1067-14-1698 **Allen Knutson*** (allenk@math.cornell.edu). *Degeneration of Frobenius splittings, and Kazhdan-Lusztig varieties.*

Let $f \in k[x_1, \ldots, x_n]$. Starting with its hypersurface $f = 0$ we can construct a whole stratification $\mathcal{Y}$ consisting of closed subvarieties $Y \in \mathcal{Y}$, by decomposing what we have found so far, intersecting (some of) the components, and repeating.

Theorem. Assume $\deg f = n$ and *init* $f = \prod_{i=1}^n x_i$.

- Each *init* Y is reduced, a Stanley-Reisner scheme $SR(\Delta_Y)$. Indeed, the same holds true for any union of $Y \in \mathcal{Y}$.
- There is a well-defined order-preserving surjection $\pi_f : \{\text{faces of } \Delta^{n-1}\} \to \mathcal{Y}$, such that *init* $Y = SR(\overline{\pi_f^{-1}(Y)})$.
- Given a reduced word Q in a (possibly infinite) Weyl group W, there are natural coordinates on the (finite-dimensional) opposite Bruhat cell $X_\circ^{\prod Q}$ under which the Bruhat decomposition arises in the way described above, the poset $\mathcal{Y}$ is the Bruhat interval $[1, w]$, and the map π_f takes a subword of Q to its Demazure product.

Time permitting, I will describe a number of important stratifications arising in the way above, related to quiver cycles, Hilbert schemes of points in the plane, positroid varieties, and wonderful compactifications of groups. (Received September 21, 2010)