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Topological Boolean inverse monoids

Boolean inverse monoids are inverse monoids whose idempotents form a Boolean algebra, where all joins of finitely many compatible elements exists and multiplication distributes over them. They are of interest because their groups of units are full groups and often contain infinite simple groups with interesting properties; e.g., Higman-Thompson groups. In many cases, such as full groups of one-sided shifts, the corresponding Boolean inverse monoid is the only way we know how to obtain these full groups (i.e., it is not clear whether they are the full group of a smaller group).

The locally compact non-discrete analogue of the Higman-Thompson groups are the Neretin groups of almost automorphisms of trees. They are also the group of units of *topological* Boolean inverse monoids.

I will report on the general theory of how to obtain these, starting from a topological inverse monoid acting on, say, the Cantor space (no knowledge of topological groups or monoids will be assumed). This then produces, under some conditions, examples of simple non-discrete locally compact full groups, in the spirit of Neretin's group.

I will mention some examples, but the challenge is to find new examples of topological inverse monoids that fulfill these conditions and produce new interesting (semi)groups.