FRAGMENTS OF THE FORCING THEOREM FOR CLASS FORCINGS

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Abstract. Class forcing generalizes set forcing by allowing partial orders that are proper classes and requiring generic filters to intersect all dense subclasses of these partial orders. While it is easy to see that such forcings need not preserve the axioms of ZFC, the question whether certain fragments of the forcing theorem hold for all class forcings was open. I will present results that answer this question by showing that all aspects of the forcing theorem can fail for class forcings. More specifically, there is a class forcing whose forcing relation is not definable and there is a class forcing that does not satisfy the truth lemma. Moreover, I will show that the validity of the forcing theorem for a given class forcing is equivalent to the existence of definable boolean completion of that forcing. This is joint work with Peter Holy, Regula Krapf, Ana Njegomir and Philipp Schlicht (Bonn).

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