FRIDAY TRIAGE OREGON 8/2014

Many moving parts. $F_x \overset{\oplus}{\subset} F_{s_1} \cdots F_{s_d}$ for rex $\underline{x}$. I.e $F_x^j \overset{\oplus}{\subset} \bigoplus_{\underline{y} = \underline{x} \setminus j} BS(\underline{y})(j)$

Thm (Diagonal miracle): $F_x^j = \bigoplus B_z(j)$ (i.e. F_x is perverse) and $F_x^0 = B_x$.

All the non-perverse stuff is cancelled by homotopy.

So $F_x^j(-j) = \bigoplus B_z(0)$ could conceivably have hL, HR for $L = \rho$.

Today - $RoHR(x) :=$ $F_x^j(-j)$ has hL, HR for L, w/ form induced from $\bigoplus BS(\underline{y})(j)$

Note: This is stronger that $HR(z)$ for each term $B_z \overset{\oplus}{\subset} F_x^j(-j)$ ... $B_z \subset BS(\underline{y})$ but not necessarily as top summand!! In other words, $BS(\underline{y})$ is a big, non-semismall guy

$\langle , \rangle$ is nondeg but $(,)_L$ is typically not (never when not semismall)

$\langle , \rangle$ pairs summands $B_w(-k)$ against $B_w(+k)$, but $(,)_L$ restricts to zero.

(actually, not quite. exercise showed $(,)_L|_{B_w(+k)} = 0$ but $(,)|_{B_w(-k)}$ can be nonzero.) Nonetheless, $(,)_L|_{B_w(0)}$ is nice and nondegenerate (hL, HR) for all summands, not just the top one.

We'll get $RoHR(x)$ by induction, writing $F_x \overset{\oplus}{\subset} F_y F_s$ for $x = ys > y$.

Then, similarly, we'll use analogous arguments to study $F_x F_s$. $(B_x \to F_x^1 \to \cdots) \otimes (B_s \to R(1))$

First few hom degrees are

$$B_x B_s \longrightarrow \boxed{F_x^1 B_s \oplus B_x(1)} \longrightarrow \cdots$$

serves as weak lefschetz substitute.
factorization for L on $B_x B_s$.

We'll use this to get $HR(x;s)$, $hL(x;s)^*$, and $HR(x;s)_\zeta$ for all $\zeta \geq 0$.