



The University of Chicago
Department of Statistics

FIRST YEAR PHD PRESENTATION

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The Reconstruction Problem on b-ary Trees

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ABSTRACT

Given a rooted tree we can assign the root a value and assign any child a value based on the value of its parent and a given transition matrix. The reconstruction problem on rooted trees asks whether, given the value of nodes at level n , the value of the root can be estimated. I will discuss the initially counter-intuitive result that for b-ary trees there exist matrices where the value of the nodes at level n is independent of the root but the reconstruction problem is still solvable, provided b is large enough. Examples will be provided, focusing on the special case where nodes can be in one of two possible states.