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Abstract: Advocates of dialectical perspectives and critical thinking theorists require all the objections to a standpoint to be considered in order to justify it. Rhetorical attitudes on persuasion seem to contradict this position. Pragma-dialecticians relieve the tension between justification and effectiveness by strategic maneuvering. We find it necessary to link the nature of the issue and the degree of uncertainty to the rhetorical context to adapt the argumentative dialectical procedures.

Keywords: context, effectiveness, justification, persuasion, rhetoric, uncertainty

1. *Introduction*
There are different senses of using, and subsequent ways of defining what is meant by "argument". An argument can be defined as a set of statements, one of which, called the conclusion (thesis, claim, standpoint etc.) is affirmed on the basis of the others. An argument can also be defined as an act of persuasion intended to cause an interlocutor to believe that something is the case. Arguing can be seen also as a mutual pursuit of truth or shared understanding.

By arguing one may try to sustain a well-grounded theory or a settled factual claim related to some state of affairs unknown to the addressee, but arguing can be also just a way of thinking about a claim that at the moment is uncertain for both parties in the discussion. Sometimes it is possible to analytically confirm the adequacy of the claim by means of sound arguments but in many cases, the justification of a claim may not fulfill strong epistemic requirements. Nevertheless, in many such cases, a change in the cognitive environment of the interlocutors can be induced because the acceptance of the claim can be strengthened as a consequence of the dialectical interchange.

As a consequence of the different approaches to the concept of argument, there are also different proposals for a theory of argument(ation), with evident tension

between strong epistemic proposals and more holistic approaches that include elements related to the social component of argumentative practices.

For us, the relationship between justification of the claim, dialectic obligations and rhetorical strategies, in other words, the relationship between justification and persuasion, is context dependent. The role of rhetorical inputs may be minimal in simple argumentative examples but it grows with the complexity of the argumentation and varies depending on the audiences and the different issues and contexts.

Certainly, the goal of the argumentation, at least in its explicit agenda, should be related to epistemic notions such as truth and soundness. However, real argumentations constitute, in most cases, complex processes in which the issues and the rules to follow are not so clear. The dichotomy between truth and falsity does not always apply. Moreover and above all, it does not apply in the cases in which arguing fulfills its most important function, as in courts of law, in early stages of scientific inquiries, in public decision-making, in negotiations, conflict resolution and resolution of differences of opinion, in many everyday discussions or in fields or situations in which the theoretical standards of science cannot be fulfilled.

2. *Justification and effectiveness*
For epistemic approaches, justification is a feature that is constitutive of arguments (Bermejo-Luque, 2010) and the only truly important requirement to evaluate them. From this point of view, the use of persuasion as a criterion cannot avoid the threat of relativism and renders epistemic criteria irrelevant.

In our opinion, the relationship between epistemic and persuasive constituents is complex and the combination of the ideas of "epistemic vigilance" and of the "argumentative theory of reasoning" proposed by Sperber et al. (2010), may help us to understand it. Sperber et al. maintain that reasoning should be considered as a tool to persuade others and is a result of the evolution of humans as social beings. Their theory predicts the preponderance of confirmation bias in the production of arguments but also the epistemic vigilance of the argumentations of the interlocutors (the search for incoherencies, false affirmations, errors in the inferences or fallacies).

Even before the ideas of Sperber et al. were made public, empirical researches on

argumentative practice could be used to confirm some of those hypotheses. Deana Kuhn (1991), for instance, in her survey about argumentative justification of the cause of an event, finds that only 19-22% of the participants do not regard the evidence they offer as sufficient to prove the correctness of their theory. The remaining subjects, roughly 80% of the sample, regard their evidence as proof of the correctness of their causal theories, irrespective of the actual quality of this evidence.

Sperber et al. think that the use or rhetoric strategies to persuade others in a mixed argumentative practice may work well to obtain sound epistemic results in many cases, mainly when the aim of the parties is to reach a proper conclusion:

When people with different viewpoints share a genuine interest in reaching the right conclusion, the confirmation bias makes it possible to arrive at an efficient division of cognitive labour. Each individual looks only for reasons to support their own position, while exercising vigilance towards the arguments proposed by others and evaluating them carefully. This requires much less work than having to search exhaustively for the pros and cons of every position present in the group (p. 378).

However, many theorists think that if persuasion is the main goal of argumentation, reasonableness and cogency may be at risk. The critical thinking movement tries to protect against this risk and many textbooks stress the need to adopt a critical attitude avoiding biases. Thus, they recommend moving further away from a simple epistemologically "make sense" attitude guided by a strong confirmation bias that may not change without a deliberate educational intervention (Perkins, Faraday & Bushey, 1991). This critical attitude is characterized by Bailin & Battersby (2010) as *open-mindedness:* acceptance of the possibility of being wrong and thereby "the willingness to consider evidence and views that are contrary to our own" (p. 15) and *fair-mindedness* that "requires us to be as unbiased and impartial as we can when making a judgment"(p. 15). While open-mindedness can be seen as "the genuine interest in reaching the right conclusion" referred to by Sperber et al. in the above-cited passage, fair-mindedness presupposes a very strong epistemic requirement that can be contrary to the use of many persuasive strategies.

Critical thinking education may have an important role in the development of a more conscious and refined epistemic vigilance and in strengthening the

argumentative skills necessary to make better established justifications. Critical thinking courses help the students understanding meta-cognitive aspects of the argumentation and train them in the task of "arriving at reasoned arguments on complex issues" (Battersby & Bailin, 2011, p. 244). Nevertheless, we think that argumentative instruction should be extended also to develop capacities to deploy persuasive strategies.

The theoretical notion of "strategic maneuvering" integrated in the pragma-dialectical framework (van Eemeren & Houtlosser, 2009) manifests itself in the choice of presentational devices, the framing of the issue and the adaptation to the intended audience in an argumentative situation. This choice facilitates understanding of the arguments and their reception in a favorable view. Strategic-maneuvering is considered by pragma-dialecticians as compatible with the rules governing a critical discussion and it includes part of what we consider rhetorical practice. However, as we will try to show in the next sections, in the practice or arguing the use of persuasive strategies is not always fully compatible with the ideal dialectical rules, but it may be the best or the only way to achieve a rational outcome in a particular situation.

When people engage in arguing to resolve a difference of opinion they implicitly accept some general principles or rules under which the verbal interaction occurs. In many cases, participants in a debate or discussion intercalate ground-level arguments related to the issue under discussion with meta-arguments about the epistemic status of the premises, the soundness of the inferences, their relevance, the attribution of the burden of the proof, etc. Moreover, when, for example in the CEDA (Cross Examination Debate Association) debates in the nineties, meta-argumentative critiques were discouraged "in favor of specific and temporally-bound "scenario"-based interpretations", some researchers thought that these limitations constituted an obstacle to creativity and argumentative self-regulation (Broda-Bahm, 1993, p. 2)

As in the case of the particular rules of the CEDA debates in the nineties, in sections 4, 5 and 6 we will present more examples to show that consensual standards of what is argumentatively appropriate may change through time and different argumentative scenarios, and that apart from very general standards, this adaptation to the particular context is necessary if we want to be fair in assessing argumentative exchanges.

3. *Argumentation in context*

Through the short history of modern argumentation theory, many proposals have stated that there are different types of argumentative discourse that follow specific norms to adapt to the particular context in which the discursive activities arise. That is, many authors think that different contexts of argumentation ask the arguer to use different cognitive skills and strategies to modulate the requirements of the task.

The antecedents of this debate on context dependency go back to the works of Stephen Toulmin (1953; 1958). Toulmin maintained that the kinds of data and warrants to justify a point and the criteria of evaluation of arguments are not universal but field-dependent and that they should be adapted to the particular field in which the argument is situated. His definition of "argument field", however, was not sufficiently clear. Toulmin, himself, used this term differently throughout his work. In his first proposal in 1958 he considered that "two arguments belong to the same field when the data and the conclusion in each of the two arguments are, respectively, of the same logical type" (p. 14). Further on in the same book, he added to this definition that fields differ because they address different kinds of problems and, in (Toulmin, 1972) he considered fields as "rational enterprises" that could be identified with intellectual disciplines (Zarefsky, 1982; 2014). These diffuse and different definitions resulted in lively discussions in the 70s and 80s that opened the way toward finding a possible definition or different uses of the notion of field which, as a consequence, contributed to conceptual confusion about this term. Conflicting definitions and overall confusion led, in the end, to its virtual disappearance from debates, conferences and literature.

Following Perelman & Olbrechts-Tyteca (1958) rhetorical perspective which stated that arguments are determined by the audience, McKerrow's proposal of "argument communities" (McKerrow, 1980) and Goodnight's view of "spheres of discourse" (Goodnight, 1982) tried to look for a way out of the plurality of perspectives in field theory.

Goodnight proposed to leave aside the term "field" due to the difficulties encountered in fixing its meaning, and to use the more general idea of "spheres" of discourse. Without aiming to be exhaustive, he distinguished three main "spheres" of argument, the private, the public and the technical. The first one would encompass roughly all the informal argumentative interpersonal

exchanges; the second one, the discourses related to public or political deliberation; and the third one, all the argumentation related to the academic disciplines. It is now clear that this new idea and classification of spheres is not free of problems. Although it is a more general concept than that of "field" it is precisely its generality that makes its use difficult if the purpose is to advance toward a better understanding of particular argumentative practices.

In 1980, McKerrow defined a community as "a collective of people interacting in a space-time continuum" that share the same type of discourse and "a set of rules for verbal or non-verbal behavior which are authorized and guided by the uniting rationale for their common aspirations, and which are observed in the display of their communal interactions" (p. 28). In McKerrow's view, communities determined the appropriate argumentative norms and the evaluative standards that prevail in the community (Zarefsky, 2014, p. 78). Although the idea of community is interesting, it is also very vague and difficult to fix with more precision. It underlies, in our opinion, the idea of "culture", but of different cultures coexisting at the same time, because different communities intersect each other and members of a community can, at the same time, be part of another; van Eemeren & Houtlosser (2005) handle the question of adaptation to the audience to achieve argumentative success by means of strategic maneuvering. Strategic maneuvering asks for the observation of the various "argumentative activity types" defined as "conventionalized entities that can be distinguished by 'external' empirical observations of the communicative practices in the various domains". They equate those activity types to Goodnight spheres of discourse (p. 76). The observance of particular rules in different argumentative activities is important to improve our argumentative models but by looking at the examples they provide, we think that in some cases, it may be difficult to integrate particular rules with the observance of the rules of the ideal pragma-dialectical model. For example, the use of persuasive strategies in a negotiation might not be fully compatible with many of the ideal dialectical rules (closure, burden of proof, validity, etc.). However, a particular rhetorical move such as avoiding the more conflictive points, even if it does not help justify your position, may be good to achieve a rational outcome.

Recently, Rowland (2008) has maintained that the conflicting approaches to argument fields were not inconsistent but that they reflected different aspects of what he prefers to call "field practices". As he states:

It now seems obvious that one cannot adequately define the field in which a given argumentative controversy occurs without a focus on subject matter, audience characteristics, argument forms found in the area, propositional content, argument models serving as terministic devices to aid comprehension, disciplinary organizations, the evolution of argument practices, and a consideration of shared purpose. (Rowland, 2008, p. 242)

Underlying all the previous proposals is the notion that the participants in the argumentative discussion have to share the same "type" of discourse, that is, the way to handle the special terms and references they may use, has to be recognized as *endoxa* or shared knowledge to which the interlocutors in the exchange are committed. The same idea applies to special structural ways of presenting those thoughts in an argumentative dialog. Moreover, if argumentation is a kind of communicative discourse, argumentative exchanges are also subjected to communicative general principles. The idea of the "cognitive environment" of Sperber & Wilson (1986/1995) is, for us (and for some others, see for example, Tindale, 1999 and Kraus, 2011) an important notion that represents a minimum common basis for all the above-stated proposals.

Sperber and Wilson define the cognitive environment of an individual as the set of facts or true beliefs that are manifest to that individual at a given moment. To be "manifest" is either to be perceptible or inferable. In a dialog both interlocutors may share parts of their respective cognitive environments. This "shared cognitive environment" includes both participants in the exchange and the shared mutual knowledge that is manifest to both of them at the time of the utterance, which may include knowledge relative to the social or cultural group of which they are part.

According to Sperber and Wilson, in all communicative exchanges participants look for information that may alter or reorganize their respective cognitive environment. Argumentation is a specific form of communication whose goal is to alter the cognitive environment of the addressee by means of reason. If both interlocutors share a large part of their respective cognitive environment and are willing to discuss a point, the possibilities for argumentation to work are better because each interlocutor can connect more easily with the system of beliefs of the other. Kraus (2011) considers this shared environment a particular kind of community which he calls "argument community". For him, cognitive communities are not fixed entities and "their boundaries are neither universal nor

fixed" (p. 6) and may realign according to individual cases. This being true for ordinary cases of argumentation, it is also true that for argumentative exchanges that arise in institutionalized contexts, a large part of the shared institutionalized environment may remain fixed. In this way, by being part of the shared context, participants in a discussion have to adapt their discourses to the institutionalized form of arguing or, in the words of van Eemeren & Houtlosser (2005), to the institutionalized activity type.

In this respect, Rigotti (2006) emphasizes two relevant dimensions in an argumentative context, which he characterizes as the institutional and the interpersonal dimensions. The institutional context refers to the institutional field in which the interaction takes place and to the activity type in which the participants engage (for example, adjudication, negotiation, mediation, and public debate, as presented in van Eemeren & Houtlosser, 2005). The institutional context dictates the roles of the interlocutors, who have to adapt to the special requirements of it, make their own interpretations of the rules to follow, and play their roles in the way demanded by the institutional situation. The interpersonal context includes a rich network of relationships between the arguer and the audience. Those relationships are bounded and modulated by the participation of the interlocutors in a community and a culture. Across both dimensions there are other contextual sides to be stressed, related to the individual circumstances of the interaction. We can cite for example, the communication channels (face to face dialogue, written argumentation, public dissertations, Internet chat), time constraints, the motivation of the arguer and the presupposed motivation of the audience to accept the claim (that may change depending on the importance of the claim in their belief systems or on the impact of its acceptance on their lives), the arguer's knowledge about the topic and about the views of the audience, etc.

These contextual aspects may vary from one argumentative practice to another, giving rise to different degrees of uncertainty. Contextual considerations and specific requirements of an argumentative situation, cognitive aspects of the issue and the adaptation of the participants to the activity type may help us to make the analysis and assessment of an actual practice more flexible and to give an account of the dynamic communicational process involved in every argumentative discussion.

To make our point clearer, in the next sections, we will consider briefly examples of two different scientific disciplines, some features of pro and contra conductive

arguments, and some aspects of argumentative practice oriented to decision-making.

4. *Argumentation in scientific practices*

Many researchers in the field of argumentation and also in mathematics maintain that almost all of what is done in mathematics is informal in the sense that it is not done in a purely formal system (see Aberdein, 2009 for references, also Carrascal, 2013). The discovery part of a proof is possibly the most difficult phase of any mathematical work. Proofs arise in dialogical contexts (even when thinking up a proof to convince oneself) and uncertainty is usually present in the period of discovery of a proof or while looking for the solution to a problem. On the way to establishing a proof there are conjectures (that afterwards can be proven wrong), inferential gaps and appeals to intuition (by the use of diagrams, for example), and the steps are not formalized. In the process of proving, ordinary forms of argumentation, as in other communicational contexts, are always present. Pólya (1954) stated, that "we secure our mathematical knowledge by demonstrative reasoning, but we support our conjectures by plausible reasoning" (p. vi). As so, controversies occur and are in practice dealt with without fully formalizing them. For example, Pease & Martin (2012) analyze the Mini-Polymath projects as an example of collaborative work over the internet to solve demanding problems in mathematics. They show that 23% of the comments on the problem were made to propose definitions developed in a variety of ways: analogies, correction of misunderstandings, use of conjectures, etc.

For the final proof, standards of rigor are specific, and additional requirements of mathematical practice and proofs are always achieved and checked by the mathematical community. This does not mean that mathematical products are not communicative products but that the requirements needed to be considered as proof by the mathematical community are specific and stricter than those required for ordinary arguments. For example, notational requirements are a must in mathematical proofs and the deductive steps of the proof should be verified and presented in a way that can be checked by the mathematical community. Nevertheless, mathematical proofs are thought out and presented in different communicative situations that may also demand specific forms of expression to convince a particular audience. Rhetorical elements to adapt to the situation are necessary but the special requirements of mathematics for considering a mathematical product a proof remains.

In the initial stages of any emerging scientific enquiry, not only in mathematics, uncertainty is also always present. Louise Cummings (2002; 2009) presents a study about new diseases, such as bovine spongiform encephalopathy, as a good example of the need to adapt argumentative procedures to contextual constraints. She argues that possible informal fallacies such as the argument from ignorance play an important heuristic role in the application of rational scientific methodology. Argument from ignorance, she defends, is non-fallacious in these kinds of contexts and helps settle the priorities of the research, directing projects to a more testable hypothesis. These kinds of presumptive, non-conclusive arguments are relevant in persuading researchers to take a definite line of inquiry. Marcello Pera, a well-known non-relativist philosopher, places rhetoric at the core of any scientific inquiry:

We have seen that methodological rules have an open texture that can be tightened only through decisions that have to be well-argued. But making decisions and arguing for them involves discussing rival views and convincing an audience. This is the fundamental reason why rhetoric enters into science. (Pera, 1994, p. 51).

Pera assigns to rhetoric the role of adapting methodological rules by means of arguing. That is, in a scientific enquiry the way to reach a decision should be by giving and asking for reasons, because methodological rules are open and subjected to interpretation.

5. *Conductive argumentation and rhetoric*
The pros and cons type of conductive argumentation that can be found in different contexts may illustrate the importance of considering the characteristics of the issue in the evaluation of an argumentative discourse.

A conceptual introduction to conductive argumentation was first proposed by Wellman (1971; 1975) and it referred mostly to ethical contexts. This conceptualization was further elaborated by Govier (1999) who advocates its importance in other contexts such as historical and scientific argumentation. Although almost all components of the different definitions of conductive arguments are objects of controversy, the existence of counter-considerations as a part of the argumentative product is the more relevant and polemical characteristic of this type of argument.

Counter-considerations are different to objections (Govier, 2010). Objections or presumed objections of the interlocutors need to be accounted for in order to sustain a claim properly. Counter-considerations are considered part of the argumentation but they are not to be refuted as the objections and cannot be considered as premises. This fact makes it difficult to integrate counter-considerations in the structure of the argumentation.

This difficulty disappears, we think, if we consider the addition of counter-considerations as rhetorical moves that play a role in the integration of the audience in the argumentative discussion. Such rhetorical moves can be combined with other linguistic elements, such as the use of the first person plural or the use of rhetorical questions to make explicit the character polyphonic of argumentation.

Psychologists studying the development of argumentative skills (Golder & Coirier, 1996; Golder & Pouit, 2000; Andriessen, 2009), and researchers of the didactic of argumentation in the classroom (for example, Doltz & Pasquier, 1996; Doltz, 1996; Douek & Scali, 2000; Douek, 2005) consider arguing as a twofold task in which justification and adaptation to the addressee are analyzed in the different stages of the growing process, and are used as criteria to elaborate teaching strategies for the different ages and subjects. The use of counter-considerations in a dialogical situation may indicate that the arguers, children or students in classroom settings, are looking at the issue from different points of view in order to integrate others' insights. Rhetorical requirements, viewed from this perspective, can be considered to correlate with dialectical requirements. Introducing counter-considerations, the arguer shows that she considers her claim defeasible and that she is giving the audience space for extended discussion. From this perspective it can be seen that she respects the opinions of the audience but, at the same time, the arguer states her conviction that considering all the arguments in favor of the claim and the related counter-considerations, she may be entitled to maintain her opinion.

6. *Justification and persuasion in argumentation centered on choice of action*
Arguing to make a choice in civic decision settings or in more private settings, such as the individual choice between therapeutic alternatives or investments, has characteristics that are significantly different to argumentation in other settings, as may be the case in academic controversies. Practical argumentation in informal settings is also different from argumentation made in institutional

contexts.

When we argue to make a decision, the issue is important because, first of all, the degree of uncertainty is not the same in all the cases in which a decision has to be taken. Decision-making implies predictions about the future and that depends on some factors that are partially unknown and out of the control of the people making the decision. For instance, in the choice of therapeutic alternatives, sometimes the choice can be made by pursuing protocols that strongly indicate one of two alternatives, but in other cases the alternative to choose may be uncertain. The evaluation of the results has to be made also under conditions of uncertainty, the success of a treatment does not mean that the other alternative would not have been better, and its failure does not mean that the alternative would not have been worse.

Second, very often the issue has many sides: the desirable outcomes that constitute the reasons in favor of one decision are often counterbalanced by possible undesirable consequences that may also be used to reject it or to justify an alternative decision.

Third, the subjective-objective dichotomy pointed out by Wohlrapp (2008) presents specific characteristics related to the domain of the discussion through which the decision has to be made. Personal interests and values often undermine the decision processes. Values, a relevant aspect of decision-making, are subjective. Certainly, many reasons for favoring a decision can be related to facts and theories about the world that can be tested and refined through argumentation. Nevertheless, very often, due to time and cognitive constraints, decision-making has to be grounded in limited knowledge and intuitions. Subjective assumptions and suppositions may play an important role due to material constraints. van Eemeren & Houtlosser (2009) state that as a consequence of subjective factors, in the resolution stage of a public debate, it is possible that some members of the audience may change their minds, while others will maintain their initial positions, because different conclusions may, to some degree, be reasonably justified.

In decision-making, the high degree of uncertainty, the convergence of multiples factors and the relevance of subjective values and preferences make the role of rhetoric much more decisive than in other kinds of context. Not only should presentational devices and audience adaptation be considered; the way of framing

the issue may be also an object of debate, and the construction of the credibility and the status of the participants always play an important role. If there is room for the justification of different options, argumentation takes a more intense rhetorical orientation than in other settings.

7. *Conclusions*

Argumentation is a communicative interchange between an arguer and her audience. In order for the interchange to work, it is crucial that the participants in the interaction accept the possibility of a change in their system of beliefs.

The persuasion of the interlocutors should be reached by justifying the claim by means of a discursive game of giving and asking for reasons. Without justification there is no argumentation, but rhetorical strategies or rhetorical maneuvering are always present in real argumentative practices.

The evaluation of an argumentation should include factors such as the complexity and nature of the issue and the context, because these factors, among others, determine the different degrees of uncertainty of an argumentative discussion. If uncertainty cannot be avoided rhetorical adaptation to the case is unavoidable and more than the product it is the dynamic process which should be assessed.

The audience plays an important role since argumentative practice is an open-ended task that can be performed well in many ways but that can go wrong in just as many. Good or bad instances of an argument are audience-dependent because often the same argument will be optimal for one audience but inadequate for another.

Rhetorical argumentation has to be considered a rational enterprise (Tindale, 2004; 2009). On many occasions we argue because we hope that by giving and asking for reasons we can get a clearer and richer understanding of the issue, discard some bad options, refine errors, build a more accurate and not contradictory set of beliefs, and make more balanced decisions. As Wohlrapp (2008) states, it is important to dismiss the dichotomy between procedural and structural dimensions of argumentation to understand the virtues of arguing in these cases in which an undisputable justification may be inaccessible. At least in the kind of argumentative contexts in which uncertainty cannot be avoided, we think, as Tindale (2009) does, that "reasonableness arises from the practices of actual reasoners, it is not an abstract code independent of them that they consult

for corroboration" (p. 55).

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