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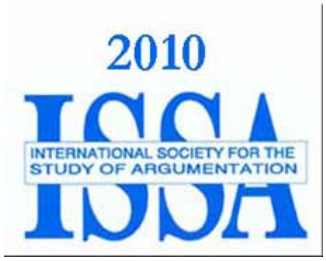

1. Introduction

Despite the varying theoretical perspectives that argumentation scholars take when studying argumentative discourse and despite their different research goals, almost all have shown, in one way or another, interest in the linguistic realisation of argumentative moves and of other argumentative aspects that fall under their object of study. Such an interest may be seen as satisfying at least two goals. The first is a purely utilitarian one. Argumentation scholars are interested in those linguistic elements that can help them identify the units that they are studying and subsequently help them to justify their proposed analyses on some linguistic grounds. The second goal that one may have is to reach a better understanding of what language users do when they argue by studying the way they use language. These two goals are not necessarily self excluding.

In this paper**[i]**, I present some preliminary thoughts on the subject of argumentative markers that result from an ongoing study of a large corpus of texts (in French) on the controversies surrounding the application and development of nanotechnology**[ii]**. Given the large number of texts and the different sources from where these texts come, a software is used that allows a semi-automatic treatment of the data. To this endeavour, linguistic elements appearing on the surface of texts that can point to the argumentative aspects of discourse in which we are interested can be highly useful. At the same time, this endeavour gives the opportunity for a theoretical discussion concerning argumentative markers, as a preliminary step to the identification, description and classification of various linguistic elements that may represent one or another type of marker. It is to this latter point, that is the theoretical preliminaries, that I focus on in this paper. Working towards refining the categories and the tools used by a software for the analysis of text corpora is a unique opportunity to ponder

over the theoretical categories and concepts that one needs to have recourse to when analysing argumentative discourse.
In sections 2 and 3, I briefly present the project within which the interest in argumentative markers has arisen, and the software that is used for the analysis. In section 4, I discuss three main approaches in argumentation studies that can provide useful insights to the study of markers. In the final section, I present a working definition of argumentative markers and discuss its main elements with the use of examples taken from a part of the corpus.

2. The Chimères project
The research project Chimères is carried out by a team of sociologists, anthropologists and argumentation theorists in Paris**[iii]**. One of the aims of the project is to describe in a systematic way the positions that the various parties assume and the arguments they bring forward as well as the criticisms exchanged in the controversy surrounding the challenges, risks and promises related to the development and applications of nano and biotechnologies**[iv]**. Questions that are raised in the Chimères project include: How are the boundaries between legitimate expectations and irrational projects constructed and discussed upon by the stakeholders? How do those expressing their opinions in this controversy elaborate on their argumentation and react to the arguments advanced by the other participants? How do arguments come about, are transformed, receive consensus and eventually die out? The interest of the Chimères project lies in understanding how controversies arise in the public sphere and how they develop over time, constructing and transforming the public's common sense**[v]**.

For this project, a large number of texts is collected from different sources (news articles, scientific articles, media reports, official reports, interviews, etc.), mainly from the Internet, in which the analyst is invited to look for the arguments and the positions advanced or the criticisms that are put forward. As a result, the texts collected cannot be reconstructed straightforwardly as representing positions in one main discussion over one specific difference of opinion. Moreover, given their different types, it cannot be guaranteed that these texts are argumentative from beginning to end. Finally, the questions that the particular project seeks to answer require one to focus more on the content of the discourse and of the arguments exchanged in it rather than on the formal and structural relations that can be identified between these arguments. At the same time, however, the need of studying a large number of texts produced over a certain

period of time in order to answer these questions calls for an automatic or semi-automatic treatment of the corpus, treatment which resides mainly on the linguistic surface of the texts under study.

3. Prospéro: a software for socio-informatics

An integral part of the project is the use of a software called Prospéro. The name is an acronym of "PROgrammes de Sociologie Pragmatique Expérimentale et Réflexive sur Ordinateur". The software is being developed since 1995 by the sociologist Francis Chateauraynaud and the informatics engineer Jean-Pierre Charriau to respond to the demand for computer-aided analysis of large numbers of written texts of public debates and controversies (Chateauraynaud 2003)**[vi]**. Angermüller (2005), in an overview of the various approaches in contemporary French sociology, writes with respect to Prospéro:

Prospéro is a software utility that processes "complex files" and generates conceptual dictionaries. This software produces intermediate layers of codes and categories between the level of the text and the sociological model. The research procedure can be called "qualitative" in that the human interpretive act plays a crucial role in the constitution and codification of the corpus. .. The codification takes place in close interaction with the computer which stores and accumulates the coding routines so as to codify new texts of the corpus more or less automatically. Since the researcher is constantly forced to develop new categories and to confirm or modify older ones the research design is more flexible than much of the software coming out of the tradition of automated discourse analysis established by Pêcheux (1969).

The software serves as a search engine providing the analyst with a variety of tools that he can use in order to access the texts collected in the corpus under study. The various tools proposed by Prospéro have been conceived of in such a way that they allow a treatment of the corpus that takes into account jointly the content (what is said), the mode (the way of saying it) and the context in which it is said (Chateauraynaud 2003).

Seven levels of representation and description are proposed which allow for different entrance points into the corpus. These are: 1) the representation of authors and dates, which helps contextualise the information regarding the texts under study; 2) the representation of themes that takes into consideration the entities, the list of names and the list of actors that are present or discussed upon

in the corpus; 3) the representation of thematic networks and the qualifications applied to themes and actors; 4) the representation of categories (see following paragraph) and collections; 5) the representation of the arguments exchanged by the actors; 6) the representation of the modalities, markers and connectors used in the texts; 7) and the representation along the time axis**[vii]**.

In addition, the software can represent the content of the texts on the basis of seven categories, namely: entities (which correspond roughly to the grammatical class of nouns and noun phrases), qualities (which correspond roughly to adjectives and adjectival phrases), processes (which correspond roughly to verbs), markers (which correspond roughly to adverbs), auxiliary words (which correspond roughly to the classes of articles, pronouns and conjuncts), numbers, and finally undefined elements (which include the elements that cannot be recognised automatically as belonging to any of the above categories, and which the analyst should manually assign to one of them).

One of the particularities of the Prospéro software is that it encourages the analyst to create sub-categories and modify existing ones in order to have a better representation of the data under study. Contrary to other software for computer-aided text analysis, Prospéro does not provide ready-made and fixed categories. The dictionaries that include lists of the items representing each category can be modified at any time and other dictionaries developed by other users**[viii]** can be incorporated in order to provide a different entrance point into the same corpus of texts. It is to the direction of refining the category of markers (see above) in particular and of elaborating on the elements that constitute its dictionary that an understanding of what argumentative markers are and which linguistic elements can function as such can prove useful. Before proposing a definition of argumentative markers in section 5, I present a brief overview of some influential studies on this subject, in the following section.

4. From "connectives" to "operators" to "indicators"

In the argumentation studies literature, one can identify three main approaches that provide a fruitful and rich background against which one can try to describe argumentative markers and the role they play for the analyst and/or the language users.These are the so-called Geneva school, the theory of Argumentation within Language developed by Anscombre and Ducrot, and finally the pragma-dialectical approach to the study of argumentation developed by van Eemeren and Grootendorst.

4.1 The Geneva School on "pragmatic connectives"

In the 80's, the so-called Geneva School, with Eddy Roulet, Antoine Auchlin, Jacques Moeschler among its members, produced a significant amount of studies on the subject of markers and connectors (about French language) in their attempt to describe the means by which various relationships between acts can be made explicit in discourse. In a comprehensive study (Roulet et al. 1985), the authors distinguish three main types of markers/connectors, which correspond to the three levels of units that compose the structure of discourse, according to the Geneva School's approach, namely exchanges, moves and acts. These are: a) markers of the organisation of conversation, the use of which guarantees the continuous development of discourse while it provides indications about the actual state of its structure; b) markers of illocutionary function, that concern the relations between acts**[ix]**,and c)
markers of interactive function. Leaving the first class of markers aside, Moeschler and Roulet refer collectively to the other two classes as "pragmatic connectives" and define them as follows:

A pragmatic connective is any lexical item of a particular natural language which connects two (or more) propositions realised in utterances, in a non-truth-functional manner (Moeschler 1989, p. 323).

The relationship between the constituents which form a discourse at different levels may be indicated by markers of illocutionary or interactive function which we call 'pragmatic connectives' since they serve to articulate discourse units (Roulet 1984, p. 32).

Within the group of interactive markers, the following three sub-groups are distinguished: a) those that mark the relationship between the arguments and the master act. These can be further divided into those markers that appear in the subordinated act (connecteurs argumentatifs), such as: *car, parce que, en effet, du fait que*, and those that appear in the master act (connecteurs consécutifs), such as: *donc, par conséquent, aussi, ainsi, alors*. b) Those that mark the relationship between the counter-arguments and the master act (connecteurs contre-argumentatifs): *bien que, mais, quand même, alors que, malgré que, cependant, néanmoins, pourtant*. c) Those that mark a certain reformulation /re-evaluation of the acts that precede (connecteurs réévaluatifs), which are distinguished between those that have a recapitulating function (récapitulatifs), such as: *bref, en somme, au fond, décidemment, en fin de compte, finalement, de*

toute façon, and those that have a corrective function (correctifs), such as: *en fait, en tout cas, enfin*.

The studies carried by the members of the Geneva school focus on real discourse and provide a detailed analysis of a varied number of elements that indeed go beyond the study of the grammatical class of conjunctions. However, their interest is in the relations that these elements mark between the various units of discourse. Such a view implies that the argumentativity of discourse lies in the coherence relations and the structural organisation of various discourse units. While this may be true to a certain extent, it risks neglecting those cases where the standpoint-argument relation is not explicitly marked, as well as cases in which the argumentative nature of a piece of discourse is not revealed by a standpoint-argument relation but rather by the use of a figure of speech or by the use of a strategy that accompanies the argumentative move performed (see 5.2).

4.2 "Operators" in the Argumentation within Language Theory

Even though the theory of argumentation developed by Anscombre and Ducrot (1983) has been a source of inspiration for the study of pragmatic connectives carried out by the members of the Geneva School, I discuss it in this order because I believe that it preserves an interest in the semantics of the linguistic elements that may function as argumentative markers, which lacks in the study of pragmatic connectives by the Geneva School. Ducrot's study of the "discourse words" (les mots du discours) emanates from his interest in describing the instructions that such words as *mais* [but], *d'ailleurs* [moreover], *justement* [exactly], *donc* [so/therefore], among others, give to the interlocutor for recovering the argumentative orientation of the utterance in which these words appear and thereby for understanding the meaning of that utterance (Ducrot *et al*. 1980).

To my knowledge, there is no general classification of connectors proposed in the works of Ducrot except for studies of individual words or phrases. Nevertheless, two distinctions have been proposed that can provide useful insights in the search for argumentative markers. The first is between "argumentative connectors" and "argumentative operators" (Ducrot 1983). Argumentative connectors serve as articulators of two or more propositions. They ascribe to each proposition a certain argumentative function, as is the case with *donc*. The proposition introduced by this adverb functions as the conclusion, while the proposition that precedes it has the function of argument in support of this conclusion.

Argumentative operators, on the other hand, which are words like *presque* or expressions like *ne..que*, function within the boundaries of a proposition, changing the argumentative potential of that proposition.
The second distinction proposed by Ducrot is between "realising" and "de-realising" modifiers (Ducrot 1995). This distinction concerns modifiers (like adverbs and adjectives) that can accompany the predicates of a phrase (a verb or a noun) and result in changing the argumentative force of that predicate: the "realising" ones by increasing that force, and the "de-realising" ones by decreasing it. In the following two sentences, "difficult" is a realising modifier for the noun "problem", while "easy" is a de-realising one for the same noun:

There is a problem, and it is even *difficult*. [RM]
There is a problem, but it is *easy*. [DM]

Although the original focus of Ducrot and his colleagues has been mainly on functional words such as conjunctions and particles and not so much on words and expressions with full lexical meaning, the insights that can be gained from their studies can be useful in considering evaluative words, for example, as playing the role of markers of argumentative aspects that are pertinent to the study of controversies(**10**). Along these lines, the use of nouns like "revolution" to refer to "nanotechnology" and verbs like "enhance" and "improve" to refer to the applications of these technologies can be considered as markers of a positive representation of the object of controversy, to be found in the discourse of those favouring its development rather than in the discourse of those supporting a moratorium on its development.

4.3 The pragma-dialectical approach to "argumentative indicators"
Given the definition of argumentation as a social, rational and dialectical activity (van Eemeren & Grootendorst 1992, 2004), the interest of the pragma-dialectical approach in the linguistic surface of argumentative discourse goes well beyond the study of conjunctions and discourse connectors. As van Eemeren, Houtlosser and Snoeck Henkemans (2007, p. 2) state:

we do not consider argumentative indicators to be merely words and expressions that directly refer to argumentation, but consider argumentative indicators to include all words and expressions that refer to *any of the moves* that are significant to the argumentative process.

The authors take the ideal model of a critical discussion as their starting point and seek to identify the elements of actual discourse that are pertinent to the units of analysis proposed in the pragma-dialectical model. They thus identify argumentative markers that pertain to the moves that are to be carried out at all four stages of the ideal model of a critical discussion, such as indicators of standpoints (confrontation stage), indicators of challenge to defend a standpoint or indicators of proposal to accept a proposition as a starting point (opening stage), indicators of argument schemes and of related criticisms (argumentation stage), and indicators of maintaining or withdrawing a standpoint or doubt (concluding stage), to name a few.

An asset of this approach to argumentative indicators, as Kienpointner (2010) rightly observes, is that the authors "do not restrict the notion of "indicator" to one type of expression (e.g. to one word class, for example, nouns or adverbs; or to one level of language, such as morphology)". Another useful insight for the search of argumentative markers that the study by van Eemeren *et al*. provides is that the reactions of the other party can also be used as indicators of what the speaker's move is, something which acknowledges the dialogicality of argumentative discourse to the fullest.

Nevertheless, the aspects that are identified by means of the proposed indicators are at times too analytic and too theory-dependent to be pertinent in the (computer-aided) study of actual discourse. It is not evident, for example, whether the difference between one-sided and two-sided burden of proof, or the difference between unrestricted acceptance and acceptance with restrictions of a proposition as a starting point can be linguistically marked. Moreover, a number of the items listed as argumentative indicators rely heavily on the assumption that argumentative discourse is reconstructed in the form of a dialogue, something which is not very helpful for the analyst who seeks to identify the respective moves in written monologal argumentative discourse**[xi]**. Finally, a number of linguistic elements that may help the analyst identify certain argumentative strategies rather than specific argumentative moves tend to be overlooked by the definition of argumentative markers as "words and expressions that may refer to argumentative moves"**[xii]**.

A software such as Prospéro invites the analyst to take a reflexive stand towards the data under analysis (Chateauraynaud 2003). Because the categories used for the search of relevant fragments and for their analysis are not determined

exhaustively and in advance, the analyst is constantly invited to reconsider the proposed categorisations and the linguistic items that may represent them. In addition, it should be noted that the software recognises the linguistic surface of the various texts without however coding these elements grammatically or morphologically**[xiii]**. It thus becomes a challenge for the argumentation theorist to find ways in which he could search for those passages of the corpus that are pertinent for him, based on the linguistic realisation and configuration these may have. It is to this direction that the use of argumentative markers can prove useful.

5. A working definition of argumentative markers

Considering the specificity of the Chimères project and the technical characteristics of the Prospéro software, the argumentative markers that one is interested in identifying should be such that they can be expected to lead the analyst to fragments of the corpus in which a certain argumentative activity is to be found. Two main questions arise, namely: 'What can an argumentative marker be like?' and 'What does an argumentative marker mark?'. A formula for argumentative markers such as the following can be proposed: *Marker (M) marks a unit X as Y*. Starting from this formula, I address these two questions in the following sub-sections.

5.1 What can an argumentative marker be like?

Argumentative markers do not constitute a finite class and are not to be identified with one specific grammatical class either. Any lexical item, single or complex, can be an argumentative marker**[xiv]**. Such lexical items can be a single word (see examples 1-2), a phrase (see 3-4) or a whole sentence (see example 5)**[xv]**:

(1) Les nanotechnologies sont *assurément* au cœur de la Convergence Technologique actuelle. (AFT)
[Nanotechnologies are *undoubtedly* in the heart of the actual Technological Convergence]
(2) *Paradoxalement*, on connaît très peu l'impact sur la santé et l'environnement des nanomatériaux utilisés pour mettre au point les nanomédicaments. (ETC)
[*Paradoxically*, we know very little about the impact that the nanomaterials used in nanomedicines may have on health and environment]
(3) Que ce soit dans l'industrie pharmaceutique, l'agroalimentaire, le nucléaire ou l'informatique pour ne citer que ceux là, *tout le monde convient qu*'il y a des risques et que des mesures ont été prises pour protéger les citoyens en général et

les salariés qui participent à la production de ces produits et services. (CFE-CGC)
[Be it in the pharmaceutical industry, the food-processing industry, the nuclear or the informatics industry, to mention only a few, *everyone agrees that* there are risks and measures have been taken to protect the citizens in general and the employees who are involved in the production of these products and services]
(4) Le désir de réaliser des profits et de gagner une certaine compétition scientifico-économique tue, chez les scientifiques, les industriels et les élus, toute conscience morale sans laquelle, *comme chacun sait*, il n'y a « point de science », mais « ruine de l'âme » (Rabelais, 1550)! (SEPANSO)
[The desire to make profit and to win the competition at the scientific and financial levels kills any moral conscience that scientists, industrialists and politicians may have, without which, *as everyone knows*, there is "no science" only "ruins of the soul" (Rabelais, 1550)!]
(5) Que les nanotechnologies tendent à modifier au fond la Nature, l'Humain et l'Humanité nous est montré par de multiples exemples. (AFT)
[That nanotechnologies tend to deeply modify Nature, Humans and Humanity is shown to us by a multitude of examples]

It may also be the case that a certain discursive configuration functions as an argumentative marker. This is a combination of elements that appear in a certain order over a number of utterances (or within the same utterance), as the following example illustrates:

(6) *Il est compréhensible de* mener des débats thématiques là où sont les experts de la question et de les inviter à intervenir. *Néanmoins*, est-ce que ces experts ne risquent pas de défendre le domaine qui les rémunère pour leurs recherches? (FSC)
[*It is understandable* to carry out thematic debates on topics on which one can invite the ones who are specialists. *Nevertheless*, isn't there a risk that these experts are going to defend the field that finances their research?]

In the case of single words or phrases functioning as an argumentative marker, a further distinction can be made between those that are part of the main constituents of the phrase (playing the syntactic role of the verb, the subject or object, for example) and are thus integrated into the propositional content of the sentence, and those that are semantically and syntactically detached. The latter ones are more flexible and can occupy sentence initial or final position or even have a parenthetical position. See, for instance, examples 1 and 3 where the

marker is integrated in the propositional content, compared to examples 2 and 4 where the marker is detached. Moreover, the argumentative marker may refer to an element (unit X, in the formula) that precedes or follows it. In either case, the element that the marker targets may be a constituent of the sentence (as in example 1), a whole sentence (as in examples 2-4) or a larger unit of discourse. The latter is the case in example 5, where the paragraph immediately following this sentence is marked as being the exemplification of the claim made in that sentence.

5.2 What does an argumentative marker mark?

Contrary to what the received view may be, I take an argumentative marker to be a linguistic item that signals a certain function, not necessarily one that connects two elements. In this view, a marker that signals that a certain piece of discourse is to be understood as the expression of an argument in support of a standpoint, for example, may either be one that makes explicit the relation that this piece of discourse has with another piece that precedes (or follows) it, or one that signals the function of this piece of discourse without necessarily indicating a relation between two units. Compare the two examples below:

(7) En outre, certains nanomatériaux chimiquement « inertes » constituent du fait, notamment de leur caractère non soluble et biopersistant, un risque pour la santé humaine et l'environnement. Il est *donc* indispensable d'adapter le règlement REACH à cette donnée. (CFTC)
[Moreover, certain nano-materials that are chemically "inert" constitute already, mainly because of their insoluble and bio-persistent properties, a risk for human health and the environment. It is *therefore* indispensable to adapt the REACH regulation to these facts]

(8) *Il nous paraît important qu'un* débat public soit mené sur ce sujet, et qu'y soit envisagé une approche plus large de l'information des consommateurs en matière de risque, ne se limitant pas aux nanotechnologies. (Sciences et Démocratie)
[*It seems to us important that* a public deliberation takes place on this subject and that a more encompassing approach is sought that informs the consumers about the risks, without being limited to nanotechnology]

In (7) the standpoint is to be identified thanks to the conjunction *donc* [therefore] that relates the sentence in which it appears with what precedes it, marking the former as a consequence/result of the latter. In (8), however, the standpoint is

identified thanks to the impersonal construction “it seems to us important that..”, which signals to the interlocutor that the utterance expresses the speaker’s point of view. In the first case, the marker relates two units to each other and has a ‘connecting’ function, while in the second case it refers to a unit X (that precedes or follows it) and has what I would call a ‘commenting’ function. The two functions, however, may at times be confused, as is the case with certain stance adverbs like “unfortunately” or “actually”, for example, which can also have a linking function. This is also the case with sentence initial noun phrases in apposition, as the following example illustrates:

(9) *Annonciatrices de progrès considérables* selon les uns, *sources de risques* imprévisibles pour les autres, les nanotechnologies restent pour la plupart des citoyens mal connues. (CLCV)
[*Announcing a considerable progress* according to the ones, *sources of unforeseeable risks* for the others, nanotechnologies remain for the majority of the citizens unknown]

The phrases “announcing a considerable progress” and “sources of unforeseeable risks” in the above example refer to nanotechnologies and add a qualifying comment. At the same time, the content of these phrases comes into a contrastive relation with the verb of the sentence, which could be rendered explicit by the use of a contrastive connector like “nevertheless” following immediately after the verb “remain”.
The decision to consider the connecting function of markers as only one of the possible functions and not as essential for the definition of argumentative markers is driven not only by theoretical considerations but also by methodological ones. As Charaudeau (1992, p. 782) rightly observes:

Argumentation cannot be reduced to the identification of a series of phrases or propositions that are linked together by logical connectors. (my translation)**[xvi]**

First of all, relations between phrases or propositions are not always explicitly marked by the use of connecting words, and when they are, these relations are not necessarily argumentative**[xvii]**. Second, connecting words are not the only means by which such relations can be made explicit on the linguistic surface of discourse. Use of words with full lexical meaning, such as verbs like “cause”, “lead”, and nouns like “problem”, “consequence” or prepositional phrases introduced by “due to”, “because of”, “despite of”, among others, can also mark

relations of cause-consequence and opposition, for example**[xviii]**. Focusing exclusively on connectives and conjunctions when searching for argumentative fragments in a large corpus of texts with the use of the Prospéro software would risk giving a faulty representation of argumentative activity in that corpus. Moreover, as suggested earlier, for the purposes of the Chimères project (see above) one is interested not only in identifying argumentative moves that the parties contribute in the discussion concerning nanotechnology but also, and maybe more importantly, one is interested in identifying the ways in which the actors seek to reinforce the acceptability of their positions and to weaken the plausibility of the positions of their adversaries. That is, one is interested in identifying markers of argumentative moves as well as markers of argumentative strategies. One would expect that the latter are marked by more complex linguistic elements than merely connecting words.

The question now is what are these moves and strategies that one may be interested in discovering in a corpus of texts that represents the controversy regarding the development and applications of nanotechnology (that is, the Y element in the formula presented in 5). To answer this question, the study by van Eemeren *et al*. (2007) can provide one good starting point. A selection can thus be made of the moves that seem pertinent, given the aims of the Chimères project, from the various moves identified in the pragma-dialectical model. These can be: the positions assumed, the doubt/criticism advanced, the representation of the common ground, the representation of the difference of opinion, and the types of arguments used. With respect to the latter, a further elaboration of markers that can signal the use of the various sub-types that go beyond the three main argument schemes distinguished within Pragma-dialectics will be required. Moreover, markers should be identified for the use of rhetorical figures and strategies, such as dissociation, metonymy, and others to be discovered in the corpus under study. Finally, special attention should be paid to markers of counter-arguments. Since counter-arguments allude to an existing or potential criticism (as well as to old standpoints that may have already been defended and which can further be used to counter new standpoints or arguments), they can provide valuable clues for the circulation and the trajectory of arguments among the various stakeholders in a controversy. For the same reason, attention to the way the authors judge the discourse of their interlocutors should also be paid.
In the light of the discussion in the last two sub-sections, I propose the following working definition of argumentative markers:

An argumentative marker is any single or complex lexical item or any configuration of these, whose presence in a text can be a (more or less reliable) sign that a certain argumentative move is performed or that a certain argumentative strategy is at hand.

Ideally, one would wish to have unequivocal markers of this or the other argumentative move or strategy that one is looking for in a corpus of texts. However, given the polyvalence of the elements that constitute good candidates for such markers and the fact that the argumentative analysis pertains to a higher textual level (than a mere syntactic or semantic analysis), it becomes almost impossible to have such unequivocal markers.
Moreover, it may be the case that certain markers are successful in leading us to pertinent fragments in a certain corpus of texts but not in another.

6. Concluding remarks
In this paper, I have presented some preliminary steps that are required towards an empirically plausible identification and classification of argumentative markers. Such markers are going to be of use to the search, identification and analysis of argumentative fragments in a large corpus of texts produced by a number of different actors concerning the controversies related to the development and applications of nanotechnology in France. Given the interests of the particular project and the technical specificities of the software that is used for the collection and analysis of these texts, argumentative markers are not identified exclusively with connectives. Moreover, the target of their marking refers not only to argumentative moves but also to argumentative strategies.

NOTES
[i] I would like to thank Marianne Doury and Francis Chateauraynaud for their comments and suggestions as well as for the lively research group within which the ideas presented in this paper have grown.
[ii] The project is called “Chimères” and is financed by the French National Research Agency (ANR).
[iii] The three partners of the project are the Groupe de Sociologie Pragmatique et Réflexive of the Ecole des Hautes Etudes en Sciences Sociales, the Laboratoire Sport et Culture of the University of Paris Ouest Nanterre La Défense, and the Laboratoire Communication et Politique of the CNRS.
[iv] Foresight Institute (http://www.foresight.org/), the first organisation founded in 1989 with the aim to educate society about the benefits and risks of

nanotechnology, describes it as follows: “Nanotechnology is a group of emerging technologies in which the structure of matter is controlled at the nanometer scale, the scale of small numbers of atoms, to produce novel materials and devices that have useful and unique properties. Some of these technologies impose only limited control of structure at the nanometer scale, but they are already in use, producing useful products. They are also being further developed to produce even more sophisticated products in which the structure of matter is more precisely controlled”.

[v] For a presentation in English of the pragmatic and reflexive approach to sociology within which public controversies are studied, see Chateauraynaud (2009).

[vi] In 1996 the association Doxa was founded in order to support the development and diffusion of the Prospéro software as well as of other related projects and to provide a forum for dialogue and exchange of ideas among the various users of this software. For more information visit: http://92.243.27.161:9673/prospero/acces_public /06_ association_doxa.

[vii] See the paper on “désormais” [from now on] by Chateauraynaud and Doury in the present volume.

[viii] Outside the field of argumentation studies, connectors and/or discourse markers have been studied in detail from a variety of theoretical approaches and with varying theoretical and practical interests. For an overview, see the volume edited by Fischer (2006). The three approaches presented here fall within the field of argumentation studies and share an interest in providing a more general theoretical frame, within which the study of independent linguistic elements can be subsumed, something which I consider a necessary step before studying each element separately.

[ix] A sub-group in this class are the so-called “meta-discursive markers”, which include expressions that are used to signal to the interlocutor the illocutionary function of the utterance that follows (or precedes) them, such as “I have a question to ask”, “Let me tell you something”, “this is not a critique”, “I was just asking”.

[x] On the argumentative use of evaluative modalities in a French corpus of texts concerning the development and applications of nanotechnology see Tseronis (forthcoming).

[xi] See, for example, the many indicators in interrogative form that the authors identify, such as “what do you mean exactly?”, “isn’t it true that..?”, “do you agree that..?”, etc.

[xii] For instance, one can think of indicators of dissociation that van Rees discusses in her book (van Rees 2009, Chapter 3).

[xiii] It should be emphasized that Prospéro is not a software developed by linguists that seeks to provide an accurate description of a certain linguistic phenomenon based on a corpus search but a software developed by sociologists who are interested in describing social phenomena, such as controversies in the fields of science and technology, by paying close attention to the linguistic properties of the discourse that social actors produce.

[xiv] Non-linguistic items such as prosodic features as well as gestures could eventually be considered as argumentative markers. However, given the lack of detailed studies in this area and the difficulty of coding such features for a software-aided analysis, I am not considering them here. Similarly, grammatical aspects such as tense, mood or number may also be considered as candidates for argumentative markers, but they cannot be coded separately from their phonological realisation, something which renders their use as markers impossible, given the technical characteristics of the particular software at hand.

[xv] The examples are taken from a part of the corpus that consists of the leaflets that various groups engaged in a public debate on the issue of the development of nanotechnology in France have published between 2009 and 2010. The abbreviations in parenthesis refer to the names of these groups. The translation in English is the author's.

[xvi] « L'argumentation ne peut pas se réduire au repérage d'une suite de phrases ou de propositions reliées par des connecteurs logiques ».

[xvii] I use "argumentative" here to refer to the characteristics of the activity of arguing for or against a position in front of a present or implicit other party, not to the semantic property of words that Anscombre and Ducrot (1983) account for in their theory of Argumentation within Language.

[xviii] It is worth noting that van Eemeren et al. (2007) do consider such linguistic elements, in particular when presenting indicators of argument schemes (Chapter 6).

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