► ÅSA HIRVONEN AND JONI PULJUJÄRVI, *Finite Ehrenfeucht–Fraïssé games of continuous logic.*
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Continuous first-order logic is a natural logical framework, defined in [1], for the logical treatment of metric structures, i.e. structures based on a bounded complete metric space rather than a pure set.

We define a version of finite length Ehrenfeucht–Fraïssé games for continuous first-order logic and show that the second player having a winning strategy in a game of length n between two structures corresponds exactly to the two structures being equivalent with respect to sentences of quantifier rank $\leq n$, as is also the case in classical first-order logic. Our game is inspired by our prior work on dynamic and infinite EF games for specific classes of metric structures [2]. Some prior study on EF games for continuous logic has been done e.g. in [3], but there does not seem to be a connection to quantifier rank.

We then proceed to show some ways of using the newly defined games to prove that certain properties of structures are not definable by a sentence of continuous first-order logic. Due to the real-valued nature of the logic, using the game for this purpose is not completely analogous to the classical case.

[1] Itaï Ben Yaacov and Alexander Usvyatsov, *Continuous first order logic and local stability*, ***Transactions of the American Mathematical Society***, vol. 362 (2010), no. 10, pp. 5213–525.

[2] Åsa Hirvonen and Joni Puljujärvi, *Games and Scott sentences for positive distances between metric structures*, ***Annals of Pure and Applied Logic***, vol. 173 (2022), no. 7.

[3] Bradd Hart, *Ehrenfeucht-Fraïssé games in continuous logic*, presentation notes (2018), https://ms.mcmaster.ca/ bradd/EF-games.pdf