Relevance logics and intuitionistic negation

Gemma Robles, José M. Méndez and Francisco Salto

Abstract

Since the beginning of the relevance enterprise, relevance logicians have been interested in exploring the frontiers of relevance logics. This explains the considerable attention that has been paid to the paradoxical R-Mingle or the motivation behind Meyer and Routley's Classical Relevant Logic. We have investigated the result of adding the K rule to relevance logics in the context of a constructive negation and in the presence of a non-constructive negation in [4] and [1], respectively. In the present contribution, we study the effect of adding a constructive intuitionistic-type negation including the EFQ ('E falso quodlibet') axioms $A \to (\neg A \to B)$, $\neg A \to (A \to B)$ and the ECQ ('E contradictione quodlibet') axiom $(A \wedge \neg A) \to B$ to positive relevance logics up to Relevance Logic R_+ plus the mingle axiom $A \to (A \to A)$ and show that the K rule $\vdash A \Rightarrow \vdash (B \to A)$ and so, the K axiom $A \to (B \to A)$ are not derivable. Thus, a spectrum of constructive logics that, though having the standard paradoxes of consistency, lack the key paradoxes of relevance are defined.

We employ the semantics defined in [3]. Part of the results presented appear in [2].

References

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Edificio F.E.S., Campus Unamuno, E-37007 Salamanca, Spain. E-mail: gemmarobles@gmail.com E-mail: sefus@usal.es URL: http://www.usal.es/glf

Dept. of Psychology, Sociology and Philosophy, Universidad de León, Campus Vegazana, 24071 León, Spain. E-mail: dfcfsa@unileon.es