

Argument quality: An interdisciplinary perspective

Participants

Ulrike Hahn (hahnu@cf.ac.uk)

School of Psychology, Cardiff University, Park Place,
Cardiff, CF10 3AT, UK

Frans van Eemeren (F.H.vanEemeren@uva.nl)

Dept. of Speech Communication, Argumentation Theory
and Rhetoric, University of Amsterdam
Amsterdam, 1012 VB, Netherlands

John Woods (jhwoods@interchange.ubc.ca)

Dept. of Philosophy, University of British Columbia,
Vancouver, B.C., V6T 1Z4, Canada
Dept. of Computer Science, King's College London,
The Strand, London, WC2R 2LS, UK

John Fox (john.fox@eng.ox.ac.uk)

Dept. of Engineering Science, University of Oxford
Parks Road, Oxford OX1 3PJ, UK

Discussant

Mike Oaksford (m.oaksford@bbk.ac.uk)

School of Psychology, Birkbeck College, University of London
Malet Str., London, WC1E 7HX, UK

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Introduction

Argumentation is central to our complex world, in particular to our social world. It pervades law, politics, academia, and everyday negotiation of what to do and how. Given its centrality, it is not surprising that it is the concern of a wide range of disciplines: philosophy, psychology, education, logic and computer science all have large research programs dealing with argumentation, though they differ in the aspects they emphasize. Philosophers have traditionally focussed on normative theories, that is, theories of how we should behave. The traditional standard here has been formal logic, but more recently, pragma-dialectical theories have focussed on the norms and conventions governing argumentative process as a means of overcoming some of the limitations of logical analysis. Within psychology, 'persuasion' has been an important topic of social psychological research. This has led to a vast literature that has identified many of the moderating variables (e.g., speaker likeability, engagement, mode of presentation, fit with prior beliefs) that affect the degree to which a persuasive communication will be effective. Developmental and education research have focused on the way children's argumentation skills develop, and examined ways in which critical thinking and argument skills might be fostered. Logicians and computer scientists have sought to devise novel frameworks for dealing with dialectical information, seeking to capture the structural relationships between theses, rebuttals, and supporting arguments with the degree of explicitness necessary for the design of computational argumentation system.

A shared, focal concern for all of these areas is the issue of *argument quality*: what makes a good argument, and how can good arguments be distinguished from bad ones? This question has two aspects- one descriptive and one normative. On a descriptive level, this question is about

success, that is, about what –descriptively– 'works' in convincing others of a position. At the same time, however, researchers in all of the above areas are necessarily engaged in the question of what *should* convince us, and which are the appropriate normative standards against which argument quality should be judged.

So-called fallacies of argumentation have had a central role in the question of argument quality. Fallacies are arguments that might seem correct but aren't, that is, arguments that might persuade but really should not. Well-known examples include circular arguments ("God exists because the Bible says so and the Bible is the word of God"), arguments from ignorance ("Ghosts exist, because no-one has proven that they don't"), ad hominem arguments or simple appeals to authority. These informal arguments are pervasive in everyday discourse. On a theoretical level, fallacies have been a longstanding focus of debate. Catalogues of reasoning and argumentation fallacies originate with Aristotle and continue to concern philosophers, logicians, and argumentation theorists to this day. The longstanding goal of fallacies research has been to provide a comprehensive treatment of these fallacies that can explain exactly why they are 'bad' arguments. In other words, the fallacies are a litmus test for our theories of argument quality.

Though seemingly a simple question, it has proven extremely difficult to provide a comprehensive answer to the question of 'what makes a good argument'. The normative question has attracted the formal tools of logic and, more recently, probability theory, and a pragma-dialectical emphasis on norms underlying argumentative discourse, such as rights to reply, and burdens of proof.

Even though the issue of argument quality is prominent within its associated disciplines, the topic has had little presence at meetings of the Cognitive Science Society. The aim of the symposium is to bring the breadth of current interdisciplinary research on this topic to the attention of a cognitive science audience. All speakers are key exponents

of the particular approaches to argumentation that they represent, and have led in their development.

The symposium

Ulrike Hahn. The talk will outline the recent Bayesian treatment of the classic catalogue of argumentation fallacies and the perspective on everyday rationality that the experimental investigations of argument strength conducted within this framework presently afford.

John Woods. This presentation will establish why the classic fallacy of 'Hasty Generalization' should not be viewed as a fallacy in light of the cognitive utility and economy of generic inferences. Generic inferences are default-inferences from and to generic statements. A generic statement is a statement with as much universality as is compatible with anomalous exceptions. Thus "Ocelots are four-legged" is true of every ocelot except those which, owing to congenital defect or injury, are not four-legged. Generic statements are semantically interesting, because unlike universally quantified conditional generalizations, the existence of a true negative instance need not falsify the corresponding generic claim. The talk will examine the role of generic statements in the generalizing practices of human agents, both in what they generalize from and generalize to. Specifically, it will argue that, owing to the semantic fact just noted, there are economic benefits that attach to our preference for the generic over the universal, and that in quite wide ranges of cases the economic advantage is not offset by cognitive loss. This gives insight into the structure of default reasoning, as well as rehabilitating 'hasty generalization'.

Frans van Eemeren will report on the results of a recently completed long-term project (with Bart Garssen and Bert Meuffels) on fundamental questions that have not usually been considered in the literature on fallacies: What do laymen ("ordinary arguers") think about discussion moves that are deemed fallacious in argumentation theory; how do they judge the reasonableness of such moves? From the viewpoint of the pragma-dialectical theory of argumentation this question can be made more specific: To what extent do laymen agree with the rules for critical discussion that distinguish between reasonable moves and fallacious moves? Do ordinary arguers make a clear distinction between reasonable and fallacious discussion moves? Are they consistent in their evaluations of argumentative moves? How articulate are their pre-theoretical notions about reasonableness and fallaciousness? These questions were addressed in a comprehensive experimental project titled Conceptions of Reasonableness, now just completed after some 12 years of testing. The talk will introduce the problem of determining the conventional validity of the pragma-dialectical rules for critical discussion and then provide a general overview of the setup and the experimental results concerning violations of the rules for critical discussion in the various stages of such a discussion.

John Fox. Recognition of shortcomings in human judgement has led to a growing interest in formalising

rational foundations for evidence-based decisions. Work in AI and knowledge engineering is offering new alternatives to traditional frameworks, including a growing body of work on argumentation. Two strands can be distinguished here. The "dialectical" mode of argumentation focuses on conditions under which an argument for some claim is acceptable. The central idea here is that an argument is acceptable so long as it has not been "defeated" by another argument (e.g. by proving that the assumptions of the argument are false, or the rules used in its construction are inappropriate, irrelevant or unreliable). If an argument is defeated but the attacking argument can itself be defeated, the original argument is reinstated. The "evidential" mode of argumentation is inspired by human decision-making rather than reasoning. In order to make decisions between hypotheses or actions we must assess all lines of argument for each option. Each distinct supporting argument increases our confidence in a hypothesis while each distinct opposing argument increases doubt, reducing overall confidence. Even if we do not know the quantitative strength of each argument we can still compare overall persuasiveness of competing claims by applying an "aggregation function" which collapses the set of arguments into a summary statement of confidence. Confidence can be represented quantitatively, qualitatively or linguistically. The talk argues that both modes have an intuitive rationale and increasingly understood mathematical foundations, and that they can be combined. For example, we may construct individual arguments about a claim using the dialectical mode and then aggregate all the acceptable arguments in an evidential mode. Even if we cannot give numerical strengths to our arguments we still have a versatile and robust formalism within which to represent and compare competing claims and assess the strength of the supporting evidence.

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