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Assessing relevance

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Abstract

This paper advances an approach to relevance grounded on patterns of material inference called argumentation schemes, which can account for the reconstruction and the evaluation of relevance relations. In order to account for relevance in different types of dialogical contexts, pursuing also non-cognitive goals, and measuring the scalar strength of relevance, communicative acts are conceived as dialogue moves, whose coherence with the previous ones or the context is represented as the conclusion of steps of material inferences. Such inferences are described using argumentation schemes and are evaluated by considering (1) their defeasibility, and (2) the acceptability of the implicit premises on which they are based. The assessment of both the relevance of an utterance and the strength thereof depends on the evaluation of three interrelated factors: (1) number of inferential steps required; (2) the types of argumentation schemes involved; and (3) the implicit premises required.

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1. Introduction

Relevance is crucial issue in many disciplines, including philosophy of language and pragmatics (Blakemore, 2002; Carston, 2004; Giora, 1985, 1997; Sperber and Wilson, 1986; Wilson and Sperber, 2004), linguistics and Artificial Intelligence (Hobbs, 1979; Lascarides and Asher, 1993), discourse analysis (Taboada, 2009), and argumentation theory (Macagno and Walton, 2017; Walton, 2003). The distinct pragmatic approaches to relevance developed in the last decades have provided fundamental insights into this concept, representing it in terms of inferences, ratio between cognitive effects and processing effort, or coherence with a discourse topic or communicative purpose. However, for the purposes of analyzing discourse and assessing dialogical or argumentation skills in different contexts (see for instance educational dialogue, Erduran, 2008; Macagno, 2016; Macagno et al., 2015; Nussbaum and Edwards, 2011; Rapanta et al., 2013), relevance needs to be reconstructed and assessed based on some objective, quasi-logical criteria that can be translated into a coding scheme, and can be suited to capturing different communicative goals.

The purpose of this paper is to propose an argumentative approach to relevance based on common patterns of material inferences (Hitchcock, 2017, Chapter 9; Stump, 1989) called argumentation schemes. This perspective can be framed as a development of a normative pragmatics, commitment-based model of communication, in which the focus is placed on how to attribute and justify the right commitment to the person making the claim (Brandom, 1994, pp. 96–97; Hitchcock, 2017, p. 112; Tindale, 2015, p. 120). Like in normative pragmatics, utterances are described in terms of

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commitments, broadly conceived of as dialogical responsibilities (Brandom, 1994, pp. 160–162), modifications of the social or dialogical status of the speakers based on the evidence produced (what is said) (Macagno and Walton, 2017). An utterance can be represented in terms of the inferences it licenses, which in turn can be analyzed and assessed based on the possible patterns of material inferences formalized as argumentation schemes (Walton et al., 2008). On this perspective, relevance will be represented and assessed by reconstructing the inferences bridging two utterances in terms of micro-arguments, which can be evaluated considering their defeasibility conditions and the acceptability of the implicit premises on which they are grounded.

After illustrating the background of the concept of relevance and the defining characteristics thereof (Section 2), the most important approaches will be presented and discussed (Sections 3 and 4). In Sections 5 and 6, the argumentative approach to relevance will be presented, showing how it can predict relevance and irrelevance in cases of utterances pursuing non-cognitive communicative goals (Section 5), and how it can represent a relevance relation as a micro-argument or a chain of micro-arguments, characterized by specific material inference relations and defeasibility conditions (Section 6). The last section (Section 7) will be devoted to the concept of inferential distance, which measures the strength of relevance by factoring three interrelated dimensions, i.e. the number of inferential steps, the types of argumentation scheme used, and the acceptability of the implicit premises involved.

2. Relevance as dialogical appropriateness

The modern concept of relevance used and developed in pragmatics can be traced back to Grice's maxim of relation. Grice first underscored the crucial importance of relevance for the analysis of discourse and conversation, and more importantly for reconstructing the speaker's meaning. According to Grice, participants to a conversation share a common communicative purpose, a common goal characterizing their verbal interaction (Grice, 1975, p. 45):

Our talk exchanges do not normally consist of a succession of disconnected remarks, and would not be rational if they did. They are characteristically, to some degree at least, cooperative efforts; and each participant recognizes in them, to some extent, a common purpose or set of purposes, or at least a mutually accepted direction.

Grice formulated the notion of relevance in terms of relation (maxim of relation), which defines as appropriateness to the conversational needs (Grice, 1975, p. 47):

Relation. I expect a partner's contribution to be appropriate to the immediate needs at each stage of the transaction. If I am mixing ingredients for a cake, I do not expect to be handed a good book or even an oven cloth (though this might be an appropriate contribution at a later stage).

The “appropriateness to immediate needs at each stage of the transaction” leads to the problem of accounting for what “appropriateness” and “needs” (which arise from each state of the transaction) mean. Grice left the notion of relevance “entirely undefined” (Sperber and Wilson, 1995, p. 36). However, he provided some examples to show what this maxim amounts to. The first example concerns the relationship between a proposition expressed by a sentence and the topic addressed by the other conjoined sentences:

Case 1 – Not to prison yet

Suppose that A and B are talking about a mutual friend, C, who is now working in a bank. A asks B how C is getting on in his job, and B replies, Oh quite well, I think; he likes his colleagues, and he hasn't been to prison yet (Grice, 1975, p. 43).

The last conjunct in B's reply does not apparently pursue the speaker's goal of supporting a comment on C's happy working life, providing information in line with the first conjunct. Instead of highlighting possible reasons of C's satisfaction (such as a positive working environment, achievements, etc.), B claims that he hasn't been to prison yet, which can hardly contribute to the expected purpose of his reply. According to Grice, the last conjunct of B's reply can be considered as irrelevant, if, and only if, A cannot derive the authorized inference (implicature) (Clark, 1977, p. 244; Rickheit et al., 1985, pp. 7–8) that C is potentially dishonest (Grice, 1975, p. 50). The second case concerns the relationship between two utterances, and more precisely the relation of a reply to the previous move (an implicit request):

Case 2 – The garage

A is standing by an obviously immobilized car and is approached by B; the following exchange takes place:

A: I am out of petrol.

B: There is a garage round the corner (Grice, 1975, p. 51).

In this exchange, *B* only apparently produces an irrelevant reply. Instead of informing *A* that if he needs petrol, he can find it at a garage, and if he then needs a garage, he can find a possibly open one round the corner, he only states that a garage can be found round the corner. This reply is irrelevant provided that *A* cannot reconstruct the (intended) inference that the garage can sell petrol at that time.

The apparent irrelevance of the third case also results from the apparent failure of *B*'s utterance to be related to *A*'s one:

Case 3 – The girlfriend

A: Smith doesn't seem to have a girlfriend these days.

B: He has been paying a lot of visits to New York lately (Grice, 1975, p. 51).

B apparently fails to continue the conversation on Smith's love affairs, providing information concerning his traveling instead. This apparent irrelevance is avoided if *A* draws the inference that the visits are aimed at meeting the loved woman.

Grice maintains that in all the aforementioned cases, the maxim of relation is only apparently violated. *A* draws an inference from *B*'s reply and the expected reply to *A*'s utterance in order to make the former related to the latter. The maxim is actually violated when the reply cannot be related anyhow to the preceding utterance or discourse, and thus an implicature bridging the two propositions (Clark, 1977, pp. 247–248; Haviland and Clark, 1974) cannot be reconstructed. In this case, the explanation becomes more complex, as in the following case:

Case 4 – The old bag

At a genteel tea party, *A* says "Mrs. *X* is an old bag." There is a moment of appalled silence, and then *B* says, "The weather has been quite delightful this summer, hasn't it?" (Grice, 1975, p. 54)

B fails to continue the dialogue on the subject matter proposed by *A*, for example expressing either his or her agreement or disagreement (and providing reasons therefor). *B* instead pursues a completely different "direction" of the dialogue. In this case, the relation of *B*'s utterance to *A*'s comment cannot be reconstructed through an inference providing a connection between the contents of the two remarks. Rather, the relation that can be inferred is that "A's remark should not be discussed and, perhaps more specifically, that *A* has committed a social gaffe." In this case, relevance can be understood as a relation between an utterance and the possible continuations of the dialogue that it allows, including (as in this case) a meta-comment.

Grice's notion of relevance as dialogical appropriateness relies on the ordinary notion of relevance, which is defined by the following characteristics (Gorayska and Lindsay, 1993, pp. 302–303):

1. *Functional relation*: it is a relation between means and ends. For example, an utterance U_2 ("There is a garage around the corner") is relevant to U_1 ("I am out of petrol") if it can serve to achieving the goal of requesting information on how to find petrol.
2. *Objective*: a relevance relation is constrained by the widely observable relational and causal processes of the universe (inclusive of enablements, triggers, achievements, accomplishments, etc.), which determine the set of all possible ends and the set of all possible means to achieve those ends. For example, the relation between the existence of petrol stations and the goal of finding petrol is constrained by the observable facts that petrol stations sell petrol and are usually open.
3. *Transitive*: if *X* is an observed means to an end *Y*, and *Y* is an observed means to an end *Z*, then *X* must also be a means to the end *Z*. For example, if driving to a near petrol station is a means to buying petrol, and buying petrol is a means to solving the problem of being out gas, driving to a near petrol station is a means to solving the problem of being out gas.
4. *Absolute*: a thing either is or is not a means to some end. For example, informing the interlocutor of the existence of a near petrol station is a means to achieving the goal of providing information on how to find petrol; informing him that the prices of petrol increased is not.
5. *Strength of relevance*: the achievement of the intended ends by different means is scalar, as some means can fulfill better than others the conditions for pursuing a specific end. For example, informing the interlocutor of the exact location of a near petrol station is a better means to achieving the goal of providing information on how to find petrol than telling him that there are many petrol stations nearby.

The ordinary concept of relevance is thus a relation characterized by five logical arguments (Gorayska and Lindsay, 1993): an Agent, pursuing a Goal (proving, informing, making a decision, etc.), through an Element of a Plan designed to

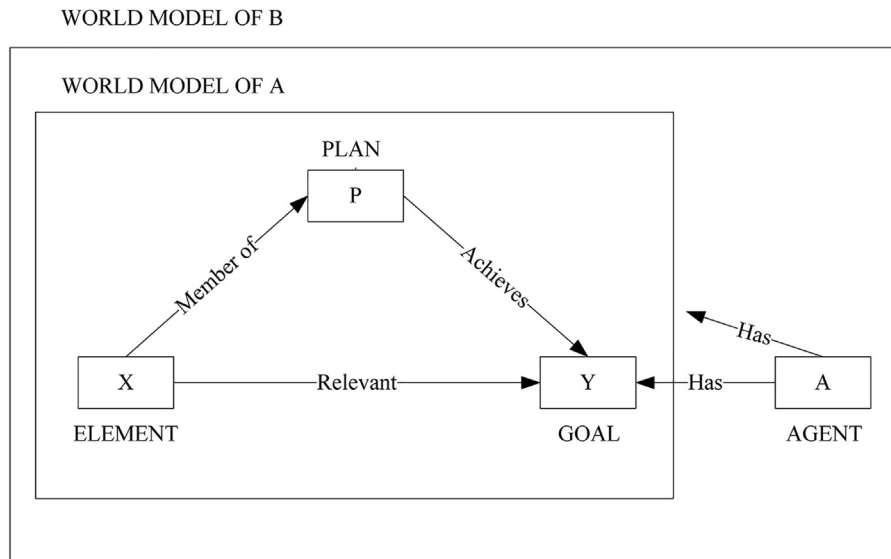


Fig. 1. Structure of relevance relation.

achieve it, within its cognitive environment and resource limitations (speaker's knowledge can be different from hearer's) (Model). The structure can be represented in Fig. 1.

Grice's maxim of relation became the starting point for the development of fundamental theories in pragmatics, and in particular Relevance Theory, which in turn led to thorough discussions on the meaning and the nature of relevance.

3. Relevance in a socio-cognitive perspective

In linguistic pragmatics, the idea of relevance has been developed as distinct and interrelated concepts, referring to the structure of the discourse (coherence), or the socio-cognitive effects (Giora, 1997). The latter perspective was developed in great depth by the Relevance Theory, both in the earlier approach preceding the systematized framework (Smith and Wilson, 1979, p. 176) with the notion of *informativeness*, and in the complete theoretical model as *information that is worth the hearer's attention* (Wilson, 1998, p. 64; Wilson and Sperber, 2012, p. 177).

The notion of informativeness addresses the problem of determining the quality of information, and involves two important aspects, namely the investigation of what can be informative, and the analysis of what is worth the hearer's attention. Smith and Wilson addressed the first dimension by pointing out the relationship between informativeness and inferences. On their view, "one remark is relevant to another if the two combine to yield new information which was not derivable from either in isolation" (Smith and Wilson, 1979, p. 176). New information is thus yielded by a remark and the one immediately preceding it, together with the rules of deduction, and the shared knowledge that is needed both for establishing a connection between them, and for providing extra premises in the deduction (Smith and Wilson, 1979). Relevance is thus investigated in terms of implications, and more specifically implications drawn from the co-text (the preceding utterance) and the context (the shared knowledge).

Smith and Wilson's notion of informativeness was later developed by Sperber and Wilson as "information that is worth the hearer's attention" (Giora, 1997, p. 18; Wilson, 1998, p. 64). This cognitive account of relevance became the foundation of Relevance Theory. Relevance Theory (Sperber and Wilson, 1986, 1995; Wilson and Sperber, 2004) is grounded on the idea that "human cognition tends to be geared to the maximization of relevance" (Wilson and Sperber, 2004, p. 255), which is expressed in the communicative principle of relevance as follows:

Every act of ostensive communication communicates a presumption of its own optimal relevance (Sperber and Wilson, 1995, p. 158).

This presumption is articulated as follows:

- The set of assumptions / which the communicator intends to make manifest to the addressee is relevant enough to make it worth the addressee's while to process the ostensive stimulus.

- The ostensive stimulus is the most relevant one the communicator could have used to communicate *I* (Sperber and Wilson, 1995, p. 158).

S&W's theory describes communication in terms of intentions and inferences. Communication is successful when the hearers infer the speaker's meaning (the informative intention, or the set of assumptions *I* that he intends to make manifest, which corresponds to the Gricean intention to produce a certain response in a certain audience) from the indirect evidence constituted by his utterance (Sperber and Wilson, 1995, p. 23). An utterance, as a stimulus, implies a guarantee of relevance (Sperber and Wilson, 1995, p. 50), namely that the stimulus is optimally relevant to the addressee (Sperber and Wilson, 1995, p. 164). The identification of the set of assumptions *I* is carried out by the hearer either constructing possible interpretative hypotheses and choosing the best one after assessing and comparing them, or by testing whether the initial hypothesis verifies the clause (a) above and does not falsify the second clause. More specifically, S&W underscore that the choice of the most relevant stimulus depends on the speaker's preferences and abilities (Sperber and Wilson, 1995, pp. 268–269) which in ordinary conditions are not accessible to the hearer, and for this reason the second clause can be falsified or not falsified, but not verified.

Relevance rests on two crucial notions. From a purely formal perspective, relevance is defined in terms of the cognitive effects that an assumption has in a context (Sperber and Wilson, 1995, p. 122). Such effects can be considered as a specification of the notion of informativeness, namely the improvements of a person's representation of the world (conceived in terms of previous assumptions). These effects are of three types (Sperber and Wilson, 1995, pp. 107–115):

- Contextual implications, or assumptions that are the result of a deduction that crucially involves the synthesis of new information *P* and the context *C*.
- Strengthening or confirmation of existing assumptions.
- Contradicting and eliminating existing assumptions.

As a consequence, an assumption (or an utterance) will be irrelevant in a context in three cases (Sperber and Wilson, 1995, p. 121):

- It may contribute new information; but this information does not connect up with any information present in the context;
- It is already in the context and its strength is unaffected by the newly presented information;
- It is inconsistent with existing assumptions, and is not strong enough to overturn them.

The other fundamental dimension of relevance is constituted by cognitive effort, which result from various sources, such as the complexity of the utterance, access to contextual assumptions/information needed for achieving contextual/cognitive effects, and the various mental tasks activated by the stimulus. The notion of cognitive effort can predict the difference between the following (Sperber and Wilson, 1995, p. 127):

- Bill, who has thalassemia, is getting married to Susan.
- Bill, who has thalassemia, is getting married to Susan, and 1967 was a great year for French wines.

The second utterance, in a context that consists of assumptions about the hereditary risks of thalassemia, and Susan having thalassemia, involves more cognitive effort than the former, but it results in the same cognitive effect (the implication that "Susan and Bill should be warned against having children"). For this reason, it is less relevant than the former (Wilson and Sperber, 2004, pp. 609–610).

The relevance of an assumption is thus a scalar notion, the "yield" between the contextual effects of an assumption in a given context and effort required to process it in the given context (Sperber and Wilson, 1995, pp. 123–125). The relevance of an assumption can be thus assessed by balancing its contextual effects against processing effort: "an assumption with greater contextual effects is more relevant; and, other things being equal, an assumption requiring a smaller processing effort is more relevant" (Sperber and Wilson, 1995, p. 125).

4. Relevance as coherence

The second important development of the concept of relevance is its identification with the linguistic notion of coherence. Giora pointed out how relevance can be defined as the relationship between a proposition expressed by a discourse segment and a discourse topic, which in turn is conceived as a prototypical proposition (representing a predicate attributed to a noun phrase) under which the other propositions of the discourse can be subsumed (Giora, 1985, p. 711). The discourse topic can be conceived as a "summary" (Van Dijk, 1976, p. 57, 1977; Van Dijk and Kintsch, 1983, p. 273) or a generalization that makes explicit the global meaning of a discourse. This generic predication provides a principle of comparison for all the propositions expressed by discourse sequences (Giora, 1988, p. 549). As Giora

maintains, the discourse topic provides a principle for organizing discourse, and not merely the relations between sentences (Giora, 1985, p. 711):

In order for a text segment to be coherent, it is not enough for it to be interpretable as being about an NP as its discourse topic. Its range of predicates, too, has to bear a relevance relation to or be subsumable under the discourse topic, which should thus take the form of argument and predicate. Hence a coherent text segment that seems to revolve around an NP as its discourse topic is in fact a text segment that has an NP and a subsuming predicate for its discourse topic.

The “relevance requirement” is thus not simply “aboutness,” also called “topical relevance” (Epstein, 1979; Walton, 1982, 2003, p. 95) or cohesion (Giora, 1985; Rickheit et al., 1985, p. 11; Widdowson, 1978, pp. 28–29), namely repeated reference to a given discourse referent (Van Dijk, 1976, p. 56). Rather, it can be described as a species-genus relation of a text segment to the discourse topic, i.e. the general message that the discourse is about.

Coherence is thus related to but essentially distinct from cohesion. In the following example from Giora (Giora, 1985, p. 711), B's reply can be considered as “topically relevant” (cohesive) but not relevant to the discourse topic:

Case 5 – The smart student

A. They say Mary is a smart student.

B. Yeah, she has a nice handwriting and she lives with her uncle and she dyes her hair every now and then.

Like Case 1, B's reply fails to comply with a requirement of dialogue that goes beyond cohesion, and concerns what A intends to do with his utterance, namely what kind of dialogue he proposes.

In this perspective, relevance is inextricably related to the interpretation of the text segment and the text itself, and more specifically to the communicative goal that the interlocutors pursue (Giora, 1985, 1988). The discourse topic needs to represent not only the subject matter under discussion, but more importantly the pragmatic function of the discourse (or the preceding utterances in a dialogue) namely its “point” (Schank et al., 1982). This idea was implicitly introduced by Van Dijk when pointing out the relationship between cohesion and relevance (Van Dijk, 1976, p. 55):

The pragmatic constraints on language use, thus, tell us that in principle the hearer is only interested in information he not yet has and that the information given must be relevant to the actual context, e.g. the hearer's acts and/or his wish to have some particular piece of information. So, if the hearer is interested in some actual property of Eva, Eva will in principle be the topic of an adequate answer.

In this passage, the coherence of a reply is assessed on the basis of its suitability to the context or goal of the discourse. More specifically, in the example provided the goal is to obtain a certain type of information on Eva. Coherence is thus the “relationship between the illocutionary acts which propositions, not always overtly linked, are being used to perform” (Widdowson, 1978, pp. 28–29). This pragmatic aspect of relevance, expressed as a “discourse topic” or macro-structure, has been investigated in terms of appropriateness to the conversational goal(s) of the speaker or hearer, or as Leech put it, to a speech situation (Leech, 1983, p. 99):

An utterance *U* is relevant to a speech situation if *U* can be interpreted as contributing to the conversational goal(s) of *s* or *h*.

This pragmatic account of relevance lies on two crucial dimensions of a joint or global action: coordination and individuality. First, an utterance needs to be coordinated to the previous sequences, namely it needs to contribute to a common action. An utterance needs to be adequate to a joint or global conversational goal that is proposed and negotiated or developed in the previous utterances (Dascal, 2003, p. 37). For this reason, the pragmatic dimension of discourse needs to be described in terms of joint or global actions that are achieved or proposed by means of utterances. Second, an utterance can be appropriate to a joint or global conversational goal, but may pursue the goal of only one interlocutor. For example, a clarification request, or any type of meta-dialogical comment can be relevant because it pursues an individual goal (understanding what the interlocutor has said; clarifying what has been said; avoiding an issue/topic, etc.) within a global or joint action. In this sense, Case 4 is relevant as a meta-dialogical comment, implicating an explanation of why B does not want to continue the dialogue (see Leech, 1983:95). An utterance can thus be relevant for a twofold reason, namely because it pursues the communicative goal proposed (as in Case 1, Case 2, and Case 3) (Widdowson, 1978, p. 25), or because it addresses it meta-dialogically (Dascal, 2003, pp. 42–43), either by interrupting or clarifying it.

As pointed out above, relevance can only be determined discursively. However, the analysis of utterances in terms of coordinated action and adequacy to a conversational goal (or rather demand) opens crucial challenges for pragmatics. The most important one concerns the problem of attributing the “illocutionary value” to propositions (Widdowson, 1978, p. 30), or rather describing utterances in terms of proposals of joint action. Such proposals are distinct from word-world relations according to which speech acts have been commonly classified (Dascal, 2003, p. 42):

The force of A's utterance, for example, imposes certain constraints on the relevance or appropriateness of the possible forces of B's utterance (issued in reaction to A's utterance). In other words, it is not the case that utterances of any kind of force are equally relevant as reactions to an utterance having a particular type of force. For example, an information question is not appropriate as a reaction to an information question unless it is a clarifying question, that is, a request for clarification of the prior question. This is a kind of ‘force’ that is defined, to be sure, in terms of a peculiar ‘semantic’ relationship between the contents of B's and A's utterances: the former must be about the meaning of some component of the latter [. . .]

For the relevance of a particular utterance to be determined or assessed, it is necessary to adopt a perspective on speech acts that goes beyond the standard “correlation between syntactic sentence types and generic speech acts” (Sperber and Wilson, 1995, p. 247), and take into account units longer than single utterances, the conversational situation which includes the interlocutors' roles (Capone, 2017, p. xvii; Oishi, 2016, p. 343; Sbisà, 2002, p. 427), and the interactive, joint construction of meaning (Allwood, 1977; Clark, 1996, p. 219). Within a conversational framework, utterances cannot be described (only) by relying on a limited class of relations between grammatical form and illocutionary content (Strawson, 1964; Streeck, 1980), in which “any well-formed sentence-type corresponds to a speech-act type in virtue of linguistic conventions” (Kissine, 2013, p. 4). This presumption of “literal” meaning in fact does not hold for verbal communication, in which it is the exception rather than the rule (Allwood, 1977, p. 61).

Considering the foregoing, the coherence-based account of relevance has the clear advantage to account for the variety of communicative ends to which an utterance can be a means (characteristic no. 1). Moreover, the suitability to a communicative goal can be gradable (characteristic no. 5). However, this approach leaves open the problem of representing the objectivity of relevance relation, and more precisely the connection between the interlocutors' communicative purposes.

5. An argumentative approach to relevance

The cognitive and textual approaches to relevance outlined so far provide useful insights into the investigation of relevance at a distinct level, namely the argumentative level. In particular, the coherence approach points to the need of relating relevance to conversational goals, while the cognitive approach underscores the central role of inferences in representing the objective nature of relevance. In both cases, relevance is shown to be related to the context (in terms of contextual effects or coherence with the dialogical purpose pursued). This relation can be objectified bringing to light the “relational and causal processes” which the interlocutors rely on in drawing their inferences, which are investigated in argumentation theory in terms of material inferences (Hitchcock, 1998; Walton et al., 2008), such as the traditional cause–effect, end-means, *definiendum-definitum* inferential principles (Stump, 1989). This approach, limited to the quasi-logical level and not concerning the cognitive one, can be used for justifying the relevance and the strength of relevance of an utterance to another, and assessing the reasonableness of an interpretation. However, this representation needs to face two challenges, namely accounting for and including in the inferential process two types of contextual factors that have been usually investigated separately: communicative intentions (considered in a non-relevance-theoretic sense¹) and “background knowledge.” In this section, the first issue will be discussed and a proposal to relate it to the inferential representation of relevance advanced.

5.1. Classifying dialogical intentions

On an argumentative approach, communicative intentions are analyzed by considering the communicative purposes of utterances, namely the way they contribute to the “work of the interaction” in which they occur (Geis, 1995, p. 10, 32). This account of meaning can be considered as a reconstruction of Grice's “direction” of the conversation (Grice, 1975, p. 45) based on the evidence available to the interlocutors that can be drawn from the context of the interaction (Sanders,

¹ Communicative intention is not conceived in terms of “informative intention” (Wilson and Sperber, 2004, p. 255), but rather in a functional (dialogical) perspective (Kecskes, 2010b, p. 60) as the intention to have an effect on the interlocutor (Clark, 1979, p. 433; Grosz and Sidner, 1986, p. 178), which we capture through the notion of commitment or dialogical obligation.

2013, p. 116). In this sense, what matters is not the recognition of the speaker's intention to produce some effect, but rather in the achievement of a socially relevant effect through an utterance based on reasons (Capone, 2013b, pp. 446–447; Marmor, 2014, Chapter 2). More specifically, the starting point is constituted by the categories of joint (social) actions performed, proposed, and pursued by the interlocutors, namely the “socially binding relations” created when the speaker produces a speech act (Kecskes, 2010a, p. 2889; Mey, 2001, p. 214; Seuren, 2009, p. 150). Interlocutors' higher-order intentions (or conversational demand) (Dascal, 1992; Mann, 1988) can be reconstructed presumptively, by relying on either the conventions (conventional association between an utterance form and force), or through a more systematic reasoning (Leech, 1983, p. 30; Strawson, 1964, pp. 443–444).

In case of dialogues, the goal of a move can be generally conceived in terms of “what the speaker intended the hearer to do with what he said,” namely its “point,” whose reconstruction depends on its significance to the interlocutors in the specific context in which it is made (Schank et al., 1982, p. 267). However, Schank and colleagues identify points with the categories of the generic interlocutors' sets of plans and goals, without providing reasons and criteria for distinguishing one from another, or for limiting them. From an argumentative perspective, “points” can be addressed by taking into account the most common and generic goal-oriented types of dialogical interactions (Dunin-Keplicz and Verbrugge, 2001; McBurney and Parsons, 2009). In argumentation theory, dialogues have been classified in abstract types according to the joint and individual goals of the interlocutors, namely the types of obligations and relations that moves in a dialogue can create (Macagno, 2008; Walton, 1989a, 1990, 1998; Walton and Krabbe, 1995). Dialogue types can be thought of as a system for classifying speaker's decisions to “define his or her socially binding position with regard to the proposition expressed” (Seuren, 2009, p. 156). These decisions can be also regarded as proposals to engage in a specific joint activity (such as exchanging information or making a joint decision) (Haugh and Jaszczolt, 2012, p. 101; Kádár and Haugh, 2013, pp. 221–223; Ruhi, 2007).

The dialogical effects created by utterances (which we will also refer to as “dialogue moves”) are regarded as commitments to modify the conversational situation in a specific way, and can be classified according to their subject matter or the socially binding relation they create (Seuren, 2009, p. 147). Dialogue moves can concern the dialogue as whole (dialogical vs. meta-dialogical), the components of the interaction (establishing one-sided vs. two-sided commitments), or the type of joint action (cognitive vs. practical). These distinctions, broadly corresponding to the “imports” defined by Callow and Callow (1992, p. 9), can be regarded as dichotomic criteria for providing a tentative classification of the most important and more generic dialogical moves (Fig. 2).

Clearly, this typology is only partial, tentative, and extremely generic. Dialogical intentions can be further specified according to the specific context and setting of the interaction. However, these general types can provide the starting point for classifying the utterances and show how the intentions can be represented and distinguished. In particular, the dialogical intentions can be described in Table 1 (Macagno and Bigi, 2017, p. 155).

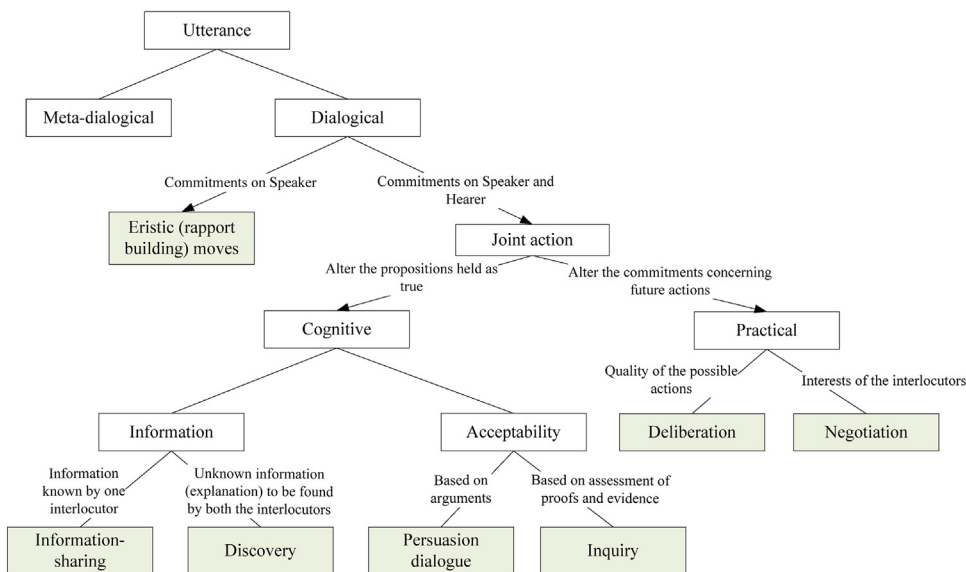


Fig. 2. Classification of dialogical intentions.

Table 1
Categories of dialogue moves.

Category (code)	Description of category	Example
Rapport building (E)	Dialogue moves aimed at building or correcting the interlocutor's rapport within a dialogue (for example, venting emotions or confirming or defining roles within a relation).	Doctor: Why have you made such a decision without consulting us? Patient: I thought you said so. Doctor: Look at your therapeutic plan. <i>I have never said such a thing! You were supposed to take these pills twice a day!</i> Patient: I thought. . . Doctor: <i>You cannot do such a thing and then blame it on others!</i>
Information sharing (IS)	Dialogue moves aimed at retrieving and providing information.	Doctor: I would like to know how you feel, and if your conditions has changed from the last visit. Patient: I feel a bit tired. In the last four months, I have been hospitalized three times. Doctor: Why? Patient: I passed out.
Discovery (Dis)	Dialogue moves aimed at finding new explanations of facts.	A. Why the French revolution happened? B. The living of the third class of the French people were extremely bad.
Inquiry (I)	Dialogue moves aimed at finding and verifying evidence supporting a hypothesis.	A. Is poverty always related to revolution? A. This painting has been painted by Pollock, as the technique is exactly the same as the one used by the great artist. B. The author was not Pollock. A pigment used in the painting was not available until many years after Pollock's death.
Persuasion (P)	Dialogue moves aimed at persuading the interlocutor, leading him or her to accepting a specific point of view.	Student 1: Smoking is bad for you, because it can affect your lungs. There are many studies claiming that smoking causes lung cancer. Student 2: It is true, but smoking has also beneficial effects, such as reducing stress.
Deliberation (D)	Dialogue moves aimed at making a decision.	A: What would you do to control illegal immigration? B: We have no border. We have no control. People are flooding across. We can't have it. I will build a wall. I will build a wall. C: People want to see the wall built. They want to see the laws enforced.
Negotiation (N)	Dialogue moves aimed at making a joint decision overcoming a conflict of interests and beneficial to the divergent parties.	A: We are determined to make reforms for paying the debt. But we cannot accept the austerity measures that have affected badly our country and that you are proposing today. B: You need to propose a plan of reforms that we can accept quickly.

This general description of the most generic purposes utterances may have in a dialogue can be specified considering the various aspects characterizing a dialogical setting, ranging from the institutional dimension to the relationship between the interlocutors and the topics addressed (Levinson, 1992). The type of interaction the interlocutors are engaged in, the roles of the participants, the setting (namely the elements of the “activity type” characterizing the interaction) (Levinson, 1992, pp. 69–72) in addition to the propositional content of the utterance and the presumptions concerning the relationship between sentence form and pragmatic function (Strawson, 1964, pp. 443–444) provide presumptive evidence for reconstructing the purpose of the move (Macagno and Bigi, 2017; Macagno and Walton, 2017, Chapter 3).

This view proposes an approach to the analysis of conversational (dialogical) acts focused on the joint construal of the action. An utterance is regarded as a move in an interaction, and it is aimed at producing some communicative effects by means of linguistic, contextual, or social conventions (presumptions) (Macagno and Bigi, 2017). The meaning of the move, however, is determined within a communicative interaction jointly with the hearer, and it is not established *a priori* by the speaker's intention (Allwood, 1977). They are determined based on a set of presumptions the interlocutors are acting on when engaging in an interaction (which include the generalizations about expected actions or behaviors in a specific context or circumstances, or scripts, see Schank, 1986, p. 120; Schank and Abelson, 1975, p. 151, 1977, p. 19), and in this sense moves are *reasonably expected* “mutually accepted direction<s>” of a dialogue (Grice, 1975, p. 45). Dialogical intentions are not cognitive schemas, but dialectical notions. They correspond to commitments, dialogical obligations (Beyssade and Marandin, 2009; Brandom, 1994; Morency et al., 2008; Oswald, 2016) that are attributed to the speaker,

and whose reconstruction and attribution needs to be justified if challenged. Even though tentative and potentially incomplete, this classification can provide criteria for guiding the assessment of the relevance of an utterance at a communicative level.

5.2. Dialogical intentions and relevance

This description of the dialogical moves from a specific perspective, namely the proposed goal of the dialogue, can be used for drawing the most generic presumptions of relevance of a reply or a move in general. As Walton put it, “relevance relates a reply to a question and/or to prior moves in sequences of argumentation” (Walton, 2003, pp. 114–115). However, unless the type of move and the (even most generic) goal of a question is understood, it is hard to determine how and why a move can be relevant to another. Classifying the types of moves according to their proposed dialogical goal can provide a very general presumption concerning the relevance conditions of a possible continuation of the dialogue. Dialogue moves can provide distinct criteria for the “pragmatic relevance” of a move (Dascal, 2003, p. 43):

[. . .] a reaction with the force “answer to information request” is, as far as its force is concerned, clearly relevant to an utterance whose force is “information question”. Whenever a reaction is relevant to the force of an utterance, let us say that it is ‘pragmatically relevant’ to the demand.

Relevance can be thus defined in terms of contribution to a conversational goal (Leech, 1983, p. 99), which is proposed and negotiated through dialogical moves.

This account makes some predictions concerning the assessment of relevance based on the adequacy to the conversational goal proposed. First, utterances (moves) coherent with the specific dialogical goal pursued in the previous utterances can be presumed to be relevant thereto. Second, utterances can be presumed to be irrelevant because they pursue a dialogical goal that is different from the generic one proposed in the preceding moves, or incompatible with the specific one pursued in the preceding moves. Third, *prima-facie* irrelevant moves can be presumed to be relevant in the following cases:

- If they pursue a higher-level shared dialogical purpose, under which the goal pursued in the preceding utterance(s) falls; or
- If they can be explained as pursuing the global or the specific dialogical goal by drawing a longer chain of inferences.

In this section, we will focus on the first two predictions, starting with the notion of irrelevance, while in the next section we will focus on the explanation of the *prima-facie* irrelevant moves and the inferential boundaries of relevance.

The first type of irrelevance consists in a mismatch between the global dialogical goals pursued in two utterances. For example, in the following interactions (taken from Leech, 1983, p. 98), the replies are irrelevant as the interlocutor fails to engage in the dialogue proposed:

Case 6 – Drinking (Irrelevance 1)

A: Do you drink?

B: Of course. All humans drink.

In this case, *B* replies to a move aimed at making a proposal (deliberation move) by providing information (information sharing), thus failing to continue the dialogue proposed by *A*. Irrelevance can account for cases of pragmatic misunderstanding, such as the following:

Case 7 – The late student (Irrelevance 1)

Lecturer: You should have been here at nine.

Student: Why? What happened?

The Lecturer is advancing a rapport-building move (reproaching the Student for not being on time), while the Student's reply reveals that he understood the move as aimed at sharing information (arousing interest in an issue).

The second type of irrelevance consists in a mismatch between the specific goals of the dialogue proposed and allegedly continued. As mentioned above, a dialogical goal can be specified by indicating the issue or subject matter (the topic), or considering the circumstances (institutional and interpersonal) that characterize an utterance. In this case, irrelevance results from a failure to engage in the *specific* activity proposed. The clearest example is Case 4:

B fails to continue the interaction proposed through *A*'s information-sharing move (“Mrs. *X* is an old bag”) as he proposes a distinct information-sharing (concerning the weather). This example is characterized by an intentional or unintentional break in the dialogue proposed (Walton and Macagno, 2007). The interlocutor fails to collaborate with the speaker in pursuing a dialogical intention, and proposes a new dialogue instead.

These criteria can also explain the irrelevance of the following case in the specific circumstance in which the reply is given in a context of cross-examination, aimed at establishing the commitments of the witness (Levinson, 1987, p. 723):

Case 8 – The spy (Irrelevance 2)

A: If the spy had possibly more than two passports, then he may yet escape.

B: He had two passports.

In this specific type of dialogue, the goal of the *A*'s utterance is to determine the interlocutor's commitment concerning the spy holding more or less than two passports (see Horn, 2009; Jacobs and Jackson, 2006; Levinson, 1983, pp. 121–122, 1992, p. 84). *B*'s reply is irrelevant because it does not engage in the specific dialogue proposed (he does not commit to either proposition). In an ordinary context of dialogue, the speaker is trying to obtain information on whether the spy has more than two passports, and the hearer is presumed to provide the information available (the spy has two, i.e. only two passports). In case he had not known whether the spy had more than two passports, he would have been presumed to declare his lack of information (or express it by marking his utterance).

The coherence of the specific dialogue goals pursued, or the presumption thereof, can explain the relevance of the following case (Holdcroft, 1987, p. 493):

Case 9 – The great speaker (Relevance)

A: Kinnock is a fine politician. He's a great speaker.

B: So was Hitler.

A proposes a claim (“Kinnock is a fine politician”) that can be accepted, refused, or questioned by the hearer based on the reason provided (“He's a great speaker”). *B*'s reply can be thus presumed to be an acceptance or a refusal/challenge to committing to the claim. The same type of analysis can also explain in detail the various possible interpretations the following example (Smith and Wilson, 1979, p. 178):

Case 10 – The boss (Relevance)

A: I really dislike that man you introduced me to.

B: He is your new boss.

A's utterance is aimed at venting emotions, and leads to a presumption that the interlocutor acknowledges the type of emotion expressed. Thus, the reply can be taken as an expression of sympathy or encouragement, or as an irrelevant remark in case it is expressed more sharply as aimed at sharing new information without considering the emotional goal of the preceding comment (similar to Case 4).

The coherence of dialogical goals leads to predictions *prima-facie* of irrelevance in cases of mismatch, such as in Cases 1, 3, and 7. In Case 1, the reply (“he hasn't been to prison yet”) does not provide information concerning *C*'s satisfaction with his job, as required by the information-sharing question. This apparent irrelevance is similar to the one of Case 3 (a remark on Smith's visits to New York in response to a comment on Smith's sentimental affairs), and Case 5 (a remark on Mary's nice handwriting and lifestyle in reply to a comment on her excellence as a student). Finally, the apparently irrelevant reply in Case 2 (“There is a garage round the corner”) involves the mismatch between two distinct dialogical intentions. The hearer provides an information on a topic different from the petrol (information sharing) as a reply

to gentle request of help (deliberation). Such cases can be analyzed as triggering further interpretive inferences, which will be the subject matter of the following section.

6. Reconstructing relevance relations

As mentioned in Section 5, the representation of relevance in inferential terms needs to address the problem of the contextual information, which includes the information that is taken for granted. In this section, the inferential process used for reconstructing relevance relations will be illustrated, showing how it can account for both communicative purposes and “background knowledge,” conceived not in cognitive terms but as types and levels of presumptions. The model proposed is intended to represent how a relevance relation can be reconstructed and evaluated, and in this sense, it is an abstract and ideal model, not concerned with the interlocutors’ psychological or physical conditions that may affect the actual interpretative process at a cognitive level.

6.1. Presumptions and best explanation

As mentioned above, dialogue moves can be considered as proposals to develop the dialogue by pursuing a specific goal (Anscombre and Ducrot, 1983; Dascal, 1992, p. 45). This potential development of the conversation can be regarded in terms of presumptions, and more specifically grounded expectations of a specific type of move pursuing a specific communicative goal. In this sense, dialogue moves impose certain presumptions on the interpretation of further moves.

Dascal provided a clear insight on how dialogical intentions can be related to the notion of interpretation of a move (Dascal, 2003, p. 46). He took into account the following case:

Case 11 – The irrelevant reply

A: Why did John beat Mary?

B: Why not?

As Dascal put it, *B*'s reply can be interpreted starting from the presumed contribution that it can make to the dialogue proposed by *A*. Since *A* is seeking information on a specific issue, namely the explanation of an event, *B*'s reply can be interpreted considering how it is related to the requested explanation. For this reason, three interpretations are possible:

- *B* intends to request clarification on the issue that needs explanations.
- *B* intends to explain the event claiming that no explanation is needed (the event is self-explanatory or ordinary).
- *B* intends to refuse to give any explanation.

The three interpretations differ from the distance from the presumed goal of the reply (ranging from continuing the dialogue proposed to refusing it). Dascal pointed out how the first interpretation needs to be assessed based on the available evidence and presumptions, and in case it is not acceptable, move on to other interpretations (Dascal, 2003, p. 46). On this perspective, the chosen interpretation is the result of a process of evaluation of the possible alternatives based on the evidence available.

The process of interpretation and selection of the best interpretation is grounded on several presumptions resulting from distinct factors. Clark pointed out how meaning is the result of three very generic dimensions (Clark, 1977, p. 244):

- The explicit content of the sentence.
- The circumstances surrounding the utterance.
- A tacit contract the speaker and listener have agreed upon as to how sentences are to be used.

On this view, the hearer takes into account the explicit content together with two other types of factors, the “circumstances” and the conventions of use. These dimensions involved in the interpretation of an utterance can be analyzed in terms of presumptions of different kind, which Bach and Harnish (1979, pp. 5–7) distinguished in linguistic and communicative presumptions and mutual contextual beliefs.

The process of interpretation can be represented in a functional, inferential way in terms of arguments and presumptions. Building on the aforementioned insights, interpretation can be regarded as the conclusion of an argumentative process of reasoning grounded on the abductive pattern (Atlas, 2005, p. 13) of reasoning from best interpretation (Atlas, 2005; Atlas and Levinson, 1981), which can be reconstructed follows (Walton et al., 2008, p. 171):

Argumentation Scheme 1: Reasoning from best explanation

Premise 1	<i>U</i> (an utterance) is an observed communicative act.
Premise 2	<i>I</i> (Interpretation 1) is a satisfactory description of the meaning of <i>U</i> .
Premise 3	No alternative meaning description <i>I'</i> (such as interpretation 2) given so far is as satisfactory as <i>I</i> .
Conclusion	Therefore, <i>I</i> is a plausible hypothesis, based on what is known so far.

This scheme lies on what counts as the “best” or “most satisfactory” explanation. The basic presupposition of this type of reasoning is the detection of the subject matter of an explanation, namely what needs to be explained. On this perspective, an *explanandum* is identified with a conflict between two presumptions used for reconstructing the meaning of an utterance, or rather the commitments resulting from it (Macagno, 2012, 2017). The second fundamental aspect is to define the quality of an explanation. An explanation can be considered as the most satisfactory when it fulfills three conditions, namely the accessibility, the acceptability, and the explanatory power (or consistency) (Pennington and Hastie, 1991, p. 528). These factors need to be specified further.

The premises most accessible to the hearers are the ones preferentially (prototypically) used for reconstructing the intended meaning, as “in drawing implicatures the listener should always take the shortest route since this will make them determinate, unique” (Clark, 1977, p. 261). Such premises need to be presumed to be acceptable by the hearers, namely within their background knowledge and not conflicting with other assumptions thereof. Unaccepted or unacceptable premises would require further inferential steps for accommodating them or assessing them. Finally, the interpretive conclusion needs to explain all the accessible evidence (linguistic and contextual) the speaker can be presumed to relying on by uttering *U* (Clark, 1977, p. 258).

The concepts of accessibility, acceptability, and explanatory power can be described at an argumentative (inferential) level in terms of presumptions, namely defeasible maxims of inference that lead to a conclusion in case specific conditions obtain and until a default proviso obtains (Rescher, 2006, p. 33). A presumption can result in an interpretive conclusion that holds until and unless it conflicts with other evidence or presumptions. For this reason, the interpretive conclusion can be more or less defeasible (Capone, 2005, p. 1360, 2013a; Kecskes, 2010a).

By developing the concept of presumptions and common knowledge introduced by Bach and Harnish (1979, pp. 8–15) and Clark and Brennan (1991), it is possible to distinguish and order the various presumptions at work in interpretation. The first type of presumption (called Level 0 – pragmatic presumptions) refers to the presumptions of use, namely the common association between the use of lexical item, phrase, or utterance, and a communicative purpose (Kecskes, 2008; Kecskes and Zhang, 2009; Kissine, 2012). This category includes (1) socially (culturally) shared uses (“can you pass me the salt?” is normally used to request gently the salt) (Clark, 1979, p. 469), (2) individual (prior) uses, and (3) the presumed communicative goal that result from the previous utterances (the speaker’s “plans”) (Clark, 1979, p. 470). The second type (Level 1 – Linguistic) refers to presumptions related to the knowledge of lexical items or syntactic constructions, including definitions (dictionary or shared meanings of lexical items are presumed to be known by the speakers of a language) (Hamblin, 1970; Levinson, 2000; Macagno, 2011). The presumptive meaning can lead to a default, “literal” interpretation of the semantic representation of the utterance when other presumptions do not prevail (Giora et al., 2015, 2017). These two first types of presumptions represent the “agreements about how sentences are to be used” the speaker is expected to have relied on (Clark, 1977, p. 258). A distinct type of presumptions (Level 2 – Factual, encyclopedic) concern default, stereotypical connections between events or facts that are shared within a specific community, culture, society, usually investigated as “scripts” or “frames” (Pennington and Hastie, 1991, pp. 522–523; Samet and Schank, 1984, pp. 73–74; Schank and Abelson, 1977; Thagard, 1984; Walton, 1995, p. 115, 2007, p. 114). The last level (Level 3 – Values and preferences) includes presumptions about what people usually prefer, value, and like.

These types of presumptions can be ordered in degrees of specificity, which affect their defeasibility conditions (Clark, 1996, Chapter 4; Clark and Brennan, 1991). The strength of a presumption depends on the evidence available (see the account of context in Rickheit et al., 1985, p. 26); if corroborating, acceptable evidence is available, a presumption is assessed as stronger, while it becomes more defeasible (and thus less acceptable) when contrasted with rebutting evidence (Clark and Marshall, 1981).

For this reason, specific presumptions (concerning the specific conversational situation) are less likely to be subject to default than more generic presumptions. For example, presumptions of preferences concerning a specific type of people (Italian soccer fans) is less defeasible than more generic ones (Italian men) as less distant from the specific setting in which the utterance is made. Pragmatic presumptions concerning the interlocutor’s prior contexts of use are stronger than the corresponding generic presumptions drawn from cultural habits or sociolinguistic considerations.

6.2. Relevance and discursive inferences

This approach to interpretation can account for the explanation of utterances that are only apparently irrelevant. The apparent irrelevance is analyzed as a conflict of presumptions, which is explained by accepting the default of the weakest presumption and replacing it with a more complex type of inference. Depending on whether the hearer decides to reject a pragmatic presumption or a factual (or linguistic or evaluative) one, the inference drawn will be perceived as *meta-discursive* (or *meta-dialogical*) or *discursive* (or *dialogical*), namely as aimed at pursuing a communicative goal different from the one presumed, or pursuing it by relying on a conflict of presumptions. Inferences are intended in this account as links between premises and conclusions (Walton, 1990, p. 402):

We define inference as the use of a rule or warrant to link some propositions (statements) with others. The conclusion is the proposition toward which the inference moves. The premises are the beginning propositions from which the inference starts. Thus, an inference links the premises to the conclusion, and it always has a direction-proceeding from the premises to the conclusion.

In this sense, inferences include both demonstrative and presumptive or material inferences that Grice refers to as “logic of the natural counterparts” of the devices developed in formal logic (Grice, 1975, p. 43), considering, however, only their logical or quasi-logical dimension, without taking into account the mental processes involved (see instead Sperber and Wilson, 1995, pp. 68–72). In conversation, as S&W acknowledge (Sperber and Wilson, 1995, p. 69), non-demonstrative inferences play a crucial role. However, the probative weights of non-demonstrative inferences are not all the same (Grice, 2001, p. 7). Rather, depending on the inference rules and the application thereof, the conclusion will be more or less subject to default. For this reason, the systematization of the principles and rules of natural inferences proposed in (Macagno and Walton, 2015; Walton et al., 2008) will be applied to describe and assess the inferences underlying relevance relations.

Discursive inferences are triggered by a conflict of presumptions in which the pragmatic one prevails. For example, in Case 2, the dialogical goal of *A* is to solve a practical problem by requesting help to *B* (pragmatic presumption resulting from the utterance “I am out of petrol”). To this purpose, *B*'s move is pragmatically presumed to pursue this proposed dialogical intention. However, *B*'s reply (“There is a garage round the corner”) cannot be factually presumed to be a piece of advice aimed at helping *A*'s distress concerning his lack of petrol. This conflict of presumptions calls for an explanation, which is guided by patterns of inference. In a specific context, the interpreter can access easily factual presumptions connecting the garage with filling in a tank, such as “usually garages have a gas pump.” *B*'s move can be thus interpreted as aimed at supporting a conclusion concerning how to solve the problem in this situation. *B*'s move can be thus be considered as part of a practical reasoning (Walton et al., 2008, pp. 94–95):

Argumentation Scheme 2: Argument from practical reasoning

Major Premise:	I have a goal <i>G</i> .
Minor Premise:	Carrying out this action <i>A</i> is a means to realize <i>G</i> .
Conclusion:	Therefore, I ought (practically speaking) to carry out this action <i>A</i> .

B's move can be thus interpreted tentatively as a premise leading to the conclusion that “the best way of solving the problem is to try to go to the garage.” Clearly, in other circumstances (such as in most of European countries) garages are not presumed to sell petrol. In this case, other presumptions can be available, connecting the means-end relations, such as “people working in a specific area know better where petrol stations are,” leading to other conclusions (such as “I do not know; you should try to ask there”).

Other types of argument can be used to bridge the gap between a move and the preceding utterances or the context. For example, in Case 3, *B* replies to *A*'s remark concerning Smith not seemingly having a girlfriend by saying that “He has been paying a lot of visits to New York lately.” The utterance cannot be factually presumed to provide the information requested by the information-seeking move of the interlocutor, and – unless the context suggests that *B* does not intend to pursue the dialogical goal proposed by *A* – an explanation needs to be found. Maintaining that the reply does provide information about Smith's romantic life, it is possible to regard the frequency of the flights to a specific destination as a sign that Smith is visiting someone there, based on the encyclopedic presumption (script) that if two people living in different places are in love, they travel to see each other. The type of reasoning is based on sign (Walton, 2002, p. 42; Walton et al., 2008, p. 170):

Argumentation Scheme 3: Argument from sign

Major Premise:	Generally, if <i>A</i> occurs, then <i>B</i> will (might) occur.
Minor Premise:	In this case, <i>B</i> did in fact occur.
Conclusion:	Therefore, in this case, <i>A</i> also presumably occurred.

Clearly, the presumption (script) that constitutes the major premise can differ depending on the type of information that is sought and the background knowledge. For example, the aforementioned analysis holds in case *A* and *B* know that Smith does not travel very often. However, if the most accessible information about his traveling habits is that he has to travel for business or that he is looking for jobs in other places, a different conclusion would be licensed (e.g. *Smith does not have time for girlfriends*) based on different encyclopedic presumptions (if someone has to travel for business, s/he pays visits in other cities; who travels a lot for business has little time for settling down).

Inferences can specify the pragmatic purpose of the move, such as in Case 9. In this example, *B*'s reply (“So was Hitler”) is presumed to express *B*'s commitments toward *A*'s claim (“Kinnock is a fine politician”). The inference is based on a type of argument from analogy (Macagno et al., 2016; Walton et al., 2008, p. 56) which involves the common characteristic shared by Hitler and Kinnock (being great speakers):

Argumentation Scheme 4: Argument from analogy

Major Premise:	Generally, case <i>C1</i> is similar to case <i>C2</i> .
Minor Premise:	Proposition <i>A</i> is true (false) in case <i>C1</i> .
Conclusion:	Proposition <i>A</i> is true (false) in case <i>C2</i> .

In this specific example, the specific communicative purpose (countering *A*'s claim) is concluded by reconstructing the value judgment (being poor politicians) that can be drawn from the similarity. This analogical inference can be thus interpreted as aimed at refusing the commitment to the generalization (it is not acceptable that all good speakers are fine politicians) or to the conclusion (it is not acceptable that Kinnock is a good politician).

Meta-discursive inferences are characterized by the rebuttal of the presumed purpose of the move. A clear example is Case 5, in which the pragmatic presumption governing *B*'s reply (“Yeah,” signaling *B*'s agreement with and commitment to *A*'s claim that, “Mary is a smart student”) conflicts with the presumable conclusion of the reason given (“she has a nice handwriting and she lives with her uncle and she dyes her hair every now and then”). A pragmatic presumption (“yeah,” presumed to express agreement with the interlocutor's claim) conflicts with the encyclopedic ones (having a nice handwriting, living with one's own uncle, and dying the hair are not indicators of academic excellence). This conflict is solved by rejecting the weakest presumption, which, within a stereotypical context, is the pragmatic one. In this case, the reply can be considered as providing the only information available in support of Mary's academic excellence, which is not sufficient to support the claim. This information can be considered as a premise in an argument from lack of evidence, leading to the conclusion that there is no sufficient evidence that Mary is a smart student (Walton et al., 2008, p. 98):

Argumentation Scheme 5: Argument from lack of evidence

Major Premise:	If <i>A</i> were true, then <i>A</i> would be known to be true.
Minor Premise:	It is not the case that <i>A</i> is known to be true.
Conclusion:	Therefore, <i>A</i> is not true.

The implicature that “Mary cannot be considered as a smart student” is drawn from a twofold inferential step. By reasoning in lack of evidence, the interpreter can infer from *B*'s reply that *B* does not have stronger reasons to believe that Mary is a good student. Then, from this conclusion and the fact that these reasons are not sufficient to justify the acceptance of the claim, it is possible to infer that according to *B*, there are no sufficient reasons to believe that Mary is a good student.

The availability and strength of supporting or conflicting evidence affects the possible interpretations and the types of inference that can be drawn. A clear example is Case 1, in which *B*'s reply to the request of information about *C*'s satisfaction with his job presumptively provides the requested information (pragmatic presumption). The utterance, "Oh quite well, I think; he likes his colleagues, and he hasn't been to prison yet" can be interpreted as providing the requested information if the last claim is taken to be a sign that *C* is getting on well in his job. Depending on *A*'s knowledge of *C*, the reply can be taken as implying that the lawful behavior of *C* is exceptional (in case *A* does not know *C* very well), or that *B* is joking (in case *A* knows that *C* is an honest man). In this latter case, the weakest presumption corresponds to the pragmatic one (defeated by the available evidence), which needs to be renegotiated (*B* intends to be funny by saying something paradoxical).

As mentioned above, this approach to relevance is purely logical (in the sense of natural logic), and it does not take into account the cognitive level or the mental processes involved. It is aimed solely at justifying why an interpretation should be preferred to another, and explaining why an utterance is relevant (and to what extent) or irrelevant considering only the inferential steps and the premises involved. Conflicts of presumptions and the corroboration or rebuttal of presumptions are not used as explanations on how an interpretative hypothesis is reached mentally, or how a premise is accessed. The relationship between the cognitive level and the logical one can be only supposed (stronger, i.e. more specific or corroborated, presumptions are more accessible).

7. Inferential distance

The argumentative approach to relevance presented above analyzes relevance as a functional (utterance pursuing a specific conversational goal), objective (observable material inferential processes, reflecting the organization of reality), transitive, and absolute notion. The last crucial aspect that needs to be accounted for is the strength of relevance. The potential weakness of a logical approach is that any utterance can be shown to be relevant to any other move in many different ways, as it is always possible to draw a chain of inferences connecting them (Dascal, 2003, p. 36; Samet and Schank, 1984, p. 71). To solve this problem, the concept of inferential distance will be developed.

7.1. Inferential distance defined

Inferential distance can be defined as the number (quantity) and acceptability (quality) of the argumentative inferences needed for connecting a premise to a conclusion. The first dimension of this definition (argumentative inference) rests on the notion of argumentative relevance. The approach presented in the sections above represents the means-end relationship between an utterance and the preceding one or the context as an argumentative relation between premise and conclusion. An utterance *U* is *argumentatively relevant* to a communicative purpose expressed in the previous utterance(s) *Q* if there is a sequence of argumentation leading from the message expressed by *U* (represented as a premise) to a conclusion that is compatible with *Q* (see also Walton, 2007, p. 114). Argumentative relevance is different from coherence. Two text segments or utterances can be about the same explicit or underlying discourse topic (topically relevant) and coherent, but not probatively relevant.

Argumentative relevance is scalar in the sense that relevance can be more or less acceptable or effective from an argumentative point of view. The acceptability of the conclusion depends on the defeasibility conditions of each argument, namely the possibility of the conclusion being subject to default in case the premise(s) provided is (are) acceptable (Walton, 2016, pp. 27–31). For this reason, a premise can support a conclusion more or less effectively depending on two interrelated criteria, namely the probative force of the type of argument, and the number and acceptability of the needed implicit premises or intermediate conclusions (Clark, 1977, p. 261; Freeman, 2005, p. 192; Pennington and Hastie, 1991, p. 528; Walton, 2014, p. 198). Sometimes only one implicit premise and inferential (argumentative) step is needed. In other cases, the conclusion is grounded on more than one inferential step, like in Case 5 (two inferential steps from lack of evidence are involved), or on several tacit premises that need to be shared or accepted, like in Case 3 (if someone has a strong motivation such as a romantic affair, then he travels frequently long distances; having a girlfriend is a strong motivation to travel; there are no other reasons for Smith to go to New York; etc.).

An utterance can be inferentially distant from another because it is related to it by an inference grounded on an unacceptable or poorly acceptable premise, or by several inferences that proceed from premises or result in intermediate conclusions that can be doubtful (Walton and Macagno, 2016). For example, we consider Case 3. In case it is commonly shared that Smith usually travels to New York, the relevance of *B*'s reply ("He has been paying a lot of visits to New York lately") decreases, as its role as a possible sign of having a girlfriend (or a reason for not having one lately) is hardly acceptable. In order for the reply to be relevant, the shared knowledge concerning Smith needs to be updated and the conflicting information replaced, which requires further arguments. Other "implicatures," such as the one drawn from Case 5, are based on different inferential steps. In this case, the defeasibility of the conclusion depends on the defeasibility of two distinct arguments, either of which can be subject to default (*B* can deny that he meant that Mary was not a good student, or that the qualities listed excluded others that he took for granted). For

this reason, when the “inferential distance” between a premise (proposition U) and a conclusion (proposition Q) increases, the relevance of U to Q can decrease, as the possibilities that a required inferential step is not accepted grow. When U is “inferentially distant” from Q , it is more likely that it fails to strengthen or weaken the acceptability of Q .

The notion of inferential distance can also explain the context dependence of the acceptability of certain inferences, such as in Case 8. The conclusion drawn from the reply “He had two passports” is based on two interrelated inferential steps, namely reasoning in lack of knowledge (if the spy had more than two passports, B would have known it) and from sign (if someone knows a piece of information, he tells it), which lead to the cause–effect conclusion that the spy may not escape. However, the acceptability of the argument from sign is context dependent, and in a legal examination, it is usually not allowed to draw further inferences from a claim. In this sense, the conclusion drawn is inferentially distant from the claim in the specific context, and the implicit premise that the speaker intends to communicate all the information available cannot be presumed to be shared.

The notion of inferential distance is coherent with some tenets of Relevance Theory. According to S&W, the relevance of an assumption depends on cognitive effort, which increases depending on the number of the assumptions required in the inferential process, and the strength thereof. In particular, in a cognitive perspective the strength of an assumption depends on its accessibility to the hearer (Sperber and Wilson, 1995, p. 77); in turn, accessibility depends on the process of acquisition (whether based on perception, deduction, etc.), its processing history (whether it is frequently processed), and the effects on the processing of new information (whether it helps the processing of new information or makes it more difficult). However, while S&W adopt a functional and cognitive perspective, the notion of inferential distance is dialectical – namely based on natural logic of the kind developed in the ancient dialectical theories.

7.2. Assessing relevance

The notion of inferential distance can be used to explain more complex cases, drawn from specific contexts and related to strategies frequently used in political discourse, namely the *ignoratio elenchi* (proving a point not under discussion) and the straw man (attacking a claim different from the one made by the original speaker).

The first strategy of irrelevance can be illustrated through the following example from a debate in the Canadian House of Commons where the question for discussion was whether to make amendments to a bill called the Family Allowances Act for increasing government benefits paid to support families. One Member of Parliament (MP) who was against the amendments, attacked the government claiming that the latter had refused to take a million cans of tuna off the shelves that should not have passed inspection. As a reply to the concern of relevance of the tuna fish issue to the debate on family allowances, the MP replied as follows (Walton, 1989b, pp. 205–207):

Case 12 – The tuna fish

- MP: We are talking about a million tins of rotting tuna that the Government refuses to take off the shelves.
- Speaker: order, please. The Hon. Member knows that we are debating the amendment to the Bill on family allowances. I do not know why we are debating tuna fish. I hope the Hon. Member will get back on track.
- MP: Mr. Speaker, my reference to tuna relates to the health and welfare of Canadians, which is also being dealt a fatal blow as a result of this particular legislation on family allowances. [...]
- MP: With regard to the main question, which is family allowances, we are talking about the people who would be most affected by this cutback. The government says that \$22 is not a lot for Canadian families. Well, families and single parents who are struggling to raise small children, *often surviving on tuna*, are being directly assaulted by the government's anti-family budget measures [our italics].

This case illustrates clearly how the notion of inferential distance can capture the irrelevance of the MP's claim and justification. The inferential steps and the implicit premises required to draw the relevance relation (the conclusion coherent to the communicative purpose of the dialogue) can be represented in Fig. 3.

In Fig. 3, the relevance relation (the ultimate conclusion) is drawn from four implicit premises that can be hardly considered as accepted or acceptable. The conclusion can be hardly drawn from the MP's claim, and can be hardly justified as relevant.

The notion of inferential distance can be used to assess cases of irrelevant attacks to a viewpoint. An attack is relevant to a claim when it provides a reason not to be committed to it. However, without an assessment of the strength of the relevance relation, it is possible to justify the relevance of potentially irrelevant attacks by drawing inferences grounded on implicit but unshared premises. This possibility of interpreting strategically the attacked claim underlies the so-called straw man argumentation (Macagno and Walton, 2017; Oswald and Lewiński, 2014). A controversial case of straw man is the

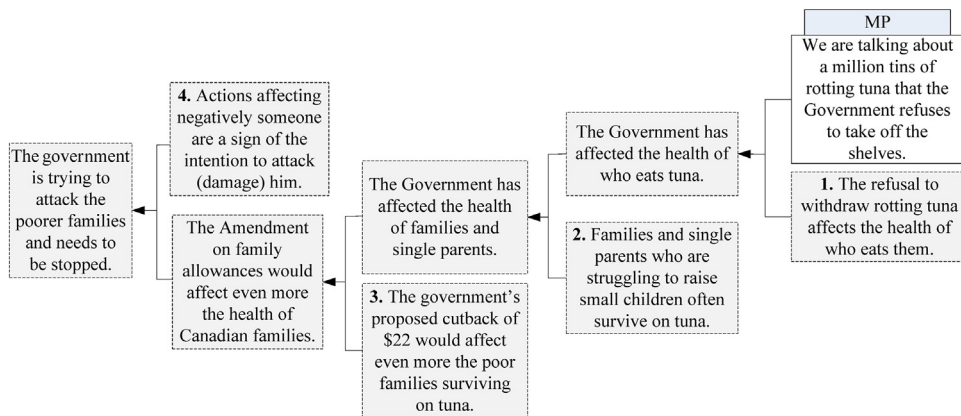


Fig. 3. Inferential distance in the Tuna fish case.

following excerpt from the 2008 Democratic primaries (Bizer et al., 2009), in which candidate John Edwards used the straw man technique to attack fellow candidate Barack Obama's stance that insurance companies and the government should negotiate regarding health care. Obama's original statement was attacked as follows:

Case 13 – Obama and Medicare

Obama: The health reform should be negotiated at a “big table” that would include insurance companies and drug companies.
 Edwards: Some people argue that we're going to sit at a table with these people and they're going to voluntarily give their power away. I think it is a complete fantasy; it will never happen.

Edwards's attack is coherent with Obama's claim, and it is possible for the interpreter to infer the relationship between Edwards' attack and Obama's position. Edwards in fact does not attack directly Obama's claim, but rather the possible implicit conclusion that can be inferred from his proposal (convincing the big companies to give their power away). The inferential distance between the original claim and the attacked one, however, needs to be assessed by reconstructing the implicit arguments. A reconstruction can be found in Fig. 4.

In this case, the attack is relevant only if it justifies the non-commitment to A (by showing that A cannot be accepted or that non-A is to be accepted). However, Edwards in fact attacks A', which is a conclusion that can be possibly drawn from Obama's claim and a set of implicit premises (indicated in dotted boxes) that can be highly controversial considering the audience's common ground. The very nature of the negotiations (pursuing only one's interest, as represented in 1) and more importantly the characteristics of the difference between Obama's and the companies' interests (as represented in 2) cannot be considered as shared (by Obama, at least). The attack is inferentially distant from, and thus hardly relevant to, the original claim. The conclusion that makes the attack relevant requires two inferential steps (a cause–effect relation leading to the intermediate conclusion C', and a practical reasoning leading to the interpretation A'), which are highly defeasible as grounded on three hardly acceptable premises.

7.3. Defeasibility and strength of assumptions

The notion of inferential distance is grounded on the concept of defeasibility. An inferential step can be more or less acceptable depending on whether it is less or more likely to be defeated by available or possible evidence. This definition rests on an account of probability that is different from the Pascalian (and Bayesian) view, which is ultimately based on the assignment of “subjective probability values to assumptions” (Sperber and Wilson, 1995, p. 76). Relevance Theory addresses the problem of providing non-subjective (and non-arbitrary) grounds to the strength of assumptions in non-logical terms, relating it to accessibility (Sperber and Wilson, 1995, p. 77):

A more plausible claim is that, as a result of some kind of habituation, the more a representation is processed, the more accessible it becomes. Hence, the greater the amount of processing involved in the formation of an

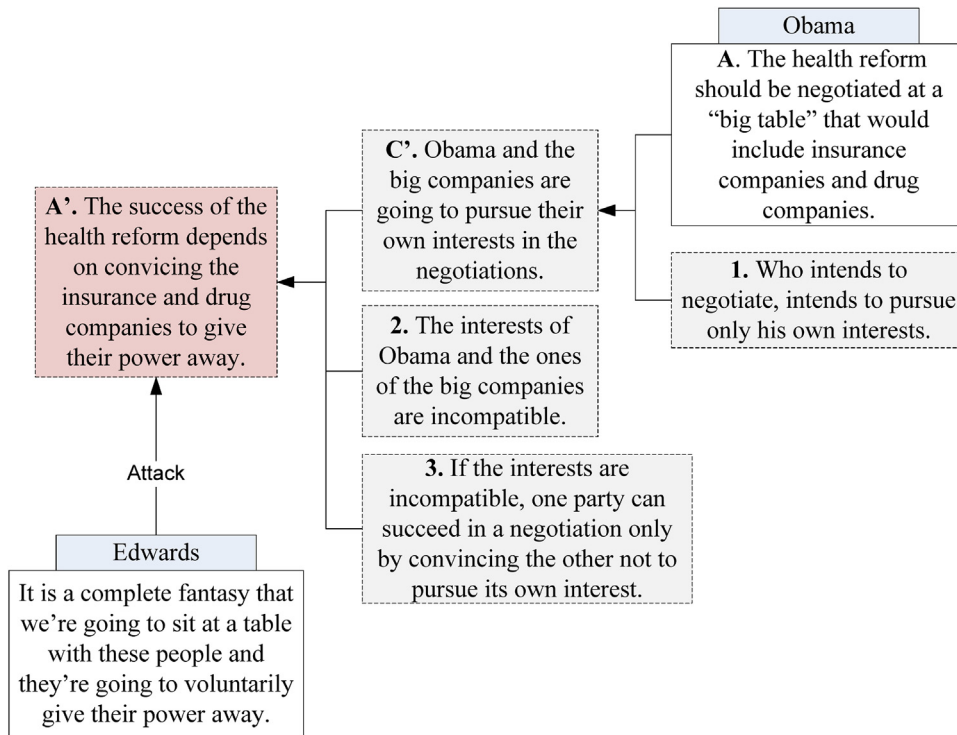


Fig. 4. Inferential distance in the Obama and Medicare case.

assumption, and the more often it is accessed thereafter, the greater its accessibility. Similarly, the initial strength of an assumption may depend on the way it is acquired.

The concept of defeasibility is instead (informal) logical, and is assessed by considering the existence (actual or possible) of evidence that can support or weaken a conclusion (Walton, 2014, pp. 4–9; Weinstock et al., 2013). As Schum put it (Schum, 1994, p. 252):

The Baconian probability $B(H, E^*) \geq i/n$ means that the generalization licensing an inference of H from evidence E^* has been supported through level i in a sequence of n evidential tests involving variables believed to be relevant to the testing of this generalization.

This account provides a non-cognitive explanation that leads to predicting whether a hypothesis can be considered as proved (and to what extent) or not. In a context of lack of knowledge, as the one characterizing ordinary conversation, inferences can be assessed based on the defeasibility conditions of the argumentation schemes, which guide the retrieval of possible evidence weakening or supporting the conclusion drawn. Evidence can be found in the information communicated, the context, or in what the speaker and the hearer consider to be commonly shared. This approach has two consequences. First, the conclusion of an inference can be justified (assessed) objectively by providing or pointing out evidence in support of it. Second, a conclusion can be assessed differently depending on the knowledge of (namely the supporting or rebutting evidence available to) who evaluates it.

The notion of inferential distance is not an alternative, but an explanation on the purely (informal) logical level of the comprehension process described by Sperber and Wilson. S&W investigate in terms of cognitive effort the relationship between the number of premises necessary for an inferential process and relevance. From an argumentative perspective, the number of inferential steps is considered as *potentially* affecting relevance because related to the potential defeasibility of the conclusion: the higher the number of the inferential steps (and premises) involved, the higher the number of possible defeasibility conditions of the ultimate conclusion, and thus the possibility of finding countering evidence. The actual relevance is assessed considering the available evidence and the defeasibility of each inferential step. This explanation does not exclude, but on the contrary is compatible with the theoretical framework developed by S&W. Accessibility of information is crucial for explaining why some conclusions are more easily accepted or rejected, and why certain types of evidence (including the linguistic one) are more likely (and are more used) to support an intended conclusion.

8. Conclusion

In their seminal work on relevance, Sperber and Wilson pointed out very clearly the limitations of a logical analysis of the material inferences used in interpreting utterances, and at the same time underscored the need of a more comprehensive description thereof (Sperber and Wilson, 1995, p. 70):

Pragmatic theory in general is condemned to vagueness if it says nothing more about the inference processes involved in comprehension than that they are non-demonstrative, a purely negative characterisation.

In argumentation theory, non-demonstrative inferences are studied considering the types of generalization on which they are based, the rules of inference and axioms involved, and the defeasibility of the implicit and explicit premises (Macagno and Walton, 2015). This background can be used to describe and evaluate pragmatic inferences from a logical (normative) point of view.

This paper presents an argumentative approach to relevance grounded on the concept of informal (argumentative) inferences and the notion of inferential distance. Both dimensions are assessed by considering the defeasibility conditions of an inference, brought to light by the argumentation schemes used to represent them (Godden and Walton, 2006, 2007), namely prototypical patterns of inference that are used for representing and reconstructing the possible types of argument. Given a conclusion and a premise, it is possible to identify the scheme that most adequately connects them, requiring less additional premises to be added. In this sense, the detection of the most adequate scheme provides a presumption of the best possible reconstruction of the inference. Such argumentation schemes are used to make specific predictions on the premises that can be presumed to be left implicit.

The communicative purpose of an utterance and the contribution of a subsequent move thereto is represented in terms of commitments whose acceptability is based on the quality of the reasons justifying them. Such reasons can be evaluated by considering their defeasibility, and the acceptability of the implicit premises on which they are based. The assessment of both the relevance of an utterance and the strength thereof depends on the evaluation of three interrelated factors:

- The number of inferential steps required;
- The types of argumentation schemes involved; and
- The implicit premises required.

These factors are intertwined, as a higher number of inferential steps results in a higher number of implicit premises and argumentation schemes involved, each defeasible for distinct reasons. The assessment of the relevance relation is thus the result of the evaluation of the inferences involved.

This account is compatible with and potentially complementary to the other approaches to relevance. The contextual effects, and more specifically the contextual implications outlined by S&W, can be modeled, determined, and calculated using the concept of inferential distance, which can also account for a specific type of processing effort, namely drawing inferences from an utterance. The description of the material inferences responsible for drawing the contextual implications can provide an objective criterion for describing and calculating them at an (informal) logical level.

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References

- Allwood, J., 1977. A critical look at speech act theory. In: Dahl, Ö. (Ed.), *Logic, Pragmatics and Grammar*. Akademiförlaget, Göteborg, pp. 53–69.
- Anscombe, J.-C., Ducrot, O., 1983. *L'argumentation dans la langue*. Pierre Mardaga, Bruxelles.
- Atlas, J.D., 2005. *Logic, Meaning, and Conversation*. Oxford University Press, Oxford. <http://dx.doi.org/10.1093/acprof:oso/9780195133004.001.0001>
- Atlas, J.D., Levinson, S., 1981. It-clefts, informativeness and logical form: radical pragmatics (revised standard version). In: Cole, P. (Ed.), *Radical Pragmatics*. Academic Press, New York, pp. 1–62.
- Bach, K., Harnish, R., 1979. *Linguistic Communication and Speech Acts*. MIT Press, Cambridge, MA.
- Beysade, C., Marandin, J.-M., 2009. Commitment: une attitude dialogique. *Lang. Française* 162 (2), 89–107. <http://dx.doi.org/10.3917/lf.162.0089>
- Bizer, G., Kozak, S., Holterman, L.A., 2009. The persuasiveness of the straw man rhetorical technique. *Soc. Influ.* 4 (3), 216–230. <http://dx.doi.org/10.1080/15534510802598152>

- Blakemore, D., 2002. *Relevance and Linguistic Meaning: The Semantics and Pragmatics of Discourse Markers*. Cambridge University Press, Cambridge.
- Brandom, R., 1994. *Making It Explicit: Reasoning, Representing, and Discursive Commitment*. Harvard University Press, Cambridge, MA.
- Callow, K., Callow, J., 1992. Text as purposive communication: a meaning-based analysis. In: Mann, W., Thompson, S. (Eds.), *Discourse Description: Diverse Linguistic Analyses of a Fund-Raising Text*. John Benjamins, Amsterdam, pp. 5–37.
- Capone, A., 2005. Pragmemes (a study with reference to English and Italian). *J. Pragmat.* 37 (9), 1355–1371. <http://dx.doi.org/10.1016/j.pragma.2005.01.013>
- Capone, A., 2013a. Explicatures are NOT cancellable. Capone, A., Lo Piparo, F., Carapezza, M. (Eds.), *Perspectives on Linguistic Pragmatics, Perspectives in Pragmatics, Philosophy & Psychology*, vol. 2. Springer, Cham, pp. 131–151.
- Capone, A., 2013b. Further reflections on semantic minimalism: reply to Wedgwood. In: Capone, A., Lo Piparo, F., Carapezza, M. (Eds.), *Perspectives on Pragmatics and Philosophy*. Springer, Cham, pp. 437–473.
- Capone, A., 2017. Introducing the notion of the Pragmeme. In: Allan, K., Capone, A., Kecskes, I. (Eds.), *Pragmemes and Theories of Language Use*. Springer, Cham, pp. xv–xxiv.
- Carston, R., 2004. Relevance theory and the saying/implicating distinction. In: Horn, L., Ward, G. (Eds.), *The Handbook of Pragmatics*. Blackwell, Oxford, pp. 633–656.
- Clark, H., 1977. Inferences in comprehension. In: LaBerge, D., Samuels, J. (Eds.), *Basic Processes in Reading: Perception and Comprehension*. Erlbaum, Hillsdale, NJ, pp. 243–263.
- Clark, H., 1979. Responding to indirect speech acts. *Cogn. Psychol.* 11 (4), 430–477.
- Clark, H., 1996. *Using Language*. Cambridge University Press, Cambridge.
- Clark, H., Brennan, S., 1991. Grounding in communication. In: Resnick, L., Levine, J., Teasley, S. (Eds.), *Perspectives on Socially Shared Cognition*. American Psychological Association, Washington, pp. 127–149.
- Clark, H., Marshall, C., 1981. Definite reference and mutual knowledge. In: Joshi, A., Weber, B., Sag, I. (Eds.), *Elements of Discourse Understanding*. Cambridge University Press, Cambridge, MA.
- Dascal, M., 1992. On the pragmatic structure of conversation. In: Parret, H., Verschuere, J. (Eds.), *(On) Searle on Conversation*. John Benjamins Publishing, Amsterdam-Philadelphia, pp. 35–57.
- Dascal, M., 2003. *Interpretation and Understanding*. John Benjamins Publishing Company, Amsterdam.
- Dunin-Keplicz, B., Verbrugge, R., 2001. The role of Dialogue in Cooperative Problem solving. In: Davis, E., McCarthy, J., Morgenstern, L., Reiter, R. (Eds.), *Proceedings of the 5th International Symposium on Logical Formalization of Commonsense reasoning*, New York, pp. 89–104.
- Epstein, R., 1979. Relatedness and implication. *Philos. Stud.* 36, 137–173.
- Erduran, S., 2008. Methodological foundation of the study of argumentation in science classroom. In: Erduran, S., Jimenez-Alexandre, M.P. (Eds.), *Argumentation in Science Education: Perspectives from Classroom-Based Research*. Springer, Dordrecht, pp. 47–69.
- Freeman, J., 2005. Acceptable Premises: An Epistemic Approach to an Informal Logic Problem. <http://dx.doi.org/10.4324/9780511610301>
- Geis, M., 1995. *Speech Acts and Conversational Interaction*. Cambridge University Press, Cambridge.
- Giora, R., 1985. Notes towards a theory of text coherence. *Poet. Today* 6 (4), 699. <http://dx.doi.org/10.2307/1771962>
- Giora, R., 1988. On the informativeness requirement. *J. Pragmat.* 12 (5–6), 547–565. [http://dx.doi.org/10.1016/0378-2166\(88\)90048-3](http://dx.doi.org/10.1016/0378-2166(88)90048-3)
- Giora, R., 1997. Discourse coherence and theory of relevance: stumbling blocks in search of a unified theory. *J. Pragmat.* 27 (1), 17–34. [http://dx.doi.org/10.1016/0378-2166\(95\)00065-8](http://dx.doi.org/10.1016/0378-2166(95)00065-8)
- Giora, R., Drucker, A., Fein, O., Mendelson, I., 2015. Default sarcastic interpretations: on the priority of nonsalient interpretations. *Discourse Process.* 52 (3), 173–200. <http://dx.doi.org/10.1080/0163853X.2014.954951>
- Giora, R., Givoni, S., Heruti, V., Fein, O., 2017. The role of defaultness in affecting pleasure: the optimal innovation hypothesis revisited. *Metaphor Symb.* 32 (1), 1–18. <http://dx.doi.org/10.1080/10926488.2017.1272934>
- Godden, D., Walton, D., 2006. Argument from expert opinion as legal evidence: critical questions and admissibility criteria of expert testimony in the American legal system. *Ratio Juris* 19 (3), 261–286.
- Godden, D., Walton, D., 2007. Advances in the theory of argumentation schemes and critical questions. *Informal Log.* 27 (3), 267–292.
- Gorayska, B., Lindsay, R., 1993. The roots of relevance. *J. Pragmat.* 19 (4), 301–323.
- Grice, P., 1975. Logic and conversation. In: Cole, P., Morgan, J. (Eds.), *Syntax and Semantics 3: Speech Acts*. Academic Press, New York, pp. 41–58.
- Grice, P., 2001. In: Warner, R. (Ed.), *Aspects of Reason*. Oxford University Press, Oxford. <http://dx.doi.org/10.1093/0198242522.001.0001>
- Grosz, B., Sidner, C., 1986. Attention, intentions, and the structure of discourse. *Comput. Linguist.* 12 (3), 175–204.
- Hamblin, C.L., 1970. *Fallacies*. Methuen, London.
- Haugh, M., Jaszczolt, K., 2012. Speaker intentions and intentionality. In: Allan, K., Jaszczolt, K.M. (Eds.), *The Cambridge Handbook of Pragmatics*. Cambridge University Press, Cambridge, pp. 87–112. <http://dx.doi.org/10.1017/CBO9781139022453.006>
- Haviland, S., Clark, H., 1974. What's new? Acquiring new information as a process in comprehension. *J. Verbal Learn. Verbal Behav.* 13 (5), 512–521. [http://dx.doi.org/10.1016/S0022-5371\(74\)80003-4](http://dx.doi.org/10.1016/S0022-5371(74)80003-4)
- Hitchcock, D., 1998. Does the traditional treatment of enthymemes rest on a mistake? *Argumentation* 12 (1), 15–37.
- Hitchcock, D., 2017. *On Reasoning and Argument: Essays in Informal Logic and on Critical Thinking*. Springer International Publishing, Cham.
- Hobbs, J.R., 1979. Coherence and coreference. *Cogn. Sci.* 3, 67–90. http://dx.doi.org/10.1207/s15516709cog0301_4
- Holdcroft, D., 1987. Conversational relevance. In: Verschuere, J., Bertucci-Papi, M. (Eds.), *The Pragmatic Perspective*. John Benjamins Publishing Company, Amsterdam-Philadelphia, pp. 477–495.
- Horn, L., 2009. Implicature, truth, and meaning. *Int. Rev. Pragmat.* 1, 3–34.
- Jacobs, S., Jackson, S., 2006. Derailments of argumentation: it takes two to tango. In: Houtlosser, P., van Rees, A. (Eds.), *Considering Pragmatic-Dialectics*. Lawrence Erlbaum Associates, Mahwah, NJ, pp. 121–133.
- Kádár, D., Haugh, M., 2013. *Understanding Politeness*. Cambridge University Press, New York.
- Kecskes, I., 2008. Dueling contexts: a dynamic model of meaning. *J. Pragmat.* 40 (3), 385–406. <http://dx.doi.org/10.1016/j.pragma.2007.12.004>
- Kecskes, I., 2010a. Situation-bound utterances as pragmatic acts. *J. Pragmat.* 42 (11), 2889–2897. <http://dx.doi.org/10.1016/j.pragma.2010.06.008>

- 22 *F. Macagno/Lingua xxx (2018) xxx–xxx*
- Kecskes, I., 2010b. The paradox of communication: socio-cognitive approach to pragmatics. *Pragmat. Soc.* 1 (1), 50–73. <http://dx.doi.org/10.1075/ps.1.1.04kec>
- Kecskes, I., Zhang, F., 2009. Activating, seeking, and creating common ground: a socio-cognitive approach. *Pragmat. Cogn.* 17 (2), 331–355. <http://dx.doi.org/10.1075/pc.17.2.06kec>
- Kissine, M., 2012. Sentences, utterances, and speech acts. In: Allan, K., Jaszczolt, K. (Eds.), *Cambridge Handbook of Pragmatics*. Cambridge University Press, New York, pp. 169–190. <http://dx.doi.org/10.1017/cbo9781139022453.010>
- Kissine, M., 2013. *From Utterances to Speech Acts*. Cambridge University Press, Cambridge.
- Lascarides, A., Asher, N., 1993. Temporal interpretation, discourse relations and commonsense entailment. *Linguist. Philos.* 16, 437–493. <http://dx.doi.org/10.1007/BF00986208>
- Leech, G., 1983. *Principles of Pragmatics*. Longman, London.
- Levinson, S., 1983. *Pragmatics*. Cambridge University Press, Cambridge.
- Levinson, S., 1987. Implicature explicated? *Behav. Brain Sci.* 10 (4), 722–723. <http://dx.doi.org/10.1017/S0140525X00055473>
- Levinson, S., 1992. Activity types and language. In: Drew, P., Heritage, J. (Eds.), *Talk at Work: Interaction in Institutional Settings*. Cambridge University Press, Cambridge, pp. 66–100.
- Levinson, S., 2000. *Presumptive Meanings: The Theory of Generalized Conversational Implicature*. MIT Press, Cambridge, MA.
- Macagno, F., 2008. Dialectical relevance and dialogical context in Walton's pragmatic theory. *Informal Log.* 28 (2), 102. <http://dx.doi.org/10.22329/il.v28i2.542>
- Macagno, F., 2011. The presumptions of meaning. Hamblin and equivocation. *Informal Log.* 31 (4), 367. <http://dx.doi.org/10.22329/il.v31i4.3326>
- Macagno, F., 2012. Presumptive reasoning in interpretation. Implicatures and conflicts of presumptions. *Argumentation* 26 (2), 233–265. <http://dx.doi.org/10.1007/s10503-011-9232-9>
- Macagno, F., 2016. Argument relevance and structure. Assessing and developing students' uses of evidence. *Int. J. Educ. Res.* 79, 180–194. <http://dx.doi.org/10.1016/j.ijer.2016.07.002>
- Macagno, F., 2017. Defaults and inferences in interpretation. *J. Pragmat.* 117, 280–290. <http://dx.doi.org/10.1016/j.pragma.2017.06.005>
- Macagno, F., Bigi, S., 2017. Analyzing the pragmatic structure of dialogues. *Discourse Stud.* 19 (2), 148–168. <http://dx.doi.org/10.1177/1461445617691702>
- Macagno, F., Walton, D., 2015. Classifying the patterns of natural arguments. *Philos. Rhetor.* 48 (1), 26–53. <http://dx.doi.org/10.1353/par.2015.0005>
- Macagno, F., Walton, D., 2017. *Interpreting Straw Man Argumentation. The Pragmatics of Quotation and Reporting*. Springer, Amsterdam.
- Macagno, F., Mayweg-Paus, E., Kuhn, D., 2015. Argumentation theory in education studies: coding and improving students' argumentative strategies. *Topoi* 34 (2), 523–537. <http://dx.doi.org/10.1007/s11245-014-9271-6>
- Macagno, F., Walton, D., Tindale, C., 2016. Analogical arguments: inferential structures and defeasibility conditions. *Argumentation* 1–23. <http://dx.doi.org/10.1007/s10503-016-9406-6>
- Mann, W., 1988. Dialogue games: conventions of human interaction. *Argumentation* 2 (4), 511–532. <http://dx.doi.org/10.1007/BF00128990>
- Marmor, A., 2014. *The Language of Law*. Oxford University Press, Oxford.
- McBurney, P., Parsons, S., 2009. Dialogue games for agent argumentation. In: Simari, G., Rahwan, I. (Eds.), *Argumentation in Artificial Intelligence*. Springer, Heidelberg, pp. 261–280.
- Mey, J., 2001. *Pragmatics. An Introduction*. Blackwell, Oxford.
- Morency, P., Oswald, S., de Saussure, L., 2008. Explicitness, implicitness and commitment attribution: a cognitive pragmatic approach. *Belg. J. Linguist.* 22, 197–219.
- Nussbaum, M., Edwards, O.V., 2011. Critical questions and argument stratagems: a framework for enhancing and analyzing students' reasoning practices. *J. Learn. Sci.* 20 (3), 443–488. <http://dx.doi.org/10.1080/10508406.2011.564567>
- Oishi, E., 2016. Austin's speech acts and Mey's Pragmemes. In: Allan, K., Capone, A., Kecskes, I. (Eds.), *Pragmemes and Theories of Language Use*. Springer, Cham, pp. 335–350.
- Oswald, S., 2016. Commitment attribution and the reconstruction of arguments. In: Paglieri, F., Bonelli, L., Felletti, S. (Eds.), *The Psychology of Argument: Cognitive Approaches to Argumentation and Persuasion*. College Publications, London, pp. 17–32.
- Oswald, S., Lewiński, M., 2014. Pragmatics, cognitive heuristics and the straw man fallacy. In: Herman, T., amp, S., Oswald, (Eds.), *Rhetoric and Cognition: Theoretical Perspectives and Persuasive Strategies*. Peter lang, Bern, pp. 313–343.
- Pennington, N., Hastie, R., 1991. A cognitive theory of juror decision making: the story model. *Cardozo Law Rev.* 13 (2–3), 519–558.
- Rapanta, C., Garcia-Mila, M., Gilbert, S., 2013. What is meant by argumentative competence? An integrative review of methods of analysis and assessment in education. *Rev. Educ. Res.* 83 (4), 483–520. <http://dx.doi.org/10.3102/0034654313487606>
- Rescher, N., 2006. *Presumption and the Practices of Tentative Cognition*. Cambridge University Press, Cambridge. <http://dx.doi.org/10.1017/CBO9780511498848>
- Rickheit, G., Schnotz, W., Strohner, H., 1985. The concept of inference in discourse comprehension. In: Rickheit, G., Strohner, H. (Eds.), *Inferences in Text Processing*. North-Holland, Amsterdam, pp. 3–50.
- Ruhi, Ş., 2007. Higher-order intentions and self-politeness in evaluations of (im)politeness: the relevance of compliment responses. *Aust. J. Linguist.* 27 (2), 107–145. <http://dx.doi.org/10.1080/07268600701522756>
- Samet, J., Schank, R., 1984. Coherence and connectivity. *Linguist. Philos.* 7 (1), 57–82.
- Sanders, R., 2013. The duality of speaker meaning: what makes self-repair, insincerity, and sarcasm possible. *J. Pragmat.* 48 (1), 112–122.
- Sbisà, M., 2002. Speech acts in context. *Lang. Commun.* 22 (4), 421–436.
- Schank, R., 1986. *Explanation Patterns: Understanding Mechanically and Creatively*. Lawrence Erlbaum Associates, Inc., Hillsdale, NJ.
- Schank, R., Abelson, R., 1975. Scripts, plans, and knowledge. In: *IJCAI'75 Proceedings of the 4th International Joint Conference on Artificial Intelligence*, vol. 1. Morgan Kaufmann Publishers Inc., San Francisco, pp. 151–157.
- Schank, R., Abelson, R., 1977. *Scripts, Plans, Goals and Understanding. An Inquiry into Human Knowledge Structures*. Lawrence Erlbaum Associates, Hillsdale, NJ.
- Schank, R., Collins, G., Davis, E., Johnson, P., Lytinen, S., Reiser, B., 1982. What's the point? *Cogn. Sci.* 6 (3), 255–275. http://dx.doi.org/10.1207/s15516709cog0603_2

- Schum, D., 1994. *The Evidential Foundations of Probabilistic Reasoning*. Northwestern University Press, Evanston, IL.
- Seuren, P., 2009. *Language in Cognition: Language from Within Volume I: Language from Within*, vol. 1. Oxford University Press, Oxford.
- Smith, N., Wilson, D., 1979. *Modern Linguistics: The Results of Chomsky's Revolution*. Penguin, Harmondsworth.
- Sperber, D., Wilson, D., 1986. *Relevance: Communication and Cognition*. Blackwell, Oxford.
- Sperber, D., Wilson, D., 1995. *Relevance: Communication and Cognition*. Blackwell Publishing Ltd., Oxford.
- Strawson, P., 1964. Intention and convention in speech acts. *Philos. Rev.* 73 (4), 439–460.
- Streeck, J., 1980. Speech acts in interaction: a critique of Searle. *Discourse Process.* 3 (2), 133–153.
- Stump, E., 1989. *Dialectic and Its Place in the Development of Medieval Logic*. Cornell University Press, Ithaca and London.
- Taboada, M., 2009. Implicit and explicit coherence relations. In: Renkema, J. (Ed.), *Discourse, of Course: An Overview of Research in Discourse Studies*. John Benjamins Publishing, Amsterdam-Philadelphia, pp. 127–140.
- Thagard, P., 1984. Frames, knowledge, and inference. *Synthese* 61 (2), 233–259.
- Tindale, C., 2015. *The Philosophy of Argument and Audience Reception*. Cambridge University Press, Cambridge. <http://dx.doi.org/10.1017/CBO9781316181645>
- Van Dijk, T., 1976. Sentence topic and discourse topic. *Pap. Slav. Philol.* 1, 49–61.
- Van Dijk, T., 1977. Semantic macro-structures and knowledge frames in discourse comprehension. In: Just, M.A., Carpenter, P. (Eds.), *Cognitive Processes in Comprehension*. Lawrence Erlbaum Associates, Hillsdale, NJ, pp. 3–32.
- Van Dijk, T., Kintsch, W., 1983. *Strategies of Discourse Comprehension*. Academic Press, New York.
- Walton, D., 1982. *Topical Relevance in Argumentation*. John Benjamins Publishing Company, Amsterdam-Philadelphia.
- Walton, D., 1989a. *Informal Logic*. Cambridge University Press, New York.
- Walton, D., 1989b. *Question-Reply Argumentation*. Greenwood Press, Westport.
- Walton, D., 1990. What is reasoning? What is an argument?. *J. Philos.* 87, 399–419. <http://dx.doi.org/10.2307/2026735>
- Walton, D., 1995. *Argumentation Schemes for Presumptive Reasoning*. Routledge, Mahwah. <http://dx.doi.org/10.4324/9780203811160>
- Walton, D., 1998. *The New Dialectic. Conversational Contexts of Argument*. University of Toronto Press, Toronto.
- Walton, D., 2002. *Legal Argumentation and Evidence*. The Pennsylvania State University Press, University Park.
- Walton, D., 2003. *Relevance in Argumentation*. Routledge, Amsterdam-Philadelphia. <http://dx.doi.org/10.4324/9781410609441>
- Walton, D., 2007. *Witness Testimony Evidence. Argumentation, Artificial Intelligence, and Law*. Cambridge University Press, New York.
- Walton, D., 2014. *Burden of Proof, Presumption and Argumentation*. Cambridge University Press, Cambridge. <http://dx.doi.org/10.1017/CBO9781107110311>
- Walton, D., 2016. *Argument Evaluation and Evidence*. Springer, Cham.
- Walton, D., Krabbe, E., 1995. *Commitment in Dialogue*. State University of New York Press, Albany.
- Walton, D., Macagno, F., 2007. Types of dialogue, dialectical relevance and textual congruity. *Anthropol. Philos.* 8 (1–2), 101–119.
- Walton, D., Macagno, F., 2016. Profiles of dialogue for relevance. *Informal Log.* 36 (4), 523. <http://dx.doi.org/10.22329/il.v36i4.4586>
- Walton, D., Reed, C., Macagno, F., 2008. *Argumentation Schemes*. Cambridge University Press, New York. <http://dx.doi.org/10.1017/CBO9780511802034>
- Weinstock, C.B., Goodenough, J.B., Klein, A.Z., 2013. Measuring assurance case confidence using Baconian probabilities. In: *2013 1st International Workshop on Assurance Cases for Software-Intensive Systems (ASSURE)*. IEEE, San Francisco, pp. 7–11. <http://dx.doi.org/10.1109/ASSURE.2013.6614264>
- Widdowson, H.G., 1978. *Teaching Language as Communication*. Oxford University Press, Oxford.
- Wilson, D., 1998. *Discourse, coherence and relevance: a reply to Rachel Giora*. *J. Pragmat.* 29 (1), 57–74.
- Wilson, D., Sperber, D., 2004. Relevance theory. In: Horn, L., Ward, G. (Eds.), *Handbook of Pragmatics*. Blackwell, Oxford, pp. 607–632. <http://dx.doi.org/10.1016/j.pragma.2009.09.021>
- Wilson, D., Sperber, D., 2012. *Meaning and Relevance*. Cambridge University Press, Cambridge. <http://dx.doi.org/10.1017/cbo9781139028370>