"Predictably irrational". Expertise, metaphors and argumentation

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In his book, "Predictably irrational" (2008), Dan Ariely criticises the conventional, standard economic theory and its view of human beings as rational agents, arguing that humans are not just irrational in decision making, but are rather predictably irrational. The development of a theory of bounded rationality is one of the most important tasks in economics, but is not limited to it. Rather, bounded rationality is an overarching theme in human cognition. A theory of bounded rationality is key to understand how people make decisions given constraints of time, knowledge, and computational capacities, without resorting to utility maximisation (Simon 1983, Kahneman 2003). Thus, according to Jack Wright and Valina Dawson, "the bounded rationality position is related to pragmatic views of social intelligence which emphasize the need to assess cognitive competencies in the relevant life contexts in which those competencies develop" (1988: 781).

In a similar vein, the importance of the cognitive dimension of argumentation within argumentation theory has been highlighted in discussions on models of inference that examine the role of bounded rationality. Indeed, one of the aims of argumentation theory is to provide a satisfactory explanation of how people evaluate arguments in a rational way, according to specific norms and standards. In light of theories of bounded rationality, argues Godden (2015), there is a widened "prescriptivity gap" between the rational norms of logic and how humans fail to follow them. Reasoning errors might shed light on explaining how argumentative rationality moves away from a standpoint where human beings rightly respond to reasons (Van Eemeren & Grootendorst 2004, Tindale 2006). In this perspective, it is possible to discover that laypeople are not rational, as expected, in evaluating arguments, thus systematically breaking normative ties and falling into argumentation fallacies. However, we might still expect experts to meet the normative requirements for evaluating arguments, and thus not fall into argumentative fallacies. If this is the case, it can be reasonably asked: with a systematic training in argumentation and philosophical logic, would people respect argumentative rationality or would they still be "predictably irrational"?

The aim of the research is twofold: 1) to empirically investigate how and why laypeople incur fallacies of reasoning featuring figurative language; 2) to understand whether experts are as (predictably) vulnerable to lexical ambiguity fallacies as laypeople. To achieve these aims, the research focused on the role of expertise in the detection of lexical ambiguity fallacies, such as quaternio terminorum, where a metaphor might be the middle term in one of the premises (metaphoric fallacy). The first empirical study (Ervas, Ledda, Pierro 2016) investigated whether and to what extent the detection of quaternio terminorum presents relevant differences between a group of adult (N=40) non-experts and a group of adult (N=40) experts (scholars with an in-depth training in philosophical logic). Both groups were tested by using a series of verbally presented arguments, having the structure of quaternio terminorum and containing either a lexical ambiguous or a metaphorical middle term.

To detect the fallacy of quaternio terminorum, the middle term needs to be disambiguated in both premises. It has been demonstrated that the suppression of non-relevant meanings is involved in both disambiguation and metaphor interpretation (Gernsbacher 1990, Gernsbacher & Faust 1991). However, the process of metaphor interpretation demands rigorous attentional resources to suppress the corresponding literal meaning, when compared to the process of disambiguation (Blasko & Connine 1993, Rubio Fernandez 2007). Previous studies have demonstrated that this step influences the overall understanding of an argument and that quaternio terminorum having metaphors as middle terms are highly persuasive (Thibodeau & Boroditsky 2011, Fisher 2015, Ervas et al. 2015). It was expected that expertise will impact the detection of ambiguity fallacies, by favouring not only the disambiguation process of the premises but also the detection of the metaphoric fallacy. The experimental results show instead that not only laypeople but also experts tend to assess sound instances of quaternio terminorum with conventional metaphors as middle terms, when the conclusion of the argument is far from being patently false.

A second experimental study investigated why participants fell into the metaphoric fallacy, especially when the conclusion of the argument was plausible (Ervas & Ojha 2017). The materials consisted of the same series of verbally presented arguments, having the structure of quaternio terminorum and containing either a lexical ambiguous or a metaphorical middle term. Participants were asked to rate the arguments on a scale of 1 to 5 based on the following parameters: 1) understandability; 2) convincingness; 3) emotional appeal; 4) logical relation; 5) ambiguity; 6) belief in the conclusion; 7) real world experience. The provisional results show that participants, who fall into the metaphoric fallacy, think that they have understood the argument, believe its conclusion, and - especially in case of conventional metaphors - deem to have found a logical relation between the premises and the conclusion. Instead, participants did not fall into the metaphoric fallacy precisely because they detected the ambiguity of meaning in the premises.

In conclusion, metaphorical middle terms have an effect on both laypeople and experts' intuitions on fallacious arguments with a plausible conclusion. At least in the case of metaphoric fallacy, expertise acts as a mitigating force, rather than a universal antidote. Interestingly, the "irrational" argument evaluators were influenced by conventional metaphor without realising its influence. Their reasoning error can be consciously explained by other factors. The most prominent one, as shown in the literature (Evans, Baston, Pollard 1983, Ball et al. 2006, Correia 2011), is the belief of the participants in the conclusion of the argument, independent of its premises. Argumentation theory does not usually adopt an experimental approach and relies on scholars' intuitions, according to which non-literal, figurative language makes premises literally false and the overall argument unsound. The results instead suggest that even experts judge fallacious arguments, featuring conventional metaphors, as sound, thus departing from the normative expectations of argumentative rationality. Such a departure is predictable, because it is justified by other beliefs, which are anyway irrational or unrelated to the argument itself.

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