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Pragmatic Inference and Argumentative Inference

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I offer a theoretical discussion of the relationship between pragmatic inference (inference about meaning) and argumentative inference (inference about the acceptability of a premise/conclusion relationship). The discussion (i) compares an argumentative view on meaning construction and an interpretative view on argument evaluation, (ii) argues that pragmatic inference can constrain argumentative inference, and (iii) assesses the complexity of an account of argumentative exchanges seen through the lens of the inferential tasks they involve.

KEYWORDS: pragmatics, inference, argumentation

1. INTRODUCTION

If, following Pinto, we define inference as "the mental act or event in which a person draws a conclusion from premisses" (Pinto, 2001, p. 32), we can identify at least two different types of inferences that are at play in argumentative processes. These are pragmatic inference (henceforth PI) and argumentative inference (henceforth AI); the former is concerned with processes of (naïve) comprehension while the latter is here taken to denote mechanisms of argumentative processing, and evaluation in particular.

In recent years, Macagno and Walton (henceforth MW) have proposed to combine both types of inference in a model meant to explain how, in their view, an account of pragmatic phenomena (such as implicature or presupposition) can benefit from the input of argumentation theory. In doing so, they attempt to explain the rise of implicit meaning in communicative practices as the result of (typically abductive) argumentative processes. The general orientation of this piece of research is thus to address typically pragmatic phenomena

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through the lens of argumentation theory. I wish here to question the rationale of this endeavour and propose, instead, that, as long as we are interested in accounting for these processes from a psychologically plausible perspective, the combination of insights should go in the opposite direction. I.e., there are better grounds to use pragmatic theory to account for argumentative phenomena than the other way around.

In section 2, I discuss the general features that need to be taken into account in order to define the notion of inference. In sections 3 and 4, I draw on relevant literature both in pragmatics and argumentation theory to characterise each type of inference according to the features identified in section 2. In section 5 I discuss the two directions in which PI and AI can interact both at the theoretical level and at the methodological level. I conclude by assessing the merits of a cognitive pragmatic approach to argumentation.

2. INFERENCE

It proves difficult to find a clear and concise definition of inference for two reasons: (i) few articles or thematic glossary entries are devoted to the term, and (ii) the term itself is polysemic.

One of the first acceptations of the term 'inference' qualifies it as a piece of information. Gerrig & Zimbardo's (2001) glossary of psychological terms featured on the American Psychological Association's website, for instance, defines it as **"[m]issing information** filled on the basis of a sample of evidence or on the basis of prior beliefs and theories" (*APA*, my bold). The first meaning listed by the *Oxford English Dictionary* is similar in that it defines it as "[a] **conclusion** reached on the basis of evidence and reasoning" (*OED*, my bold). What these two definitions have in common is the idea that the term inference is used to denote the *result* of a reasoning process. In other words, an inference is some sort of propositional content which can be derived from the consideration (and combination) of other propositional contents (evidence), through some form of reasoning. This conceptual acceptation is not the one that will be retained here.

Next to this first meaning, the entry of *inference* in the *OED* lists a second meaning: "[t]he process of inferring something". Under this understanding, inference ceases to denote a result and instead denotes the process by which pieces of information are combined in order to derive (other) information. In this sense, inference becomes a cognitive process and is thought of in procedural terms: the term thus denotes a particular cognitive procedure of information management. This is the sense of *inference* that this paper addresses.

If we turn to philosophical research, in one of the few philosophical papers entirely devoted to the notion of inference, Brown notes the following, as he focuses on the use of the term:

> (…) to say 'I infer' or 'He infers' is to expound one's views, together with **an indication of why one holds them**, or to ascribe views to someone else, together with an indication of why he holds them. (…) [I]nferring is a matter of holding views and having reasons for them." (Brown, 1955, p.354, my bold)

From this definition it appears that (i) we use the term *inference* to refer to the views that we hold (and interestingly to why we hold them, see also Hanna's definition in what follows), (ii) inference is concerned with justification, and (iii) in principle inference can be about different things, as the contents of the inference are not specified. Echoing this construal, Hanna adopts the following working definition of inference:

> (…) a cognitive process leading from the mental representation of the premises of a deductive, inductive, or abductive (abduction = inference-to-the-best-explanation) argument to the mental representation of the conclusion of that argument, where the cognitive transition from the representation of the premises to the representation of the conclusion is governed by some rule-based standards of cogency, such that if all the premises are believed by a cognizer or cognizers and if the cognitive transition from representing the premises to representing the conclusion is also believed by that cognizer or those cognizers to be cogent, then, other things being equal, the conclusion will also be believed by that cognizer or those cognizers. (Hanna, 2014, p.89-90)

Interestingly, both philosophical definitions stress an *argumentative* nature of inference, as they both include considerations about its purpose, namely, under their view, justification: Brown puts at the forefront of his claim the idea that through inference people offer reasons for holding the views they hold and Hanna goes as far as calling inference a process which leads a cogniser to believe the conclusion of an argument based on its premises and some standard of cogency.

While this construal makes perfect sense in an argumentative perspective focused on the practice of exchanging reasons or resolving differences of opinion, it fails to do justice to other kinds of inference such as PI, whose purpose is crucially not justification. As a consequence, Brown's and Hanna's definitions are closer to AI than to

PI. In order to be able to compare PI and AI, I therefore propose to keep the procedural dimension of inference but to loosen our working definition to define it as the cognitive process by which one piece (or set) of information is combined to another piece (or set) of information in order to derive a third piece (or set) of information.

I suggest that this working definition is loose enough but also adequate enough to allow us to characterise different types of inference with the following three features:

i. the nature of the combination or relationship involved
ii. the goal (or purpose) and scope of the inference
iii. the input and the output of the inference

In what follows I characterise PI in terms of these three features (section 3) and AI as well (section 4).

3. PRAGMATIC INFERENCE (PI)

The notion of pragmatic inference and its theorising owes a great deal to Grice's pioneering pragmatic work on meaning (collected in his posthumous 1989 book),[1] as his model of communication as a cooperatively rational conversational undertaking provided the building blocks of contemporary pragmatics.

The starting point of his theory is the idea of semantic underdeterminacy, which follows from his (1957) distinction between natural and non-natural meaning. The idea of semantic underdeterminacy rests on the clear-cut distinction between what is said and what is meant. Grice provides a principled account (consisting of a cooperative principle and 4 conversational maxims which further specify what conversational cooperation should amount to) of how conversational participants are able to figure out that what speakers mean is many times different and more specific than what they say. Grice names this type of implicit meaning *implicatures*.

Crucially, in his model, Grice considers that reaching an (naïve) interpretation of someone's utterance involves *inferring* speaker meaning, which in turn boils down to recognising (and thereby

[1] For the sake of clarity and given the readership of this collective book, let me state that here pragmatic inference is by no means equivalent to practical or pragmatic argumentation. While the latter refers to a type of argumentation in which consequences are considered to support a claim, the former has nothing to do with justification, as it refers the pragmatic notion of inference, concerned with meaning and naïve interpretation.

fulfilling) a communicative intention. Implicatures are thus defined as contents which are implicitly speaker-meant and inferentially hearer-derived. Here we see that the construal of inference offered by Grice is not of an argumentative nature, as PI simply denotes the process by which implicit contents may be reached.

That is to say that PI is an inference about meaning. If we turn to the three features that need to be specified in order to characterise the type of inference we are dealing with, here is what we can say about PI:

i. the relationship involved in PI is one of non-demonstrative deduction (following Sperber & Wilson, 1995, pp. 65-71).
ii. the goal (or purpose) and scope of the inference is interpretative and seeks to secure an interpretation of speaker meaning.
iii. the input of PI consists in verbal and contextual material and its output is a representation of speaker meaning.

Let us take an example to illustrate this:

(1) Laszlo: "Hey, wanna go to the movies tonight?"
Nina: "(sigh) I have an exam tomorrow morning."

In order to understand Nina's utterance as a refusal, Laszlo should combine the content 'Nina has an exam in the morning' with background assumptions such as 'people with exams the next day usually spend the previous evening studying'. Notice that the inference can be defeated, for instance when the major premise does not apply, for example in case Nina might be a party animal with little regard for academic performance. This is why cognitive pragmaticians in the footsteps of Sperber & Wilson (1995) call this general structure non-demonstratively deductive.

Although PI is many times characterised as inference to the best explanation (see e.g. Allott 2010 and Geurts 2010), this does still not include argumentative concerns: when speakers naturally convey implicatures in ordinary conversation, they are not engaged in an argumentative discussion about what they exactly mean. However, the inference addressees perform to derive the implicature may very well be defined as an inference to the best explanation:

> The speaker has said something that on the face of it is irrelevant (or false, or over/under-informative, long-winded etc.). What is the best explanation for this? In many cases the best explanation will be that the speaker intended to convey something more, an implicature. (Allott, 2010, p.94)

Under this view, speaker meaning derivation is akin to some form of explanation in which the *explanans* is the identification of communicative intentions, and in this sense, figuring out what someone means is finding the best explanation as to why they uttered what they uttered in context. But notice that this is not yet sufficient to call this inference an argumentative inference, to which I now turn.

4. ARGUMENTATIVE INFERENCE (AI)

In order to characterise AI, I will draw on the recent argumentative theory of reasoning (Mercier & Sperber 2009, 2011, 2017), which offers a novel take on the emergence of reasoning in the human species and incorporates a full account of AI. According to this model, the set of argumentative tasks we humans can be faced with is cognitively dealt with by an argumentative module (a set of processes dedicated to the management of argumentative data for argumentative purposes). The module is said to be responsible for the production and the evaluation of arguments.

Crucially, its function is to perform the AIs that are required in the production of arguments, typically when we are defending a standpoint, but also the AIs that are required to evaluate the arguments that others offer us. The inferential nature of the operations generated by the argumentative module is evident when we consider Mercier & Sperber's description of its workings: "what the argumentative module does then is to take as input a claim and, possibly, information relevant to its evaluation and to produce as output reasons to accept or reject that claim" (Mercier & Sperber, 2009, p.154).

Moreover, the argumentative module delivers, through inference, "a representation of a relationship between a conclusion and reasons to accept it" (*ibid*. p.155). This is to say that AI is not only responsible for the generation of arguments, but also that it functions with some sort of normative standard against which the acceptability of the link between premises and conclusions is measured. This is why it can be said that AI is about the acceptability of a justificatory link.

I can now characterise AI in terms of the three features specified above:

i. the type of relationship at play can vary along normative standards and types of argument schemes.
ii. the goal (or purpose) of AI is evaluative when it comes to reception and seeks to assess the quality of argumentation.

iii. the input of AI is the representation of speaker meaning (i.e., the output of PI), and its output is an evaluative representation of the relationship between a conclusion and reasons to accept it.

AI, unlike PI, is thus about assessing the quality of the relationship between premises and conclusions. This is why AI can be said to fulfil an evaluative role. PI, on the other hand, fulfils an interpretative role by delivering a representation of speaker meaning. Notice, however, that AI and PI are closely related: from the above characterisation it is clear that AI takes as input the output of PI. This will be of capital importance when we consider the relationships between both types of inference.

5. RELATIONSHIPS BETWEEN PI AND AI

Argumentation theory and pragmatics have a long-standing relationship which unfolds both at the level of their sometimes converging respective objects of study and at the scholarly level, since the two disciplines often interact in existing models of argumentation.

Some representative examples of this mutual cross-disciplinary are the following:

- Pragma-dialectics (van Eemeren & Grootendorst 2004), for instance, follows principles from both speech act theory, in its definition of argumentation as a complex speech act with associated felicity conditions (which the 10 rules of the critical discussion can be taken to embody) and Grice's account of rational communication through the postulation of a "communicative principle", which is adapted from Grice's (1989) cooperative principle and associated conversational maxims.
- Walton's pragmatic account of fallacies (1995) adopts a pragmatic approach as well by conceiving of fallacious argumentation as the situation in which argumentative moves force dialectical shifts which are normatively problematic; moreover, argument schemes, the building blocks of argumentation in Walton's model, are characterised as "pragmatic structures that display the form of an argument" (Walton, 1995, p.xii).
- Some rhetorical approaches regularly take on board and discuss insights from pragmatic theories because these are concerned with meaning reception: Tindale's construal of audience (2015, 1992), for example, is thoroughly based on a discussion of Sperber & Wilson's

notions of cognitive environment and mutual manifestness, as well as of Grice's model of meaning.

- Oswald's work (2007, 2011, 2014, 2016a, 2016b) systematically navigates the pragmatics/argumentation theory interface on a methodological and theoretical front, by discussing cognitive pragmatics tools meant to assist the analyst in the reconstruction of argumentative discourse and by developing a model of rhetorical effectiveness grounded on the cognitive mechanisms taken to regulate information processing.

While argumentation theory usually deals with questions related to argument evaluation and argument quality and pragmatics is traditionally concerned with issues of meaning, both can be taken to share one concern, namely curiosity for the mechanisms by which representations end up entertained by individuals through communication: (cognitive) pragmatics seeks to describe and explain why and how people understand each other's utterances and argumentation theory seeks to describe and explain why and how people end up accepting or rejecting the claims that others support with arguments. In both processes, quite minimally, the main issue is about explaining why and how a given representation becomes part of the individual's cognitive environment. The purpose of the next two sections is therefore to try to assess whether, from a cognitive perspective, it makes sense to consider that argumentative processes feed interpretative processes, and the other way around. In other words, I will now consider whether we may use AI to derive PI (MW's position) or whether we may use PI in deriving AI (the position defended here).

5.1 Influence of AI on PI (?)

In recent years, MW have published a series of papers and a book (e.g., 2013, 2017) in which they consider what an account of pragmatic notions such as implicature and presupposition stands to gain from the input of argumentation theory. Specifically, they postulate that implicatures should generally be viewed as inferences to the best explanation meant to resolve conflicts of presumptions. In turn, these resolutions are said to be potentially shaped by different argument schemes depending on the context.

While the construal of implicature in terms of inference to the best explanation is far from new (it was already present in Grice's seminal account of implicature (1967), see Hobbs (2008) for a

discussion, and Allott (2010) and Geurts (2010) for illustrations), the kind of directionality between AI and PI that MW have in mind may turn out to be problematic on several counts.

In their own terms, they are out to propose an account of implicature – that is, an account of PI – that rests on the possibilities and affordances of AI:

> 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**. (Macagno & Walton, 2013, p.211, my bold)

This leaves little doubt as to the directionality the authors postulate between AI and PI: AI is to be used as an explanatory instrument for an account of PI. This is what can legitimately be inferred from their view of argumentation theory as an account that becomes the tool to develop "a theory of textual interpretation" (*ibid.*).

To support this reading, we can also observe that since pragmatics has always sought to provide theories of textual interpretation, MW's contribution can only be understood as a contribution that argumentation theory has to offer to the field of pragmatics. In order to define how interpretation should be conceived from an argumentative perspective, they state, to that effect, that "interpretation is an argumentative activity that is carried out based on presumptions and breaches, or rather clashes, of presumptions." (Macagno & Walton, 2013, p.208).[2] And since implicatures have routinely been considered to be inferences to the best explanation for 50 years now, MW's contribution to the study of implicature has to be

[2] Notice also here the parallel between what M&W offer and traditional accounts of indirectness like Grice's (1989) and Searle's (1969), which both postulate that implicit meaning has to be worked out through the recognition of a breach of some conversational standard (for Grice, this involves maxim flouting and for Searle the exploitation of speech act felicity conditions). Just like its illustrious predecessors', M&W's account therefore seems to be out to explain how meaning is derived.

appreciated in terms of the typological value of the argument schemes that may be used to realise and verbalise abductive inferences.

Now, there is a fundamental question that in my view needs to be addressed: under this account, does what MW offer still qualify as AI? In other words, are we here dealing with genuine argumentation (as defined in argumentation theory)? I think three arguments can support a negative answer to this question.

First, inference to the best explanation is more explanatory than argumentative, and this is something M&W acknowledge:

> [o]n 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**." (Macagno & Walton, 2013, p.208, my bold)

This means that the kind of inference performed while figuring the best explanation for a speaker's utterance, which should lead the addressee to identify speaker meaning, is not meant to convince anyone of anything, unlike AI, but to supply a possible (and ideally the best) explanation to the speaker's communicative behaviour.

Second, the goal of AI and that of PI are by definition at odds, in the sense that accepting an intended standpoint as a result of evaluation is not the same process as reaching an intended interpretation: to ground the distinction, let us just observe that one can obviously understand a speaker's claims and arguments without being convinced by them. Successful argumentation requires acceptance but successful interpretation does not. To give but an example, speakers do not want to convince hearers that the interpretation they reach is the right one in the same way that speakers want to convince hearers that they are the best candidates in an election. Given that the goals of AI and PI differ, the question of elucidating how exactly an account of AI can help accounting for PI therefore remains open.

Third, MW's proposal is framed as an account of interpretation, but it remains yet unclear how the features of AI can transfer to fulfil the goal of PI. An account of interpretation primarily needs to postulate mechanisms of comprehension, not mechanisms of conviction – even if these may otherwise interact at many levels. Yet, whether interpretation necessarily includes an argumentative component still needs to be justified. Macagno seems to be aware of this caveat when he notes that

> [t]his model can be considered argumentative *lato sensu* (cf. Van Eemeren & Grootendorst, 2004): it describes a dialogical process of reasoning in which the speaker invites the interlocutor to draw a specific inference in order to reconstruct the purpose of a move." (Macagno, 2012, p.262)

Here the definition of interpretation is phrased in terms of an addressee's reconstruction of the purpose of a move; in this sense, the inference to the best explanation is indeed the mechanism by which interpretation unfolds. And yet, I fail to see how we can still call this AI: these inferential (or reasoning) patterns (i.e. argument schemes) seem to be stripped of any defining argumentative feature: they are neither borne out of disagreement, nor do they appear to be generated to solve any genuine and interpersonal dialectical disagreement. Furthermore, they do not seem to be accompanied by any persuasive intention – at least no dialogical persuasive intention. Even if one could loosely consider that what goes on in an addressee's mind when he tries to figure out speaker meaning is some sort of resolution of difference of opinion between competing interpretations, and that the process by which he decides which one was intended ends up convincing him of the rightness of one of the interpretations, this is far from what argumentation theorists, and cognitive psychologists, for that matter, routinely take AI to be.

5.2 Influence of PI on AI

In order to characterise the relationship between AI and PI, under the view considered in what follows, I venture that we need to take into account the psychological plausibility of the inferential mechanisms involved, in particular the way they might be thought to depend on each other.

The first argument to support the idea that PI comes prior to AI is found in an observation from Sperber *et al.* (2010, p.367), who state that "comprehension of the content communicated by an utterance is a precondition for its acceptance". This means that before you can assess whether some claim follows from the premises that are provided in its support, you need to be able to represent and understand the content of both the premises and the claim, as, save logical (formal) validity, nothing can be gained from an argumentative articulation of meaningless statements. This first observation seems to plead for a picture in which PI is necessary for AI, but not the other way around. And in fact, this follows from our earlier characterisation of PI and AI: AI

takes as input the output of PI, which seems to suggest that AI operates at a point where PI has finished its job.

The second line of argument to support the directionality from PI to AI comes from rhetorical scholarship. Rhetoricians have long observed that the way you frame your argument can have significant impact on its chances of success: as way of illustration, take the following contrasting argumentations:

(2) Abortion should be illegal because it is the act of murdering babies.
(3) Abortion should be illegal because it is the act of murdering embryos.

Argumentations like (2) have typically been observed to speak to conservative audiences, which are usually more likely to consider that abortion is a crime. Focusing on (2), it moreover seems that talking about the act of murdering babies is lexically coherent with the construal of murder as the act of intentionally killing a person (babies are persons). (3), on the other hand, fails to establish this level of lexical coherence, because an embryo is, precisely, not yet a person. The difference between both arguments is thus a lexical one, and this difference can have consequences on the output of the addressees' AI, depending on their cognitive environment. To take another example (see Oswald 2011), equating the project of developing a state-funded national insurance system to replace an expensive and over-competitive private market with a "health tax", as in (4) below, might go a long way in terms of persuasion, since it allows the speaker to take on board the negative connotation of 'tax' in order to negatively frame the state-funded project:

(4) In fact, the introduction of a premium calculated according to income is equivalent to the introduction of a health tax.

Tindale (1992) develops a similar point as he considers how arguments might fare depending on the addressee's cognitive environments. Typically divisive issues which draw on ideological representations are likely to undergo such processes, as in (5) below (reproduced from Tindale, 1992, p.183):

(5) The Roman Catholic Church does not endorse the use of contraceptives, and therefore University students' health plans should not subsidize birth control pills.

Tindale notes that (5) is likely to have contextual effects in the cognitive environment of Catholic university students, while none at all in non-Catholics. This, in my view, clearly illustrates that a representation an addressee is able to draw from his interpretation of the speaker's utterance (i.e., the output of PI) will have a subsequent effect on AI in terms of persuasiveness.[3]

It therefore seems that what one understands from a message may in fact influence how one will evaluate the argumentation contained in the message. This is to say that PI influences AI, and this is a straightforward consequence of the fact that AI partly operates on the result of PI as an input.

6. CONCLUSION

The links between Argumentation Theory and Pragmatics are evident but quite complex. In particular, I have tried to show that two different types of inference, distinguishable in terms of their input/output and their goal and scope, are at stake when we combine insights from the two disciplines: PI, which is an inference about meaning, and AI, which is an inference about a justificatory relationship.

While I have advocated that PI influences AI, and not the other way around, two nuances must be added. First, there is obviously a sense in which AI can still be considered to feed an account of PI, and that has to do with the typological benefits of AI in terms of identification of argument schemes and types of inference. However, should we adopt this position, then the contribution of argumentation theory would need to be understood as being restricted to offering a reservoir of reasoning or inference patterns (*à la* argument schemes). And if this is the case, then there is little to be gained from argumentation theory as a whole in the study of cognitive pragmatics, given that its only import would lie in its argument scheme list – which is arguably not a defining disciplinary contribution.

Secondly, the alternative option, namely to consider that AI feeds on PI, should be understood as targeting the reality of cognitive phenomena. In this respect, using an account of PI to study some

[3] We could also note, in passing, that this is also what lies at the core of the extended pragma-dialectical model of argumentation (see van Eemeren 2010) under the different constraints that strategic manoeuvring can exploit, and which stipulate different ways in which argumentative messages can be phrased to increase their chances of rhetorical success.

features of AI can be beneficial because it is concerned with a psychological question, that of rhetorical effectiveness, and puts on a par the specificities of AI and PI as cognitive inferences to try to understand how they are related at the level of cognitive processing.

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