MISCELLANEOUS NOTES

For a finite G-set K, let $\underline{K} = \Sigma^\infty_G(K_+)$. Think of G-spectra as tensored and cotensored over unbased G-spaces via $E \odot X = E \wedge X_+$ and $F(X, E) = F(X_+, E)$.

Lemma 0.1. *For finite G-sets K and L, $F_G(\underline{K}, \underline{L})$ is equivalent to $S_G \odot (K \times L)$.*

Proof. Since $\underline{K}$ is self-dual, we have

$$F_G(\underline{K}, \underline{L}) \simeq F_G(\underline{K}, S_G) \wedge \underline{L} \simeq \underline{K} \wedge \underline{L} \simeq S_G \odot (K \times L) \qquad \square$$

This determines the zeroth space up to equivalence as $Q_G(K \times L)_+$ and identifies its nonequivariant group of components as $\mathbb{Z}[K \times L]$. This is the nonequivariant components with G acting. Is the following pair of maps helpful?

$$F_G(\underline{K}, \underline{L}) \longleftarrow \Sigma^\infty_G F_G(\underline{K}, \underline{L})_0 \longrightarrow \Sigma^\infty_G \mathbb{Z}[K \times L]$$

$$F_G(\underline{L}, \underline{M}) \wedge F_G(\underline{K}, \underline{L}) \longrightarrow F_G(\underline{K}, \underline{M})$$

is

$$S_G \odot (L \times M \times K \times L) \longrightarrow S_G \odot (K \times M)$$

but there is no reason to think that this is $S_G \odot (-)$ as a G-map.