A comparative study on dynamical properties of Fort, Fortissimo and Arens-Fort transformation groups

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By a transformation group (X, G, π) or simply (X, G) we mean a topological space X and discrete topological group G with identity e such that $\pi : \underset{(x,g)\mapsto xg}{X \times G}$ is continuous and $xe = x$, $x(st) = (xs)t$ for all $x \in X, s, t \in G$) [2].

Now suppose Z is a topological space with $b \in Z$, and topology $\{U \subseteq Z : b \notin U \vee (Z \setminus U \text{ is finite})\}$ (resp. with topology $\{U \subseteq Z : b \notin U \vee (Z \setminus U \text{ is countable})\}$), then we say Z is a Fort space (rep. Fortissmio space) with particular point b ([1, Counterexamples 24 and 25]). Suppose $Y = \mathbb{Z}_+ \times \mathbb{Z}_+$ (where $\mathbb{Z}_+ = \{0, 1, 2, \ldots\}$), consider topology τ on Y consisting of subsets U of Y such that:

- $(0, 0) \notin U$,
- there exists $N \geq 1$ such that for all $k \geq N$, $\{n \in \mathbb{Z}_+ : (k, n) \notin U\}$ is finite,

we call (Y, τ) Arens–Fort topological space [1, Counterexample 26].

Dynamical properties of Fort transformation groups has been studied in several texts, like [3]. In this text we make a comprative study on dynamical properties of Fort, Fortissmio and Arens-Fort transformation groups.

Rerefences

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