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Title: Prime Factorization in Models of PV_1

Abstract: Under a hypothesis on the hardness of factoring, we show that the bounded arithmetic PV_1, corresponding to polynomial-time reasoning, cannot prove that every number has some prime divisor. The result holds even when we extend PV_1 by the sharply bounded choice scheme.

Preprint: <https://arxiv.org/abs/2505.14516>