Hereditary Interval Algebras and Cardinal Invariants

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An *interval algebra* is a Boolean algebra which is generated by a linearly order set (relative to the Boolean order). This class is not closed under taking substructures. In fact, it was shown by Nikiel, Purisch and Treybig (and independently by Odintsov) that there is a σ-centered interval algebra of cardinality $\mathfrak{c}$ which is not hereditary. On the other hand, Bekkali and Todorcevic proved that σ-centered subalgebras of interval algebras of cardinality less than $\mathfrak{b}$ are interval themselves. We show that $\mathfrak{b}$ is the minimal cardinal of a σ-centered interval algebra which is not hereditary.

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