Inference System $\mathcal{H}$

Superposition right:

$$\frac{\Gamma' \to l \approx r \quad \Gamma \to s \approx t}{\Gamma'\sigma, \Gamma\sigma \to s[r]_p\sigma \approx t\sigma}$$

where:
$s|_p$ is not a variable, $\sigma = mgu(s|_p, l)$,
$l\sigma$ is strictly maximal in $\Gamma'\sigma \to l\sigma \approx r\sigma$,
$s\sigma$ is strictly maximal in $\Gamma\sigma \to s\sigma \approx t\sigma$.

Superposition left:

$$\frac{\Gamma' \to l \approx r \quad \Gamma, s \approx t \to \Delta}{\Gamma'\sigma, \Gamma\sigma, s[r]_p\sigma \approx t\sigma \to \Delta\sigma}$$

where:
$s|_p$ is not a variable, $\sigma = mgu(s|_p, l)$,
$l\sigma$ is strictly maximal in $\Gamma'\sigma \to l\sigma \approx r\sigma$,
$s\sigma$ is maximal in $\Gamma\sigma \to s\sigma \approx t\sigma$.

Equality Resolution:

$$\frac{\Gamma, s \approx t \to \Delta}{\Gamma\sigma \to \Delta\sigma}$$

where
$\sigma = mgu(s, t)$,
$s\sigma$ is maximal in $\Gamma\sigma \to \Delta\sigma$.