

On the symmetry behind duality

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Categorical dualities such as Stone duality and the duality between sober spaces and spatial frames hinge on an interaction between open sets and compact saturated sets. In several important classes of spaces—Stone spaces, spectral spaces, and stably compact spaces—this interaction forms a perfect symmetry, reflected dually as order self-duality. But sober spaces, despite being central to Stone-like dualities, exhibit only a partial symmetry between openness and compactness.

This raises the question: can we enlarge the setting enough to recover a perfect symmetry between open sets and compact saturated sets, while still retaining sober spaces and preserving the conditions that make the sober–spatial-frame duality work?

This work is based on a joint work with Achim Jung [1].

References

- [1] M. Abbadini and A. Jung. On the symmetry behind duality. Preprint at <https://arxiv.org/abs/2507.18245>.