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InqML - Inquisitive Modal Logic

Modal logic is at the heart of an incredibly fruitful interdisciplinary enterprise: it is used to formalize reasoning about key notions like knowledge and belief, obligation and permission, action and outcome, and finds important applications in computer science, AI, economics, and linguistics. In its current form, modal logic builds on truth-conditional semantics, which analyzes meaning in terms of truth conditions. This is the source of two limitations. First, there are important modal notions whose argument is not a proposition, but a question. Since questions do not have truth conditions, these notions cannot be analyzed in existing modal logics. Second, much recent work indicates that natural language modals are sensitive not only to the truth conditions of their argument, but also to the different "alternatives" it presents, thus making distinctions that are invisible to truth-conditional semantics. The aim of this project is to develop a new framework for modal logic that overcomes these limitations; to achieve this, we will replace truth-conditional semantics with a novel foundation: inquisitive semantics. Since inquisitive semantics allows us to analyze not only statements but also questions, it becomes possible to define modal operators that take questions as arguments. This brings a whole spectrum of new modal notions within the reach of logical analysis; examples include the notion of supervenience, several notions of dependence and independence, agential control and influence, and attitudes like wondering and indifference. Moreover, since inquisitive semantics allows us to associate a modal argument with a set of alternatives, we may now define a new class of modalities that are alternative-sensitive. This allows us to systematize a number of proposals made in the literature and to aim for a general theory of the alternative-sensitivity of natural language modals.

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