Part 2. Scientific Information

Main Applicant: Rocci, Andrea

Project title:

**Modality in Argumentation**

A semantico-argumentative study of predictions in Italian economic-financial newspapers

**La modalità nell’argomentazione.** Uno studio semantico-argomentativo della previsione nei quotidiani economico-finanziari Italiani.
1. Summary of the research plan

The project investigates the role of modality (e.g. expressions of possibility, necessity, probability or (un-)certainty) in economic-financial forecasts and in other predictions appearing in a corpus of Italian economic newspaper articles. The research aims at combining the theoretical tools of a context dependent semantics of modality with a pragmatically inspired theory of argumentation in order to study the contribution of different kinds of modal meanings both to the logical and to the pragmatic structure of natural arguments.

The research seeks to ascertain the connection between the meaning of different modals and the realization of different kinds of argumentative moves – an issue repeatedly raised in argumentation theory since Toulmin (1956) – and to contribute to solve the related problem of a proper representation and realistic treatment of different kinds of modality – including but not limited to expressions of probability or subjective (un-)certainty – in the reconstruction and evaluation of informal, non demonstrative, arguments aiming at supporting plausible conclusions in a realistic setting of communicative interaction.

The proposed investigation draws on recent developments of semantic research, which have examined the constraints imposed by modal expressions on their discourse contexts with respect to the establishment of discourse-spanning conditional structures (as in modal subordination), to the inference of causal or argumentative discourse relations, and to the admissible kinds of evidential sources for the modified proposition. Thus, rich descriptions of the contribution of modal semantics to discourse interpretation will be exploited to provide a systematic treatment of the role of modals as argumentative indicators in the reconstruction of the pragmatic and logical structure of arguments, examining, in particular, the relationship of modal meanings with the different argumentation schemes (or topics) employed by the argument.

The study of modalities as argumentative indicators needs to be empirically grounded in the extensive analysis of a corpus of real texts taking also into account the rich pragmatic context in which the argumentative activity takes place.

Economic-financial news discourse is a genre in which modality and argumentation appear to interact closely and to play an exceptionally prominent role in connection with the formulation of predictions.

Predictions have been recognized as central moves in different professional and academic economic genres; their conditional and probabilistic nature and their pivotal role in economic argumentation having received particular attention. In economic-financial news, prediction of future developments often primes over the reporting of past events. In financial news, in particular, economic forecasting as well as predictions on the behavior of market players based on signals and partial disclosures are connected to the demand of information by investors seeking to reduce the uncertainty surrounding investment opportunities. Communication of forecasting uncertainty and conditions of validity is particularly problematic in these texts, which address a wider public of semi-expert and lay people. Argumentative support of predictions can be also problematic, given the highly technical nature of economic forecasting.

These socio-pragmatic features appear to be reflected in discourse semantics by an extreme abundance of complex combinations of modal expressions, conditional structures, and quotative evidential markers signaling the attribution of forecasts to expert or informed sources. Thus, this genre represents both (a) an ideal test-bed for the empirical investigation and (b) a very promising field of application, where the study of the interaction between modality and argumentation is likely to throw light on the functioning of a key speech act of economic discourse.

Through the semantic and argumentative analysis of entire texts and of sample (co-)occurrences of select Italian modal expressions (both lexical and grammatical), the project will build an electronically stored database of richly annotated arguments, which will be exploited to systematically investigate the correlation between modal meanings and the structure of argumentation, with a special regard to the kind of argument schemes employed.

At the same time, this same analytical work will help to test and refine hypotheses on the semantics of Italian modal expressions, to explore the typology of argumentation schemes used in Italian economic-financial journalism, and, more generally, to characterize (qualitatively and quantitatively) this discourse genre with respect to the use of modality and the presence of argumentation.

The project will be developed at the Institute for Linguistics and Semiotics (ILS) of the University of Lugano, which has emerged over the last decade as a significant research centre for the study of argumentation with excellent international connections. The principal investigator, Andrea Rocci, has a long track of research both on the semantics of modality and on the analysis of argumentative discourse. He will be supported by a post-doc researcher from the Institute of Italian Studies at the same university and by one Ph.D. student.
2. Research Plan
(max 20 pages)

2.1 State of research in the field

The main theoretical question addressed by the proposed research has its roots in the development of the interdisciplinary field of argumentation theory sparked in the late 1950s by the seminal work of Toulmin (1958) and Perelman & Obrechts-Tyteca (1958) and, more specifically, in a broad research program combining descriptive insights from pragmatics with normative dialectical and logical insights. This research program is shared by Pragma-Dialectics (van Eemeren & Grootendorst 1984, 1993, 2004) – the most prominent approach in the field – and by a number of related approaches.

The research intends to contribute to one of the core components of this research program, that of argumentative reconstruction. More precisely, it seeks to fully take advantage of the linguistic semantics of modal expressions to answer questions concerning the role of modal meanings in the logical and pragmatic structure of arguments and the role of modal expressions as argumentative indicators relevant for the task of reconstruction.

2.1.1 Description, evaluation and reconstruction in argumentation theory

Modern argumentation theory has been characterized since Toulmin (1958) and Perelman & Obrechts-Tyteca (1958) by the need of finding soundness criteria for a natural argumentation to be called reasonable. Both these proposals stem from the perception that logical validity, as defined in formal logic, is of limited use as a criterion of soundness for the arguments that are used in most arenas of human activity. The aim of Perelman and Olberchts-Tyteca was to provide a complement to formal logic addressing “non-analytical thought” and Toulmin’s goal was, similarly, to make logic more concerned with the practical task of evaluating “substantial” arguments. However, despite the avowed goal, these two approaches do not in fact provide criteria for evaluating everyday arguments as they seem to lack the normative dimension that characterizes logic (cf. van Eemeren & Grootendorst 2004: 50).

Subsequent work in argumentation theory can be roughly divided into descriptive approaches, and a normative strand.

Different kinds of descriptive approaches have been developed in the American rhetorical tradition and in European (particularly French) linguistics (Cf. Anscombe & Ducrot 1983, Grize 1996, and Plantin 2003 for an assessment of both contributions). We will see that some aspects of Ducrot’s work on argumentation within language are directly relevant to the present project, even though the project’s theoretical framework remains very distant from Ducrot’s. His research on instructional semantics of discourse connectives and of other structures showed that linguistic units can encode subtle constraints on the argumentative function of the utterance in which they appear and of other utterances in the discourse context and that these constraints can involve the reflection and articulation of multiple viewpoints (polyphony) in the utterance. A version of the instructional encoding hypothesis, together with the attention to polyphony are integral elements of the approach adopted by the proposed research which are clearly influenced by the early work of Ducrot (1980 and 1984). Other significant linguistically oriented, non-normative, approaches to argumentation which have Italian as one of their target languages are those of Stati (1990 and 2006) – who provides a fine pragmatic typology of argumentative discourse relations – argumentative roles, as well as Lo Cascio’s (1991) approach, which analyses underlying argumentative structures using a discourse grammar.

Normative approaches have taken two complementary directions of research, both relevant to the present research.

The first direction consists in the analysis of the forms of non-demonstrative reasoning that fall outside the scope of classical deductive logic. The analysis of the forms of presumptive reasoning in Walton (1996 and 2006) and other proposals have benefited from the parallel development of non-monotonic logics and of abductive models of commonsense reasoning in A.I. (cf. van Benthem 1996 for a comparison). At the same time, this work on demonstrative inference has given rise to a revival of the Aristotelian tradition of the Topics. Modern normative approaches to topics include Walton’s typology of argumentation schemes (Walton 1996, 2006) and approaches based on Pragma-Dialectics (Groarke 1999, Garssen 2001); while Ducrot’s theory of topoi (Bruxelles, 1

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1 Toulmin put forth the idea of the field dependence of the criteria defining reasonable argumentation, while Perelman & Obrechts-Tyteca situated the measure of the soundness of argumentation in the effect on the target audience. Both proposals make standards of reasonableness “relative” -- to an audience or to a field – putting them outside the reach of the theory of argument, which ends up having no tools to carry out its evaluative task.
integrating, in particular, the Gricean notion of conversational cooperation and elements of Speech-Act Theory – in particular the notion of commitment. This move towards a “normative pragmatics”, anticipated in part by the formal dialectic models proposed by Hamblin (1970) and others, is put forth systematically in the Pragma-Dialectic approach.

Pragma-Dialectics sets out to evaluate arguments with respect to the ideal dialogue model of a critical discussion aimed at resolving a dispute on the merits. The latter is defined as a frame of cooperation by a set of behavioural rules, which specify a series of necessary sub-tasks (stages) in the resolution process. Putting forward a standpoint or presenting an argument to support a standpoint are analysed as speech acts, whose identity and correctness conditions can be studied. Moreover, Pragma-Dialectics takes into account the full range of speech acts that may occur in an argumentative dialogue and assesses their potential relevance to the tasks that lead to dispute resolution according to the ideal model of critical discussion.

Walton & Krabbe (1995) and Walton (1998) propose a partly alternative pragmatic model where arguments are evaluated differently with respect to the goals of different types of dialogue (e.g. persuasion vs. negotiation) rather than with respect to a unique ideal. In this respect, recent pragma-dialectic work (van Eemeren & Houtlosser 2005) has been devoted to clarifying the relationship that holds between critical discussion and the variety of empirical Levinsonian activity types (e.g. a trial in court) in which argumentation may be relevant. Moreover, recent pragma-dialectic work analyses actual argumentative behaviour as the result of strategic manoeuvring (van Eemeren & Houtlosser 2006) aimed at striking a delicate balance between the speaker’s own rhetorical (persuasive) goals, and the dialectical goals that derive from the speaker’s commitment to resolving the dispute reasonably.

A critical step in bridging the gap between discourse realities and the model of critical discussion is argumentative reconstruction (van Eemeren, Grootendorst, Jackson & Jacobs 1993). Putting to work descriptive insights from pragmatics, discourse and conversation analysis, reconstruction aims to make explicit the argumentative commitments of the arguers – with respect to the standpoints put forth, the epistemic force of the standpoints, the presupposed common ground, the allocation of the burden of proof, the arguments presented, the structure of argumentation and the implicit (tacit) premises evoked – so that the discussion can be compared with the rules of the critical discussion and breaches of cooperativity can be detected.

Reconstruction is aimed at producing a representation of the argument which is at the same time empirically grounded in descriptive analysis and explicit in the specification of all the information relevant for evaluating the argument. This typically comprises an argumentation structure diagram expressing the structure of the inferential chain supporting the standpoint, including the reconstructed implicit premises and the specification of the argumentation schemes invoked for each support relation in the chain.

One key tool of reconstruction is the exploitation of argumentative indicators that is “words and expressions” that may refer to argumentative moves under appropriate contextual conditions. Van Eemeren, Houtlosser & Snoeck Henkemans (2007) offer a comprehensive overview of argumentative indicators, moving from the stages of a critical discussion to the variety of linguistic expressions that are relevant as indicators in each stage.

The proposed research can be considered a study of Italian modal expressions as argumentative indicators in the pragma-dialectical sense. The route taken here is complementary to that of van Eemeren, Houtlosser & Snoeck Henkemans (2007): it starts from a semantically determined class of expressions, and goes towards argumentative moves, guided by the hypothesis that the roles of argumentative indicators that the modals can assume are motivated by a deep connection between the semantics of modality and argumentation.

### 2.1.2 Argumentation theory and modality: the role of modals in argumentative reconstruction

Since the foundational work of Toulmin (1958) modality has been regarded as an essential component for understanding the structure of natural language arguments, and, more specifically, one of those places where the treatment of argumentation theory should differ from that of formal logic. Toulmin extensively discusses modality in three chapters of his book.

In a chapter entirely dedicated to “modals and fields of argument”, Toulmin argues for an exact parallelism between the semantics of modal words like may, must, possible, cannot and moves corresponding to different

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2 van Eemeren & Grootendorst (2004: 95) say that the result of reconstruction can be considered a sort of argumentative “deep structure” of the text. Perhaps an even better analogy would be that with Logical Form (LF).
phases of an argument (taking an hypothesis into consideration, excluding an hypothesis, concluding, etc.). In doing so, he presents a context-dependent analysis of the polysemy of the modals, which anticipates some of the central issues later discussed in linguistic semantics by the theory of Relative Modality (Cf. 2.15 below) and by other approaches. According to Toulmin, the different interpretations of the modals have an invariant *force*, which is argumentative in nature, but are based on different “field dependent” criteria (physical, legal, aesthetic, practical, etc.) on which that force is grounded. All uses of the modals – not only epistemic but also deontic or dynamic ones – are thus considered relevant to argumentation, but pointing to different classes of evidence or “grounds”.

The entire second chapter is devoted to the semantics of *probability* as a key notion to capture what is specific of ordinary argumentation as opposed to formalized logic. Toulmin criticizes the statistical interpretation of the semantics of probability expressions, proposing a speech-act based alternative where to say ‘*Probably* p’ is seen as “asserting guardedly or with reservations that p” (p. 85). Toulmin’s speech-act account of probability still enjoys the favor of a part of the argumentation community (Cf. Ennis 2006).

Finally, in presenting what was to be known as the “Toulmin model” of argument structure (Ch. 3), he introduced the *modal qualifier* as a distinct category in the argument layout, separate from the claim, and meant to provide an “explicit reference to the degree of force which our data confer to our claim in virtue of our warrant” (Toulmin 1958: 101).

It is in this latter departure from formal logic that the contribution of Toulmin was most influential. Generally speaking, standard formal treatments incorporate modalities within the propositional contents of premises and conclusions while the inferential operations remain deductive and demonstrative. In contrast, argumentation scholars have often maintained with Freeman (1991: 112) that “modalities have a distinct function from premises and conclusions” and have found more natural to separate the modal indication of the *force* of the inferential link from the propositional content of the conclusion in the context of a non-demonstrative inference. Detailed arguments supporting this view have been offered, in particular, by Freeman (1991) and Pinto (2001). While Pinto (2001) proposes to apply this kind of analysis to a variety of propositional attitudes that take the conclusion as their object, other scholars, such as Snoeck-Henkemans (1992), consider that only *epistemic* modalities are used to indicate the extent of commitment to the truth or acceptability of the propositional content of a standpoint, while other kinds of modality, like deontic modality, are part of the proposition and thus cannot play the role of *force* indicators.

The role of modalities as a distinct element in the *argumentative reconstruction* has been discussed with particular care by Freeman (1991). Focusing in particular on probability expressions, Freeman argues that modals are always relative to an explicit or implicit body of background evidence so that they have the underlying form ‘*Given* p₁, p₂ ... pₙ *probably* q’. Consequently, with respect to their role in arguments, they are better treated as similar to *argumentative connectives* such as *therefore* or *because*, rather than to operators like negation, which take scope over a single proposition. While differing from Toulmin in fundamental respects ³, Freeman’s account confirms the view of modals as *relational* and dependent on different backgrounds of propositions, and, consequently, as *indicators* of argumentative relations between a conclusion and a set of premises. In an earlier work, Freeman (1988) had also suggested that modals can be indicative of the structure of argument distinguishing different types of complex argumentation.

Pragma-Dialectics has considered the role of modals as indicators by looking at *epistemic* expressions as signs of the *act of advancing of a standpoint* in a critical discussion and of the *degree of certainty* with which this standpoint is advanced (Houtlosser 2002, van Eemeren, Houtlosser & Snoeck Henkemans 2007). Up to now Pragma-dialectic work has focused on *epistemic* modalities, as those that express an extra propositional attitude towards the standpoint.

There are, however, two related areas where the contribution of intra-propositional, non-epistemic modalities to argument reconstruction is worth exploring. The first is the issue – originating from the ancient doctrine of the *status causae* – of the distinction of semantically and epistemologically different *types of standpoints* (Freeman 2000), which require different kinds of support: as opposed to descriptions of facts, causal attributions and evaluations (moral or practical) have an intensional, modal, component which affects the kind of evidence required to support them. The second concerns the various *propositional level semantic relations* that according to the different argumentation schemes support the speech-act level relation of argumentation (Cf. Snoeck-Henkemans 2001): the relations expressed by non-epistemic modals appear to be relevant at this level, suggesting to explore their possible role as indicators of specific *argumentation schemes*.

³ Freeman (1991) criticizes Toulmin’s speech-act account of probability arguing that the assertive force of probability expressions emerges from the special case of epistemic probability where the background evidence corresponds to “all the known relevant evidence (p. 123); in other uses probability expressions are akin to conditional structures and are not assertive.
In conclusion, the category of modality is universally recognized by argumentation theorists as an essential component of the reconstruction of argumentative structure and as a key for distinguishing plausible argumentation from demonstrative proof, but it is seldom the object of specific, focused inquiries. Moreover, it is worth observing that Toulmin’s and Freeme’s analyses of modals as relational predicates and as indicators of argumentative connections in discourse have been formulated in complete isolation from linguistic semantics.

In fact, recent linguistic research on modality has produced a wealth of results that are potentially relevant for the task of argumentative reconstruction, and a cross fertilization between the two areas of research can only be beneficial. In the following sections we consider, selectively, the state of the art on the semantics of modality paying particular attention to those developments that are promising with respect to the issues raised by the reconstruction of argumentative discourse.

2.1.3 Modal categories and human reasoning

We do not attempt here an impossibly exhaustive review of the huge literature on modality in linguistics and philosophy. For a broader state of the art on modality in linguistics see Palmer (2001), Frawley (2006), Hoye (2005a and 2005b) and Rocci (2005a). The latter also includes an extensive historical reconstruction of the origins of the category of modality in ancient and medieval philosophical and grammatical thinking.

Here, after dealing briefly with the overall map of modal notions, we will concentrate our attention, first on the Italian modal system, then on Relative Modality, a particularly influential approach to the context-dependent semantics of the modals and to their contribution to semantic relations in discourse, and, finally, on a body of research that addresses the constraints that different modal markers impose on evidentiality and on the interpretation of inferential-argumentative relations in discourse. The need of focusing tightly on the projects research questions obliges us to completely ignore a number of major trends of research on modality, and excellent contributions that happen to be less relevant to the project’s goals.

The proposed research considers modality as one type of qualification of states of affairs; adopting the possible worlds perspective, according to which modal notions deal with evaluating states of affairs with respect to sets of possible worlds (or alternatives) of various kinds. Cognitively, modality relates to the basic human ability of thinking of states of affairs other than what is the case.

The theoretical framework adopted here is articulated by a basic tripartite distinction (Cf. Kronning 2001) between (1) alethic modalities (in the broad sense of Lycan 1994 and Kronning 1996, 2001), which include all causal, circumstantial and well as participant internal dynamic modalities (what an agent can do), together with more abstract forms of ontological possibility (e.g. physical possibility), (2) normative-ideal modalities including both the deontic proper – regulative norms – and the anankastic – constitutive norms – (Conte 1995, Kronning 2001) and (3) epistemic-doxastic modalities dealing with an agent’s representations of the world. Cognitively, epistemic – doxastic modalities relate to the higher faculty of metarepresentation (Cf. Papafragou 2000a): the ability of representing one’s thoughts as representations distinct from the world, thus enabling the agent to cope with her partial and fallible access to the facts. Markers of epistemic-doxastic modality refer deictically to the speaker’s beliefs at the moment of utterance often in a non-propositional manner. These epistemic markers have been qualified as “subjective” (Lyons 1977) or “performative” (Nuyts 2001a) or pertaining to what is shown (“montré”) by the utterance rather than what said (Kronning 1996).

Deontico-practical modality (Kronning 1996) deals with what is needed to bring about a desired outcome. It is a composite category – combining (1) and (2) – which plays a particular role in argumentation theory due to its intimate connection with practical reasoning (von Wright 1963, Walton 2006: 299-333) aimed at drawing conclusions on expedient courses of future action.

Modality interacts closely with tense and aspect. Particularly relevant in the context of prediction/forecasting is the intimate relationship between modality and future (Martin 1983), which emerges both from the philosophical analysis of future reference (Bonomi 1980, Ludlow 1999) and from the diachronic and typological investigation of languages (Cf. Fleischman 1982; Bybee, Pagliuca & Perkins 1994). Modal analyses of the future tense of various languages have been proposed – in the next section some proposal concerning Italian future are mentioned – treating the future as a sort of epistemic modality indicating prediction, or as an alethic dispositional modality (Ludlow 1999) similar to circumstantial modality. An important philosophical-linguistic tradition also draws a distinction between the “objective metaphysical” unsettledness of the future and the purely “subjective” doxastic uncertainty (Kaufman, Condoravdi & Harizanov 2006)

4 Several alternative mappings are found in the literature, the simplest being the dichotomy between epistemic and root modality (Hoffmann 1966, Sweetser 1990) or between epistemic and deontic (Palmer 1986). Tripartite (or more complex) models are currently more common (Cf. van der Auwera & Plungian 1998, Palmer 2001, Nuyts 2006). While all these models agree in treating epistemic modality as a separate category, they can differ markedly in the way they articulate the space corresponding to the macro-categories (1) and (2) in the scheme adopted here.
In principle, it is expected that all the above categories should be relevant to human decision-making in a complex social activity such as finance, taking place within the tightly regulated institutional context (cf. deontic and anankastic m.) of the financial markets, where agents (cf. participant internal alethic) allocate scarce resources to achieve future desired outcomes (cf. deontico-practical), which are affected by the apparently impersonal and “quasi-physical” laws of market economy (cf. alethic circumstantial), but remain uncertain due to the “objective” uncertainty of the future and to the “subjective” uncertainty of undisclosed information (cf. epistemic-doxastic). The proposed research will empirically investigate to what extent these notions are made relevant by the arguments presented in the Italian economic-financial press.

### 2.1.4 The Italian modal system

Early accounts of the Italian modal verbs largely based on Bally’s conception of modality (Bally 1942) are Alisova (1972) and Simone and Amacker (1977). Parisi, Antinucci and Crisari (1975) provide a systematic analysis of the interpretation of the Italian modal verbs *dovere* and *potere* and the future tense based on Generative Semantics. The treatment introduces a contextual variable in the semantics of the modals and of the future anticipating what will be done, with more developed logical instruments in the Relative Modality approach. Bertinetto (1979) develops the parallelism between the epistemic readings of the future and of the modal verbs discussing the aspectual constraints that characterize both.

The epistemic-inferential readings of the finite tense are, in fact, one of the areas of the Italian system that has received more attention (Berretta 1997, Bozzone Costa 1991). Other areas of verbal morphology that have been considered in relation to modality are the conditional mood (Squartini 1999) – also seen in its close relationship with the future (Cf. Squartini 2004a for a contrastive perspective on Romance languages), the imperfect (Bazzanella 1990) and the subjunctive mood (Schneider 1999).

Coming back to modal verbs, Conte made an important contribution by showing the linguistic relevance of the anankastic modality, usually conflated with the deontic (Conte 1995, Conte 1998). More recently, Squartini (2001 and 2004b) has considered the Italian modal verbs in the broader context of Romance from the viewpoint of the interaction between modality and evidentiality, both of the inferential and of the quotative kind. As shown more in detail below in 2.1.6, the constraints that modal markers impose on the evidential source of the information in the propositional content are an important tool for analysing their role in argumentative reconstruction. Pietrandrea (2005) has proposed a functionally oriented analysis of epistemic modality in Italian on the modal verbs *potere* and *dovere* in their indicative and conditional forms, situating them along three dimensions: the degree of certainty and the oppositions deontic vs. epistemic and genuine epistemicity vs. inferential evidentiality. Moving to lexical markers of modality – mainly epistemic modality – beyond modal verbs, the literature becomes decidedly scarce, with Venier (1991), which presents an analysis of modal adverbs and parenthetical verbs as extra-propositional markers of epistemic attitudes, being one of the few substantial contributions.

In conclusion, work on modality in Italian is not abundant\(^5\), especially if compared with languages like English or French. Works that approach the semantic analysis of modal verbs are few, and those on the semantics of other lexical markers of modality even fewer. On the other hand, work on modality within the tense-mood system seems more prominent, and, in general, there seems to be a growing interest in the last few years.

Given the context sketched above, the proposed project, building on the previous research of the main applicant and of the post-doc researcher, will offer an important contribution to the study of modality in Italian, by exploring the semantic interaction of modal verbs and other lexical markers with future tense and conditional mood in a discourse context through the empirical analysis of predictions in economic-financial news texts.

### 2.1.5 Relative Modality: context dependency, conditionals and discourse relations

As anticipated, the research will draw on a major approach to the semantics of modality, which is often referred to as the theory of Relative Modality (RM). This approach – partially anticipated by the works of Wertheimer (1972) and White (1975) and, as noted above Toulmin (1958) – was developed by Kratzer (1976, 1977, 1981) to account for the striking polyfunctionality exhibited by a number of modal markers in various languages.

Modal meanings in RM are treated as relations of the form R (B, p) that have two arguments, corresponding respectively to the proposition p falling in the scope of the modality and to a set of propositions, called the conversational background (B) that is to be saturated in the context of utterance. Thus modal markers encode invariant logical relations but are context dependent for the saturation of the conversational backgrounds.

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\(^5\) Two areas, not directly concerned by the present project, where substantial work on modality has been done on Italian are language acquisition (Giacalone Ramat & Crocco Galeas 1995) and grammaticalisation (Giacalone Ramat 1992) in particular in the context of research projects led by the University of Pavia group.
Necessity can be understood in terms of logical consequence of the modalized proposition from a presupposed conversational background of propositions belonging to a certain logico-ontological type, while natural language possibility is to be conceived in terms of compatibility with it.6

Kratzer’s relative modality, which was influenced David Lewis’ work on conditionals (Lewis 1974), also sought to integrate the treatments of modalities and conditional constructions: natural language conditionals are never purely extensional and always involve a modal relation – which may not be explicitly signalled – and an appropriate conversational background: protases are understood as constructions adding a certain proposition to the relevant conversational background. Lewis (1979), in turn, connected relative modality to the pragmatic notions of presupposition and common ground (Cf. Stalnaker 1973), presenting the modals as expressions whose meaning depends on variables that are set and reset in a dynamically evolving discourse context.

This integration was further developed in discourse oriented models in formal semantics: in Roberts (1989) the developing common ground and the modal conversational background are identified in the epistemic readings of the modals. Roberts, and later Frank (1996) and Geurts (1999), focus on phenomena of modal subordination in discourse, where modalized utterances are interpreted as following from a discourse antecedent – as if they were part of a conditional construction. Other discourse oriented approaches to semantics (Seuren 1985, Veltman 1986, Beaver 2001) exploit the distinction between information explicitly in the discourse context and information deductible from it in order to account for the inferential-evidential meaning of epistemic readings of necessity modal like eng. must. Recently Asher & Mc Ready (2007) have proposed a theory of the interaction of different modals within conditional structures or modal subordination, which also takes into account the influence of the discourse relations – such as contrast, elaboration, narration – holding between the modalized utterances.

Outside formal semantics, elements of Relative Modality have been mutuated by a number of more informal approaches. Within Relevance Theory, in particular, versions of RM are used by Groesfema (1995) and by Papafragou (1998, 2000a, 2000b, 2002). Papafragou presents an in-depth analysis of the pragmatic processes of saturation of the modals’ conversational backgrounds and combines RM with a theory of epistemic modality as metarepresentation of the speaker’s own beliefs at the moment of utterance.

In its various implementations, RM has proven to be a simple yet powerful and adaptable framework for studying the semantic interaction of modal meanings with contextual and discursive information and looks particularly promising for studying the role of modal markers as indicators of argumentative relations.

2.1.6 From modality to argumentation via evidentiality

A number of recent contributions has dealt with the role of a number of modal expressions in European languages as indicators of inferential or quotative evidentiality. According to these studies, specific modal markers impose subtle constraints on the evidential source of the utterance, indirectly affecting also the establishment of argumentative relations between the modalized utterance and other discourse units. The results of this body of research suggest these constraints could offer new important cues for the reconstruction of argumentation.

Dendale (1994, 1999), Tasmowski & Dendale (1994) analyse the types of inferences that can or cannot be manifested by the epistemic readings of the modals devoir and pouvoir in the indicative and in the conditional mood, by the epistemic reading of the future tense (Dendale 2001), and by other idiomatic modal constructions (Dendale 1992), which are found to impose different constraints on the semantic content of the premises and their number. Constraints with respect of the logical type of the inference (deduction, induction or abduction) have also been discussed with respect to devoir (Dendale 1996, Desclés 2001). Along the same lines, Stone (1994) discusses the difference between the epistemic interpretations of must and should, by characterizing them in terms of the kind of arguments that support the modalized conclusion, using an A.I. model of non demonstrative argumentation, while Salkie (1996), in a corpus-based contrastive study, draws a distinction between modals marking acts of prediction (should, devrait) and modals marking acts of inference (must, doit). This body of research suggests that modal markers not only can be indicators of an argumentative relation in discourse, but also specify the type of reasoning underlying the discourse relation, acting as indicators of the topic/argumentation scheme.

Looking beyond epistemic uses, Kronning (1996) proposes that the French modal devoir, in all its uses, conveys a partially implicit deductive reasoning pattern, which Kronning identifies with the classical argumentative category of enthymeme, showing, for instance, the connection of deontic-practical modality with

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6 On the logical equivalence between this formulation based on the conversational background and a formulation in terms of possible worlds see Kratzer (1981) and the more thorough explanation in Kaufmann et al. (2006: 79-81).

7 For general semantic and pragmatic treatments of evidentiality see Ifantidou (2001) based on Relevance Theory and procedural semantics and Fuller (2002) which combines formal semantics and speech-act theory.

8 In terms of the Relative Modality approach the premises are taken as partial manifestation of the conversational background.
practical syllogisms. Kronning (2001) discusses the contrast between the inferential readings of *doit* and *devrait*, showing that they admit different kinds of argumentative relations and discussing how this can be explained in terms of a distinction between genuine epistemic readings and alethic readings embedded in an implicit conditional.

Nyutts (2001a, 2001b), investigating epistemic markers in German and Dutch, draws a distinction between subjective epistemic expressions, which relate the evaluation to a body of private knowledge, from intersubjective ones, which act as pointers to arguments available in the discourse context. In a similar vein, Nølke (1993) has shown that French adverb *peut-être*, rather than expressing pure epistemic possibility, conveys a positive argumentative orientation presenting the proposition as a tentative conclusion.

Merging this strand of research on modality and evidentiality with the study of indicators of argumentation seems both natural and promising: the former would benefit of a more systematic treatment of argument structure and inferential schemes, while the latter would gain enormously in linguistic finesse in considering specific markers as indicators.

2.1.7 The genre system of financial discourse and the interaction field of investment decisions

The genre of economic-financial news in Italian has been selected here as the terrain for the empirical investigation of the contribution of modality to argumentative reconstruction. The reasons of this choice will be specifically discussed in 2.3, but a summary examination of the literature on this genre, and of economic-financial discourse in general, is sufficient to suggest how prominent and how deeply intertwined are the categories of argumentation and modality in this domain.

Economic-financial newspaper articles form a very specific and fairly circumscribed discourse genre. At the same time they have to be understood in terms of the place they occupy in a complex network of interactions mediated by texts. As such they have a place in a system of genres (Bazerman 1994, Bhatia 2005) defined by their intertextual relations with other genres, which correspond to the enactment of social relations in a given field of social interaction, which in our case corresponds, at least in part, to the financial markets. Economic-financial news relate intertextually to – and are shaped by – a variety of genres at the intersection of news discourse (van Dijk 1985, Bell 1991, Bell & Garrett 1998), business discourse (Trosborg & Flyvholm-Jørgensen 2005, Bargiela-Chiappini, Nickerson & Planken 2007) as well as the discourse of economics, to which we will devote special attention below.

The discourse genres that function as sources of financial news include the forecasting reports issued by major banks, banking associations, financial analysts, and credit rating agencies (Bloor & Pindi 1990), but also the products of the investor relations and media relations of banks and listed companies from their annual reports (Mignini 2005, Malavasi 2005 and 2006, Grove Ditlevsen 2006), to press releases (Jacobs 1999), earnings announcements (Jacobs 2003), and the related earnings conference calls (Crawford-Camiciottoli 2006). Moreover sources include the communications of asset managers to their current and potential clients-investors (Cf. Del Lungo- Camiciotti 1998). More indirectly, through the more technical of the aforementioned genres, economic-financial news inherit features from the academic genres of economics.

Economic-financial news texts are a product of newsmaking and can be compared and contrasted with other written news genres. Del Lungo- Camiciotti (1998) draws an interesting sketch of such a comparison between financial stories and the “current affairs news story”, both at the level of schematic structure “ (compare with the news schema as outlined by van Dijk 1985b and Bell 1998) and at underlying the level of the overall pragmatic function. With respect to production processes, recently Van Hout & Macgilchrist (2007) proposed an ethnographic framework for the study of financial newswriting. Others have examined economic-financial news with respect to specific discursive and semiotic phenomena such as metaphors (Smith 1995) or the interplay of words and graphics (Royce 1999, Brône & Feyaerts 2005).

According to Del Lungo Camiciotti (1998), the pragmatic features setting apart financial news from that of current affairs news stories in that the readers of financial news seek not only to be informed on what happened in the market but also an evaluation of what happened and predictions concerning the future developments. It is this evaluation and predictions that make the story worth reporting. This is reflected in the bipartite structure of financial news stories, consisting of a reporting episode and an equally important evaluating episode including both opinions and forecasts.

A key for understanding the importance of prediction/forecast in financial news is offered by scholars of finance who address financial communication – that is the whole field of interaction enacted by the complex intertextual network mentioned above – looking at the role of information in financial markets (Barone Adesi 2002). Financial communication is seen as driven by the demand of information from investors who need to reduce the uncertainty surrounding investment opportunities – the uncertainty being due both to the “intrinsic” incompleteness of information concerning the occurrence of future events and to private, undisclosed, information
available only to “insiders”\(^9\). For firms the stakes of the disclosure of information to investors are extremely high as early disclosure could destroy the competitive advantage of innovative products and services, while withholding information could lead to under investment and “exposes the firm to a higher cost of capital and to charges of insiders’ manipulation” (Barone Adesi 2002: 65). In this perspective financial news media can be seen as one of several mediators and “multipliers” of this communication flow between firms and investors (Drill 1995).

2.1.8 Prediction in economic discourse: modalization, conditionality, argumentation and source attribution

The study of the discourse of economics deserves particular attention here because it is mainly in this literature that the interaction of modality with argumentation in the context of predictions/forecasts emerges as a key issue. Studies of economic discourse have a double origin: the reflections of economists on their own rhetorical practices and the analytical work of (applied) linguists\(^10\).

The first strand was initiated by the work of economist D. McCloskey on the rhetoric of economics (Mc Closkey 1985, 1998), which sparked a lively epistemological debate (Cf. Klamer 1988 and Mäki 1993). The rhetoric of economics sets out to inquire the argumentative and persuasive strategies used by economists in order to offer a better understanding of the actual practices of scientific discussion in economics, as opposed to the prescriptive methodology and epistemology of the discipline. McCloskey and other proponents of the approach endorse a rhetorical view of scientific inquiry as conversation, which is close to the conceptions of reasonableness developed by argumentation theorists like Perelman and Toulmin. The second strand is represented by applied linguists, whose interest in economics in part grew out of pedagogical concerns of LSP teaching (Cf. Henderson & Dudley-Evans 1990: 7), but soon widened to broader discourse analytical theoretical goals related to text typology and genre analysis (Cf. Backhouse et al. 1993, Bondi 1999).

Speech acts of prediction/forecast have been the object of special attention, and have been widely recognized as central in a variety of economic genres (Cf. Merlini 1983, Bloor & Pindi 1990 and Walsh 2004). McCloskey (1998) discusses the emphasis of prediction in the rhetoric of economics, dwelling in particular on the conditional nature of predictions and touching also the vagueness of the possible worlds semantics of conditionals in predictions (Mc Closkey 1987, 1990). McCloskey also addresses the rhetorical pitfalls of predictions applied at forecasting future market developments and the “myth” of profitable forecasting (Mc Closkey 1990).

In the linguistic literature that we find the most detailed analyses of the pragmatic function and linguistic realization of predictions and forecasts. Merlini (1983) addresses predictions in economics papers from the viewpoints of Searlean speech act theory and text linguistics. The analysis reveals an intimate connection between the nature of the illocutionary force of prediction and its role in argumentation. When economists are addressing a broader audience, predictions are either the standpoint of the argumentation or an argument supporting a policy proposal functioning as a main standpoint. When designed for a specialist audience, hypothetical predictions can also have an illustrative argumentative role. These different roles are in relation to a pragmatico-semantic typology of predictions distinguishing (I) hypothetical predictions (II) illustrative/speculative predictions, (III) realistic predictions applying models to the forecast of economic developments, and (IV) instrumental predictions advising policies on the basis of expected outcomes. Merlini (1983) devotes particular attention to the conditional nature of predictions and the role of epistemic modalities in modifying the prediction along an epistemic gradient and an evidential-inferential one. As regards theoretical economic genres, a study of modality in the argumentation of Keynes’ General Theory is carried out in Facchinetti (1992), which emphasises the strategic role of dynamic circumstantial modalities in presenting type (I) predictions.

Type (III), realistic, predictions, which are the most closely related to news articles, have been analysed by Bloor & Pindi (1990) with an eye on the schematic structures of the genre of the financial report, which are found to consist in a preparatory reporting episode followed by a dominating predicting episode, – a structure which is closely paralleled by financial newspaper articles. Pindi and Bloor (1987) address three key features of predictions in economic-financial reporting which mirror the findings of Merlini (1983): (a) the use of hedges – including, in

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\(^9\) Interestingly, the two sources of uncertainty in investment activities – the inherent uncertainty of future events and the incompleteness of the information on the current situation – correspond to a distinction which is well known by semanticists and philosophers working on the interaction between time and modality: namely the distinction between the ontological “unsettledness” of future events and the epistemic/doxastic uncertainty which characterizes our mental representations of events, be they past, present or future.

\(^10\) A third strand, which we cannot consider in detail here, is represented by computational linguistic studies mainly aimed at automate information extraction from financial texts (Cf. for instance Hobbs et al. 1997 and Slattery et al. 2002). In these studies the choice of financial news corpora is motivated by the practical relevance of information extraction for financial decision making. While the extraction tasks addressed are fairly general (e.g. reference assignment) these studies do include some elements of genre characterization because genre features can be exploited by extraction algorithms to constrain the task.
particular epistemic modals and vague quantifications – in formulating predictions; (b) the presence of conditions; and (c) the attribution of the prediction to an external source. The analysis of hedges is further pursued in Bloor & Bloor (1993) with respect to “knowledge claims” in economic argumentation.

Coyle (2001) addresses the role economic forecasts from a journalist’s viewpoint, emphasizing how forecasting uncertainty and imprecision are particularly problematic to communicate in the media, as they conflict with journalistic assumptions on precision in reporting and newsworthiness (“If it’s only worth a might, it probably isn’t a story”) which have a tendency to lead to “spurious precision”. However, the findings of linguists addressing economic newspaper articles diverge, in part, from these perceptions. Clemem (2002) and Walsh (2001, 2004 and 2006) investigate forecasting in economic-financial news articles with an emphasis on the key role of modalities and other hedges, conditional structures and source attribution. Walsh (2001), in particular, examines the choice of modals in relation to the weight of evidence provided in the argumentation supporting the prediction and in relation to the presence of multiple intertwined reported voices (which make the attribution of the prediction problematic).

Paradoxically, while many of the scholars cited above are based in Italy, none of them works primarily on Italian. In fact, research on predictions in Italian economic discourse is scarce. Musacchio (2002) briefly addresses the language of Italian forecasts touching the use of modal verbs, future tense and conditional mood. Sobrero (1993), discussing Italian for special purposes, provides brief notes on journalistic economic texts mentioning the equal importance of description and argumentation and the prominent role of future tense and modal verbs; while Lo Cascio (1991) includes short remarks on argumentation in economic newspapers stressing the role of predictions and conditional structures. Given this situation, the proposed research, by taking Italian economic-financial news as the terrain of its semantico-argumentative investigation, is likely to advance significantly our knowledge of the genre.

2.2 Research fields of the applicants.

2.2.1 Research by the main applicant (Andrea Rocci)

During the last ten years Andrea Rocci’s research activity has focused on the two main theoretical domains involved in the project: (1) the semantics and pragmatics of modality, and in particular the relationship between epistemic modality and inferential relations in discourse, studied with reference to Italian modal verbs and to the Italian future tense; (2) the study of argumentation seen in its relations with discourse and dialogue coherence, lexical semantics, pragmatic inference, discourse genres and activity types. Additionally, in close collaboration with Eddo Rigotti, he contributed to the development of a semantically based approach to discourse coherence and discourse relations called Congruity Theory.

Since 2005, Andrea Rocci collaborates in the Master of Financial Communication in Lugano jointly organized by the Institute of Finance and the Institute of Linguistic and Semiotics (ILS). In the master he teaches Interpersonal Communication applied to the field of finance. During the last two years he has begun to orient his research towards financial communication as a field of application considering the analysis of predictions as a key speech act for understanding the functioning of economic-financial news discourse (Rocci & Palmieri 2007) and the representation of interpersonal dialogue in private banking advertisement (Rocci 2006d).

The results of research on modality and argumentation, which forms the theoretical backdrop of the project, need to be presented in detail:

(1) The work on modality is aimed, on the one hand, to understand the invariant elements in the semantics of the modals and how this “basic semantics” requires to be fleshed out by contextual information to arrive to a variety of pragmatically enriched interpretations of the modals. The modals’ context dependency is captured using a variant of Relative Modality and incorporating a procedural/instructional semantic component to model specific linguistic constraints on discourse interpretation. On the other hand, focussing in particular on epistemic interpretations, the research examines how these interpretations impose fine grained constraints on evidentiality and on the establishment of argumentative relations in discourse (cf. in particular Rocci 2005c, 2005d, 2007).

Using distinctions in the structure and saturation of conversational backgrounds this kind of analysis allows to differentiate the inferential relations licensed by epistemic indicative deve – ‘must’ – (Rocci 1997, 2000a, 2005c and 2005d) from those of the inferential future (Rocci 2000b and 2005d); to explain why impersonal constructions (può darsi, può essere) can signal abductive argumentative relations while personal constructions of potere in the indicative lack this power (Rocci 2005a and b), and why indicative deve and conditional dovrebbe (‘should’) differ in the constraints they impose on the kind of argumentation schemes (or topics) allowed in the argumentative relations they signal (Rocci 2006b, In press a). Combining this analysis with an account of the pragmatic level of meaning based on Congruity Theory, Rocci (2007) provides an analysis of the
‘che+subjunctive’ interrogative construction specifying both its inferential force and the pragmatic constraints it imposes on the dialogic interaction.

(2) The applicant’s work in argumentation theory draws on the pragmatic-semantic model of Congruity Theory developed in collaboration with Rigotti (Rigotti & Rocci 2001, Rocci 2003, Rigotti & Rocci 2006) and combines it with elements of the Pragma-Dialectical approach of the Amsterdam School as well as with insights from ancient rhetoric. Rigotti & Rocci (2005) explore the link between culture, lexical semantics, and argumentative processes by looking at the role of keywords in reconstructing enthymemes: keywords are seen as lexical pointers to underlying shared cultural values and beliefs (endoxa) exploited by the argument as implicit major premises. The contribution of lexical semantics to argumentative reconstruction is developed further in Rigotti, Rocci & Greco (2006) which looks at the semantics of the word reasonable and at its role as an argumentative indicator on the backdrop of the broader discussion on reasonableness in argumentation theory. Rocci (2006c) looks at the interplay between argumentation and pragmatic inference in the functioning of the enthymeme examining how the understanding of natural argumentation relies on the inferential recovery of implicit premises from a culturally shared common ground. Rocci (2005a) applies Congruity Theory to the reconstruction of argumentation by showing how the violation of presuppositions at various levels in discourse can be used to detect certain types of manipulation in argumentative discourse.

Rocci (2005b) considers coherence in dialogue as based on cooperative dialogue games and examines how it relates to normative dialectical models such as the critical discussion. Rocci (In Press b) addresses the argumentative reconstruction of an advertisement in a financial newspaper showing how it needs to take into account the genre, the activity type as well as the social and institutional context of interaction. Here a rich model of context (detailed in Rigotti & Rocci 2007) is applied to the task of reconstruction.

This line of research is being carried out in a constant stimulating dialogue with the scholars of the Amsterdam school on the occasion of conferences in Amsterdam and Lugano, as witnessed also by a recently published discussion (Rocci 2006a, van Laar’s 2006).

2.2.2 Research by the second applicant (Eddo Rigotti)

The research activity of Eddo Rigotti during the last decade has been mainly devoted to the development of Congruity Theory (see the works with Andrea Rocci cited above) and, increasingly in the last five years, to theoretical work in argumentation theory. Part of this research on argumentation has been carried out in connection with the development of Argumentum (www.argumentum.ch), a Swiss Virtual Campus funded e-learning courseware for the teaching of argumentation in the humanities and social sciences, and the teaching of argumentation courses in the context of financial communication, institutional communication and mass media in the masters of the USI.

A recent theoretical development in this research is an approach to argumentation schemes based on a systematic “generative” theory of topics (Rigotti 2006, Rigotti & Greco 2006, Rigotti 2007/In Press), which emphasizes the double anchoring of enthymematic argumentation to a basic set of semantico-ontological relations that can hold between standpoints and premises and to a variable set of culturally shared beliefs and values (endoxa). This approach to argumentation schemes will be deployed systematically in the analyses of the project to investigate the relationship between the schemes and the presence of modals in the standpoint and/or premises. Other recent contributions concern the definition of argumentative discourse relations at the pragmatic level (Rigotti 2005)

As the director of the ILS, Rigotti has fostered the development of a research group on argumentation, with Ph.D. students applying argumentation to diverse issues (from family and business mediation to corporate mergers) and with a closely knit network of research collaborations in Switzerland (A.-N. Perret-Clermont, F. Schulteis) and abroad (F.H. van Eemeren, D.N. Walton, B. Schwarz).

Since 2005, Rigotti is co-director of the master program in Financial Communication at the USI.

2.2.3 Senior researcher (Johanna Miecznikowski)

Johanna Miecznikowski is post-doc researcher in Italian linguistics at the Istituto di studi italiani (ISI) at the USI. She has been a doctoral assistant at the French department of the University of Basle (1997-2002), and, after her doctoral degree in French Linguistics, a post-doctoral assistant in French and General Linguistics at the same university (2002-2004). In this period, she has worked mainly in a discourse and conversation analytic perspective. On one hand, she has analysed the intertwining of narration and argumentation/explanation in autobiographical narratives of plurilingual speakers delivered in an interview situation (cf. Fünschilling 1998, Miecznikowski 2001 a, Franceschini & Miecznikowski 2004). On the other hand, she has worked on the interactive construction of scientific discourse in plurilingual research groups: she has studied the construction of reference (together with Lorenza Mondada, cf. e.g. Miecznikowski & Mondada 2001a), the role that metalexical
sequences play therein (Miecznikowski 2005), and – a topic that is particularly relevant for argumentation theory – discursive procedures of perspectivation in the sense of Kallmeyer (1996) and Graumann & Kallmeyer (2002) (cf. Miecznikowski 2006 b, c).

From 2004 to 2007, a NSF post-doc grant allowed her to make a research stay at the University of Turin, where she conducted more linguistically oriented research on French and Italian, based on both spoken and written corpora. This research, partly realized together with the team of Carla Bazzanella from the Philosophy Department of Turin University, has concerned two fields, i.e. modality, especially the conditional form and modal verbs (Miecznikowski 2006, Miecznikowski forth. a, b and Miecznikowski & Bazzanella 2007), and discourse connectives, especially alors/allora (Bazzanella, Bosco, Gili Fivela, Miecznikowski, Tini Brunozzi forth. a, Bazzanella, Bosco, Gili Fivela, Miecznikowski, Tini Brunozzi forth b, Bazzanella, Bosco, Garcea, Gili Fivela, Miecznikowski, Tini Brunozzi forth., Bazzanella, Garcea, Miecznikowski forth.). These areas of research are closely related, overlapping among others in the domain of conditional constructions and inferential/evidential modality. With regard both to modality and to discourse markers, Johanna Miecznikowski has been particularly interested by problems of polyfunctionality, anaphorical scope and presupposition activation. Among others, she is analysing, in this perspective, the textual and interaction structuring functions of the opposition between indicative present and conditional form in French and Italian in certain multiply modalised constructions, e.g. with modal verbs, performatives and evaluative predicates.

2.2.4 External advisors to the project

Two internationally renowned scholars will advise the project as senior consultants:

**Frans H. van Eemeren** is Professor in the Department of Speech Communication, Argumentation Theory and Rhetoric in the University of Amsterdam. He is one of the leading figures in contemporary argumentation studies, the initiator, together with the late R. Grootendorst of the Pragma-Dialectical theory of argumentation and the president of the International Society for the Study of Argumentation.

**François Degeorge** is Professor of Finance at the University of Lugano (formerly HEC Paris). He specializes in corporate finance: earnings management by executives; the optimal timing of IPOs; and how company boards react to firm performance. He has published in the leading journals of the field and received several academic awards.

2.2.5 Network of collaboration

Close collaborations on topics relevant to the project have been developed with Swiss and foreign scholars. We expect these collaborations to lead to the organization of joint workshops and colloquia and to joint publications on the themes of the project.

- **Chris Reed** (School of Computing, University of Dundee). Dr. Reed, who specializes in computational approaches to argumentation is co-author, with Glenn Rowe, of the *Araucaria* software tool for the annotation of argumentation. He will advise the project on the use of *Araucaria* and *Araucaria* DB for building and exploiting a corpus richly annotated structural analyses of argumentative texts.

- **Louis de Saussure**, (University of Neuchâtel). Prof. de Saussure and the Semantics and Pragmatics Research Group are involved in a research project on *Non descriptive uses of temporal markers*, which focuses on the links between the expression of time, argumentation, and metarepresentation (including modal readings of tenses and attitudinal implicatures in reported speech). The applicant and other researchers from ILS are already external partners in this project and meet regularly with the group for research days in Lugano and Neuchâtel.

- Furthermore, the organization of a panel on the *Discourse of Economics and Finance* in the VALS-ASLA 2008 conference in Lugano next February in collaboration with Marina Bondi (University of Modena and Reggio Emilia) has allowed to establish research contacts with several researchers in the field.

2.3 Detailed research plan.

2.3.1 Research Goals

The main goal of the proposed research is to better understand the role of modality in argumentation, and, more specifically, to develop a comprehensive treatment of modal markers of different kinds as indicators for the task of argumentative reconstruction of natural language texts in view of their evaluation in a normative framework integrating pragmatic, dialectical and logical insights. The normative framework assumed, which is not the direct object of the investigation, is that of Pragma-Dialectics integrated by the topical component developed by the Lugano group.

In pursuing this goal, the research will draw on linguistic research on the semantics of modality that has focused on the interaction of different modal markers with the discourse context. This research, to which the main
applicant has contributed, examines the effects that different modal markers have on the interpretation of discourse-level conditional structures, the constraints they impose on the evidential source of the propositions, the types of argumentative discourse relations they help to establish, as well as the underlying causal relations at the propositional level.

All these phenomena are clearly relevant for argumentative reconstruction, and the proposed research will be the first to merge this line of semantic investigation of the modals with the research on reconstruction in argumentation theory.

The role of modality in argumentative reconstruction will be investigated with respect to the Italian modal system (including both lexical and morphological markers), and within a specific genre and field of interaction, that of economic-financial news articles.

In-depth consideration of the genre and interaction field of a text and of the background knowledge of the participants is required for a plausibly realistic reconstruction of how the inferential machine of the text operates (consider, for instance, the problem of reconstructing unexpressed premises in the argument).

The choice to focus the empirical investigation on a corpus of economic-financial news has a double motivation.

Firstly, in this genre the interaction of argumentation and modality is particularly rich and complex (Rocci & Palmieri 2007) in particular in connection with the formulation of predictions, and a number of interesting phenomena are easily observable. As remarked by Walsh (2004), a specialized corpus such as financial news can offer a significant advantage in the study of relatively low frequency modal phenomena. It has been observed that predictions play a central role in economic-financial news. This centrality of predictions can be explained, in part, by looking at the dynamics of financial communication, driven by the demand of information by investors seeking to reduce uncertainty resulting both from the “intrinsic” incompleteness of information concerning the occurrence of future events and from private, undisclosed, information available only to “insiders”. Economic forecasts and other, more informal, kinds of prediction are by nature probabilistic and the result of an inference (given the impossibility of directly accessing the future), their textual manifestations involve a variety of modal qualifiers (from simple possibility to strong probability and necessity) and are often accompanied by explicit argumentation. Moreover, predictions in economic-financial news are typically presented relative to possible scenarios, giving rise to discourse-spanning conditional structures. When the antecedents of these conditional structures are themselves epistemically evaluated, they can function as weak probabilistic premises in an argument supporting the consequent. Finally, predictions and their supporting arguments are routinely attributed to expert sources – sometimes named, sometimes unnamed – giving rise to complex combinations of inferential and quotative evidentiality.

Secondly, and relatedly, predictions in economic-financial news can be a very promising field of application of what we are going to learn about the role of modality in argumentation. By investigating the above phenomena, we will have investigated, at the same time, the key semantic and pragmatic features of this socially important genre, and given the centrality of predictions in a variety of economic genres, we may contribute to a better understanding of the broader system of genres of which economic-financial news are a segment.

In a similar way, the investigation of modals as argumentative indicators is also an opportunity for testing and refining semantic analyses based on Relative Modality for a series of Italian modal markers, building on previous work by the applicant and other researchers and for putting to the test of a corpus of real texts formal semantic models of the interaction of modality and discourse context, which have been developed using mainly constructed examples.

In conclusion, the proposed research is characterized by a main goal – the study of modals as indicators in argumentative reconstruction – and by two secondary goals, which naturally arise as “targets of opportunity” in the pursuit of the main goal.

The following two sections will further articulate the goals in terms of specific research objectives, research questions and hypotheses.

### 2.3.2 The argumentative analysis of predictions in economic-financial news discourse

The discourse analysis of Italian economic-financial news oriented towards their argumentative reconstruction will be an important objective of the project, instrumental to the investigation of the core question concerning argumentation and modality. The analysis will focus in particular on predictions, given their pivotal role in the genre and their importance for the main research goal.

An important preliminary task will be the study of the recurrent genre based schematic structures of Italian economic-financial news texts in the corpus. The texts will be compared with the typical news schema of the current affairs article (van Dijk 1985, Bell 1998) and with the schematic structures proposed for English economic-financial news as well as for other economic genres, examining the collocation of predictions in the
article with respect to narrative sections reporting current events. The presence of distinct thematic sub-genres, such as business news vs. financial news, will be also investigated (Cf. Rocci & Palmier 2007), examining the role of prediction in each.

A typology of acts of prediction found in the texts will be developed, extending the one in Merlini (1983). It is expected that beside instances of economic forecasting – systematic, quantitative, model based extrapolations from the present situation and past events concerning – the texts in the corpus will also contain less systematic, partly qualitative, predictive statements inferring the intentions and future behaviour of market players from a variety of behavioral signs, or signals, as they are called in financial terminology.

The role predictions with respect to the structure of argumentation, will be then examined. Three configurations, among those identified by Merlini (1983) are expected to occur regularly: (a) the predictive statement is the main standpoint in the argument, (b) the prediction is an argument supporting an evaluation of the present situation, (c) the prediction is an argument supporting the recommendation of a future course of action. Other configurations are expected to occur more rarely in the news (e.g. the prediction has an illustrative function with respect to a law or principle).

The successive step is the examination of the topics (or argumentation schemes) invoked both in arguments supporting predictions as standpoints, and in arguments where predictions are premises supporting another standpoint. Causal schemes from cause to effects are expected to prime, especially in more formal economic forecasting, while symptomatic arguments from signs, combined with a variety of practical reasoning schemes are expected to be relevant in the case of signalling.

Two specific discourse features of economic-financial news will be examined in the perspective of argumentative reconstruction. We will examine the attribution of predictions, evaluations, recommendations and of the arguments supporting them to multiple named or unnamed expert sources to ascertain the extent to which these attributions can be considered argumenta ex auctoritate and journalists use the reporting device to present their own composite argument while assuming limited responsibility towards the standpoint. Reporting of expert opinions will be examined also in connection with the argumentative problems of ‘expert to lay’ communication (Cf. Walton 1998): as the economic-financial press mediates highly technical expert reasoning towards a wider audience of laypeople and semi-experts, the knowledge gap makes the reasoning of the expert partially inaccessible to direct critical scrutiny, and the discussion tends to move towards the indirect evaluation of the expert’s credentials, bias and past performance.

Finally, the analysis will consider the conditional structures frequently associated to predictions in economic-financial articles, which can sometimes give rise to multiple conditional embeddings and to ramifications of possible scenarios. The objective, in the argumentative reconstruction perspective, will be to ascertain the often ambiguous role of antecedents in conditional structures, which can function either as weak probabilistic premises or as a simple unevaluated limiting condition.

### 2.3.3. Modals as Argumentative Indicators.

The reconstruction-oriented discourse analysis outlined above will provide the context for the investigation of the role of grammatical and lexical markers as argumentative indicators.

The main research question concerning the relationship between argumentation and modality can be formulated in a straightforward manner starting from the conception of the act of argumentation and from the semantic analysis of the modals (based on relative modality) proposed in Rocci (2005). Argumentation can be considered at different levels: socio-pragmatically, argumentation is a complex relational speech act consisting in putting forward a constellation of propositions $p_1 \ldots p_n$ as an attempt to convince the listener of the acceptability of a standpoint $q$ (van Eemeren & Grootendorst 1984, 1992); cognitively, the act of argumentation implies an inferential relation: $q$ is inferred from the premises $p_1 \ldots p_n$ (cf. Pinto 2001, Rocci 2006c); semantically, the inferential relation presupposes a content-level relation between $p_1 \ldots p_n$ and $q$ such that the inference satisfies the requirements of a valid argumentation scheme (cf. Snoeck-Henkemans, 2001; Rigotti 2005). Modality is the evaluation of a proposition, let us say $q$, as necessarily entailed or merely compatible, or probable to some degree, with respect to a conversational background $B$ of propositions, which can be saturated in different ways according to the kind of modality at issue.

Given the above definitions, our main research question can be formulated in terms of a mapping between the two structures, as shown diagrammatically in Figure (1): (a) how do the logical relations expressed by modals relate to argumentative relations at different levels? (b) to what extent, and under which conditions do conversational backgrounds map onto the constellations of premises? (c) when does the content of the evaluated proposition count as an expressed standpoint?
The answer to these questions is expected to be different according to the type of modality. In the case of epistemic-doxastic modality, the conversational background $B$ is saturated with metarepresented beliefs of the speaker at the moment of utterance (which may include premises manifested in the discourse), and $q$ assumes the status of an asserted proposition (with a strength depending on the modal relation). Here modality acts as indicator of the inferential level of argumentation.

The situation changes with non-epistemic modalities, whose semantic relations are expected to become relevant according to the argumentation scheme used. Different of non-epistemic backgrounds are expected to be relevant in arguments supporting predictions in economic-financial news. Dynamic circumstantial modalities are expected to relate to the “impersonal”, pseudo-physical, causality of the laws of market economy (Cf. Facchinetti 1992 on modality in Keynes’ arguments) and to be exploited in causal argumentation schemes. Deontico-practical modalities will likely appear in practical reasoning schemes where the goals and constraints of market players are explored and used to infer their course of action. Finally, given the contractual dimension of economics and the tight regulation of the financial markets, purely deontic conversational backgrounds are also expected to come into play in the formulation of predictions.

This highly idealized scenario needs to be fleshed out taking into account the specific linguistic semantics of each modal marker. The set of Italian expressions initially investigated in the corpus of economic-financial news will include the following:

- The modal verbs *potere* (‘may’, ‘can’) e *dovere* (‘must’) in their indicative, conditional and subjunctive forms, including the impersonal constructions of *potere* (può essere, può darsi).
- The modal adjectives *possibile* (‘possible’) and *probabile* (‘probable’) considered in their different constructions: complement clause embedding, predicative, attributive.
- The modal adverbs *probabilmente* (‘probably’) and *forse* (‘maybe’, ‘perhaps’).
- The morphemes of the future tense and of the conditional mood.

Further target items will be defined as the investigation of the texts proceeds. For each item, the semantic analysis will define item the core logical relation, the formal structure of the conversational background, and the admissible kinds of the conversational background. For certain items, this semantic description will have to be integrated with an instructional component, formulating procedural restrictions on the way the conversational background can be saturated in the common ground, and anaphorically in the discourse context, and other kinds of restrictions.

The future temporal reference of predictions will play an important part, as certain markers of epistemic modality are incompatible with future reference, while certain alethic and deontic modals can acquire epistemic nuances when the reference is future. Finally, the interaction of modals with reported speech and quotative evidentiality will be considered, as well as with conditional structures both syntactically expressed by conditional sentences or anaphorically realized in discourse through modal subordination.

### 2.3.4 Corpus Data

The present project, drawing on the research traditions of argumentation theory and of the semantics of modality, sets out to study modals as argumentative indicators, through an extensive examination of a large corpus of Italian texts belonging to the genre of economic-financial newspaper articles. This kind of investigation represents, to some extent, an innovation with respect to the established methods found in both traditions.

In the interdisciplinary field of argumentation theory the established research practices include a variety of methods of diverse provenance, ranging from the discussion of fictitious or unsystematically collected examples of reasoning to the in-depth analysis of single texts or speeches, seen in relation to the communicative context occasioning them. The systematic use of corpora has been added to this methodological arsenal only very recently.
(Cf. Goodwin 2007: 99). The proposed project will conduct an extensive corpus-based research on argumentation structures, employing the best available tools for the annotation of argumentative structure in texts, and sharing the analyses produced with the growing community of corpus based argumentation researchers.

With respect to modality, a large share of theoretical semantic work – not only formal (Cf. the Relative Modality tradition) but also cognitive (Cf. Talmy 1988, Sweetser 1990, Langacker 1991) – has relied almost exclusively on the manipulation of constructed examples. Corpus based empirical studies of modality do exist – at least for English – since the 1980’s (Coates 1983) and are increasingly gaining importance, with increased theoretical depth (Nuyts 2001a) and methodological rigor (Keck & Biber 2004). However, logically oriented treatments and corpus based work very often ignore each other, to the point that their results are difficult to compare. By putting hypotheses and models derived from formal semantics to the test of authentic discourse, the project will indirectly contribute to foster communication and comparison between different approaches in the area of modality.

The corpus of Italian economic-financial news articles, already fully implemented, includes 1 entire month (April 2006) of three newspapers: the main Italian economic-financial daily Il Sole 24Ore, the business newspaper Italia Oggi, and its sister financial newspaper MF/Milano Finanza. The whole corpus counts more than 4 million token words and has been compiled accessing the archives of the target newspapers through the LexisNexis databank (www.lexisnexis.com). Detailed statistics on the corpus are found in the enclosed APPENDIX on corpus data.

Il Sole 24 Ore covers global and national business and financial news, macro-economic news and also features sections devoted to the in-depth coverage of national fiscal matters and other regulations concerning individuals or corporations, together with “generalist” sections on politics and culture. The two other dailies jointly cover the same terrain: with Italia Oggi focusing on the national economy, fiscal matters and regulations and MF/Milano Finanza entirely devoted to financial news and investing. These newspapers make up most of the Italian daily economic-financial press. The corpus does not include the weekly and monthly press and the coverage of the economy in generalist newspapers.

The corpus is available is stored as plain text files and is untagged apart from a small set of metadata used by the LexisNexis databank. Metadata concerning the section of the newspaper in which the article is published will be systematically exploited in the project to create separate sub-corpora to keep apart articles dealing with business, news, economy and finance -- where forecasting is expected to occur - from other sub-genres such as, for instance, explanations of fiscal law or regulations, where modalities are expected to play a different role.

The number of occurrences of the initial target modal items in the corpus ranges from several thousands for the modal verbs potere (11,003 occurrences) and dovere (9,285) and for the morphemes of the conditional and the future, to a few hundreds for the rarest items (e.g. probabilmente ‘probably’: 442), with some items such as the adjective possibile (‘possible’) occupying a median position (2,017). For full statistics on the occurrence of target items see the enclosed APPENDIX.

Reference corpora and other sources: We plan to access other corpora covering other genres and registers of Italian when they are needed as reference corpora or to check specific hypotheses concerning the semantics of modal markers. These corpora will include spoken language corpora (such as LIP and CLIPS), corpora of generalist newspaper articles (e.g. la Repubblica corpus) and collections of literary works (e.g. LIZ).

A small corpus of English language economic-financial news, comprising one week of the Wall Street Journal Europe (175,733 token words) has been already collected for purposes of comparison at the level of genre and of argumentative structure.

Extension of the corpus. Several kinds of texts will be collected during the project that will integrate the existing corpus in different ways. On the one hand, we plan to collect a substantial sample from one Italian economic-financial magazine (Il mondo economico), and a sample from the economics pages of generalist dailies (e.g. Il corriere della sera) in order to complement the initial view based on the specialized daily press. On the other hand, as we proceed, we will collect small samples of economic-financial forecasting discourse from different genres, both in Italian and in English (including reports by banks and financial institutions, rating agencies, financial analysts, letters to investors) which are intertextually related to the news texts that we study. Design decisions concerning the transformation of these developing collections of texts into finite size corpora will be taken towards mid-project after a first cycle of analysis of the initial corpus has been completed (see 2.4.1 and 2.4.3 below).

---

11 A recent panel on corpus work in argumentation at IPRA 2007 in Gothenburg photographed this emerging trend in its infancy (Cf. Goodwin 2007).

12 A notable exception is Kronning (1996) which draws from formal and cognitive analyses and combines careful recourse to semantic tests with the examination of an extensive corpus to investigate the semantics of French modal devoir.

13 Another financial newspaper published in Italy which is not included in the research is Finanza e Mercati.
2.3.5 The tools for analysis

Two software tools will be used to process textual data: (1) a general purpose concordancer and corpus analysis program and (2) a discourse annotation tool specifically designed for representing the argumentative structure of texts.

1. A concordancer will be used to search the corpus to extract sample occurrences of target items, and, in particular, examples of co-occurrence of different modals, occurrences of modals in conditional sentences, co-occurrence with a variety of linguistic indicators correlated with different argumentative moves and argumentation schemes, as well as with indicators of reported speech and other evidential expressions. Other lexical and grammatical indicators of acts of prediction/forecast will be also searched (e.g. the verb *prevedere* and the noun *previsione*). Considering the polysemic semantics of the modals, the “manual” qualitative analysis of the extracted examples is always required; even primarily quantitatively oriented studies of modals do not forego this step (Cf. Keck & Biber 2004). Addressing modal semantics in relation to discourse and argumentation phenomena will require to qualitatively analyze examples extracted in their extended context. The qualitative and quantitative analysis of the immediate context of modal words will play a less prominent role in the project, but sorted KWIC concordances and extraction of collocates will still play an heuristic role. Frequency data of target items in the corpus and in its sub-corpora will be calculated. Keyword analysis and concordance plotting of single texts will also have a supporting role in characterizing sub-genres, and recurrent textual patterns respectively.

The corpus is currently accessed using *AntConc 3.2.1*, a freeware concordancer developed by L. Anthony, chosen on the basis of recent comparative reviews (esp. Wiechmann and Fuhs 2006) and informal trials of different packages. *AntConc 3.2.1* can perform searches with context words within a given context horizon, builds and sorts KWIC concordances, draws concordance plots, and has capabilities for the analysis of collocations and keywords.

2. A software tool for argumentation analysis will be used for the manual annotation of entire texts from the corpus as well as of occurrences of the modals analysed with their relevant discourse context, and other passages presenting acts of prediction/forecast. *Araucaria* (Reed and Rowe 2004) is a graphical software tool supporting the manual analysis of argumentation and the subsequent storage of analyses in a searchable online database (*Araucaria DB*). *Araucaria* is based on a rich, mark-up scheme – Argument Mark-up Language (AML) – a theory-neutral interlingua compatible with most current approaches to argument analysis (Reed and Rowe 2006). The tool allows to create argument diagrams, to associate to each argumentative relation an argumentation scheme from a user defined set, to specify implicit premises, to associate modal qualifiers to units and/or relations, to represent rebuttals, and different “voices”. Storage in a common online *Araucaria DB* and the common AML language facilitate exchanges in the growing community of researchers using the tool. Version 4.0 of Araucaria is currently being developed. Thanks to the collaboration with Chris Reed some specific features allowing a finer analysis of modal qualifiers are now being implemented. A local copy of the *Araucaria DB* will be installed at the USI.

2.3.6 The process of analysis

The present section describes the main analytical tasks that will be performed on the data during the project and how these tasks will related. Figure 2 in the next page presents a synoptic view of the relationships between the most recurrent and systematic analytic tasks in the project and the data sources exploited.

The overall strategy of the project combines two convergent approaches. The first approach moves from the reconstruction-oriented discourse analysis of whole economic-financial newspaper articles to the specific contribution of modal markers to the reconstructed argumentative structure. The second moves from a set of lexical or grammatical modal items to a study of the semantic constraints they impose on the interpretation of argumentative discourse, with a special concern for the interaction of different modals, of modals and evidentials, of modals with conditional structures. This convergence will be favoured operationally by the fact that both approaches will produce among their results a rich representation of argumentative structures in a common format.

A - In the lexically driven approach, samples of occurrences or co-occurrences of the target items will be extracted from the corpus (see A.1 in the figure) and analysed qualitatively in their discourse context. These analyses will specify at least the logical relation expressed by the modal, the type of conversational background invoked, and the effects with respect to the interpretation of discourse relations in the text (see 2.3.3 above). In case argumentative relations are involved, a full reconstruction of argumentation will be performed (A.3) using *Araucaria* and the AML formalism. The representation will specify the structure of the argument, the implicit

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14 The software is available from the author's homepage: [http://www.antlab.sci.waseda.ac.jp/software.html](http://www.antlab.sci.waseda.ac.jp/software.html)
premises (or implicit standpoints), the *topics* (argumentation schemes) used, the nature and scope of all the modal meanings involved, and the attribution of arguments and standpoints to sources.

**B** - The complementary approach will aim at the argumentative reconstruction of entire texts, according to the objectives specified in 2.3.2, considering in particular economic forecasts and other acts of prediction. The acts of prediction encountered will be classified – extending the typology in Merlini (1983) – and their role within the overall argumentative structure analyzed. The argumentation schemes invoked will be systematically specified. The contribution of lexical and grammatical modal markers occurring in the texts to the realization of predictions and other argumentatively relevant speech acts will be examined, carrying out the same kind of semantic analysis as in (A). It is also expected that the text analysis will also bring to our attention new lexical (or even grammatical) exponents of modality. These new markers of modality will be added in due time to the list of the target items (Cf. B2 → A1 in Figure 2).

When possible, the expert sources cited will be recovered, reconstructing, as accurately as possible, the intertextual relations within the system of genres. This intertextual investigation will be developed, in some cases, into the collection of intertextually related texts within the system of genres, which will be later integrated in the revision of the corpus. Finally (B.3), the resulting argumentative structure will be encoded in *Araucaria* with the same specification as above.

The results of all the argumentative reconstructions, stored in the *Araucaria DB* will be then quantitatively analysed (A,B.4) to investigate a number of relevant correlations between the coded categories, which are expected to be revealing both of the functioning of the modals as argumentative indicators and of the kind of arguments employed in this speech genre. One correlation particularly important to investigate quantitatively through the *Araucaria DB* will be that between the conversational background of the modal and the kind of argumentation scheme invoked.

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**Figure 2: Relationships between data sources and analytical tasks in the proposed research**

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2.3.7 Organization of the Research Team

The core research team carrying out the empirical analysis described above will be composed by the main applicant (Andrea Rocci), by one senior post-doc researcher (Johanna Miecznikowski) and by one Ph.D student. Andrea Rocci will participate in the research activities described, as part of his contractual duty of assistant professor whose time allocation is devoted for two thirds to research. The second applicant (Eddo Rigotti) will extend and adapt the system of topics he has developed so that it generates a principled and comprehensive list of argumentation schemes for the arguative reconstruction predictions in economic/financial news. Eddo Rigotti will also coordinate the integration of the project’s results within the broader argumentation research programme and teaching activity at the ILS.

Ph.D. researcher. One Ph.D. student will collaborate in the project as part of his doctoral research. The thesis work will directly concern the central issues of the research project and will be supervised by the main applicant. It will be the care of the two applicants, of the senior researcher, and of the two external experts to mentor the Ph.D. student with regard to their respective fields of expertise.

The Ph.D. researcher will be selected through a public call for applications. The proposed investigation demands an unusual combination of competencies, including Italian linguistics, argumentation theory as well as economics and finance. These competencies can be built up by candidates coming from master curricula involving applied linguistics and economics/business who are willing to engage in a robust interdisciplinary program at the Ph.D. level and are – to some extent – already present in candidates from the Master in Financial Communication at the USI, where the two applicants and one of the external experts teach.

Activities of the external advisors. Frans H. van Eemeren, in the context of the collaboration of between the “Amsterdam School” and the ILS, holds a yearly 2-week doctoral course at the USI. He will advise the project on argumentation theory issues, discussing with the project team in research meetings attached to the annual Lugano-Amsterdam colloquia and advising the PhD student on his/her thesis.

François Degeorge, who collaborates with the applicants in the context of the Master of Financial Communication, will advise the project on the dynamics of financial communication meeting with the research team on the occasion of project workshops. Moreover, he will mentor the PhD researcher in building the required background knowledge in finance and will advise them on their theses.

2.4 Timetable and milestones

The project will kick-off in May 2008 and will conclude in May 2011

2.4.1 Project activities

1. May 2008-August 2008. The first four months of the project will be entirely devoted to building the required competences and creating an adequate common ground in the research team. The PhD researcher will begin to work through the relevant literature, will familiarise with the corpus and with the analytical tools. The working titles of the thesis will be defined and plans for PhD education drafted.

A one-day closed doors kick-start workshop will be devoted to the in-depth discussion of the research questions, hypotheses and methodology of the project. Senior researchers will present the latest developments of their ongoing research on modality and argumentation. This work will continue in weekly project meetings. The same texts and corpus extracts will be analysed by all the members of the research team, and then discussed in project meetings. A preliminary quantitative exploration of the corpus and its sub-corpora will be carried out, comparing frequencies of target items across sub-corpora and with external reference corpora. A very simple project website will be created.

2. September 2008-September 2009. This phase of the project will be devoted to implementing the research strategy outlined in 2.3.7 above. A local copy of the Araucaria DB will be installed at the USI to store the analyses. At the end of this process an “interim report” will be released in the form of a collection of working papers by the team. A first series of conference papers is also expected and one open workshop with the project’s broader network of collaboration will be organized.

3. October 2009-December 2009. These three months will be devoted to the revision of the corpus with the inclusion of a collection representing texts from a variety of economic/financial genres and to the refinement of the research methods, of the format of semantic analyses, of the AML based format used to represent argumentative structures. One monograph on Modality in Argumentation by the applicant will be finished by the end of 2009.

4. January 2010-January 2011. This phase will be devoted to implementing the revised research strategy and will be similar to phase 2. As the project progresses, proportionally more time will be devoted to the presentation of theoretical and descriptive results through a series of publications both in conferences and
journals. During this phase one independently funded interdisciplinary colloquium will be organized in Lugano with the collaboration of the Institute of Finance.

5. February 2011-May 2011. In this final phase the project activity will switch to preparing a final round of journal submissions and conference presentations, editing a collective book partly derived from the colloquium, and for the PhD student concluding the writing of his/her thesis.

2.4.2 Deliverables

The project’s deliverables will consist of one monograph book (Modality in Argumentation), one PhD thesis, one edited collective volume partly derived from the colloquium, 3-4 articles in peer-reviewed journals, 4-6 papers in conference proceedings, working papers made available online, and a corpus of fully analysed arguments available online to researchers through the Araucaria DB.

The main journals targeted for publication will be: Argumentation, Journal of Pragmatics, Pragmatics and Cognition, Discourse Studies, Text and Talk, Linguistics, Lingue e Linguaggio, Studies in Communication Sciences. The main target conferences are the Chronos international conferences on tense, aspect, mood and modality, the ISSA international conference on argumentation. The monograph book will be submitted to Springer for the collection Argumentation Library.

2.4.3 Milestones

<table>
<thead>
<tr>
<th>Date</th>
<th>Milestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 7-9 2008</td>
<td>Panel on The discourse of economics and finance: genres, communicative practices and argumentation at the VALS-ASLA Colloquium, Lugano.</td>
</tr>
<tr>
<td>May 2008</td>
<td>Project starts</td>
</tr>
<tr>
<td>May 1st 2008</td>
<td>Invited Talk at the 4th conference on Strategic manoeuvring in argumentative confrontations (Amsterdam). ‘Manoeuvring with modalities’ (Andrea Rocci)</td>
</tr>
<tr>
<td>May 8-10 2008</td>
<td>Andrea Rocci: Keynote talk at the IADA conference (International Association for Dialogue Analysis) Lexical meaning in argumentative dialogue, Milan. ‘Lexical indicators of argumentation in predictions’ (Andrea Rocci)</td>
</tr>
<tr>
<td>June 2008</td>
<td>Kick-start closed-doors workshop</td>
</tr>
<tr>
<td>September 2008</td>
<td>Systematic analysis of the corpus texts begins</td>
</tr>
<tr>
<td>October 2-5, 2008</td>
<td>Presentation of paper(s) at Chronos 8 International Conference on Tense, Aspect, Mood, and Modality (Austin, Texas)</td>
</tr>
<tr>
<td>Winter Semester 2008-2009</td>
<td>Frans van Eemeren teaches doctoral course on argumentation in Lugano. The project’s PhD researcher participates. Prof. van Eemeren advises the Ph.D researcher on his/her thesis.</td>
</tr>
<tr>
<td>December 2008 or January 2009</td>
<td>Lugano-Amsterdam Colloquium on Argumentation Theory (Lugano). Preliminary results of the project on argumentative indicators are presented at the colloquium.</td>
</tr>
<tr>
<td>May-June 2009</td>
<td>1-day project workshop in Lugano with invited participants from the network of collaboration.</td>
</tr>
<tr>
<td>Summer 2009</td>
<td>First series of conference paper presentations by PhD student and senior researchers. Conferences to be defined but likely to include Chronos 9 (Paris, France, 2009)</td>
</tr>
<tr>
<td>September 2009</td>
<td>End of first round of analysis. A report in the form of a series of working papers is published on the project’s website. The corpus of analysed arguments is made available online through the Araucaria DB.</td>
</tr>
<tr>
<td>November 2009</td>
<td>Monograph on Modality in Argumentation is submitted to Springer’s Argumentation Library (Andrea Rocci)</td>
</tr>
<tr>
<td>December 2009</td>
<td>Redesign of corpora is completed. The new corpora include also a small corpus representing different genres of economic-financial discourse.</td>
</tr>
<tr>
<td>Winter Semester 2009-2010</td>
<td>Frans van Eemeren will be again teaching in Lugano and will be able to advise the Ph.D researcher on his/her thesis.</td>
</tr>
<tr>
<td>December 2009-January 2010</td>
<td>Lugano-Amsterdam Colloquium on Argumentation Theory (Lugano). The project team will present the current state of the project.</td>
</tr>
<tr>
<td>January 2010</td>
<td>Second round of systematic analysis of corpus data begins.</td>
</tr>
<tr>
<td>Spring 2010</td>
<td>First round of article submissions to peer-reviewed journals.</td>
</tr>
<tr>
<td>June 2010</td>
<td>Presentation of papers by the project members to the conference of the International Association for the Study of Argumentation (ISSA 2010) in Amsterdam.</td>
</tr>
<tr>
<td>September 2010</td>
<td>2-day interdisciplinary colloquium with the collaboration with the Institute of Finance and the participation of researchers from the project’s network.</td>
</tr>
</tbody>
</table>
2.5 Significance of the planned research.

With respect to the interdisciplinary community of argumentation theory, the project will have a threefold significance. Firstly, it tackles long-standing questions concerning the role of modality in the structure of arguments filling a perceived gap in theorizing. Secondly, it contributes to the recent development of corpus-based studies of argumentation, also by sharing with other researchers in the community a corpus of analyzed arguments using Araucaria and the AML formalism. Thirdly, it addresses the argumentative analysis of economics discourse, an area that, despite the related efforts of the rhetoric of economics, has been rather neglected by normative approaches to argumentation (especially if compared to other fields such as legal argumentation).

With respect to Italian linguistics, the research will refine existing semantic analyses of lexical and grammatical modal markers and will extend their empirical grounding through the recourse to a rich corpus, where a number of phenomena relevant for the semantics of the modals are easily observable.

Moreover, the planned investigation will contribute to the study of financial communication by providing insights on the role of the economic-financial press in translating forecasts based on expert knowledge and highly specialized mathematical reasoning to a diversified audience of investors, assessing, in particular – through the analysis of the argumentation schemes employed – the extent to which the expert's argumentation can be critically checked by the reader. The focus on modality will also help to consider how the uncertainty deriving from future decisions and from undisclosed information, and the probabilistic nature of forecasts, are translated into natural language expressions of modality.

These results can be readily transferred to the education of financial communication and business journalism professionals, providing them with critical insights for evaluating the quality of the economic-financial press.
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## APPENDIX
- CORPUS DATA-

### Corpus Il Sole 24 Ore

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<td>No. word types</td>
<td>95,083</td>
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<tr>
<td>No. of texts</td>
<td>5,136</td>
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</table>

**Occurrences of initial target modal items:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>dovere (modal verb, all inflected wordforms)</td>
<td>5,847</td>
</tr>
<tr>
<td>potere (modal verb, all inflected wordforms)</td>
<td>7,829</td>
</tr>
<tr>
<td>possibile (adj., all inflected wordforms)</td>
<td>1,215</td>
</tr>
<tr>
<td>possibile (adj., all inflected wordforms)</td>
<td>182</td>
</tr>
<tr>
<td>forse (adverb)</td>
<td>705</td>
</tr>
<tr>
<td>probabilmente (adverb)</td>
<td>295</td>
</tr>
<tr>
<td>Conditional mood morphemes(*)</td>
<td>7,090</td>
</tr>
</tbody>
</table>

### Corpus MF/Milano Finanza
One full month (April 2006) of the financial newspaper *MF/Milano Finanza* extracted from the LexisNexis databank. Stored in plain text files. Contains a limited set of metadata defined by LexisNexis.

<table>
<thead>
<tr>
<th>Metric</th>
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<td>No. of texts</td>
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**Occurrences of initial target modal items:**

<table>
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<tr>
<th>Item</th>
<th>Count</th>
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</thead>
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<tr>
<td>dovere (modal verb, all inflected wordforms)</td>
<td>975</td>
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<tr>
<td>potere (modal verb, all inflected wordforms)</td>
<td>1,365</td>
</tr>
<tr>
<td>possibile (adj., all inflected wordforms)</td>
<td>350</td>
</tr>
<tr>
<td>possibile (adj., all inflected wordforms)</td>
<td>63</td>
</tr>
<tr>
<td>forse (adverb)</td>
<td>102</td>
</tr>
<tr>
<td>probabilmente (adverb)</td>
<td>91</td>
</tr>
<tr>
<td>Future tense morphemes(*)</td>
<td>4,666</td>
</tr>
<tr>
<td>Conditional mood morphemes(*)</td>
<td>2,321</td>
</tr>
</tbody>
</table>

(*)Data concerning conditional and future are obtained by querying the corpus for future and conditional suffixes stripped of their thematic vowels (e.g. *rà* or *rebbe*) and by manually eliminating false positives from the sorted concordance (e.g. the family name Ligresti for *resti*). For the future only the data concerning MF/Milano Finanza and Italia Oggi are available at the moment, due to the unreliable coding of accents in *Il Sole 24 Ore* texts, which require an extra amount of cleaning. In the other two newspapers the coding of accents is reliable.
Corpus Italia Oggi
One full month (April 2006) of the business newspaper Italia Oggi extracted from the LexisNexis databank.
Stored in plain text files.
Contains a limited set of metadata defined by LexisNexis.

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<thead>
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<td>No. of texts</td>
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**Occurrences of initial target modal items:**

<table>
<thead>
<tr>
<th>Word</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>dovere</td>
<td>modal verb, all inflected wordforms</td>
<td>2,463</td>
</tr>
<tr>
<td>potere</td>
<td>modal verb, all inflected wordforms</td>
<td>1,809</td>
</tr>
<tr>
<td>possibile</td>
<td>adj., all inflected wordforms</td>
<td>452</td>
</tr>
<tr>
<td>probabile</td>
<td>adj., all inflected wordforms</td>
<td>36</td>
</tr>
<tr>
<td>forse</td>
<td>adverb</td>
<td>98</td>
</tr>
<tr>
<td>probabilmente</td>
<td>adverb</td>
<td>56</td>
</tr>
</tbody>
</table>

Future tense morphemes\(^(*)\) 5,650
Conditional mood morphemes\(^(*)\) 2,091

**TAGS FROM THE LEXIS-NEXIS METADATA USED IN THE CORPUS:**

BYLINE: identifies the author, if the article is signed.
SECTION: the section of the newspaper in which the article appears
LENGTH: in words
HIGHLIGHT: identifies the typographically highlighted lead under the title
LOAD-DATE: the date of the upload of the article in the databank, which coincides with publication date
LANGUAGE: the language of the article, which is Italian throughout the corpus.
PUBLICATION-TYPE: newspaper throughout the corpus.

- The only tag that we expect to play an important role in the analysis is the indication of the section of the newspaper in which the article is published (SECTION).

**REMARKS**
- Being compiled from copyrighted articles, the corpus will not be made publicly available as such. On the other hand, analyses of excerpts and even of entire texts fall under the (Swiss) terms of fair use of copyrighted sources for scholarly research and will be made available through publication and in electronic form.
- The corpus is stored in two versions: as a collection of smaller files containing 1 article each and in the form of bigger files (typically corresponding to 1 day each). The first version is useful for purposes of text comparison (e.g. by comparing the concordance plots of different texts) and for creating sub-corpora (e.g. by including only certain sections of the newspaper). The second version has just the practical advantage of being quicker to search with the concordancer.