

hearts was its negation. Layman Allen understood that it was an even more pleasant experience to hold rounded wooden cube-shaped dice in one's hand. And he colored them blue, red, black, and green, with gold lettering. It sure beats the logic paper with p's and q's.

The actual games that Allen and Saxon produced in their ICAIL papers were perhaps too complicated to understand fully in that format. But the commitment to a dialectical process was obvious, and the Hohfeld expansion of the deontic language was a breath of fresh air. Perhaps it will take time to appreciate the Allen-Saxon A-Hohfeld LRL games precisely because people must first appreciate the dialectical argument game, then they must adopt the Hohfeld modalities, and finally, they can join the two into a single whole. Such is the large cost of a large leap.

7.3 Ronald P. Loui, Jeff Norman, Joe Altepeter, Dan Pinkard, Dan Craven, Jessica Linsday, Mark A. Foltz (1997). Progress on Room 5: a testbed for public interactive semi-formal legal argumentation. *Commentary by Bart Verheij*

Remember 1997; we used Netscape Navigator for browsing and AltaVista for search. It was the heyday of the first browser war. Netscape released its 4.0 version in June (72 % market share), Microsoft Internet Explorer following in October (12 %). The internet was still an innocent business—or was it?—, with Microsoft employees planting their e-logo in Netscape's lawn, and Netscape placing their dinosaur on top.¹³

It was against this historical background—Wikipedia and Google didn't exist yet—that Loui presented his Room 5 system at ICAIL 1997 in Melbourne. Room 5 was developed by Loui and a team of students in collaboration with Norman, a Chicago-based lawyer, and was designed as an interactive web-based system, in which users could argue legal cases. The goal was in particular to facilitate discussion of pending Supreme Court cases, 'precisely because of the interest that members of a broad community might have in arguing them' (Loui et al. 1997). Although the term Web 2.0 wasn't yet invented, Room 5 had an underlying collaborative community vision similar to that movement,¹⁴ while also going a step further: the community using the tool should help find out which kinds of logical constructs and conceptual distinctions were useful and actually used, cf. the project's ambitions (Loui et al. 1997):

1. To identify a community of web-users willing to play semi-formal legal argument games;
2. To gauge the willingness of such users to be subject to the constraints of various formats, gauge their general understanding of constructions permitted, and determine the practical limits of a few formats' expressiveness;
3. To permit a community of non-naive contributors to construct an ontology for U.S. federal law and a database of semi-structured arguments.

¹³ http://en.wikipedia.org/wiki/Browser_wars#The_first_browser_war.

¹⁴ http://en.wikipedia.org/wiki/Web_2.0.

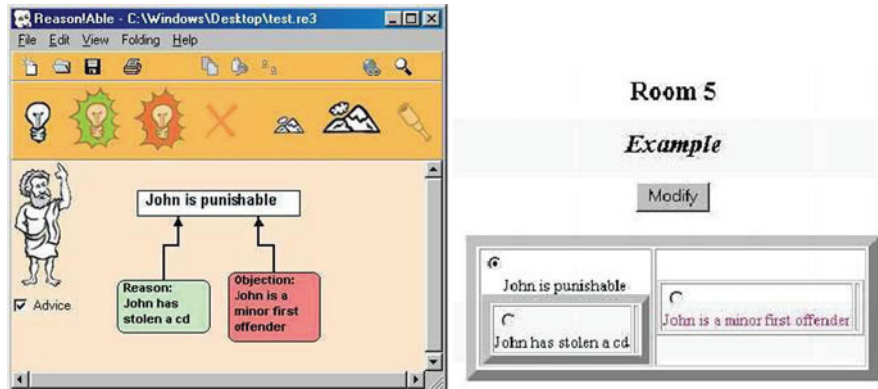


Fig. 1 An example argument in Reason! Able and in Room 5

Each of these ambitions is still a worthy aim.

Room 5 also proposed an innovative graphical argument format based on nested tables, instead of the more common tree structures. For instance, consider an argument concerning the issue whether John is punishable with one pro-reason, namely that John has stolen a CD, and one con-reason, that he is a minor first offender. Figure 1 (left) shows the argument in a classical tree format, here in the Reason!Able program (van Gelder 2003), while Fig. 1 (right) shows the same argument in Room 5's table-based format.¹⁵ The example shows that, in Room 5, a box encapsulated inside another represents a supporting reason, and a box next to another represents an attacking counter-reason.

By its use of nested boxes, Room 5 does not readily allow for the graphical representation of what Pollock famously refers to as an undercutting argument, i.e., an argument that attacks the connection between a reason and its conclusion. In fact, the example argument may be better represented as such an undercutting argument, since the fact that John is a minor first offender only blocks his stealing as a reason justifying punishment, and does not imply that John is *not* punishable, since there can be another, independent, reason for John's punishability. Instead of using a graphical representation, Room 5 uses a text-based conditional format for the representation of undercutting arguments (r *THOUGH* p *THUS NOT*(q)), citing the paper, 'where the argument is used only to attack an argument for q rather than to establish NOT(q)'. One style of graphical representation of undercutters is by the use of nested arrows, e.g, as in ArguMed (Verheij 2005) (Fig. 2).

The study of argumentation tools has progressed significantly since 1997, both in terms of systems investigated, cf. the overviews (Kirschner et al. 2003; Moulin et al. 2002; Scheuer et al. 2010), and in terms of research infrastructure, cf. the journal *Argument & Computation* and the biennial international COMMA conference series on the computational modeling of argument. Argumentation

¹⁵ These and other graphical formats for the presentation of arguments are discussed in Verheij (2005).

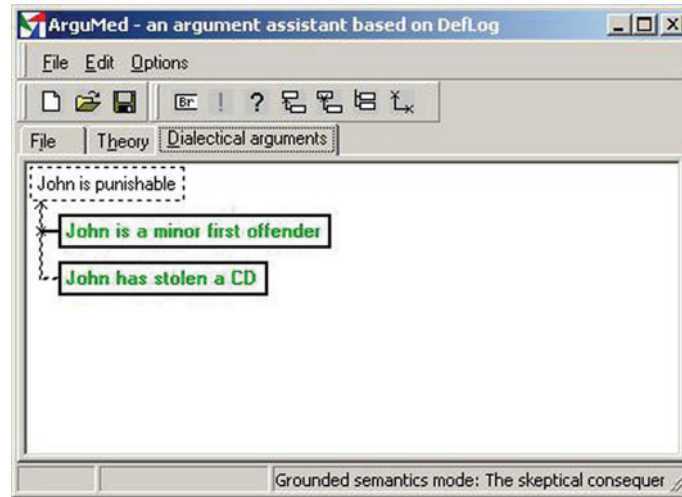


Fig. 2 An undercutting argument in ArguMed

support tools also have proven their commercial value, with Reason!Able's successor Rationale¹⁶ a telling example.

7.4 Thomas F. Gordon and Nikos Karacapilidis (1997). The Zeno argumentation framework *Commentary by Katie Atkinson*

The Zeno argumentation framework (Gordon and Karacapilidis 1997) was proposed as one of the first attempts to define a formal model of argumentation that could specifically be used to structure discussions in online consultation systems for e-government. The field of AI and Law had already contributed to research on computational models of argument, but Zeno was proposed at a time when interest in argumentation for e-government applications was in its infancy.

The power of the World Wide Web to act as an enabler of new forms of democratic participation by the citizenry was only just beginning to be recognised in 1997 when the Zeno paper was published. Zeno was developed as part of research on a European project, GeoMed, whose motivation was towards supporting the process of negotiation and mediation during geographical planning. As such, the main idea behind Zeno was to use the Web to enable interested citizens and representatives of public interest groups to access, view and discuss geographical plan proposals set out by governmental administrators more easily. The key innovation of Zeno was to make use of formal argumentation to structure the information relevant to the debate of concern, and so enable it to be reasoned about more rigorously by showing, for example, the dependencies between arguments and the problem solutions that the acceptable arguments entail.

¹⁶ <http://rationale.austhink.com/>.