= fvR . The group operation on the quotient is shown at the right . For example , U ? U =
fvR ? fvR
= (fv ? fv) R =
R. Both the subgroup R
= { id , r1 , r2 , r3 } , as well as the corresponding quotient are abelian , whereas D4 is not abelian . Building bigger groups by smaller ones , such as D4 from its subgroup R and the quotient D4 / R is abstracted by a notion called semidirect product .

Quotient groups and subgroups together form a way of describing every group by its presentation : any group is the quotient of the free group over the generators of the group , quotiented by the subgroup of relations . The dihedral group D4 , for example , can be generated by two elements r and f (for example , r =