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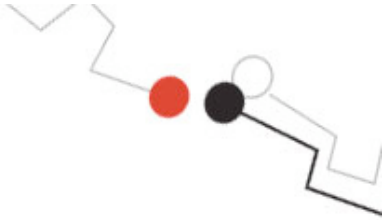

# Abstract Kripke Semantics

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In this paper, we give a schema of non-standard Kripke semantics for modal logic, in which the meaning of a modality in a formula depends on the evaluation process of that formula. More precisely, in our semantics schema, the truth condition for a sub-formula *[] A* of *B* depends on the path of worlds we passed in the evaluation of *B* and the position of *[]_i* in *Á* with respect to other modal operators. We show that this abstract semantics schema can unify several non-standard Kripke semantics developed recently for different purposes in a single form. Important instances include mode-shifting semantics of hypermodal logic in [Gab02], the centered semantics and the more general n-token semantics in [BE06], indexed semantics in [Wan06], and the arc semantics in [Gab04]. From those instances, we can see that by introducing the context-dependent truth condition of modal formulas, we can characterize some phenomena in real-life reasoning. For example, as characterized in [BE06] and [Wan06], people may have \upper bounds" or limits of imaginations" in understanding and reasoning about the higher-order information represented by the sentences with nested modalities. There are many common features shared by the semantics in our schema. For instance, our approach suggests that we could make the representation of model simpler by encoding more \instructions" in the semantics. We discuss those features and provide general results and tools to study any semantics based on our schema.

## References

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