## A new topological semantics for (dynamic) doxastic logic

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We introduce a new topological semantics for belief logics in which the belief modality is interpreted as the closure of the interior operator. We show that our semantics, based on extremally disconnected spaces, validates the axioms of Stalnaker's combined system of knowledge and belief (presented in his paper 'On Logics of Knowledge and Belief'), in fact, that it constitutes the most general extensional semantics validating these axioms. We further prove that in this semantics the logic **KD45** is sound and complete with respect to the class of extremally disconnected spaces and compare our proposal to the topological interpretation of belief in terms of the derived set operator. We also explore topological analogues of static and dynamic belief change by providing topological semantics for *conditional belief* and *update* modalities, respectively. Our investigation of dynamic belief change, namely *updates*, is two-fold: we model update modalities both on all topological spaces and on hereditarily extremally disconnected spaces. While the latter requires the static system **wKD45**, a weakened version of **KD45**, to be its logic of belief and **S4** to be its logic of knowledge, the former is based on **KD45** and **S4.3** for belief and knowledge, respectively.

This is joint work with Alexandru Baltag, Nick Bezhanishvili and Sonja Smets.