Finding Infeasible Cores of a Set of Polynomials using
the Gröbner Basis Algorithm

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This talk investigates an algorithmic approach to identify a small unsatis-
fiable core of an ideal $I$ in $K[x_1, \ldots, x_n]$, where $K$ is a field and the ideal $I$ is
found to have an empty variety. The main aim of the talk will be to introduce
the fundamental notions and to illustrate the concepts we use by examples. We
identify certain conditions that are helpful in deciding whether or not a poly-
nomial from the given generating set is a part of the unsat core. Our algorithm
cannot guarantee a minimal unsat core; hence the talk discusses opportunities
for refinement of the identified core.