

## Maximal complete algebras

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Given two algebras  $\mathcal{M}$  and  $\mathcal{M}'$  such that  $\mathcal{M}' \subseteq \mathcal{M}$ . We say that  $\mathcal{M}'$  is complete at  $\mathcal{M}$  if for each element of  $\mathcal{M}$  there exists a largest (by set inclusion) element of  $\mathcal{M}'$  included by the element. It is clear that for any algebra any of its finite subalgebras is complete at the algebra. Therefore, the question is whether there exists a maximal algebra among the complete algebras.

We show that neither the union nor the intersection nor the complement of a complete algebra is necessarily complete. Moreover, we show that even a maximal complete algebra may not exist.

This is a joint work with Dov Samet from the Tel-Aviv University.