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Joseph D Rabinoff* (rabinoff@post.harvard.edu), Department of Mathematics, One Oxford Street, Cambridge, MA 02143. *Metric aspects of the tropicalization of a Berkovich curve.*

Payne has shown that if X is a quasi-projective variety over a non-Archimedean field K , then the Berkovich analytification of X is naturally homeomorphic to the inverse limit of all tropicalizations of X under toric embeddings. In other words, one can naturally view the various tropicalizations of X as finite approximations, or retracts, of X^{berk} . In fact these approximations reflect much more than just the topological structure of X^{berk} . When X is a curve, both X^{berk} and any tropicalization of X have a natural metric graph structure, which are compatible in an interesting (and nontrivial) way. This compatibility allows one to relate the reduction theory of X with its tropicalizations. As an example application, we gain a deeper understanding of and a strengthening of Katz-Markwig-Markwig's theorem relating the tropical j-invariant of a tropical elliptic curve with the valuation of its ordinary j-invariant. (Received September 13, 2010)