

- ANDREA IACONA AND PAOLO MAFFEZIOLI, *Intuitionistic evidential conditional*.

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In some recent works, Crupi and Iacona have developed an account of conditionals — the *evidential account* — which rests on the idea that a conditional is true when its antecedent is incompatible with the negation of its consequent. This incompatibility condition, which is intended to capture the intuition that the antecedent of a conditional must support its consequent, is spelled out in terms of a classical modal semantics that allows for comparative measures of distance between worlds.

Although the choice of a classical framework has some obvious advantages, and makes the results so obtained directly comparable with standard theories of conditionals such as those provided by Stalnaker and Lewis, it is arguable that the evidential account could equally be framed in a different framework. In particular, the idea that a conditional is true when its antecedent is incompatible with the negation of its consequent is to a large extent neutral as to the distinction between classical and intuitionistic logic.

The aim of our paper is to show precisely how the evidential account can be developed within an intuitionistic framework. We start by extending the language of propositional intuitionistic logic with a new connective \triangleright for evidential conditional. Then, we define a Kripke model M for such a language as an ordered tuple $\langle W, A, \prec, V \rangle$ where W is a nonempty set, A assigns to each $x \in W$ a subset W_x of W such that (i) $x \in W_x$ and (ii) if $y \in W_x$ and $z \in W_y$, then $z \in W_x$, \prec assigns to each $x \in W$ an irreflexive and transitive relation \prec_x on W_x , and finally V is the usual valuation function satisfying the intuitionistic heredity condition. Moreover, let $Min_x(S)$ be the set of all $y \in S \cap W_x$ for which there is no $z \in S \cap W_x$ such that $z \prec_x y$. In these models, an evidential conditional $\alpha \triangleright \beta$ is evaluated as follows:

$[\alpha \triangleright \beta]_x = 1$ iff for every $y \in W_x$, if $[\alpha]_y = 1$ and $[\beta]_y = 0$, then

- (a) some $z \in Min_x$ is such that $[\alpha]_z = [\beta]_z$;
- (b) for every $z \in Min_x(\alpha)$, $[\beta]_z = 1$;
- (c) for every $z \in Min_x(\neg\beta)$, $[\neg\alpha]_z = 1$.

where $Min_x(\alpha)$ and Min_x are abbreviations for $Min_x(\|\alpha\|)$ and $Min(W_x)$, respectively.

We will show that, once Kripke models are appropriately constrained, we get an adequate semantics for \triangleright . Firstly, we provide a complete map of the deductive relationships between the intuitionistic, classical and evidential conditional. Secondly, we compare the intuitionistic conditional *vis-a-vis* the evidential conditional with respect some notable properties discussed in the literature on conditionals such ‘contraposition’, ‘true consequent’, ‘conditional proof’, ‘conditional excluded middle’, ‘conjunction sufficiency’, etc. From all this we conclude that on the background of intuitionistic logic, the evidential conditional is an interesting and novel generalization of the intuitionistic conditional.

[1] CRUPI, V. AND A. IACONA, *Evidential conditional*, *Erkenntnis* vol. 87, pp. 2897–2921, 2022.

[2] RAIDL, E., A. IACONA AND V. CRUPI, *The logic of the evidential conditional*, *The Review of Symbolic Logic* vol. 15, pp. 758–770, 2021.