Çark Groupoids and Thompson's Groups
(on-going work with Ayberk Zeytin)

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Abstract: *We introduce and study an analogue of Thompson's group T. This group appears as the fundamental group of the so-called çark groupoid, whose objects are certain infinite ribbon graphs called çarks. These graphs can be naturally identified with the set of narrow ideal classes in real quadratic number fields. They are canonically embedded in conformal annuli, with a unique cycle, with a finite number of Farey tree components attached to this cycle. Morphisms of the çark groupoid are generated by flips. They can be identified with the set of indefinite binary quadratic forms. Objects of this groupoid can be naturally identified with classes of indefinite binary quadratic forms. We aim to show that the group associated to the çark groupoid is an infinite extension of Thompson's group. Along the way we also study three simpler analogues leading to Thompson's group F and to some finite extensions of T. An open question is: what kind of arithmetic information can one extract out of this group ?*