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STRICTLY S-MENGER BOUNDED GROUPS

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Abstract. In this paper, we define and investigate s-Menger-bounded groups. Also, we define strictly s-Menger-bounded groups using infinite topological game between two players. It is shown that strictly s-Menger-bounded group structure is preserved under irresolute epimorphism and possess open hereditary property.

1. Introduction

Throughout in this paper, a space mean an infinite topological space, e mean identity of the group G and along with the generally accepted symbols, we use our own notations and those from [13] and [19]. Let $\mathcal{U}$ and $\mathcal{V}$ are families of set X. $\mathcal{S}_{fin}(\mathcal{U},\mathcal{V})$ (resp. $\mathrm{S}_1(\mathcal{U},\mathcal{V})$) represents the selection hypothesis: For each $(\mathcal{U}_i)_{i\in N} \in \mathcal{U}$ there is $(\mathcal{V}_i)_{i\in N}$ (resp. $(b_i)_{i\in N}$) such that for each $i \in N$, a finite set $\mathcal{V}_i \subset \mathcal{U}_i$ (resp. $b_i \in \mathcal{U}_i$), and $\bigcup_{i\in N} \mathcal{V}_i$ (resp. $\{b_i\}_{i\in N}) \in \mathcal{V}$ (see [23]).
The Menger (M) (resp. Rothberger (R)) covering property of a space X is given as $\mathcal{S}_{fin}(\mathcal{O},\mathcal{O})$ (resp. $S_1(\mathcal{O},\mathcal{O})$) and s-Menger (sM) (resp. s-Rothberger (sR)) covering property [13, 19], is given as $\mathcal{S}_{fin}(s\mathcal{O},s\mathcal{O})$ (resp. $\mathrm{S}_1(s\mathcal{O},s\mathcal{O})$). The family of all open and semi open covers of a space X is represented as $\mathcal{O}$ and $s\mathcal{O}$ respectively.
In 1924 M property was demonstrated by Karl Menger with name of M basis property [16] and next year W. Hurewicz [9] verified an if and only if relation between M basis property and M covering property for a metric space. For more data about selection principles (SP) theory, we allude the peruser to see [14, 21, 22, 25].
For the SP $\mathcal{S}_{fin}(\mathcal{U},\mathcal{V})$ the infinite game, represented as $G_{fin}(\mathcal{U},\mathcal{V})$ [24]. In this game Tom and Jerry, play an inning per positive integer. In the ith turn Tom chooses $U_i \in \mathcal{U}$, and then Jerry counters with a finite set $V_i \subseteq U_i$. Thusly they set up a play U_1, V_1,..., U_i, V_i, ... such a play is won by Jerry if $\bigcup\{V_i : i \in N\} \in \mathcal{V}$; else, Tom wins. When $\mathcal{U}$ and $\mathcal{V}$ are open covers of the space or topological group (TG) then the game is known as M-game.
For the SP $\mathcal{S}_1(\mathcal{U},\mathcal{V})$ the infinite game, represented as $G_1(\mathcal{U},\mathcal{V})$ [5]. In this game Tom

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