it or even a very specific set. Kratzer (1981) calls these backgrounds *realistic*. Realism is a formal property and corresponds to axiom T in modal logic \((\Box \phi \rightarrow \phi)\) and to the property of *reflexivity* in possible world semantics.

5 The present paper substantially revises and complements my earlier analyses of Italian modal verbs, which appeared in Rocci (2005 a,b, 2006 and 2008).

6 The naming follows the more or less established convention in studies on modal verbs of using the third person singular form respectively of the present indicative (*deve*) and of the present conditional (*dovrebbe*).
‘Mount Hiei, translated by Antonietta Pastore (and unfortunately her hard, accurate work must have suffered the intervention of some clueless editor, who wrought havoc of names and concepts both literary and of esoteric Buddhism) also is an autobiographical novel.’

B U {‘Names and concepts of Buddhism etc. where messed up in the text’} □ ‘The hard work of A. Pastore suffered the intervention of some clueless editor’

(2.b) [...] Uno dei barometri più incerti sul futuro dell'espansione, a detta della stessa Fed, e proprio quello del settore immobiliare. L'aumento nelle vendite di nuove abitazioni in marzo rappresenta un parziale recupero dopo le flessioni subite nei due mesi precedenti, pari al 10,9% in febbraio e al 5,5% in gennaio. Ma il settore dovrebbe affievolire progressivamente la propria spinta sotto la pressione dei rincari dei mutui. Il Beige Book della Fed ha notato ieri un 'raffreddamento' nel mercato residenziale. (Il Sole-24 Ore, April 27, 2006, Doc. 84)

‘[...] One of the most uncertain barometers of future expansion, according to the Fed itself, is precisely the real estate sector. The increase in sales of new homes in March represents a partial recovery after the slump suffered in the past two months: 10.9% in February and 5.5% in January. But the sector should gradually weaken its impulse under the pressure of rises in mortgages. The Fed's Beige Book noted yesterday a 'cooling down' in the real estate market.’

B U {‘Mortgages prices raise’} □ ‘The real-estate sector gradually weakens’

In (2.a) the premise can be reconstructed from the relative clause (“who wrought havoc of names and concepts both literary and of esoteric Buddhism”), while in (2.b) a first premise is manifested within the clause by a complement featuring two connected nominalized eventualities (pressione and rincari). This micro-argument is closely linked with the larger discourse context. The conclusion introduced by DOVREBBBE_E contrasts, thanks to the connective ma ‘but, with the concessive counter-argument expressed in the preceding sentence (the temporary increase in house sales), and is further reinforced by the additional premise in the following sentence (the Fed says there are already signals of cooling down).

The analyses proposed, however, are not entirely satisfying. If we assume that the conversational background is epistemic – the known facts – the modality expressed would be one of certainty, while both DEVE_E and DOVREBBBE_E express inferences that are less than certain.

Furthermore DEVE_E and DOVREBBBE_E are in some respects very different, and most of the time cannot be substituted in a discourse passage without damaging discourse coherence, or at least radically altering the interpretation of the passage. In (2.a) substituting deve with dovrebbe would make the incidental remark totally incomprehensible unless we are willing to think that the conclusion that the editor was clueless has nothing to do with observing typos in the book, but is instead (strangely) derived by more general beliefs (e.g. Normally, editors are clueless). In (2.b) the substitution of dovrebbe with deve makes the weakening of the real-estate sector an inevitable consequence of rising mortgage prices, which, incidentally, makes the sentence inconsistent with the uncertainty and the contrary signals concessively reported in the previous sentence. Interestingly, the inevitability meaning taken by deve in the passage is not the strong probability meaning usually associated with DEVE_E.
3. A note on the corpus

Examples (2.a) and (2.b) and most of the examples used in this paper are extracted from a large journalistic corpus created for a research project entitled *Modality in argumentation. A semantico-argumentative study of predictions in Italian economic-financial newspapers* (Swiss National Foundation grant n° 100012-120740). The corpus collects one month of three Italian business newspapers (*Il Sole 24 Ore, Italia Oggi* and *MF/Milano Finanza*), contains approximately 4 million running words and counts 9,285 occurrences of the lexeme *dovere*.

Economic-financial news are oriented towards the investors’ need of evaluating investment opportunities. As a consequence, predictions of market developments play a central role in them (Rocci 2008b, Miecznikowski, Rocci and Zlatkova, 2010/In Press). These predictions are typically qualified by modals and accompanied by supporting arguments. They are often relative to conditional scenarios and routinely attributed by the journalist to sources, including financial experts, named or unnamed insiders and rumors. This bundle of pragmatic and semantic features makes this genre an attractive environment for studying the discourse functions of modality. As one could expect, however, this environment is not neutral as regards what kinds of modal markers are likely to occur. For reasons that will be soon clear, DOVREBBEE occurs frequently in financial news proper, while DEVEE is rare. While primarily devoted to economics and finance, the newspapers collected in the corpus have extensive sections devoted to politics, culture and other non-business news. It is largely from these sections of the newspapers that the collection of examples of *DEVEE* examined here comes from.

4. Constraints on causality in argumentative discourse relations

The divergent distribution observed in the corpus and the lack of mutual substitutability manifested in (2.a) and (2.b) are partly explained by a well known temporal-aspectual constraint on DEVEE: its prejacent cannot refer to a future state of affairs (Pietrandrea 2005, Rocci 2005)\(^7\). More precisely, its prejacent can be a *present state* (3.a), an *habitual* (3.b), or any kind of *past eventuality* (3.c). With present indicative *dovere*, non-stative eventualities shift the reference of the prejacent to the future and simultaneously block the possibility of an epistemic-evidential reading, as in (3.d), leaving open only *deontic* or *alethic* readings.

(3.a) Giovanni *deve conoscere* una scorciatoia. Perché è arrivato là prima di tutti.

‘Giovanni *must know* a shortcut. Because he arrived there before everybody else’.

(3.b) Giovanni *deve prendere* una scorciatoia. Perché, di solito, arriva là prima di tutti.

‘Giovanni *must take* a shortcut. Because he usually arrives there before everybody else’.

(3.c) Giovanni *dovette* prendere una scorciatoia. Perché arrivò là prima di tutti quel giorno.

\(^7\) For reasons of space here I do not discuss the ultimately temporal or aspectual nature of the constraint or whether it can be reduced to more general principles of interaction between modality and tense-aspect semantics. See Pietrandrea (2005: 133-186).
Arguably, Giovanni took a shortcut. Because he arrived there before everybody else that day.

(3.d) Giovanni non conosce la strada. *Deve perdersi.

‘Giovanni does not know the way. *He must get lost.’

It is impossible to interpret the second sentence in (3.d) as ‘I infer that he will get lost’. The only possible interpretations are a deontic one, which destroys discourse coherence, and, marginally, an alethic interpretation where the modal indicates an inevitable consequence of factual circumstances. The alethic interpretation would be made more easily accessible by accompanying the modal with harmonic adverbials like necessariamente ‘necessarily’ as it happens in (4):

(4) [...] i sindacati, che continuano in questa loro miope politica dello sciopero. Evento che deve necessariamente destabilizzare il complessivo aspetto logistico del trasporto locale, [...] (Italia Oggi, April 27, 2006, Doc. 155)

‘[Also] the trade unions are to blame, which continue in their short-sighted policy of the strike. An event that is necessarily going to destabilize the overall logistics of local transport,[…]’

Thus DEVE cannot express predictive inferences, a constraint that makes its rarity in economic-financial news something to be expected. DOVREBBE, is not subject to this constraint and not only can, but most of the times does have future preajecents, as in (5). Prediction is the typical use of DOVREBBE.

(5) La costanza con cui i fondi investono nel settore finisce per restringere notevolmente la disponibilità. Un fenomeno che si dovrebbe avvertire soprattutto sul mercato dell'argento quando sarà avviato l'Etf del gruppo Barclays. (Il Sole-24 Ore, April 20, 2006, Doc. 27).

‘The constancy with which funds invest in the sector ends up significantly restricting availability. A phenomenon should be felt especially on the silver market when the ETF [=Exchange-Traded Fund] of the Barclays group will be launched.’

On the other hand, DOVREBBE is subject to a different constraint, directly affecting the possibility of establishing argumentative discourse relations:

(6.a) Giovanni ha lavorato molto. Dovrebbe essere stanco.

‘John worked a lot. He should be tired’

(6.b) Giovanni è stanco. *Dovrebbe aver lavorato molto.

‘John is tired. He should have worked a lot’


‘He’s all red on his face. He should be out of his mind’.

As shown by examples (6.b) and (6.c), DOVREBBE cannot express argumentative discourse relations where the conclusion denotes an eventuality which is taken to be the cause of the eventuality denoted by the textually available premise. Let us call these occurrences arguments from the effect to the cause.
As shown by (6.a), DOVREBBE\textsubscript{E} is acceptable when the argument proceeds from the cause to the effect. In the corpus it is very easy to find examples, like (2.b) and (5) above, where the co-textual premises that saturate the B of DOVREBBE\textsubscript{E} are linked with the prejacent by what we might call economic causality. They are typical examples of a discourse about the economy – which would deserve in-depth semantic consideration by itself – where events in the markets are not seen as the result of human actions, but as quasi-natural events causally related in virtue of “economic laws”, which operate blindly\textsuperscript{8}.

In contrast, DEVE\textsubscript{E} is not subject to the causal constraint. Arguments from the effect to the cause like (7) seem particularly frequent, but arguments from the cause to the effect like (8) are also found in the corpus.


‘A strategic retreat before a new attack. The management of the Nasdaq must have found inspiration in the \textit{Art of War} by Sun Tzu for their strategy for conquering the London Stock Exchange (LSE). In late March, the company, which operates the American Stock Exchange of high-tech securities, has withdrawn its bid of 950 pence per share on LSA without much of an explanation. Yesterday the news that the Nasdaq owns a share of 14.99\% in the UK market-company.’

(8) E giudicare dalle plusvalenze e dai rendimenti ottenuti in questi ultimi tre anni, sembra che le scelte effettuate siano state azzeccate. Dunque, grande deve essere la soddisfazione tra i soci. (Sole 24 Ore April 8. Doc. 9).

‘And judging from the gains and efficiencies achieved in the last three years, it seems that the choices made were justified. So there must be great satisfaction among the shareholders.’

A similar constraint on causality was singled out by Rivière (1981) in a parallel analysis of French DOIT\textsubscript{E} vs. DEVRAIT\textsubscript{E} and English MUST\textsubscript{E} vs. SHOULD\textsubscript{E}. Rivière connects the constraint with a difference in modal force between must and should. For him inferences from cause to consequence are weaker and favour the weaker modal should, while those from consequence to cause are too strong to be compatible with should. The explanation seems unconvincing, at least for Italian dovere. There is no indication that inferences from the consequence to the cause with DEVE\textsubscript{E} are stronger than those where causality goes in the other direction. Quite the contrary: if we look at the corpus it is in these examples that DEVE\textsubscript{E} can express rather weak and highly subjective inferences, as it happens in (7).

\textsuperscript{8} This kind of discourse, of course, corresponds to the ontology and rhetoric of classical economics, as wittily pointed out by Searle (2005:1): “When I was an undergraduate in Oxford, we were taught economics almost as though it were a natural science. The subject matter of economics might be different from physics, but only in the way that the subject matter of chemistry or biology is different from physics. […] At no point was it ever suggested that the reality described by economic theory was dependent on human beliefs and other attitudes in a way that was totally unlike the reality described by physics or chemistry”.

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Discussing $DOIT_E$ vs. $DEVRAIT_E$, Dendale (1999) prefers to formulate a different constraint on the kind of premises admissible for the conditional modal: $DEVRAIT_E$ selects “in absentia premises”, that is “premises that the speaker does not gather at the moment of utterance, but he has previously collected, thus creating a temporal gap between them and the conclusion” (Dendale 1999: 21). Looking at the examples discussed by Dendale, it seems, in fact, that the notion of temporal gap is ambiguous between an ontological interpretation (= ‘the premises as facts precede temporally the conclusion’) and an epistemological interpretation (= ‘the premises as beliefs were acquired some time before the drawing of the inference’). The first interpretation is covered by the causal constraint. The second reading alludes to a feature of $DOIT_E$ and $DEV_E$ that is rather difficult to pinpoint precisely: their tendency to refer back to textual premises consisting of specific observable facts, often facts observed by the speaker close to the time and place coordinates of the utterance. As observed in Rocci (2005: 308-310), $DEV_E$ differs from the Italian epistemic future in that it is incompatible with inferences lacking a piece of specific evidence and based exclusively on what is generally to be expected (see also Squartini 2008 on generic vs. circumstantial inferences):

(9) A: Dov’è lo zucchero? B: Sarà nel solito posto.

B: ? Dev’essere nel solito posto.

B: Dovrebbe essere nel solito posto.

A: ‘Where’s the sugar?’ B: ‘It will/ ?must/ should be in the usual place’

As we can see in (9), with respect to the contrast between specific evidence and general expectation $DOVREBBE_E$ sides with the epistemic future. The different behaviour of $DEV_E$ and $DOVREBBE_E$ as markers of argumentative discourse relations can be accounted in terms of different underlying meaning construction processes through which these two “epistemic-inferential” readings are obtained. The analysis proposed here is inspired, in part, by an hypothesis put forth by Kronning (2001) on the difference between the “epistemic” interpretations of French $devoir$ in the indicative and in the conditional. For Kronning, epistemic $devrait$ is not directly related to the genuinely epistemic readings of $devoir$ in the indicative but represents an hypothetical version of a future-oriented non-epistemic reading of the modal. For Kronning, the “source” of $devrait$ is an alethic reading – similar to the one we observed in (4).

Here I adopt, in a revised form, the central idea of Kronning’s analysis, and I recast it in terms of the basic relative modality framework outlined in the first section of this paper. The result provides an insightful account of the constraints discussed above and of other features of the functioning of $DOVREBBE_E$ in argumentative discourse. Before I proceed, however, certain fundamental issues need to be clarified.

5. On the proper relation between argumentation, inferential evidentiality and causality.

I note, in passing, that with respect to causality and to several other relevant criteria, the epistemic future is much closer to $DEV_E$ than to $DOVREBBE_E$. 

8
The preceding sections introduced number of notions that remain in need of clarification, both as to what is their import generally and as to how they relate to each other. The notion of an argumentative discourse relation has been sketchily and unproblematically presented. The idea that in the literature DEVE_E and sometimes also DOVREBBE_E (or their counterparts in other Romance languages) are considered markers of inferential evidentiality was mentioned without commentary. And, finally, certain arguments (or inferences) have been labeled as from the cause to the effect or from the effect to the cause without any explanation of how argument and inference relate to causality.

5.1 Arguing, inference and causality

Theories of discourse coherence have often maintained that discourse relations can hold at different levels of discourse representation, for instance, distinguishing like RST between semantic, or “subject matter” relations and pragmatic, or “presentational”. To reduce the inventory of discourse relations, and to provide a monosemous semantics for polyfunctional discourse connectives it has also been proposed that the same relation, say consequence, can hold at the content level between cause and effect occurring in the world or at the epistemic level “between premise and conclusion in the speaker’s mind” (Sweetser 1990: 80) conferring to the relation “an argumentative or rhetorical force” (Knott 2001: 128).

(10.a) Bill was starving, so he had a sandwich.

(10.b) Bill had five sandwiches, so he must have been starving.

It has been observed by Snoeck-Henkemans (2001) that this either/or conception of discourse relations is not entirely satisfying from the viewpoint of argumentation analysis. The causal relation signalled in (10.a), for instance, can give rise either to a speech-act relation of explanation or to an argumentative one, while it still matters to look at the content-level relation underlying (10.b) to understand what kind of argument it is. Argument criticism, for instance, either by analysts or by dialogue participants often targets the content-level relations rather than the act of inference as such.

Here I propose to view argumentation as involving a cascade of relations holding simultaneously at the level of speech-acts, within the belief system of the participants, and “out there” in the world, where each layer supports (and is presupposed by) the higher layers.

Pragmatically, argumentation is a complex relational speech-act (Cf. van Eemeren & Grootendorst 2004) where the speaker (the arguer) puts forward a constellation of propositions p1 ... pn – the arguments or reasons – as an attempt to effect the reasonable acceptance of a standpoint q by the addressee (the critic). The standpoint is a proposition that is doubted by the critic, and therefore not part of the common ground. Not any attempt at effecting the acceptance of a proposition by the critic counts as argumentation – threats, seduction and other inducements do not. Arguments are appeals to

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10 Examples adapted from Knott (2001: 129).
reason, that is attempts at effecting the acceptance of the standpoint by making it follow inferentially from the propositions that are already part of the common ground.

This brings us to the epistemic level. As Pinto (1996: 168) puts it, argumentative speech acts are “invitations to inference” and as such they presuppose the inferrability of the standpoint from grounded arguments. The possibility of inferring the standpoint depends from the presence in the common ground both of a “material starting point” comprising concrete content premises and of a “procedural one” consisting of more abstract, rule-like premises, traditionally called maxims, warranting the inferential connection (Rigotti & Greco-Morasso 2010). It is with the maxims that we come to ontological relations holding in the world.

In the field of argumentation theory there is a considerable variety of approaches to the treatment of these rules, but it has generally seemed descriptively adequate to cast them in somewhat more concrete terms than pure logical forms, speaking of causal arguments, arguments from definition, symptomatic arguments, and so on. This leads to the question of what it means exactly that ordinary arguers infer their conclusions using relatively concrete relational predicates such as cause, definition or symptom.

Revisiting the Ancient and Medieval theories of topoi or loci, Rigotti and Greco-Morasso (2010) have proposed a model of argumentation where maxims are seen as premises that (a) warrant inference purely in virtue of their logical forms, and (b) originate as semantic entailments of a node (locus) in a commonsense ontology. For instance, the node, or locus, corresponding to the concept of cause in the commonsense ontology will license a maxim like If the cause is the case, the effect is too. As observed by Freeman (2005: 143-217), the conditional expressed by a causal maxim is intensional and uttered “against a background of interpretation” (Freeman 2005: 150) implicitly restricting the set of worlds where a certain kind of causality holds (e.g. for physical causality, all the worlds consistent with the laws of physics). Thus, without pretense of providing a fully accurate semantics for this intensional connective, I will represent it in terms of relative modality, using the connective (□) and adding the protasis (p) to a conversational background (B). Thus, the maxim for physical causality will look as follows:

\[ \text{CAUSE}_{\text{phys}} (p, q) \Rightarrow \{B_{\text{phys}} \cup p\} \square q \]

We can say that an argument is an argument from the cause to the effect when it tacitly invokes the above maxim as one of its premises. As for arguments from the effect to the cause, it seems doubtful, as observed by Rigotti and Greco-Morasso (2010), that a converse conditional should hold, at least generally, as an effect can be produced by different causes. This reasoning seems to be more complex: it uses the weaker relation between an effect and its possible cause in combination with other loci to deduce the cause (showing that it is the only possible cause), or more often to abduce it, showing that it is the one requiring the smallest weight of assumptions.

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11 The arguments put forth are either explicitly part of the common ground of follow inferentially from it.
5.2 Argumentative inference and evidentiality

In the account presented, above argumentative relations do not primarily concern the inferences “in the speaker’s mind”, but first of all, the inferences proposed to the addressee. The former are more closely related with the semantico-typological category of inferential evidentiality, understood as the linguistic signaling that an inference of the speaker is the source of knowledge of the propositional content of the utterance. Argumentation and inferential evidentiality can easily go together, but this is not necessary. Sometimes we have evidentiality without argumentation (when the private premises of the speaker are not made available to the hearer) and argumentation without evidentiality (when for the speaker the source of knowledge is not inference). Suppose I say to the police:

(11) **Non posso** aver rapinato una banca a Lugano il 10 settembre. Quel giorno ero a Lisbona per un congresso.
I couldn’t possibly rob a bank in Lugano on September 10. That day I was in Lisbon for a conference.

Here I am certainly trying to get the hearer to infer my innocence, but one cannot say that I am signaling that the source of *my own knowledge* of not having robbed a bank in Lugano is inferential. Interestingly, the impossibility expressed by the negated modal *potere* in (11) seems to be argumentatively relevant without signaling evidentiality. In the same context the evidential DEVE<sub>E</sub> would be felicitous only if we suppose an amnesiac speaker:

(12) ?? **Non devo** aver rapinato una banca a Lugano il 10 settembre. Quel giorno ero a Lisbona per un congresso.
?? I *must not* have robbed a bank in Lugano on September 10. That day I was in Lisbon for a conference.

6. Refining the hypothesis

The business newspaper corpus can provide interesting data relevant for testing and refining the hypothesis that DOVREBBE<sub>E</sub> is not directly related with DEVE<sub>E</sub> and represent an hypothetical version of a non-epistemic reading of the modal *dovere*. More precisely, according to Kronning’s hypothesis, DOVREBBE<sub>E</sub> should be an hypothetical version of an alethic modal. A number of examples of DOVREBBE<sub>E</sub> of the type of (13) lend credence to the hypothesis that the modal has indeed a conversational background consisting of particular facts, both physical and economic facts, and general statements of economic laws presupposing an underlying notion of economic causality.

(13) THAILANDIA. L’economia di questo paese è stata colpita duramente dagli effetti dello tsunami abbattutosi sulle sue coste nel dicembre del 2004 ma una ripresa *dovrebbe* registrarsi già a partire da quest’anno grazie al flusso di nuovi investimenti e al recupero dei consumi privati. Il piano di investimenti in infrastrutture metterà *tuttavia* alla prova la solidità delle istituzioni finanziarie, mentre la bilancia commerciale risente del rialzo del prezzo del petrolio e di un calo dei flussi turistici. (MF April 7, 2006, Doc. 8)

‘THAILAND. The economy of this country has been hit hard by the effects of the tsunami that hit its shores in December 2004 but a recovery *should* be observed as early as this year thanks to the flow of new investment and the recovery of private consumption. The plan for infrastructure investments, *however*, will test the soundness of financial institutions, while the trade balance is affected by the rising oil prices and a decline in tourism.’
In (13) the ‘flow of new investment’ and the ‘recovery of private consumption’ appear as good candidate propositions for an alethic conversational background causally supporting the prediction of economic recovery. As shown by the immediately following counterargument, these facts are insufficient to necessitate the conclusion: shaky financial institutions under stress, raising oil prices and declining tourism may still affect the outcome.

It has been often observed that forecasts issued by financial institutions, and, in general, predictions in economics are conditional in nature, valid as long as certain background assumptions hold, a feature which is reflected in the business news. Therefore, the unconditional examples of alethic *dovere* that represent the “source” are expected to be rare. It is nevertheless still possible to find examples where *dovere* does manifest an unconditional prediction based on economic circumstances:

(14) Giovedì si è passata per la prima volta in quattro anni la soglia del 5% per i tassi a dieci anni. La conseguenza più immediata di questo aumento ricade sui tassi per i mutui immobiliari. Chi aveva contratto mutui a tassi variabili - e sono stati in molti - si trova alla scadenza del primo periodo e *dovrà* rinegoziare tassi di 200 o 300 punti superiori a quelli di un paio di anni fa. Questo significa che una famiglia media con un mutuo di 400 mila dollari potrebbe trovarsi a dover pagare anche fino a mille dollari in più al mese.

‘On Tuesday the threshold of 5% for ten years interest rates was passed for the first time in four years. The most immediate consequence of this increase will fall on mortgage rates. Those who had subscribed adjustable-rate mortgages – and there are many – are at the end of the first period and will have to renegotiate rates of 200 or 300 points higher than a couple of years ago. This means that an average family with a loan of 400 thousand U.S. dollars could have to pay even up to a thousand dollars more a month.’

{‘Ten years interest rates have climbed over the 5% threshold’, ‘Those who had subscribed adjustable-rate mortgages are at the end of the first period’, ...} B-A □ ‘They renegotiate rates of 200 or 300 points higher than a couple of years ago’

However, not all examples of DOVREBBE_E found in the corpus correspond to a background of economic circumstances. A number of examples similar to (15) are also found:

(15) Stando a quanto emerso ieri nella riunione del cda Bnl, Bnp *sarebbe* orientata a lanciare la prossima settimana l'Opa, che *dovrebbe* concludersi tra il 15 e il 20 maggio. Secondo indiscrezioni la banca di Parigi *avrebbe* predisposto tutto per annunciare già stasera l'ok della Consob e i dettagli dell'operazione, con le date di inizio e di conclusione. (*Il Sole 24 Ore*, 13/4/2006)

‘According to what transpired from yesterday’s meeting of the board of BNL, BNP would be inclined to launch next week the takeover bid, to be completed between the 15th and 20th of May. According to rumors, the Paris bank prepared everything to announce this evening the OK of Consob and the details of the transaction, with the dates of commencement and conclusion.’

These examples seem to invoke a plan or some kind of schedule rather than any form of causality and may appear in close proximity with *reportive evidential* uses of the Italian conditional mood (the forms *sarebbe* and *avrebbe* in the example). At the same time they are closely matched by examples with *dovere* in the indicative, especially with the indicative future tense as in (16), which can also be used to refer to planned/scheduled events:
Kronning (2001: 256) discusses similar examples in French and concludes that they are alethic in nature and based on narrative scenarios to which the future is expected to conform: the prejacent p is true in all the worlds consistent with the scenario. The difference between the indicative and the conditional version is that the latter make explicit the “restricted” stereotypical nature of the universe defined by the scenario and envisage the possibility that the actual world may not belong to it. Moreover, Kronning (2001: 266) considers that the conditional morpheme of French DEVRAITE is never a reportive evidential.

Squartini (2004) examines similar examples in French and Italian, coming to a completely different conclusion. For Squartini, examples like (15) and (16) represent evidence of a reportive evidential reading of dovere / devoir, both in the conditional and in the indicative and call for a revision of the map of the evidential uses of Romance necessity modals. For Squartini (2004: 881), the difference between the indicative and conditional corresponds to a different degree of commitment to the factuality of what is reported.

Here I advance a third hypothesis which is consistent with the observed data and, at the same time, does not require particularly costly assumptions. The B invoked by dovere in examples like (1) is neither alethic (propositions that are facts in the world) nor reportive evidential (propositions asserted by another speaker), but rather deontic (propositions denoting norms, commitments or goals). Plans formulated by companies and other organizations denote strategic or tactical goals to which certain members are committed. At the same time, plans take the form written documents that can be used by external observers as sources of information. Thus, the deontic and the reportive do overlap in the journalist’s perspective. The deontic commitment remains however primary with respect to its use as evidence in a prediction by a third party. In examples such as (16) where inside information, including plans, is reported off-record by anonymous insiders the deontic modal of the plan is embedded in a reportive evidential conditional.

In conclusion, the basic conversational background of DOVREBBEE can be either alethic or deontic and the meaning of its conditional morpheme can be evidential or hypothetical. The following sections will give a more precise formulation to this analysis and explore some of its further consequences for the analysis of argumentative discourse relations.

7. The semantics of DEVE and DOVREBBEE

Here I finally propose a more explicit semantic analysis of DEVE and DOVREBBEE. While based on a context-dependent semantics inspired by relative modality, the analysis proposed here differs from basically monosemic treatments of modal verbs (e.g. Papafragou 2000) by postulating that, while all
readings of the modal dovere do share the same basic context-dependent relational core, certain broad classes of interpretations are also encoded in the language, conventionally associated with the presence of certain formal or semantic constraints. The approach sketched here can be qualified instructional and constructional. Modals are instructional linguistic units in the sense of Kay (2003): words and constructions that behave like “a virtual instruction to the addressee to examine the common ground of the conversation (along with other interpretive content of the sentence) to fill in some partially specified part of the intended interpretation”. The instructional aspect of modal meanings is not limited to simply setting up the variable B to saturate in context, but includes preferential paths that constrain the saturation, which are conventionally associated with certain formal and/or semantic restrictions. The conventionalization of preferential and marked paths of saturation for dovere can be conceived declaratively, in the spirit of construction grammars (Cf. Boogart 2009), as a set of constructions inheriting the basic context-dependent semantics of the modal and adding more specific, but still very abstract, presuppositions constraining the saturation of B.

In a recent major contribution Haquard (2010) proposed that the interpretations of the modals are to be construed as relative to an event that determines, among other things, the kind of conversational background selected by the modal. According to Haquard, the traditional distinction between epistemic and root modals can be reformulated in terms of the selection of the reference event: epistemics are relative to a speech or mental event, by default the utterance event, while root modals relate to the event denoted by the prejacent proposition. Haquard proposes a sophisticated analysis that relates the choice of the event to the higher or lower scope of the modal in the syntactic structure. It is not remotely possible here to do justice Haquard’s analysis. Yet, I will borrow the notion of event relativity and propose that a major difference in the saturation paths of the modals is represented by the kind of event taken as a reference point by the hearers in their search for the propositions making up the B.

7.1 DEVEE

Formally, the construction DEVEE is specified at the level of verbal morphology and is further specified by the temporal-aspectual semantic restriction on its infinitival complement. In this sense it represents a marked path of saturation of the modal. I propose that this construction is associated with the following semantics:

DEVEE (e, s, B, p):

Presuppositions:

a. e is a speech event
b. s is the speaker of e
c. B = BE \cup B_{Dox}
d. BE is a set of propositions corresponding to factual evidence available to s at the moment of e
e. B_{Dox} is a set of propositions corresponding to assumptions of s at the moment of e
f. p \notin B
g. p denotes an eventuality ep so that ep \leq e
According to the analysis presented above the conversational background of DEVEE is saturated deictically with respect to the speaker and the utterance event. The B combines two distinct sets of propositions that addressee is prompted to recover: the first (BE) is properly epistemic and contains factual evidence available to the speaker, the second (BDox) is doxastic and corresponds to a set of assumptions of the speaker at the moment of utterance, which the speaker might entertain with a variable degree of certainty. This enables to capture the fact that DEVEE is highly subjective referring to processes taking place in the mind of the speaker, yet anchored to the presence of specific external evidence, and that is compatible with relatively weak forms of assumption based abductive reasoning. Finally, the presupposition ‘\( p \notin B \)’ means that the prejacent proposition \( p \) is not already part of the evidence, nor of the assumptions of the speaker, that make up B, even if it is necessarily entailed by them. This is essential in accounting for the inferential-evidential nature of DEVEE and of its incompatibility with direct perceptual evidence. An evidential marker, DEVEE becomes argumentative when the inferential path of the speaker is made, to some extent, available to the hearer and the hearer is implicitly invited to follow it himself.

7.2 Root readings of dovere

The distinguishing feature of the root meanings of dovere, according to my reconstruction of Haquard’s proposal, is that the saturation of the B takes as reference point not the speech event but the eventuality denoted by the prejacent proposition. The choice of the propositions selected as B depends, in part, on the ontology of the event.

For natural events that do not involve human agents only factual circumstances causally necessitating the event tend to be relevant, so that a circumstantial alethic interpretation is easily obtained. When the event is a human action, the full ontology of action comes into play making relevant the efficient causes of the event – that is both the external and the internal circumstances to the agent – and the final causes, that is the goals of the agent. Interactions, and any human action placed in a social setting provide a further kind of B, giving access to social commitments of all kinds. Instead of providing a semantics with full-blown presuppositions characterizing each argument place I formulate in instructional terms the underspecified linguistic meaning associated with root modals:

\[
\text{DOVERE}_{root}(B, p):
\]

Instruction:

Saturate B looking for salient circumstances of the event \( e_p \), denoted by \( p \).

Semantic entailment: \( B \models p \)

For space reasons, here I will not discuss whether and how root interpretations of dovere involve more specific conventionalized constructions for alethic, deontic and perhaps for other kinds of modality. I
will instead immediately move to examine what adds the conditional mood morphology to the interpretation of DOVREBBEE_E.

7.3 DOVREBBEE_E

Several recent accounts of the Romance conditional (Kronning 2002, Rocci 2006, Bazzanella and Miecznikowski 2007) agree in assigning to this morpheme an abstract context-dependent semantics that fits the mold of relative modality. We can represent this semantics as follows:

CONDITIONAL (s, w_0, C, p):

Presuppositions:

a. s is the speaker of the utterance
b. w_0 is the actual world
c. C is a set of propositions so that they are not facts for s in w_0
d. p is either the propositional content of the utterance or the performance of the speech act by s

Semantic entailment: C □ p

Three major uses of the Italian conditional are generally recognized: (a) the hypothetical use where the condition C is identified with a non factual protasis or with an epistemically modalized discourse antecedent, (b) the reportive use, where C is identified with the discourse of someone other than the speaker and (c) the, so-called attenuative use, where C is identified with (some of) the preparatory conditions of a speech act, and p with the performance of the speech act (Cf. Bazzanella and Miecznikowski 2007). In all its uses, the conditional mood, while marking morphologically the consequent of an intensional conditional, presupposes an epistemically evaluated antecedent. The range of epistemic evaluations compatible with the conditional includes counterfactuality and excludes the speaker’s commitment to the factuality of the antecedent, allowing for a variety of degrees of certainty in between.

DOVREBBEE_E is a non-compositional construction which partially inherits the basic semantics of the conditional mood and the semantics of the root interpretations of dovere, adding further constrains further constraints on the contextual saturation of one of its arguments. We can represent it as follows:

DOVREBBEE_E (s, e, w_0, C, B, p):

Presuppositions:

a. s is the speaker of the utterance
b. e is the speech event
c. w_0 is the actual world
d. C is a set of propositions non-factual for s in w_0, which are weak presumptions in the relevant epistemic community.
e. B is a set of propositions which are either true in w_0 (alethic) or commitments in w_0 (deontic).
f. p denotes an event e_p so that e_p ≥ e.
Semantic entailment: $C \cup B \models p$

The construction involves a double conversational background consisting of the conjunction – set theoretic union – of an alethic or deontic modal base (B) and a conditional restriction (C) to be saturated by a set of non-factual propositions. In many instances both the premises in (B) and the conditions in (C) can be recovered within the sentence or in the immediate co-text, as shown in (17) and (18):

(17) I risultati ottenuti dalla presidenza Da Silva sono fondamentalmente dovuti a una politica economica ortodossa, dal punto di vista macroeconomico (riforma delle pensioni e la stabilizzazione finanziaria), coniugata con politiche sociali che, secondo le intenzioni, dovrebbero diminuire il divario tra ricchi e poveri, con i progetti 'Fame zero' e 'Agenda famiglia' (Milano Finanza, April 8, 2006, Doc. 359)

‘The results obtained by Da Silva’s presidency are basically due to an orthodox economic policy from a macroeconomic perspective (pension reform and financial stabilization), combined with social policies, which, according to the intentions, should decrease the gap between rich and poor, with the projects ‘Zero Hunger’ and ‘Family Agenda’.’

\{‘social policies’, ‘projects ‘Zero Hunger’, ‘Family Agenda’ ...\}_B \cup \{‘social policies realize their intended effect’\}_C

\(\models \) ‘The gap between the rich and the poor is reduced’

(18) Il dato relativo alla vendita di nuove case negli Usa a febbraio ha fatto registrare un vero e proprio crollo (-10,5%, a 1,08 milioni di unità), il calo più forte da nove anni. Aumenta anche il numero degli alloggi invenduti, un fatto che – se confermato in futuro – dovrebbe riflettersi in una riduzione dei prezzi degli immobili, con effetti di raffreddamento sulla crescita dell'inflazione. Questa statistica ha sostanzialmente ribaltato quella relativa alle case esistenti, che aveva messo in mostra una crescita del 5,2% a febbraio. (Il Sole 24 Ore 3/4/2006)

‘The sale figures new homes in the U.S. in February showed a real slump (-10.5% to 1.08 million units), the strongest decline in nine years. The number of unsold housing increases, a fact that – if confirmed in the future – should be reflected in reduced house prices, with cooling effect on the growth of inflation. This statistic has essentially reversed that relating to existing homes, which had exposed a growth of 5.2% in February.’

\{‘Real estate sales slump in the US.’\}_B \cup \{‘The slump continues’\}_C \(\models \) ‘Reduced house prices’

However, DOVREBBE_E does not accept the full range of epistemic evaluations available to the basic conditional mood construction. For instance, it does not accept the remote possibility evaluation associated with Italian imperfect subjunctive protases, which are associated with conditional mood apodoses. If we were to add a main verb to the verbless protasis in (18) it would rather be indicative future (se verrà confermato in futuro) rather than imperfect subjunctive (se venisse confermato in futuro). If we look at the occurrences in the corpus where the set of conditions C is more explicitly manifested we can reconstruct conditions like: ‘a theory or model corresponds to reality’, ‘an action produces its intended effect’, ‘people respect their commitments’, ‘what people say is true’, ‘the calculations of the experts are correct’, ‘what the consensus of the expert says is true’, etc.

It seems appropriate to identify C with a set of propositions which are more or less weak presumptions and are identified with normal conditions in the absence of prominent sets of conditions recoverable from the co-text or context.
Interestingly, these presumptions are not directly associated with the beliefs of the speaker, but rather with a generic epistemic community, a socialized *doxa* from which the speaker can distance himself more or less markedly. If we look back at examples such as (2.b) and (13), examined above we find that DOVREBBEE can occur as an (indecisive) counter-argument to a previous argument (2.b), or followed by a counter-argument (13). For, DEVEE, which is immediately tied to the speaker’s conclusions – subjective as they may be – both these positions, and especially the second would have been extremely awkward. In this detachment of the presupposed epistemic evaluation from the speaker DOVREBBEE is close to the evidential conditional, with which it merges seamlessly in examples like (15) examined above.

8. Conclusions

The analysis of the constructions DEVEE and DOVREBBEE presented in the previous sections shows how a context-dependent relational analysis of modality can reveal the role of modal expressions as signals of argumentative discourse relations. The analysis has also shown that subtle differences in the argumentative functioning in apparently similar modal markers can be explained in terms of fundamental differences in the way in which the context-dependent meaning is arrived at. Doing so, however, involves a deeper consideration of what it means to argue and of the relations that argumentation entertains with causality, on the one hand, and with evidentiality on the other.

A number of issues explicitly or implicitly raised in the previous discussion remain open at different levels. I will mention just one of them, concerning the linguistic semantics of the modals.

While in the paper I did not directly discuss the issue of the proper treatment of the polyfunctionality of the modals, I implicitly chose a precise strategy in dealing with it. On the one hand, I adopted the context-dependent analysis of the theory of relative modality and its hypothesis on the core meaning of the modals. On the other hand, I did not assume that modal lexemes are monosemic, but rather that they enter a variety of constructions that are only partially compositional, which add very more specific constraints on the context-dependent construction of meaning. The resulting framework, very broadly sketched here, is *not too far* from the constructional and contextual analysis of modal meanings recently advocated by scholars, such as Boogart (2009), who come from the cognitive linguistic tradition of polysemic analyses of the modals. A more precise implementation of the linguistic semantics of the modals in terms of a formal model of construction grammar seems an endeavor worth pursuing in view of evaluating the advantages and difficulties of this strategy in comparison with traditional monosemic and polysemic approaches.

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