

## Sentient observers and the ontology of spacetime

Ovidiu Cristinel Stoica

Spacetime is identifiable with a structure associated to the state space and the observables. But this identification is far from unique, due to the huge symmetry of the state space. Observers are the ones who identify a unique spacetime, by interpreting what observables represent positions. But the same symmetry of the state space implies that, for any observer, there are infinitely many structures identical to the observer's structure, and all of them would identify as spacetimes different isomorphic structures. From the point of view of structural realism, there is no preferred choice, leading to a principle of "meta" relativity at the level of the state space itself. Then what breaks this symmetry and reduces it to the space or spacetime symmetries? I prove that only observer-like structures associated to a particular choice of spacetime can be observers, otherwise their brains wouldn't represent the external world accordingly. All others can only be philosophical zombies. This implies that the ontology of spacetime and consciousness coincide, and refutes those theories of mind in which consciousness is reducible to the structural or relational aspects of the observer's brain.

These results are based on my articles:

OC Stoica 3D-Space and the preferred basis cannot uniquely emerge from the quantum structure, to appear in Adv. Theor. Math. Phys, <https://arxiv.org/abs/2102.08620>

OC Stoica Are observers reducible to structures? <https://arxiv.org/abs/2307.06783>