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Complexity of Ranking Hypotheses in
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The Complexity of Ranking Hypotheses in Optimality Theory

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Abstract Authors

Given a constraint set with k constraints in the framework of Optimality Theory (OT), what is its capacity as a classification scheme for linguistic data? One useful measure of this capacity is the size of the largest data set of which each subset is consistent with a different grammar hypothesis. This measure is known as the Vapnik-Chervonenkis dimension (VCD) and is a standard complexity measure for concept classes in computational learnability theory. In this work, I

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use the three-valued logic of Elementary Ranking Conditions to show that the VCD of Optimality Theory with k constraints is $k-1$. Analysis of OT in terms of the VCD establishes that the complexity of OT is a well-behaved function of k and that the 'hardness' of learning in OT is linear in k for a variety of frameworks that employ probabilistic definitions of learnability.


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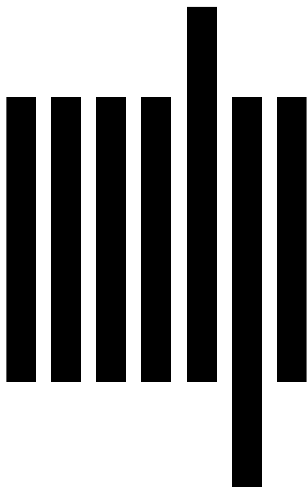
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