## OPEN ORBITS IN THE REPRESENTATION SPACES OF QUIVERS

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3rd Graduate Colloquium, Bern, January 24 - 25, 2008

ABSTRACT. A quiver is a directed graph with no restriction to the number of arrows and vertices nor to the sources and targets of the arrows in the first place. A representation of a quiver assigns to each vertex a finite-dimensional vector space and to each arrow a linear map. For fixed dimensions of the vector spaces one can define the representation space containing all representations (of the required dimensions) of a certain quiver. Further there exists an action on this space which partitions it into the distinct isomorphism-classes of the representations, i.e. the orbits. Sometimes there exists an open orbit with respect to the Zariski topology, sometimes not.

We are going to have a look at quivers for which one can easily find the open orbit in its representation space with elementary means and we are going to see an example where there is no open orbit. I will present as well a more advanced tool to find the open orbit.

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