Dynamics of N-distal homeomorphisms of compact metric spaces

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Abstract. The distal homeomorphisms were introduced by Hilbert (p. 405 [2]) in order to generalize the isometries on metric spaces. Such homeomorphisms have been widely studied in the literature. For instance, Ellis [2] reduced them to the enveloping semi-groups and the minimal distal systems; Fustenberg [3] proved a structure theorem and Parry [4] proved that they have zero entropy (also derived from Fustenberg's). Generalizations of the distal systems include the point distal flows (by Veech [5] who obtained a structure theorem for them) and more recently N-distal homeomorphisms by the authors in [1]. We will show some examples and dynamic properties of N-distal homeomorphisms, such as their connection with the equicontinuity, minimal and shadowing properties. Even more, we will prove that the topological entropy for minimal N-distal homeomorphisms is zero, which generalizes the results established by Parry in [4]. This is a joint work in progress with Elias Rego (UFRJ).

References

[1] Aponte, J., Keonhee, L., Carrasco, D., and Morales, C.A., *Some generalizations of distality*, To appear in Topol. Methods Nonlinear Anal..

[2] Ellis, R., *Distal transformation groups*, Pacific J. Math. 8 (1958), 401–405.

[3] Furstenberg, H., *The structure of distal flows*, Amer. J. Math. 85 (1963), 477–515.

[4] Parry, W., *Zero entropy of distal and related transformations*, 1968 Topological Dynamics (Symposium, Colorado State Univ., Ft. Collins, Colo., 1967) pp. 383–389 Benjamin, New York.

[5] Veech, W.A., *Point-distal flows*, Amer. J. Math. 92 (1970), 205–242.