1095-53-157   **Arlo Caine*** (`jacaine@csupomona.edu`). *Equivalence of Demazure and Bott-Samelson Resolutions via Factorization.* Preliminary report.

There are two models of the generalized flag manifold of a complex semi-simple Lie group G: the complex quotient $X = G/B^+$ and the real quotient K/T. The inclusion of K into G induces a diffeomorphism $K/T \to G/B^+$. Schubert varieites $\overline{X_w} = \overline{B^+ w B^+ / B^+}$ in G/B^+, which are often singular, can then be studied as complex algebraic subvarieties of G/B^+, or as topological subspaces of K/T. Given a reduced word decomposition of the indexing Weyl group element w, Bott and Samelson constructed a resolution BS_w of the Schubert variety, considered as a subset of K/T. Shortly thereafter, Demazure produced a similar construction of a resolution DBS_w of the Schubert variety as a complex algebraic subvariety of G/B^+. Examining the constructions, there is an obvious map which induces a diffeomorphism $BS_w \to DBS_w$. The main result of this work is an explicit formula for the inverse of this map involving an iterated composition of factorization, multiplication, and inversion maps on G. The application is to the construction of Darboux coordinates for an integrable system on X_w. (Received September 07, 2013)