Example. Let us show that the only attractor of the *xor* CA is its limit set $\Omega = \{0,1\}^*$.

Example. The elementary CA 128 has two attractors.

Proposition. For every CA G either

(a) there is a pair of attractors whose intersection is empty, or

(b) the intersection of all attractors is non-empty.

Proof.

Examples.

1. Majority CA has type (a) attractor structure.
2. ECA 128 (=spreading 0) has type (b) structure and the intersection of all attractors is itself an attractor.
3. ECA 136 (=spreading 0 with neighborhood $N = (0, 1)$) has type (b) structure but the intersection of all attractors is not an attractor.

Attractor A is **minimal** if no proper subset is an attractor.

In type (a) attractor structure there are no minimal attractors:

Proposition. If there exist two disjoint attractors then every attractor contains as subset two disjoint attractors.

Proof.

Corollaries.

- If there exist two disjoint attractors then there are infinitely many attractors that are pairwise disjoint.
- If disjoint attractors exist then there is no minimal attractor.
- A minimal attractor of a CA is always the intersection of all attractors. Hence a CA has at most one minimal attractor.