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Gary Kennedy* (kennedy@math.ohio-state.edu). *A conjectural degree formula for subvarieties of spherical varieties*. Preliminary report.

This is the first of two talks about recent work by Jason Miller. A spherical variety is a variety acted upon by a reductive group and having a dense orbit under the action of a Borel subgroup B . Given such a variety, together with a very ample divisor, one constructs an associated Newton polytope. Various special cases suggest that there is a way to set up a correspondence between the closures of certain B -orbits and faces of this polytope, in such a way that the degree of an orbit closure equals the sum of (suitably normalized) volumes of the corresponding faces. I will explain the following special cases:

1. For a toric variety embedded by a very ample torus-invariant divisor, its degree is the volume of the entire associated polytope.
2. For a general spherical variety, work of Brion-Kazarnovskii, Okounkov, and Kaveh shows that there is a such a formula for the entire variety.
3. For a complete flag variety, Kiritchenko et al have shown how to set up a correspondence between Schubert varieties and faces of a Gelfand-Zetlin polytope, and from this they compute the Schubert variety's degree.

In a subsequent talk, Miller will explain how a similar formula appears to work for the classical space of complete conics. (Received September 04, 2012)