Implicatures as Forms of Argument

Fabrizio Macagno and Douglas Walton

Abstract In this paper, we use concepts, structure and tools from argumentation theory to show how conversational implicatures are triggered by conflicts of presumptions. Presumptive implicature are shown to be based on defeasible forms of inference used in conditions of lack of knowledge, including analogical reasoning, inference to the best explanation, practical reasoning, appeal to pity, and argument from cause. Such inferences are modelled as communicative strategies used to fill knowledge gaps by shifting the burden of proof to provide the missing contrary evidence to the other party in a dialogue.c Through a series of illustrative examples, we show how such principles of inference are based on common knowledge about the ordinary course of events shared by participants in a structured dialogue setting in which they take turns putting forward and responding to speech acts.

Keywords Argumentation · Implicatures · Argumentation schemes · Analogy · Speech acts · Pragmatics · Implicit speech acts · Indirect speech acts

The notion of implicature was introduced by Grice in 'The Causal Theory of Perception' (Grice 1961) and developed in his further essays (Grice 1975)[1]. The theory is meant to describe the relationship between what is said and what is meant in cases in which the conventional meaning commonly associated with the sentence ("what is said") does not correspond with the speaker's communicative intention, or his/her intended effect on the audience ("what is meant") (Grice

[1] For an overview of the roots of Grice's theory of implicature, see (Davis 2007).

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1975, 1989, 220; Levinson 1983, 97). Implicatures are therefore consequences of a speaker's *saying* a specific sentence. On Grice's view, what a man says needs to be considered in the context of the expectations and presumptions of the community of speakers he belongs to (Grice 1975, 47). Grice collected such presumptions and expectations under general categories conceived as communicative norms (Sperber and Wilson 1986, 162) or presumptions. If an utterance superficially appears not to conform to the presumptions that the speaker is cooperative and is speaking truthfully, informatively, relevantly, perspicuously, and otherwise appropriately, the hearer tries to explain this failure by reconstructing a new unconventional meaning for the sentence (Bach 2003, 155). Grice conceived these presumptions as general and context-independent communicative principles, and they were reduced to principles of relevance by Sperber and Wilson (1986, 382); (Wilson and Sperber 2004, 608) and applied to several forms of communication.

Grice's proposal for analyzing implicit meaning in terms of a process of reasoning triggered by a breach of dialectical expectations is based on three basic principles: the meeting of the parties' minds (or understanding of the intentions), the existence of shared rules of communication, and the ability to reconstruct "what is meant" from "what is said". These three principles have been studied from cognitive perspectives, transferring the concept of meaning to the field of intentions and beliefs (Grice 1975; Thomason 1990) and applying universal principles (cooperation and relevance) to explain inferential processes. However, such maxims and principles are not universal, but simply characterize some contexts of dialogue. In legal dialogues or negotiations such maxims cannot hold (Goodwin 2001). Moreover, the crucial step between what is said and what is meant has been never described.

The purpose of this paper is to investigate the relationship between reasoning and implicitness. What is the process of reasoning linking a sentence with an intention? Why do different people with different background knowledge draw the same inferences in different circumstances? Why does the process of retrieving the implicit meaning vary according to the contexts of dialogue? Our proposal is to interpret the grounds of Grice's theory using argumentation schemes in a dialectical framework, in order to show how implicatures work in this structure as implicit arguments.

1 Presumptions and Meaning

Grice's theory of implicature relies on the hearer's ability to understand the intended communicative purpose of an utterance, that is, its meaning. The mechanism the speaker activates to retrieve the communicative intention is triggered by a failure of communicative expectations that are crystallized in four maxims or in one super-maxim. Conceiving such presumptions as abstract norms, Grice reduced all communication to some unspecified but evidently particular type of dialogue in which such rules are taken to hold. This ideal dialogue, however, hides the

complexity of human conversation, whose regulating principles are context dependent. For instance, the most basic principle, the cooperative principle, does not hold in all contexts of dialogue. In legal cross-examination, the most important rule of the cross-examination is that the lawyer needs to avoid possible evasions (*Bronston v. US* 409, U.S. 359, 1973; Goodwin 2001). For instance, in this case, the lawyer asked a question, and retrieved the answer by resorting to implicature.

Case 1: Presumption of evasion

"Q. Do you have any bank accounts in Swiss banks, Mr. Bronston?"
"A. No, sir."
"Q. Have you ever?"
"A. The company had an account there for about six months, in Zurich."

The witness actually held a bank account in a Swiss bank, but was found to have testified truthfully, as he never stated the contrary. In this type of dialogue, the Gricean maxims, including the relevance maxims cannot hold.

What is needed to account for such conversational differences is a weaker requirement. Instead of considering maxims and super maxims as principles, we maintain that they are dialogical presumptions that depend on the type of dialogical purpose and dialogue type. In ordinary conversation the interlocutor is presumed to be cooperative and therefore willing to contribute to the dialogue. In other contexts of dialogue he is presumed to aim at winning the discussion, hiding some information, or trying to make the other party lose. In order to retrieve the intended meaning of "what is said", or rather the purpose of a dialogical move, it is necessary first to understand the purpose of the dialogue the interlocutors are engaged in. Grice (1975, 45) underscored this first requirement of interpretation introducing the notion of "direction" of the dialogue, which imposes conditions on the possible conversational moves:

> Our talk exchanges do not normally consist of a succession of disconnected remarks, and would not he 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. This purpose or direction may he fixed from the start (e.g., by an initial proposal of a question for discussion), or it may evolve during the exchange; it may he fairly definite, or it may he so indefinite as to leave very considerable latitude to the participants (as in a casual conversation). But at each stage, SOME possible conversational moves would be excluded as conversationally unsuitable

Aristotle first noticed that dialogical intentions can be broadly classified into types, depending on the institutional and conversational setting (Aristotle, *Topics*, 159a25–159a38).

> In as much as no rules are laid down for those who argue for the sake of training and of examination—for the aim of those engaged in teaching or learning is quite different from that of those engaged in a competition; as is the latter from that of those who discuss things together in the spirit of inquiry; for a learner should always state what he thinks (for

> no one tries to teach what is false); whereas in a competition the business of the questioner is to appear by all means to produce an effect upon the other, while that of the answerer is to appear unaffected by him; on the other hand, in dialectical meetings held in the spirit not of a competition but of an examination and inquiry, there are as yet no articulated rules about whatthe answerer should aim at, and what kind of things he should and should not grant for the correct or incorrect defence of his position—in as much, then, as we have no tradition bequeathed to us by others, let us try to say something upon the matter for ourselves.

On his view, the participants' institutional setting help us to understand their purposes and intentions in speaking, providing a blueprint for retrieving their specific dialectical goals. Walton (1989, 1990, further developed in Walton and Krabbe 1995 and Walton 1998) provided a typology of dialogue types (negotiation, information seeking, eristic, persuasion dialogue, deliberation and inquiry) in the form of a set of prototypical dialectical contexts defined by the interlocutors' roles, including their reciprocal knowledge based on the dialectical setting (such as work, family, etc.) and institutional roles (i.e. father, professor, businessman, etc.). A type of dialogue therefore can be considered as a normative framework in which there is an exchange of arguments between two speech partners reasoning together in turn-taking sequences aimed at moving toward the fulfillment of a collective conversational goal (Walton 1998, 30). On this perspective (Walton 2010, 14) the global goal of the dialogue determines the local goal of the interlocutors' specific moves made as speech acts, such as asking a question or putting forward an argument (Macagno 2008).

The argumentation that takes place in connected moves at this local level can be modeled by profiles of dialogue (Walton 1989, 65–71). For instance, in a decision-making dialogue about choosing a restaurant, the participants are presumed to bring forward arguments in favor of their preferences, express their opinions, and ask for more information. It would be taken to be unreasonable in such a setting to resort to threats, or to demand uselessly detailed information while putting off making a timely decision. Moreover, the interpretation of each move will be influenced and determined by the global purpose of the dialogue. The same discourse move "I like eating at Gino's" will be taken as a proposal and an implicit argument in a deliberation dialogue, as a report of personal tastes in an information-seeking dialogue, as a premise of a value judgment in a persuasion dialogue, as the denunciation of a personal offence in an eristic dialogue, or as the putting forth of an intention or goal in a negotiation.

If we want to analyze the structure of the reasoning underlying the mechanism of interpretation, we need to change perspective, and conceive interlocutors' communicative intentions using the theory of dialogical coherence relations. Grimes (1975, 209ff) interpreted abstract intentions as "rhetorical predicates", later named "logical-semantic connectives" (Crothers 1979) or "coherence relations" (Hobbs 1979, 68, 1985; Rigotti 2005), such as explanation, alternative, support, etc. Such predicates, or relations, connect discourse sequences in two similar fashions, through subordination or coordination. In the first case the predicate is explicit and imposes a set of coherence conditions, or pragmatic

presuppositions (Vanderveken 2002, 47; Bach 2003, 163), on its arguments (Grimes 1975, 162). In the second case, such a predicate hides a deeper relationship (Lee et al. 1971) that needs to be reconstructed in order to understand the role of the discourse segments or sequences. For instance, coordination can express temporal, causal or explanation relations. From a pragmatic perspective, such relations can be considered as high-level speech acts (Grice 1989, 362; Carston 2002, 107–108), indicating the role of the first level speech acts, or rather, their felicity conditions (Vanderveken 2002, 28). If we structure the language used in terms of predicates, we can conceive the common goal as a high-level predicate (the discourse purpose), which assigns a role to each dialectical move, or discourse segments (Grosz and Sidnert 1986, 178; Walton 1989, 68). This relationship can be visualized in the structure shown below:

Case 2: Discourse coherence

A: Where shall we go for dinner?
B: We can go to Bob's. It is good and really cheap.
B*: I am going to an expensive restaurant. Go wherever you want.

The third move (Reply 1* in figure 1 below) represents a possible "unreasonable" reply to A's question. It does not fulfill the role and the presuppositions of the global goal of the dialogue, as the purpose of advancing a proposal is not met by the discourse move. The pragmatic presuppositions of the dialogical predicate fail and the move can be described as an interruption of a dialogue, as opposed to a move that contributes to the dialogue's properly moving along toward its goal (Fig. 1).

2 Interpreting Discourse Relations: Predicate Conditions and Presumptions

The collective purpose of a dialogue imposes some conditions on the possible dialogical moves. However, the interlocutors need to instantiate such generic conditions, and in order to do this they need to know what knowledge the interlocutor shares. For instance, if I want to make a proposal such as "Let's go to Bob's", I take for granted that my interlocutor shares the meaning of the words uttered, the purpose usually conveyed by an imperative sentence, and knows what Bob's is. However, we cannot know what our interlocutor knows now. All what we can tell is that imperatives can convey proposals, that speakers usually know the ordinary meaning of the words, and that usually people remember where they have been before (see also Perelman and Olbrechts-Tyteca 1951). All we can do is to *presume* the existence of such information.

The concept of presumption is used to describe a particular type of inference based on generally accepted principles stating how things usually happen. They

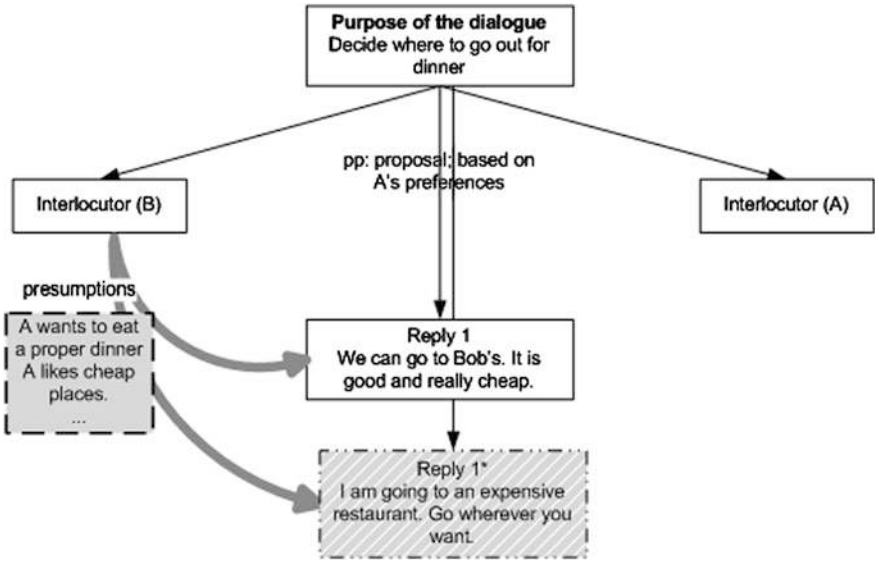

Fig. 1 Purpose of a dialogue as a high-level predicate

are defeasible generalizations, and hold as true until the contrary is proven (see Rescher 1977, 26). Presumptions are forms of inference used in conditions of lack of knowledge. For instance, if it is not known that a person is guilty, he is presumed to be innocent because a person is normally innocent, unless he or she commits some crime. If something has happened in a certain place the previous day, this place can be searched for evidence because it is presumed not have changed in the meantime. Such inferences are therefore strategies to fill a gap of incomplete knowledge by shifting the burden of providing the missing contrary evidence to the other party. Such principles of inference need to be shared and based on the ordinary course of events; in particular, the presumed fact needs to be more likely than not to flow from the proved fact supporting it.

Discourse is based on presumptions. The speaker adopts a conversational behaviour because he presumes that the interlocutor cooperates or does not cooperate. He conveys an intention through an action because such an action is presumed to be associated with an intention. He uses a certain word to convey a specific meaning because it is presumed to have that meaning. Speakers can also breach some presumptions, because they presume that the hearer will rely on a higher-level of presumptions. For instance, indirect speech acts or tautologies are based on the same mechanism of breaching presumptions related to the relationship between speech acts and intentions, and words and meanings. On this perspective, interpretation is an argumentative activity that is carried out based on presumptions and breaches, or rather clashes, of presumptions. While the first type of argumentative process is simply grounded on presumptive, or defeasible modus ponens (Lascarides and Asher 1991, 57) the second process, usually referred to as

implicature, hides complex reasoning patterns aimed at explaining presumptive inconsistencies.

On our perspective, implicatures are indirect speech acts of a kind (Bach 1994, 13), whose presumptive meaning differs from the intended one. Such a discrepancy, caused by a conflict of presumptions, need to be resolved through a process of explanation.

The first crucial aspect is the matter how an implicature is triggered by presumptions. Consider the following interrogative sentences.

Case 3

1. Can you pass the salt?
2. Have you the physical ability to pass the salt?

Such sentences can be used to inquire about a physical ability if uttered to a physically impaired person, or an interlocutor whose arm is in plaster. However, in a context in which it is not evident that such impairment is the case (1) would normally be considered as a polite request, and (2) as a rebuke. Both interrogative sentences are presumed to convey the speech act of asking a question, based on the intention of obtaining needed information. However, when asked in an ordinary context, such a presumption clashes with the stronger one that usually people can perform ordinary actions. The presupposition of the presumed speech act (Vanderveken and Searle 1985, 66–67) conflicts with this encyclopedic presumption and therefore the speech act cannot be felicitous. From such an interpretative failure a need for explanation arises, which can be provided by interpreting the sentence as uttered to perform a non-prototypical act. In this kind of case, the dialogical relation is reinterpreted. We can represent this process as (Fig. 2).

The speaker, by uttering the interrogative sentence, exploits a presumption which is commonly shared, namely that interrogative sentences are used to ask questions. However, such a move presupposes some conditions, and therefore advances some presumptions that are in conflict with other stronger presumptions (a person in normal conditions is able to perform ordinary acts). The explanation therefore corrects the weaker presumption (the speaker intended to obtain information) with the most reasonable possibility (advance a request). In (2) the explanation is more complex, as the precision of the requested information enters into conflict with a contextual factor (evidence of the interlocutor's ability). The explanation would be that the speaker intended to communicate that the only acceptable reason why the hearer does not pass the salt can be that he is impaired.

This process of reinterpretation of the discourse move (Asher and Lascarides 2006) can be guided by dialogical relations. For instance, we can consider the following cases of particularized conversational implicature:

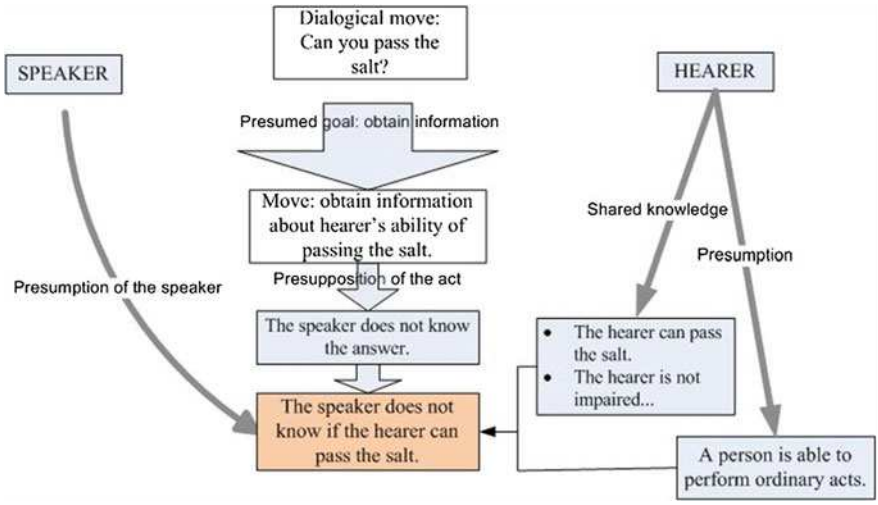

Fig. 2 Presuppositions of an indirect speech act

Case 4

A. Would you like to go to the theatre tonight?
B. I have to study.

Case 5

A. Do you want another piece of chocolate cake?
B. Is the Pope Catholic?

These examples are forms of particularized conversational implicature, but at the same time are indirect speech acts of a kind. In the first case the hearer, B, uses an assertive, but not to inform the speaker that he has to study. The purpose of his move is to refuse a proposal. In the second case, B does not want to ask a question in order to acquire some missing information, but to accept an offer. In such cases the interpretation of the non-paradigmatic move is guided by the role imposed by the dialogical relation: in these two cases, a proposal or an offer require an acceptance or a refusal, and therefore B's move is presumed to be a reply to the specific proposal or offer.

Sometimes interpretation is guided by dialogical relations drawn from contextual information that further specify the function of the dialogical move. For instance, we can consider the following exchange between a sea-captain and his first mate (Fischer 1970, 272).

Case 6: Drunkard captain

The captain wrote in the ship's log: "The first-mate was drunk all day". When the first-mate read the log, he confronted the captain. The captain replied: "Well, it was true, wasn't it?". The following day the first-mate, whose normal duties include writing up the ship's log, got his revenge. He wrote in the ship's log: "The captain was sober all day".

In this case, the implicature is guided by the dialogical predicate drawn from the contextual information that the sentence has been written in a logbook, and the presumption is that in a logbook only exceptional events are recorded. We can represent the structure of the interpretation procedure as (Fig. 3):

This account of implicature shows a crucial relationship between interpretation and dialogue theory in two key respects. First, implicatures need to be explained in terms of dialectical relevance. And second, they need to be analyzed as implicit arguments, involving a pattern of reasoning leading from a specific premise to a conclusion. Such pragmatic and linguistic phenomena can be therefore integrated and developed within dialectical argumentation theory, and can be starting points for developing argumentation theory into a theory of textual interpretation.

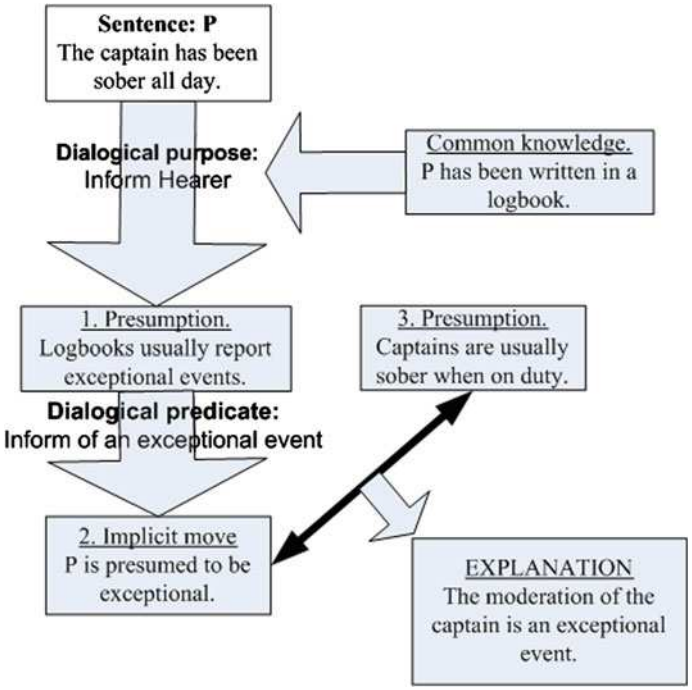

Fig. 3 Explaining conflicting presumptions

3 Conversational Implicatures as Implicit Arguments

On Grice's view, two types of implicature are distinguished: conventional implicature, dependent on the conventional meaning that certain words have, and generalized and particularized conversational implicature, dependent on the use of a word or a sentence. The mechanisms of implicature and interpretation set out above constitute the background for analyzing the reasoning structure of particularized implicature. As seen above, dialectical predicates impose precise requirements on the sequences of dialogue; when some inconsistencies arise between dialogical presumptions and encyclopedic presumptions, a process of reasoning is triggered to reconstruct the specific purpose of the move, providing a specific interpretation of the move. This process of reinterpretation is grounded on specific reasoning patterns.

3.1 Reasoning from Best Explanation

In case 6 above the conflict between the presumed exceptionality of the captain's soberness conflicts with the encyclopedic presumption that captains are usually sober on duty. This conflict is explained by retrieving the information that the captain is a drunkard; however, in other contexts other inferences could have been drawn. For instance, if a party was thrown on the ship, the captain would have been praised by that comment. If brought before a court, the statement would have been interpreted literally, without providing any further explanations. The reason for these possibilities can be found in reasoning from best explanation. Any conflict of presumptions needs to be explained, and possible solutions need to be found. Such solutions, however, can conflict with presumptions drawn from the circumstances of the case. On this perspective, the strongest, or best explanation is the explanation that in a given context is more hard to refute by a counter-presumption. The abstract scheme can be represented as an instance of abductive reasoning, or inference to the best explanation (Walton 2002, 44):

Argumentation Scheme 1: Reasoning from best explanation

- *F* is a finding or given set of facts.
- *E* is a satisfactory explanation of *F*.
- No alternative explanation *E*' given so far is as satisfactory as *E*.
- Therefore, *E* is a plausible hypothesis, based on what is known so far.

The argumentative structure underlying the particularized implicature in case 6 can be represented by the diagram in (Fig. 4).

This mechanism is based on the basic presumption that the speaker is using his discourse move for a specific purpose, which in some contexts is stronger than the

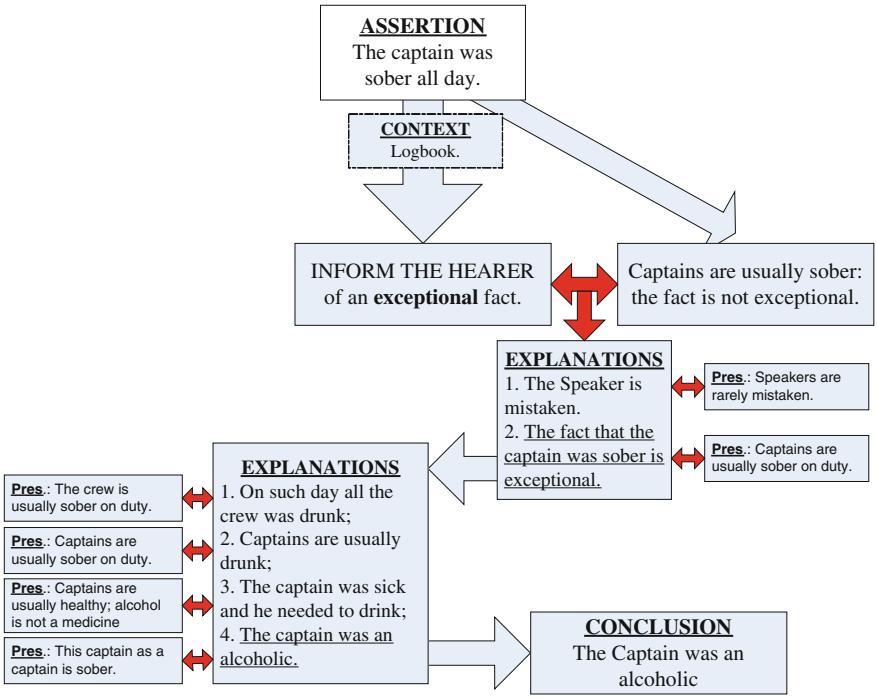

Fig. 4 Argumentative structure of the drunkard captain

explanation that he is simply mistaken. Depending on the context and the presumptions of dialogue, the process of explanation ends at the first explanatory step or proceeds further.

A similar example of this process can be found in the following famous case of particularized implicature (Grice 1989, 33).

Case 7: Recommendation Letter

> A professor supposed to write a recommendation letter for his student, writes "Dear Sir, Mr. X's command of English is excellent, and his attendance at tutorials has been regular. Yours".

The described qualities cannot fulfill the role of "being an exceptional quality for the position"; therefore, this conflict between dialogical presumption and encyclopedic presumption needs to be resolved, and the best explanation is that no other qualities can be found in the student. The reasoning can be represented as (Fig. 5):

Reasoning from best explanation is not the only pattern of reasoning used in interpretation, but is the one that is directly triggered by the conflict of presumptions. Other types of reasoning however may intervene at the second level of meaning reconstruction.

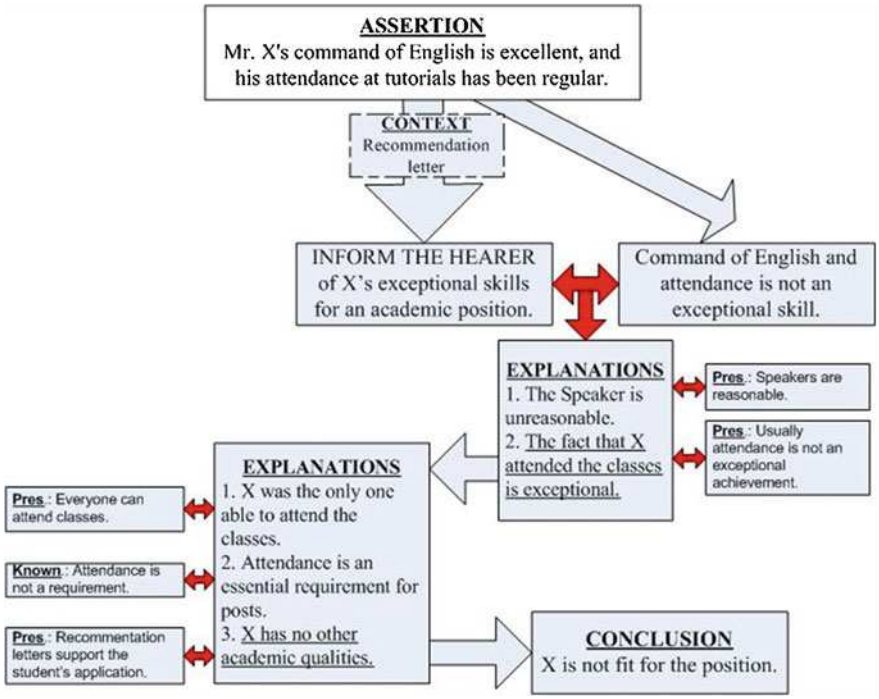

Fig. 5 Reasoning from best explanation—recommendation letter

3.2 Argument from Analogy

The second level of the reasoning underlying the reconstruction (or construction) of the meaning can be based on an argument from analogy. For instance, we can analyze the following examples (Yule 2008, 43–44):

Case 8

Bert: Do you like ice-cream?
Ernie: Is the Pope Catholic?

Case 9

Bert: Do vegetarians eat hamburger?
Ernie: Do chickens have lips?

In both cases, Ernie is asked obvious questions. However, he does not point out or attack the triviality of the answer; instead, he advances an implicit argument that we can represent as follows (Walton 1995, 135–136):

Argumentation Scheme 2: Argument from analogy

Major Premise: Generally, case C_1 is similar to case C_2.
Minor Premise: Proposition A is true (false) in case C_1.
Conclusion: Proposition A is true (false) in case C_2.

As argued in (Macagno and Walton 2009), the proposition true in both cases is abstracted from the possible properties of the two compared cases. We can consider it as a functional genus, an abstract category under which the two instances fall not absolutely, but only for the purpose of the argument. For instance we can consider the following example (Grimes 1975, 217):

> Trying to do linguistics without any reference to meaning would be like going into battle with one hand tied behind your back.

Here the conclusion, corresponding to the implicit meaning, or conversational purpose of the utterance, is that doing linguistics without considering meaning is useless, or limiting. Such a conclusion is drawn from abstracting a general property that can be shared by the two parallel cases.

In both cases 8 and 9, the meanings of the answers (obviously yes/no) are abstracted from the analogy between the two questions; however, the implicit abstraction from the speech acts advanced as analogous leads to other possible reconstructions. For instance, in the first case the questions can be gathered under the same category of "Questions whose answer is known to everyone", while in the second case under the genus "Stupid questions". In both cases an implicit value judgment on the act of asking the question can be drawn. We can represent the implicit argumentation of case 8 as (Fig. 6).

Obviously this analysis is simply an approximation of a more complex mechanism. Behind every explanation there is abductive reasoning (see Lascarides and Asher 1991) leading from pieces of evidence (an interrogative sentence is used as a reply) to an explanation (the two speech acts are similar in some respects).

3.3 Practical Reasoning and Other Pragmatic Arguments

Sometimes assertive statements are used not to inform, but to lead the interlocutor to a specific action. In such cases, the inadequacy of the assertion to perform the prototypical action it is associated with can be explained in terms of implicit pragmatic arguments, in which the stated sentence is the only explicit element. For instance, consider the following case (Grice 1975, 51):

Case 10

A: I am out of petrol.
B: There is a garage around the corner.

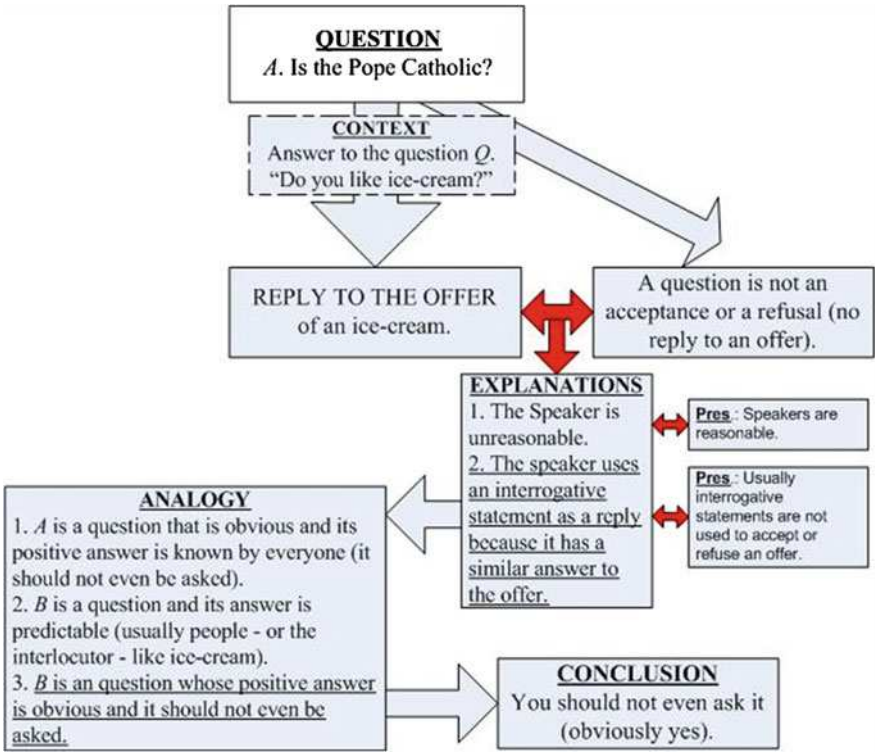

Fig. 6 Reasoning from analogy

The statement "I am out of petrol" contradicts a presupposition of the dialectical predicate 'to inform the hearer', the fact that the hearer may be interested in the stated information. The speaker cannot presume that the hearer is interested in his condition, or that the stated information is of any interest for him. Therefore, a mechanism of reinterpretation is triggered: lack of petrol is a condition of need (causal relationship), and as people are usually presumed to be interested in trying to help someone who is need when it is possible, the conclusion is that the hearer should be interested in helping the speaker find some petrol. This conclusion, however, does not fulfill the requirement of a proper act of informing, but only the requisite of an act of requesting. The pattern of reasoning on which the link between need and request for help (or appeal to pity) is grounded can be represented using the argument scheme for appeal to pity (Walton 1997, 105):

Argumentation Scheme 3: Appeal to pity

Individual x is in distress (is suffering).
If y brings about A, it will relieve or help to relieve this distress.
Therefore, y ought to bring about A.

In this case, the request for help varies according to the context: depending on whether the interlocutor can provide some petrol, drive the speaker to a gas station, or help in some other fashion, the precise interpretation of the relational predicate varies.

On the other hand, B's reply is an invitation to bring about a specific action, based on A's needs. His information is therefore an implicit argument from practical reasoning, in which the needed premise ("in garages it is possible to find some petrol") and the conclusion ("you should go to the garage") are missing. The scheme is the following (Walton 1992, 89–90):

Argumentation Scheme 4: Practical reasoning

- My goal is to bring about A (Goal Premise).
- I reasonably consider on the given information that bringing about at least one of [B_0, B_1,…,B_n] is necessary to bring about A (Alternatives Premise).
- I have selected one member B_i as an acceptable or as the most acceptable necessary condition for A (Selection Premise).
- Nothing unchangeable prevents me from bringing about B_i as far as I know (Practicality Premise).
- Bringing about A is more acceptable to me than not bringing about B_i (Side Effects Premise).
- Therefore, it is required that I bring about B_i (Conclusion).

These two schemes connect information with actions, and can therefore explain several forms of implicatures in which assertive sentences are interpreted as directives.

3.4 Causal Arguments

The relationship between the presumed purpose of a discourse move, as imposed by the dialogical predicate, and the role such a move is presumed to play can be sometimes based on causal arguments. We can consider the following implicature (Levinson 1983, 126):

Case 11

A: What on earth has happened to the roast beef?
B: The dog is looking very happy.

The assertion on the dog's happiness is presumed not to fulfill the role of "providing information on the roast beef". However, the relationship between "happiness of the dog" and "information on the roast beef" can be retrieved through an argument from sign (Walton 2002, 42).

Argumentation Scheme 5: Argument from Sign

- Generally, if this type of indicator is found in a given case, it means that such-and-such a type of event has occurred, or that the presence of such-and-such a property may be inferred.
- This type of indicator has been found in this case
- Such-and-such a type of event has occurred, or that the presence of such-and-such a property may be inferred, in this case

The expression of the dog is an indication of satisfaction; such satisfaction can be specified by the reference to a food, and therefore can be interpreted as the result of eating the roast beef. The same relation from sign can explain the following implicature.

Case 12

A: What time is it?
B: Some of the guests are already leaving

Here there are several possible reasons for guests to leave; however, the function of the discourse move is to provide a time indication. The leaving of the guests is therefore presented as an indication of time, based on the presumption that late time causes guests to leave.

In the aforementioned cases the information guiding the interpretation and specification of the argument scheme is provided by the dialogical information (context). Such a specification can be also provided by the shared information. We can consider the following case (Carston 2002, 109).

Case 13

Bill goes up to Scotland every weekend.

As Carston points out (Carston 2002, 110), "in different specific contexts this could implicate 'Bill's mother is ill', 'Bill has a girlfriend in Scotland', 'Bill gets as far away from London as he can when he can', 'Bill still hasn't got over his obsession with the Loch Ness monster', etc." Here the sign is provided by information about Bill and specific presumptions related to specific behaviors. For instance, the information that Bill has a mother in Scotland, or that he does not have any girlfriend in London, or that he is obsessed with the Scottish monster triggers the presumption that "people tend to stay closer to what they love or care (or love or necessity cause people to desire to see each other)", while the fact that Bill hates London elicits the presumption that "people tend to escape what they hate (or bad conditions cause people to leave)".

Argument from sign can be conceived as an instance of causal argumentation, linking an event to its effects. The general scheme of argument from cause can be represented as follows (Walton 1995, 140):

Argumentation Scheme 6: Argument from Cause

Major Premise: Generally, if *A* occurs, then *B* will (might) occur.
Minor Premise: In this case, *A* occurs (might occur).
Conclusion: Therefore in this case, *B* will (might) occur.

A clear example would be case 4 above, in which the interlocutor instead of answering negatively to the proposal of going to the theatre replies that he "has to study". Here, the goal of the utterance is not to inform the interlocutor about the speaker's duties, but to lead him to draw a conclusion from cause to effect. Study is presumed to be incompatible with going to the theatre: if someone studies, he needs to stay at home, and if someone stays at home, he cannot at the same time see a movie. The latter causal relationship is presented as an alternative: either *A* or *B*; not *A*; therefore *B*.

This representation of implicatures can explain both the reasoning mechanism underlying reinterpretation of the discourse relation (such as in case 6, 7 and 10) or the reinterpretation of the role of the discourse move (or sequence). In all the aforementioned cases the reasoning depends on specific information provided by the context and the co-text. Sometimes, however, the argumentative procedures are context-independent and are simply related to the linguistic structure.

4 Conventional Implicatures as Implicit Arguments

If we analyze Grice's generalized and conventional implicatures in this framework, we can notice that they represent two types of implicitness, which we will refer to as implicature within predicates, or presuppositions, and implicatures within paradigms, or implicit arguments from alternatives.

Grice notices that connectors like 'therefore' convey an implicit meaning which is within the word itself (Bach 1999). For instance consider the following sentence (Grice 1989, 25).

1. Heis an Englishman; he is, therefore, brave.

It would be infelicitous to say "He is an Englishman; it is, therefore, sunny outside". Grice realizes that 'therefore' conveys the implicit information that there is a relationship between 'being an Englishman' and 'being brave'. Consider the following case.

2. Ben is nice but he drives a Ford Capri.

In 2 there is a contrast between "Ben is nice" and "Ben drives a Ford Capri" that is taken for granted (Carston 2002, 108). Such conventional implicature can be explained as a presupposition of the predicate (see Ducrot 1968, 1972; Barker 2003, 5), that is, a condition or requirement on the predicate affecting the felicity of the speech act.

Grice (1989, 37) pointed out another type of implicit content conveyed by some utterances. He analyzed sentences of the following kind.

3. The flag is white
4. *X* is meeting a woman this evening
5. *X* went into a house yesterday and found a tortoise inside the front door
6. Some guests are already leaving

Grice (1989, 51–52) noted that these sentences, when uttered in any type of context, always convey the same implicit information, namely:

3a. The flag is not white and other colors/the flag is white even though stained with blood.
4a. *X* is meeting a woman that the interlocutor does not know.
5a. *X* went into a house that is not specific (not his house).
6a. Not all the guests are already leaving.

These inferences not only depend on the semantic features of the quantifiers, but also on the paradigm of possible alternatives. The inference is not exclusively drawn from an implicit content of the word, but from the structure of the word selection. If we consider language as a matter of choices between linguistic items used to convey a meaning, depending on the type of information we need to convey we need to select one possibility while excluding others. For instance, consider the following sentence.

The computer is heavy.

We have made a choice among other predicates that can be attributed to 'computer', and convey a specific type of information, namely information about its weight. We can represent such a choice as shown in (Fig. 7).

The affirmation of a predicate, on this perspective, is an implicit negation of the other possible alternatives (see Pap 1960, 53) falling within the same genus, namely the same semantic characteristic which is contextually identified. Conventional implicatures can be therefore described as a particular type of disjunctive syllogism applied to natural language, in which an element is presented as an alternative to a set of possible choices falling within the same semantic category, or genus. This type of reasoning is grounded on Aristotle's semantic principle expressed in his (*Topics*, 121a27–121a38), stating that the genus cannot predicated of an entity unless one of its species is predicated of it too. We can represent the reasoning as follows:

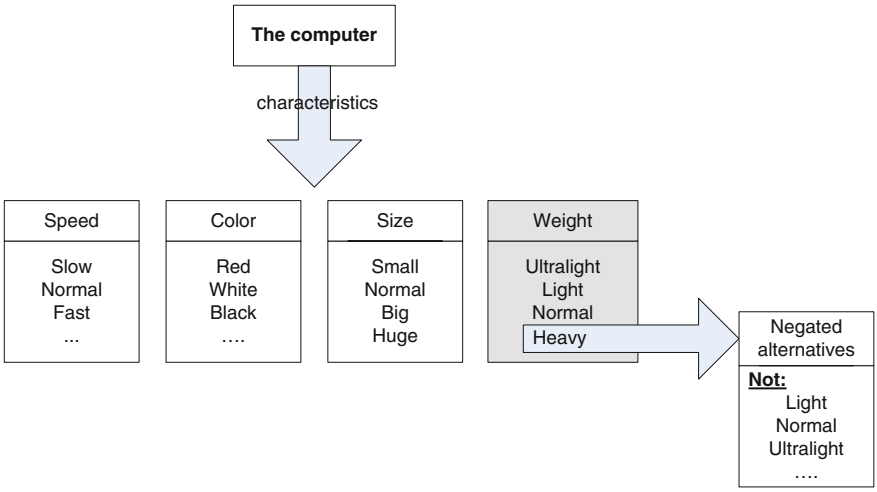

Fig. 7 System of choices in language

Argumentation Scheme 7: Argument from alternatives

- *x* is *A*
- *A* belongs to the genus ß
- If something is ß, it is either *A*, or *B*, or *C*…
- Therefore *x* is not *B* (not *C*, etc.)

Identifying the semantic genus is crucial for the process of interpretation, because it also determines and specifies the exact semantic feature of the noun to which the predicate is referred. For instance, if I say that a computer is fast, I am considering the computer as an electronic device, whereas if I describe it as heavy I am considering it merely as an object.

This structured framework can account for some other kinds of implicatures. For instance, if we consider the sentence "the flag is white" we implicate that the flag is *only* white, and not, for instance, white and red, even though it does not exclude that it may be dirty (stained with blood) (Levinson 1995, 97). The semantic paradigm is the symbolic color, and therefore the sentence specifies the 'flag' as the most evident part of the emblem, and not as fabrics, nor as the frame. The semantic paradigm 'symbolic color' not only specifies the paradigm of predicates that can be attributed to the flag, but also the concept of 'flag'. A flag cannot be transparent, nor can the colors be mixed in order to be identified as such. It is as an emblem that the flag is white, but it is as a piece of fabric that it is red with blood (Fig. 8).

Semantic paradigms therefore work by specifying the semantic features of the object of the predication, and the possible choices. This structured process is a form of interpretation, since establishing the semantic predicate governing the paradigm means retrieving the meaning of the sentence. Depending on the type of

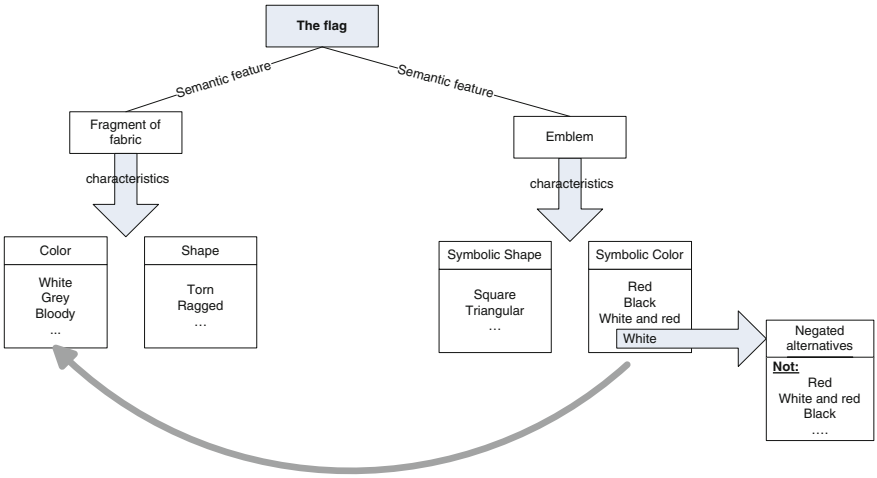

Fig. 8 Semantic paradigms and the specification of aspects of meaning

paradigm, and therefore the governing semantic predicate, or paradigmatic genus, the meaning varies.

Not only can the meaning of predicates be determined in this fashion, but also the interpretation of quantifiers. Let's reconsider cases 5 and 6. The indefinite article conveys the information that the noun which is determined is not known by the other party, or is not specific for the speaker himself [for a treatment of articles and their paradigm of specificity see (Haspelmath 1997)]. It contrasts with the definite article, which is used to represent the assumption that the entity is part of the domain of the hearer's knowledge or can be retrieved by him. In the semantic paradigm characterized by the semantic trait of "uniqueness", only two alternatives are possible, namely the specific and non-specific article. The choice of the second excludes that the entity is known, or knowable by the hearer. Similarly, considering the more generic paradigm of quantifiers, in 7 'some' is contrasted with 'all', 'none' and 'one'. Therefore, the speaker, by making such choice, excludes that only one guest is leaving, that it is not true that no guests are leaving, and that not all the guests are leaving.

Such mechanisms of specification allow one to explain several types of processes of interpretation, from prepositions to quantifiers or predicates.

5 Conclusion

Grice's theory of implicatures has been used in this paper to bring out aspects of the previously unclear relationship between reasoning and meaning. We have shown how conversational implicatures represent implicit meaning triggered by

the use of a sentence and how they can be considered interpretations of the meaning of a word or a speech act. On this perspective, conversational implicatures are triggered by conflicts of dialogical and epistemic presumptions that are resolved by a process of best explanation, which in turn are based on argumentation schemes such as inference to the best explanation, practical reasoning, argument from sign, appeal to pity and analogy. Depending on the context, the presumptions on which the process of explanation is based on vary, and therefore the conclusions of the implicit arguments can be different. The argumentative structure underlying conventional implicatures stems from a different reasoning process, based on a linguistic structure. In this case, the interpretation of a word's meaning is carried out through the exclusion of its alternatives within its semantic paradigm, or genus.

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