RANK OF $\mathcal{F}$-LIMITS OF FILTER SEQUENCES

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Abstract. Rank of a filter $\mathcal{F}$ on a countable set is the ordinal $\mathrm{rk}(\mathcal{F}) = \min\left\{\alpha < \omega_1 : \mathcal{F} \text{ is } \Sigma^0_{1+\alpha}\text{-separated from } \mathcal{F}^*\right\}$. We give an exact value of rank of $\mathcal{F}$-Fubini sum of filters in a case, when $\mathcal{F}$ is a Borel filter of rank 1.

We also consider $\mathcal{F}$-limits of filters $\mathcal{F}_i$, which are of the form $\lim_{\mathcal{F}} \mathcal{F}_i = \{A \subset X : \{i \in I : A \in \mathcal{F}_i\} \in \mathcal{F}\}$. We discuss the rank of such filters, particularly we show that it can fall to 1 for $\mathcal{F}$ as well as for $\mathcal{F}_i$ of arbitrarily large ranks.