

THE REVERSE MATHEMATICS OF CAC FOR TREES

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Abstract. CAC for trees is the statement asserting that any infinite subtree of $\mathbb{N}^{<\mathbb{N}}$ has an infinite path or an infinite antichain. In this paper, we study the computational strength of this theorem from a reverse mathematical viewpoint. We prove that CAC for trees is robust, that is, there exist several characterizations, some of which already appear in the literature, namely, the statement SHER introduced by Dorais et al. [8], and the statement $\text{TAC} + \text{B}\Sigma_2^0$ where TAC is the tree antichain theorem introduced by Conidis [6]. We show that CAC for trees is computationally very weak, in that it admits probabilistic solutions.