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Classifying Classification

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Abstract

Different types of linguistic classification, ranging from simple inheritance hierarchies to systemic networks, are classified algebraically and order-theoretically. To this end, classifications are reformulated as observational theories. Classifications that do not involve disjunction correspond to Horn theories, whose generic universe ordered by specialization is known to be a Scott domain. Several subtypes of Horn theories, corresponding to simple inheritance with exclusions, are classified with respect to their domains. Systemic classification is shown to have a flat domain. In particular, every finite systemic classification can be translated into a Horn theory. The infinite case turns out to be more subtle since non-equivalent observational theories may induce isomorphic specialization orders.

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