Finite subgroups of the Nottingham group and
Katz–Gabber covers
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We consider finite subgroups of the Nottingham group (i.e. power series over a field \( k \) of finite characteristic with substitution as group operation) and show how they can be realised as automorphisms of a smooth algebraic curve over \( k \).

As well as giving us a geometric way of investigating these groups, there are some surprising consequences. For example, every such group is conjugate to one for which every element has an explicit power series, even though we are unable to write them down in nearly all cases.