$\pi_{\text{semaphore, route1, route2, sensor1, sensor2, te1, te2}}$
$\langle \text{semaphore}, \text{route1}, \text{route2}, \text{sensor1}, \text{sensor2}, \text{te1}, \text{te2} \rangle$

$\rhd \{\text{semaphore}, \text{route2}\}$
$\langle \text{te1}, \text{te2}, \text{route1}, \text{semaphore}, \text{sensor1}, \text{sensor2}, \text{route2} \rangle$

$\Uparrow_{(\text{route2 : Route})}^{(\text{semaphore : Semaphore})} \left[\text{entry : entry} \right]$
$\langle \text{route2}, \text{semaphore} \rangle$

$\sigma_{\text{route1} \neq \text{route2}}$
$\langle \text{te1}, \text{te2}, \text{route1}, \text{semaphore}, \text{sensor1}, \text{sensor2}, \text{route2} \rangle$

$\bowtie \{\text{sensor2}\}$
$\langle \text{te1}, \text{te2}, \text{route1}, \text{semaphore}, \text{sensor1}, \text{sensor2}, \text{route2} \rangle$

$\Uparrow_{(\text{route2 : Route})}^{(\text{sensor2 : Sensor})} \left[\text{g2 : gathers} \right]$
$\langle \text{route2}, \text{sensor2} \rangle$

$\bowtie \{\text{te2}\}$
$\langle \text{te1}, \text{te2}, \text{route1}, \text{semaphore}, \text{sensor1}, \text{sensor2} \rangle$

$\Uparrow_{(\text{te2 : TrackElement})}^{(\text{sensor2 : Sensor})} \left[\text{mb2 : monitoredBy} \right]$
$\langle \text{te2}, \text{sensor2} \rangle$

$\bowtie \{\text{te1}\}$
$\langle \text{te1}, \text{te2}, \text{route1}, \text{semaphore}, \text{sensor1} \rangle$

$\Uparrow_{(\text{te1 : TrackElement})}^{(\text{te2 : TrackElement})} \left[\text{ct : connectsTo} \right]$
$\langle \text{te1}, \text{te2} \rangle$

$\bowtie \{\text{sensor1}\}$
$\langle \text{route1}, \text{semaphore}, \text{sensor1}, \text{te1} \rangle$

$\Uparrow_{(\text{te1 : TrackElement})}^{(\text{sensor1 : Sensor})} \left[\text{mb1 : monitoredBy} \right]$
$\langle \text{te1}, \text{sensor1} \rangle$

$\bowtie \{\text{route1}\}$
$\langle \text{route1}, \text{semaphore}, \text{sensor1} \rangle$

$\Uparrow_{(\text{route1 : Route})}^{(\text{semaphore : Semaphore})} \left[\text{exit : exit} \right]$
$\langle \text{route1}, \text{semaphore} \rangle$

$\Uparrow_{(\text{route1 : Route})}^{(\text{sensor1 : Sensor})} \left[\text{g1 : gathers} \right]$
$\langle \text{route1}, \text{sensor1} \rangle$