

$[scale = 0.8][thick](-4, -1) - -(-4, 1); at(-4.3, 1)$

$\langle \pi' \rangle$; at $(-4.3, -1)$ π' ;

$[-\jmath, thick](-4, -1) to [out=0, in=180](-4.5, 0); [red](-4, 0) circle(2pt); at(-4.9, 0) f'^t$;

at $(-5, -2)$ orange $\pi(e)$;

$[thick](1.5, -1) - (1.5, 1)$; at $(-0.6, 1)$ $\neg \langle \pi' \rangle$; at $(0.6, 1)$ $_i(\pi')$; at $(-0.6, -1)$ $\neg \langle \pi' \rangle$; at $(0.6, -1)$ $\neg \langle \pi' \rangle$;

$[red](-1.5, 0) circle(2pt)$; at $(-1.7, 0)$ blue $=$; at $(-1.7, -1)$ blue γ^t ;

$[-\jmath, blue, thick](1.5, 1) to [out=-180, in=0](-1.8, 0); [red](1.5, 0) circle(2pt)$; at $(2.1, 0)$ blue $=$; at $(2.1, -1)$ blue γ^t ;

at $(3.5, 1)$ $\neg \langle \pi' \rangle$; at $(4.5, 1)$ $_i(\pi')$; at $(5.5, 1)$ $\neg \langle \pi' \rangle$; at $(6.5, 1)$ $_i(\pi')$; at $(7.5, 1)$ $\neg \langle \pi' \rangle$; at $(8.5, 1)$ $_i(\pi')$; at $(9.5, 1)$ ϕ ;

at $(3.5, -1)$ $\neg \langle \pi' \rangle$; at $(4.5, -1)$ $\neg \langle \pi' \rangle$; at $(5.5, -1)$ $\neg \langle \pi' \rangle$; at $(6.5, -1)$ $\neg \langle \pi' \rangle$; at $(7.5, -1)$ $\neg \langle \pi' \rangle$; at $(8.5, -1)$ ϕ ;

$[thick](9.5, -1) - (9.5, 1)$; at $(10.5, 1)$ $same_i(\pi)$; at $(10.5, -1)$ $e'' = e^{t''}$; at $(10.5, -2)$ orange e ;

at $(-4.8, 0)$ $i=j$;

Case $\pi = i\varphi \cdot \pi'$ and $t, e'' \models \phi$.