

- ▶ ANTOINE TAVENEAUX, *Towards an axiomatic system for Kolmogorov complexity.*
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In [?], it is shown that four basic functional properties are enough to characterize plain Kolmogorov complexity, hence obtaining an axiomatic characterization of this notion. In this paper, we try to extend this work, both by looking at alternative axiomatic systems for plain complexity and by considering potential axiomatic systems for other types of complexity. First we show that the axiomatic system given by Shen cannot be weakened (at least in any natural way). We then give an analogue of Shen's axiomatic system for conditional complexity. In the second part of the paper, we look at prefix-free complexity and try to construct an axiomatic system for it. We show however that the natural analogue systems for it. We show however that the natural analogues of Shen's axiomatic systems fails to characterize prefix-free complexity.