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The Use of Arguments *A Fortiori* in Decision Making

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Abstract: Some decisions involve the use of a variety forms of arguments in order to balance different alternatives before getting a choice which is expected to be the better to solve the problem at issue. By doing this, there are some cases where people are able to or urge moving towards the choice that is most advantageous, probable or acceptable, and at other times towards a choice that is less negative or adverse than the others. Both alternatives depict different ways of searching for the stronger reason at stake. This means that the *a fortiori* argument is being used as a deliberative tool to reach a choice in a decision making process. I assume that such usage helps to show how the use of arguments *a fortiori* can be a very effective movement for designing an argumentation strategy to gain unbiased decisions, agreements or outcomes. However, it is the case that some biased uses may arise as well. For example, by appeal to one authority or status as a means to impose an idea or force a particular decision. This has a direct effect on objectivity and impartiality in decision making. In this paper I will present an analysis on how *a fortiori* arguments work either in personal or group processes of decision making, and when they are being used in biased or unbiased ways. This will provide some clues for a better understanding about the pragmatic conditions for applying correctly this kind of argument.

Keywords: *a fortiori*, argumentation schemes, decision making, more and less, preferences

1. Introduction

When decisions are not mechanically made but involve the development of reasoning processes, various types of arguments come into play to assess and weigh alternatives, pro or against, possible courses of action related to the subject which is under discussion. Thus, the choice or decision taken is supported by or founded on an argumentation. In my opinion, this kind of decision might be considered as a variety of communicative activity types which fall into the deliberative genre and could be added to those mentioned by van Eemeren (2010, pp. 147-148). Since the decision-making process is being understood as a kind of deliberative activity it enables its study from the theoretical frameworks and tools of analysis provided from diverse perspectives in contemporary theory of argumentation.

In writing this paper I assume as a theoretical framework i) the parameters for analysis of a decision-making process in the way exposed by Rieke, Sillers, and Peterson (2005); ii) interpreted using some tools for analysis of discourse provided by the pragma-dialectics theory; iii) Finally, I adopt the idea of Walton (2011), according to which the use of argumentative schemes can help “us to identify and analyze the pro and contra arguments in a case” (p. 204).

The main idea I will present here is to show that arguments *a fortiori* may be used as a mythological tool during processes of decision making. This will be shown through the various ways of weighting alternatives which bring to light when the argumentation schemes derived from the *a fortiori* apply in different context of decision making. By means of an analysis of some examples of supposed cases, we will be able to distinguish when they are rightly used, and when their use is fallacious or is based on biases or prejudices.

To contextualize the survey presented in this paper, I will start (section 2) sketching some theoretical assumptions which will help to understand how the process of decision-making is carried out, from the sources mentioned above. Section (3) addresses the definition of this

argument, and its standard structure. In section 4 I assume with Marraud (2013), Kienpointner (1992^a) and Vega (2011) that a fortiori arguments come from the *topic of the more and the less*. This assumption allows me to take as starting point Aristotle's insights about this topic to analyze some logical and conceptual features of this kind of argument. In addition some argumentation schemes are proposed. The main part of the paper is presented in section 5 where I deal with the *a fortiori* arguments usage as a principles of choice showing this argument as a useful and efficient tool often applied in decision-making processes. In addition to this, some examples are put forth to provide a better understanding and support to the hypothesis intended here. On the other hand, section 6 presents a sample of how biases or prejudices (which could be hidden) affect the use of *a fortiori* argument in some decisions. Finally, conclusions (section 7) summarize the main contributions of this paper and suggest possible ways of future research related to the pragmatological function of this argument.

2. Procedure of analysis in a decision making process

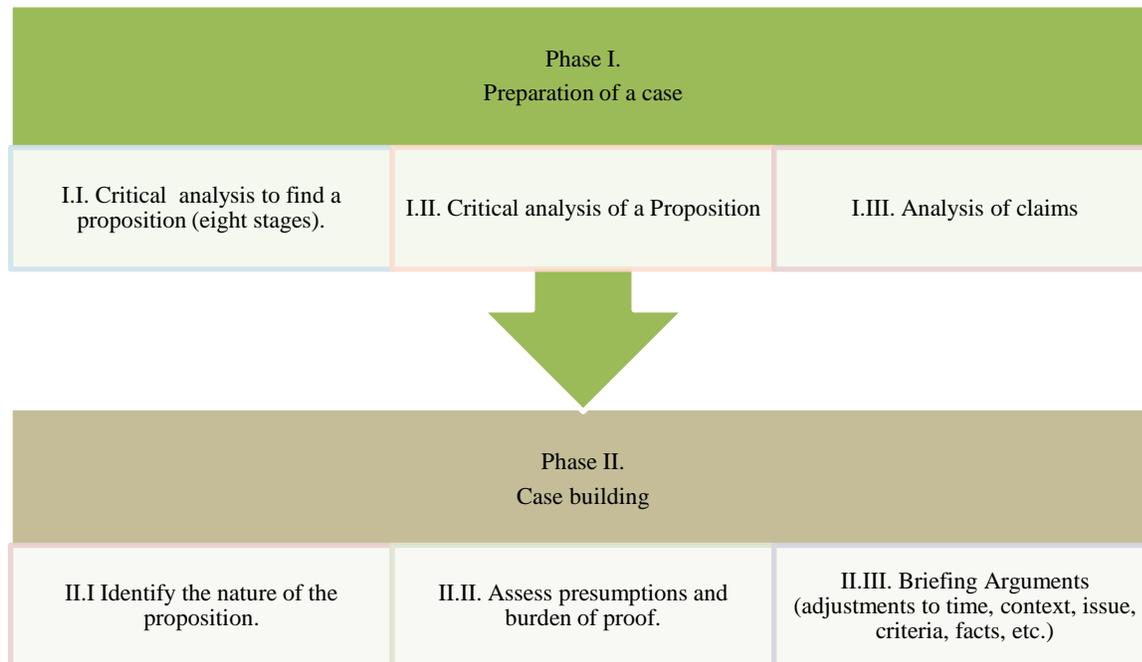
A decision-making process can be performed individually or through the interaction between two or more persons. When it is performed by only one individual, it becomes an internal or intrinsic discussion, often studied from certain approaches as a critical thinking process; "Critical thinking is the *personal* phase of critical decision making" [emphasis in original] (Rieke et al., p. 18). In the development of this process we tend to project in our minds one arguer and an audience, either a real (based on someone known) or imaginary one, towards whom we address some arguments in favor of one alternative; and from who we expect to receive other arguments as reinforcement or against. Thus, in doing this we take part in a kind of internal dialogue putting forward the reasons that each party might defend.

When decisions are discussed between two or more persons they are the product of proposals which are previously set out and defended by the proponents. In both cases (i.e., individual or group decision making) speech acts used by the parties are taken as proposals. Moreover, they are dialectically shuffled as alternatives given under a specific context determined by a particular system of linguistic conventionalization, as well as socio-institutional, cultural, and cognitive. According to Vega (2013):

Proposals involve estimates and preferences which rest, in turn, on contrasting considerations of various kinds and relative weight that can give rise to inferences no just linear or spun ones into a same plane but multilinear and multidimensional, although confrontation respond to a common purpose or at the same goal. (p. 122)

This way of interpreting the proposals brings, as will be seen later on, a reason to justify the importance of the *a fortiori* arguments when used in deliberative activities focused on decision-making. It should be added, that individual deliberations tend to be more biased by our own interests, prejudices, tastes and preferences; while collective deliberations usually have greater weight goals, interests, rules and history that characterize the group which is involved in a discussion. Therefore, collective decisions show, somehow, the *modus vivendi* and *modus operandi* of the group.

To analyze the procedure by means of which a decision making process is carried out, Rieke et al. (2005, chapters 4-5) lays out two main phases, each of which are composed of some states or steps, summarized in the following scheme:



The first phase begins with a preliminary scrutiny to settle clearly what the problem is and the proposition (understood as a proposal) we attempt to defend. To make this selection, the authors present eight alternative states within which you can achieve the proposition or alternative that will be taken as the starting point of the process. In summary these states seek to:

- a. Establish the question that represents the problem.
- b. Identify the goals and values that are directly related to the problem.
- c. Canvass alternative decisions until the most attractive is left.
- d. Weigh the costs and risks of each alternative.
- e. Search and filter the information available in regard to the problem.
- f. Critical examination of the alternatives considering states b, c, and, e.
- g. Identify blind spots such as bias or buried prejudices within alternatives.
- h. Select the proposition (proposal) that is more reasonable.

The second part of phase 1 assesses the strength of the proposition we have selected through an analysis of possible arguments for or against the proposal chosen. The importance of this step is due to the fact that: "[...] by looking at both sides of the proposition, the arguer can discover the issues of fact or value that are likely to be the most crucial" (Rieke et al., 2005, p 70). Then, the third part clarifies the criteria from which the proposal will be considered, in order to: "[...] develop a plan for assessing the strength with the claims resolve the issue" (Rieke et al., 2005, p. 68).

Phase two focuses on aspects related to the arguments and counterarguments that will be part of the defense strategies or possible attack of each selected proposal. Once you have identified the context, the proposition will be discussed, along with which sort of audience you want convince; the following is to define strategies that will serve as starting points (shared interpretations, assumptions, facts, probabilities, common places) to design the argumentation.

Other factors that must be taken in account are: i) the order and manner that the arguments will be structured and presented to get a more efficient adherence to the decision, or proposal defended; and ii) the way the burden of proof will be distributed among participants.

In my opinion the procedure sketched above for decision-making is comparable to the procedure described for the model of resolution of a critical discussion developed by the pragma-dialectical theory (van Eemeren, 2010). For example, the steps of the first phase correspond to the confrontation and opening stages in the pragma-dialectical model; while the second phase would correspond to the argumentation stage. In addition to this, the later model complements the first one as long as it also includes a closure or conclusion stage which when related to decision making would culminate in a decision or choosing an alternative.

Both perspectives recognize the interaction of rhetorical and dialectical elements. However, to this work, I will focus on the concept of *strategic maneuvering*, because this concept synthesizes and balances the rhetorical goals (for effectiveness) and the dialectical ones (for keeping the reasonability in the discourse) in a pragma-dialectical framework (van Eemeren, 2010, p. 83). Moreover, this concept allows an analysis integrating a study of the *topical potential*, whereby we uncover the possibilities of maneuvering that promote the use of the *a fortiori* arguments throughout the various stages which compose the process of decision-making. And also, the way the *a fortiori* argument is adapted to the audience's demands, and how these movements can be present and used at each stage of the process to achieve the purpose of the decision maker (Rieke et al., 2005, pp. 157, 200).

Now that the conceptual framework for analysis of decision-making processes has been exposed, I will describe, in the next section, the logical-conceptual framework for the study of the *a fortiori* arguments.

3. Definition and structure of *a fortiori* arguments

A fortiori arguments are a kind of comparative arguments where transmission of acceptability also conveys the strength, and the weight of the evidence, from reasons to the conclusion supported by them. The force or evidence may be transferred from two or more premises to one conclusion, or from two or more arguments supporting the same conclusion (Marraud, 2007; 2013; 2014). Generally this kind of argument functions with scalar inferences, and leads to the assumption that:

When we perceive things as closely related, we tend to rank them along some mutually comparable scale(s), in terms of [a particular] quality, quantity, specific difference, or preference. (Wiseman, 2010, p. 4)

The standard structure of this argument is composed of three propositions: One premise {P1} expresses a subordinated relation between elements, terms, people, events, etc., which are compared on a continuous range from the same criteria, class, or category. Another proposition {P2} establishes the possession (or not) of a certain characteristic or specific property contained within the stipulated range of comparison. The third proposition {P3} then concludes that other(s) elements have with more reason or, *a fortiori*, the characteristic or property indicated in P1 and P2. To fulfill this condition, P1 and P2 should be based on things already known, or commonly accepted. Its standard structure can be represented as follows:

Major premise (the	A is more/less than B, A has property <i>x</i> , (which include or exclude) B.
-------------------------------	--

**comparative
one):**

Minor

A is / has property *x*

premise:

Conclusion:

a fortiori (with more reason) B is / has property
(or not) *x*

Example (1):

The obligation to help the poor is, to a certain extent, simply a matter of human rights. We believe that our pets have a right to decent treatment—enough food to live, shelter from the cold, medical care when they are hurt or ill, and affluent people in America spend large amounts of income to provide for these basic needs for animals. If animals have these rights, then surely humans have at least the same basic rights. [AFA] People should be treated with more respect and consideration than animals by being given the chance to live in better surroundings than those afforded to animals (Moore 2009/2013 as cited in Vaughn & McIntosh, 2013, p. 73).

This text suggests that rich people have the obligation to help the poor ones. The *a fortiori* argument (which I marked with initials [AFA]) is based on an *a fortiori* scheme which follows the rule of exclusive disjunction. Adapted to the structure presented above we have:

**Major premise (the
comparative one):**

Rights of persons take precedence over those of animals, so that, if animals should be treated with respect and consideration, people should be treated with even more respect and consideration.

Minor premise:

animals must be treated with respect and consideration

Conclusion:

a fortiori (with more reason), people should be treated with more respect and consideration

As the example illustrates the transmission of the greater evidence and the strength to the conclusion depends on the acceptance of the previous premises.

I would like to finish this section by pointing out that from a pragmatic view, these arguments are often used to: a) determine the degree of possession of a predicate (characteristic, quality, property, etc.) by contrasting two or more subjects, things or events. Other uses tend to, b) strengthen a position, c) examine the plausibility of award of a characteristic or property, d) rank the best examples of a class or category, and e) help to resolve disputes between values or alternatives where the matter is about choice of the best value or alternative. The examples used throughout the text will be used to show how to understand some of these functions. Let us now identify the various sub-types of *a fortiori* arguments and their role in the decision-making process.

4. Definition and structure of *a fortiori* arguments

Aristotle was the first one to provide a systematic analysis of the topic of more and less, from which, as I mentioned before, *a fortiori* arguments come from. Because of this, I will restrict this section to expose what I consider the most important of Aristotle’s contributions to understand this argument. In *Topics* (II 114b 37-115a 25), Aristotle asserts that there are four rules derived from the topic of the more and the less (TML). These rules are based on three principles of inference from which a variety of comparative relations can be established to compare differences of degrees or measures between things. Those rules manage the logic subject-predicate relation from whose order and number arise different kinds of structures (i.e., different kind of comparative propositions).

Such principles and the corresponding structures are then examined under logic-semantic, and pragmatic parameters to test its usefulness in the adjudication of predicates among the categories of predicates called, *accident* (*Top.*, II 114b 37-115a 25), *property* (*Top.*, 137b15-138a29), *genre* (*Top.*, 127b18- 128a11), and *definition* (*Top.*, 145b35-146a 1- 20; 154a, 5-22).¹ This analysis includes, as well, a dialectical test, since it is teaching the arguer whether, for what and how those principles can be used to assert or construct a thesis, to destruct it, or, for both purposes.

I consider that some argumentation schemes can be derived by bringing together all the logical and semantical features described by Aristotle in this passage. By taking into account the way they are adapted in each category of predicables, it is also possible develop such schemes following (in a defeasible way) the logical rules of *modus ponens*, *modus tollens* or *disjunctive exclusive syllogisms*. The sketch below would help to map the logical components related to the TML, and by extension to the *a fortiori* arguments:

Table 1. Logical components of the *a fortiori* arguments

Principles:	P1: [...] if an increase of the accident follows an increase of the subject [...] clearly the accident belongs; while if it does not follow, the accident does not belong (<i>Top. II, 115^a 2- 5</i>).	P2: [If a predicated] it does not belong to the subject to which it is the more likely to belong, neither does it belong where it is less likely to belong; (<i>Top. II, 115^a 6- 7</i>).	P3: [...] if [a predicate] it does belong where it is less likely to belong, then it belongs as well where it is more likely (<i>Top. II, 115^a 7-8</i>).
Estructures:	(a*) One subject to one predicated [implicit].	<ul style="list-style-type: none"> - (b*) One predicated applied to two subjects: (A is more/less <i>x</i> than B). - (c*) Two predicates applied to one subject: (<i>x</i> is more/less A than <i>y</i>). - (d*) Two predicates applied to tow subjects: (<i>x</i> is more/less A than <i>y</i> is B) (cf. <i>Top. II, 115^a 6-14</i>). 	

¹ I use “*Top.*” as an abbreviation of *Topics*

Argument schemes²	<i>ad incrementum:</i> <i>Construction:</i> If more /less A is more/less B, then A is B More/less A is more/less B. Hence, A is B	<i>From the greater to the lesser:</i> A is more (likely) than B, A is/has <i>x</i> Therefore: (a fortiori), B is/has <i>x</i>	<i>From the lesser to the greater:</i> C is less (likely) than D, C is/has <i>x</i> Therefore: (a fortiori), D is/has <i>x</i>
		A is more (likely) than B, If A is/has <i>x</i> Therefore: B is not/doesn't has <i>x</i>	
	<i>Destruction:</i> If A is B then more/less A is more/less B. More/less A is not more/less B. Hence, A is/ or is not B	A is more (likely) than B, A is not /doesn't has <i>x</i> Therefore: (a fortiori), B is not/doesn't has <i>x</i>	C is less (likely) than D, C is not /doesn't has <i>x</i> Therefore: (a fortiori), D is not/doesn't has <i>x</i>

On the other hand, Aristotle (*Top.* 154^a12-18) claims the topic of the more and the less is one of the most useful and efficient topics, because it can be applied in a large range of cases. This affirmation is then reinforced in *Rhetoric*, by emphasizing its independency of any science or discipline (1358^a15-18). But *Rhetoric* also includes the topic among the common ones (*topoi kionoi*), (1397b12-27). It should be noted here that that in the list their appears only principles 2 and 3. Principle 1 is not quoted, and this might explain, maybe, why this form did not appear throughout subsequent typologies as a kind of *a fortiori* argument.

As a final remark in this section I would like to mention that, given the way Aristotle has formulated principles P2 and P3, it seems at first sight that arguments derived from them are useful only to assess or establish arguments based on degrees of probability by contrasting two or more elements. This seems to be the way such principles are understood nowadays for Kienpointner (1992^a) and Slomkowski (1997). However, this is only an alternative manner. Since many dictionaries (e.g., *Oxford Reference Dictionary*), and rhetoric and logic handbooks have extended the scope of these principles to a large variety of arguments based on scalar relations which can be ranked into a continuous tack from the same criteria of comparison (e.g.,

² There is an open debate regarding how the topical principles should be interpreted. The schemes I present here follow Slomkowski (1997); Walton, Reed and Macagno (2008) and other argumentation theorists who take such principles as premises to construct argumentation schemes. However, Marraud (2013) suggests other schemes for *the a fortiori* arguments which follow another line of interpretation, perhaps inspired by Hastings's insights (1962). From this perspective topical principles are assumed as external rules of inference, and are subsumed as warrants according with Toulmin's model of construction of arguments. Interpreted in this way, topical principles would not be part of the reconstruction of the argument, but of the evaluation of them (Marraud, 2013). Marraud (2007; 2013; 2014) also, holds a meta-argumentative interpretation of the *a fortiori* arguments which are based on considering that AFA may function as structures of argumentation where several arguments cooperate in transferring the strength in support of the same conclusion within a single argumentation or, "in any case, for conclusions that are ranged in a same scale" (Marraud, personal communication, May 15, 2016). In these cases, *a fortiori* principles work as a background which provide more or less strong support for the applicability of the warrants between arguments. In addition, Marraud (2013) points toward legal argumentation as the more suitable context to apply or find examples which illustrate the *a fortiori* as meta-argument.

from general to particular, the whole/the part, best/worst consequences, more/less importance, quality, quantity, etc.). Moreover, reflecting the Latin influence in the study of this topic, the principles are popularly acknowledged under the names as: “*argumentum a maiore ad minus*” (Principle 1 from the more to the less), and as, *argumentum a minore ad maius* (Principle 2 from the less to the more).

Let us move now to the next section to examine how the argumentation schemes developed here are applied in decision making processes.

5. Function of *a fortiori* arguments in decision making

In this paper, in a process of decision making the principles from which AFA are founded can be applied as principles of choice where “[...] we take one item to be preferable or superior to another, or else stronger or more capable in a way” (Wiseman, 2010, p.4). The satisfaction of this condition is here assumed as the stronger reason to justify or reinforce the choice. I hope to show through this section how it can occur.

To start, the AFA schemes come into play when a set of alternatives are weighed under the same criterion of preference or interest, in order to find out what is the best option according to the purpose and the context of deliberation. One alternative can be superior than the others because it carries, on the one hand, the most advantageous results or consequences. On the other hand, with less disadvantages, negative results or consequences, either direction depends on the circumstances surrounding the context where a decision has to be made.

5.1. *A fortiori* arguments as principles of choice

In several of his dialogues Plato includes certain forms of AFA often used in argumentative activities of their time. Some uses serve as examples to appreciate how the contrast between two values sometimes confront doxastic hierarchies based on the expectations of the majority. In the *Phaedrus* (272d-273c), for example, Socrates mentions a legal case apparently used by Tisias related to a trial to resolve a dispute between two men who could have started the quarrel. The weak’s defense appeal to his helplessness (what most people would accept as the strongest reason). Meanwhile the strong man, alleged (as stronger reason) that he could not start the brawl because he already knows such a form of behavior is generally blameworthy and rejected, given his obviously physical advantage over his opponent.

Despite the common practice, as evidenced by the above example, however, Aristotle once more sets a precedent for an analysis of AFA as principles of deliberation with listed examples for the practical uses of the TML dealing with choices of values on different circumstances and to achieve a variety of purposes.

Considered in this way, it is possible to infer that Aristotle shows how to apply the topics and, for extension the argumentation schemes as tools for decision making in ethical, as well as, in practical matters. Macagno and Walton (2014) follow this line of interpretation when asserting that both, in *Topics* and *Rhetoric*, Aristotle:

[...] described the reasoning mechanism underlying values and decision. He showed how values affect the interpretation of what is good, and how different values lead to different value judgments. The existence of different human characters and contingent situations affect the hierarchies of values and the way we assess states of affairs. For this reason, the evaluation of a situation can lead to different or conflicting conclusions, to a conflict of values that can be solved by

establishing what is better. In modern studies, this process of decision making has been represented as patterns of argument, called argumentation schemes... (pp. 50-51).

From my point of view, in Book III of *Topics* Aristotle provides us a sample of how the principles linked to the TML can be applied in different contexts where there are conflicts of values, and, what is at stake is to determine in each case which is better, or more desirable. Inasmuch as it must be decided in each case what value is somehow *greater* or *superior* than another, the variety of AFA schemes come into play. Such superiority is sometimes attributed to predicates and other times to consequences. By the way Aristotle explains the procedure and the elements needed to make a choice in each case, semantic and pragmatic conditions for use of the AFA are uncovered.

According to Aristotle, one thing can be superior to another by applying the following operations:

- **Addition** (*Top.* 115^a30) "in a more marked degree" (*Top.* 119^a23); ii) When by addition of something it makes the whole more desirable, or iii) whether the addition of the less good part, makes the whole more good (*Top.* 118b10-17, 119^a23-24).
- **Extension** (*Top.* 118b1-9; 119a20-23): i) When "one thing exceeds while the other falls short of the same standard of good the one which exceeds is the more desirable[...] or if the one exceeds an even higher standard" (*Top.* 118b1 ff.). ii) When it is needed to make a choice among three items, the more desirable or the better must be chosen and dismisses the others. Here is pointed out that more desirable and better are different principles of choice which may or may not be correlated in a case, e.g., "to be a philosopher is better than to make money, but it is not more desirable for a man who lacks the necessities of life" (*Top.* 118a10-11). Moreover, iii) one thing might exceed another thing as long as it possesses the highest features or attributions which the other lacks. Finally, iv) a choice can be made because which excesses one thing is more desirable to which excesses the other one, e.g., "friendship than money; for an excess of friendship is more desirable than an excess of Money" (*Top.* 118b6).
- **Subtraction** (*Top.* 118b17-19, 119^a25-27): When the subtraction of something makes the whole less good and therefore less desirable. However, to cases dealing with bad or negative values or qualities the subtraction of the less bad makes the whole better or more desirable.

The figure below presents some examples where principles {P1, P2, P3} and some structures (a*, b*, etc.) that were used to develop the AFA schemes in the above section that are applied on a set of values.

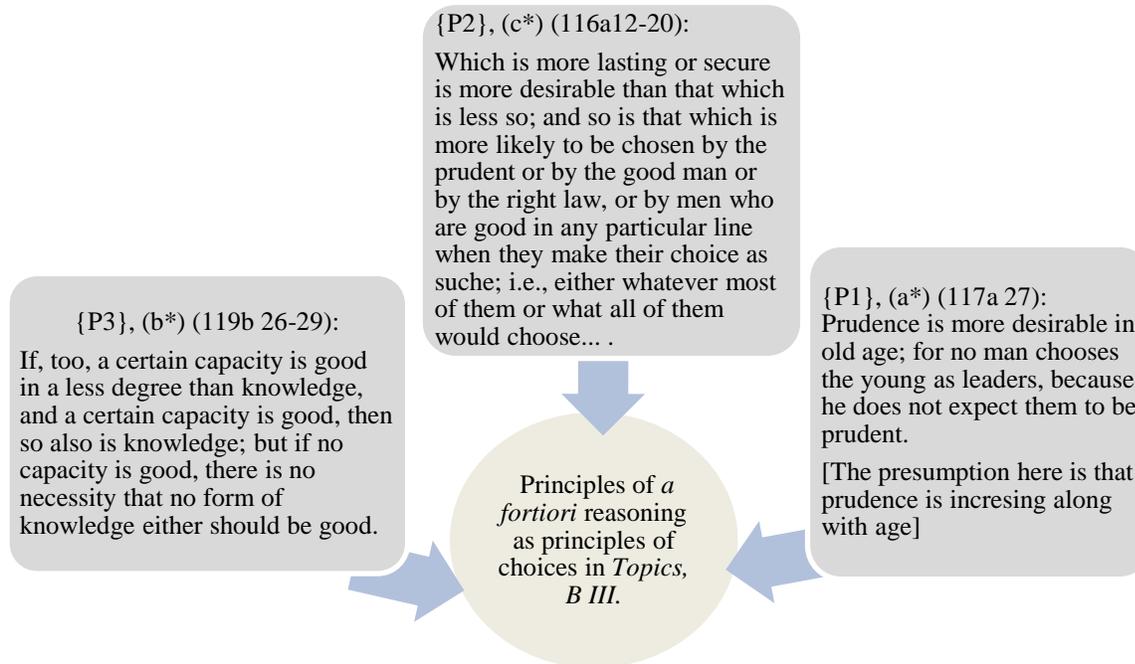


Figure 1. Principles *a fortiori* arguments applied to choices of values

Many qualities or values taken as examples of propositions to construct AFA in the previous section appear again in *Rhetoric* adapted to contexts of deliberation where a choice has to be made to decide, by contrasting things, what is the greater good or the most useful thing in a given situation (chapter 7). And regarding what is more or less wrong in judicial context (*Rhetoric*, chapter 14). Likewise, the semantic and pragmatic conditions of use established in *Topics* are reflected through the cases exposed. The following case, for example, identifies several modes on how a thing may exceed another:

Again, if the largest member of one class surpasses the largest member of another, then the one class surpasses the other; and if one class surpasses another, then the largest member of the one surpasses the largest member of the other. Thus, if the tallest man is taller than the tallest woman, then men in general are taller than women. Conversely, if men in general are taller than women, then the tallest man is taller than the tallest woman. For the superiority of class over class is proportionate to the superiority possessed by their largest specimens (*Rhetoric*, 1363b22-28).

In addition to the conditions described in *Topics*, Aristotle (*Rhetoric*, 32 ff. 1363b) introduced three manners as comparative relations that can be established; namely: 1) *simultaneously* (e.g., Increased velocity simultaneously increasing fuel consumption); 2) *potentially* (e.g., "If we can put a man on the moon, we should be able to solve the hunger problem," (Rieke et al., 2005, p. 35); and, 3) *subsequently* (e.g., "If you cannot pass the introductory course, you surely will flunk the advanced one" (Rieke et al., 2005, p. 35).

As is shown by Aristotle, there are many and multiple ways to instantiate the principles *a fortiori*. So many that Quintilian (1996) claims:

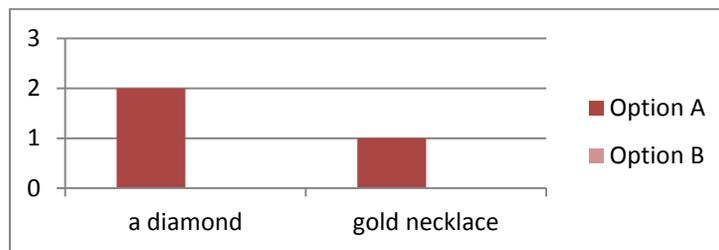
[...] we may argue from several things to one or from one thing to several; hence arguments such as “What has happened once may happen often.” We may also argue from a part to a whole, from *genus* to *species*, from that which contains to that which is contained, from the difficult to the easy, from the remote to the near, and similarly from the opposites of all these to their opposites. Now all these arguments deal with the greater or the less of else with things that are equal, and if we follow up such fine distinctions, there will be no limit to our division into species. For the comparison of things is infinite; things may be more pleasant, more serious, more necessary, more honourable, more useful... (V.10.90-92)

In extending the deliberative function of AFA to decision making AFA, I considered that this kind of argument is often used as a tool in weighing methods designed to calculate and weigh risks and costs and benefits, efforts and rewards, advantages and disadvantages, the order of importance, preference, or needs, etc. The following examples of hypothetical cases, based on possible everyday situations, will illustrate the scope of this paper.

Case 1:

John wants to give a jewel to Mary to try to catch her attention. Two factors are relevant in this case. First, John must seek information about Mary’s tastes. Second, John must establish how much he is willing to spend. Suppose that John found out that Mary prefers "the most expensive precious jewels" and, to satisfy this condition John had decided to spend whatever is needed. Since it is generally accepted that diamonds are more valuable than gold, he decides to give a diamond to Mary. The reasoning underlining this decision would correspond to *maiore ad minus* argument, according to which: a diamond (A) is greater than a gold necklace (B), since it is more highly prized (x), hence I should choose a diamond (Ax) and discard (Bx) the gold necklace.

The following graphic illustrates how both options are weighted:



Case 2:

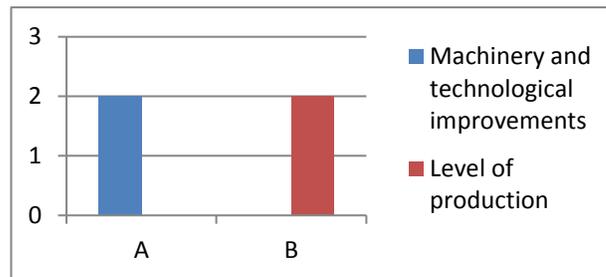
The production manager of a company presents a project to the steering committee for the renewal of machinery and implementation of new technologies to improve the chain of production. Let us start from the circumstances that the project is viable that, indeed, it is in need of refurbishment and some improvements in the technologies employed on the production, and that the company is in good economic shape to face the cost of such improvements. In this case the reasoning depicts *ad incrementum* argument, which can be represented as a hypothetical syllogism as follows:

{P1}: If (*more A*) machinery, joined with the better technological resources contributes to (*more B*) improve the production of a company, then $(A \supset B)$ the machinery must be renewed and new technological developments must be implemented to the production in the company.

{P2}: Since a renewal of machinery and new technological resources will improve the chain of production in the company $(mA \supset mB)$.

{Conclusion}: Hence, we must implement improvements in machinery and technological resources to the chain of production $(A \supset B)$.

Graphically represented:



Case 3:

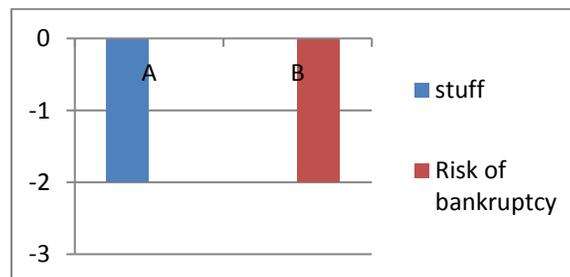
Suppose a company is having losses and that measures must be taken to avoid bankruptcy. To try to avoid bad consequences the director of the company proposes in a committee meeting to reduce the staff of employees in order to reduce costs and, in turn, the risk of bankruptcy. To persuade the decision makers to opt for this choice, the director use a *decreasing* argument (which follows the opposite direction to the argument in case 2). The reason to justify why one thing affects simultaneously the other can be outlined in this form:

If (*less A* \supset *less B*), then, $(A \supset B)$; since (*less A* \supset *less B*), therefore $(A \supset B)$:

{P1}: If a decrease of the staff helps to reduce cost, likewise the risk of bankruptcy of the company, then we should make some cuts to the staff.

{P2}: The reduction in the workforce will decrease, indeed, the risks of bankruptcy,

{Conclusion}: Therefore, we must downsize employees.



It goes without saying that in real cases, levels (-1, -2) would be replaced by accuracy figures, both in the amount of the staff that must be cut down, and related to the estimated amount of budget, savings.

Case 4:

Peter wants to get a mortgage to buy a new home. The first thing he does is seek information and make a previous selection about which banks are more convenient for him. Since the main goal of Peter is to get a loan with the lowest interest rate, then the process of weighing will consist in establishing a scale of comparison of the interests rates among the banks selected as alternatives. Suppose a bank (C) requires 3.5% interest per year, another bank (B) requires 3%; and another bank (A) calls for 2.5%. The reasoning applied in this case corresponds to the *minore ad maius* argument, or from the less interest demanded to the most savings or benefit gained. Therefore, Peter chooses in this case option A. Represented in a diagram:



Suppose in Peter's case, instead of a mortgage, he is looking for a bank to make a deposit of his savings in a fixed term, in order to be paid some interest as a reward. In these circumstances the argument to apply would correspond to the *maiore ad minus* scheme. Suppose as well that the rate of interest that those banks would reward are the same as in the case of the loan. Then the alternative choice in this case is the bank which pays the higher amount, that would be option C in the above diagram.

Case 5:

In other ideas, let us consider, for example, that Lucy advises to Diana that she should marry Carlos, because he is good looking, clever and very rich. In this case the last quality is emphasized as the stronger reason for Diana's decision to marry Carlos. The reasoning behind this advice is based on a *maiore ad minus* argument where, in spite of all qualities included in the criteria of "to be a good husband", the richness provides the strongest reason which would move Diana to choose Carlos.

6. Bias and prejudices using *a fortiori* argument in decision making

Given the virtually unlimited applicability of the AFA, and, on the other side, the large variety of ways and contexts within which decisions are made, I think it would be absurd to attempt to give an exhaustive account of the biases and prejudices which might affect, in a good or a bad way, the use of this argument throughout all domains of deliberations. Therefore, I will here show only a few examples.

In relation with the hypothetical cases exposed in the previous section (5) prejudices and bias could possibly come about in the following ways:

Case 1: It could be the case that although the conclusion of John's argument is true, i.e., that Mary prefers the most precious jewels, Mary has certain reservations or prejudices about diamonds because of the way they are mined in certain countries (i.e., unfairly exploiting miners and/or using their profits to finance wars and other illicit activities, so that the mineral is popularly known as blood diamonds). So the last thing she would have wanted was to be given one.

Case 2: The production manager could have submitted the project implementing new equipment and upgrades in the company, not because it was really necessary, but because the company which produces such things would have offered him an attractive commission if he sells their products. Or, it may be that the production manager wants to benefit a family member working in the company that manufactures or sells the equipment or the technological devices he asked for.

Case 3: The manager could employ in this case an AFA as a strategy to convince the committee to reduce the staff of employees alleging risk of bankruptcy, but actually his hidden intention (hidden agenda in a business technical meaning) is to make some adjustments in answering the requests for a larger company to which he pretends either to merge or sell the company he leads.

Case 4: It could be the case that Peter has a friend working at a bank who convinces him to acquire the mortgage at the bank he works for. To persuade Peter to make this decision, his friend argues that his bank offers better guarantees and facilities than any other bank. But, in fact, Peter's friend is looking out for the interests of the working entity and for possible recognition when he attracts new clients to his bank.

Case 5: Diana could have another scale of values of which a “good looking” man would be the most important feature to choose as a husband. Or, it may be the case that Lucy, who provided the advice has a hidden interest in this marriage.

Let us now consider another example, this time taken from a film that recreates the use of racial bias in decision making within the framework of legal argumentation. The film *A Time to Kill* (Grisham et al., & Schumacher, 1996) tells a story about the trial of a black man who has been accused of murdering two white guys who have raped and tried to murder his young daughter. The case catches such media attention that it ends up representing the violence and conflicts between Afro-American people and the Ku Klux Klan. In doing this, this movie is set in

the context of racial segregation and violence which took place in Mississippi in the 60's. Two types of decisions apply *a fortiori* reasoning supported by the premise: "whites are superior to blacks". The first is the (individual) decision made by Car Lee (Samuel L. Jackson), the father of the girl. Since the jury selected to judge the case is composed entirely of white people, Lee applies a strategic maneuver in his decision to be represented by the inexperienced white lawyer, named Jake Brigance (Matthew McConaughey). Lee reveals to his lawyer the reasons to justify his decision, telling him that:

You think just like them, that's why I picked you, you're one of them.... When you look at me, you don't see a man, you see a black man.... You are my secret weapon because you're one of the bad guys.... You see me like the jury sees me. If you were on that jury, what would it take to convince you to set me free?
(2:15:0)

Applying the pragma-dialectic model of analysis to the trial exposed in this film, it seems to me that Lee's decision to choose a white lawyer could be assigned to the opening stage of the conflict. Further on when the argumentation stage has passed, at the conclusion stage lawyers, which represent each part, must present to the jury a summary of their best arguments to persuade them to make a decision in favor of his position. In this stage, Brigance changes his strategy and instead of submitting a summary of their arguments, he decides to use the racist prejudices of the jury applying a maneuver which combines three arguments: The first one, based on a story is then, 2) reinforced with an *a fortiori* argument, and finally 3), an argument by analogy moves the jury to an unexpected decision. The strategy begins when the lawyer, Brigance, appeals to the subjectivity of the concept of truth in the legal framework within which hidden prejudices may arise:

I set out to prove a black man could receive a fair trial in the South. That we are all equal in the eyes of the law. That's not the truth, because the eyes of the law are human eyes, yours and mine. And until we can see each other as equals, justice is never going to be evenhanded. It will remain nothing more than a reflection of our own prejudices. So until that day we have a duty under God to seek the truth not with our eyes, and not with our minds where fear and hate turn commonality into prejudice, but with our hearts....

Then the lawyer asked the members of the jury to close their eyes, since he wants to tell them a story. The story describes in detail all the circumstances surrounding the rape of a little girl. At the end, the lawyer tells to the jury "imagine now she is white". This statement implies the implicit use of *a fortiori* argument which could be represented as follows:

P1: White people are superior to the black ones, so whatever happens to a white person would be even worse than what happens to a black one.

P2: (at the story) A white girl has been raped.

Therefore: This is even worse than what happened in the real case where a black girl was raped.

Finally, the members of the jury apply an argument by analogy, extending the conclusion to the aforementioned argument to Lee's case, and set him free.

7. Conclusions

In this paper I presented an analysis of how *a fortiori* arguments are used as a methodological tool in decision-making processes which take place in different domains. Moreover, logical, semantic and pragmatic features of this argument were put forth, showing, as we saw, in the Aristotelian study of the topic of the more and the less, most of which pervade even many contemporary approaches related to the study of this argument. I hope that what has been exposed here allows the reader to get a better understanding of the nature and function of the AFA.

On the other hand, as was addressed, the mode has some biases and prejudices that cause a sort of derailment in the use of a fortiori in decision-making, as well as, certain argumentative maneuvers that facilitate the practical use of this argument in everyday argumentation. It failed, however, to make any mention of how the uses of AFA contribute to achieve rhetorical and dialectical goals. Limitations of time and space constrain me to explore such points in a separate article, since quite a lot can be said about it.

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