From Sets of Worlds to Sets of Eventualities: A New Approach to Negation and Modals

Early theories in formal semantics treated modals and negation as semantic modifiers of the same semantic category, assigning the same type to ordinary, modalized and negated statements alike. This framework allowed for flexibility in scope relations between modals and negation and provided a useful foundation for distinguishing between individual modals (Cormack and Smith 2002; Iatridou and Zeijlstra 2013). Influenced by formal logics, early theories also assumed that modals and negation operated on propositions, conceived as sets of possible worlds (e.g., Montague 1970). However, as theories of modality expanded, this possible-worlds approach revealed limitations, particularly in capturing the temporal and individual orientation of modals and their actuality entailments.

These phenomena are sensitive to lexical and grammatical aspect of the modals' prejacents, challenging traditional accounts that treat prejacents as denoting sets of worlds. Consequently, contemporary approaches represent modals and/or their prejacents as properties of eventualities or intervals, typically without addressing the full range of interactions between modals and negation (Condoravdi 2002; Hacquard 2009, 2010; Homer 2021; Nadathur 2023).

This talk proposes a reconciliation of modern event-based theories with the traditional view of modals and negation as propositional modifiers. Drawing in part on ongoing joint work with Timothée Bernard, I argue that modalized and negated statements, along with their prejacents, can still be considered to denote propositions, if propositions are sets of eventualities including negative events (Bernard and Champollion 2024) and modal states (Fine 2018, Moltmann 2018, Harr 2019, Homer 2021). I critically examine various models of modal states with respect to their compatibility with the standard framework for modality (Kratzer 1981, 1991) and offer a new perspective within this framework.