$$
\begin{array}{rcll}
s & : & S & \text{String} \\
p & : & P & \text{Process ID} \\
c & : & C = \mathbb{N} & \text{Process Counter} \\
h & : & H = [P \times C] & \text{Causal History} \\
m & : & M = S \times P \times C \times H & \text{Message} \\
n & : & N = P \to C \times H & \text{Processes} \\
t & : & T = [M] & \text{Messages in Transit} \\
w & : & W = N \times T & \text{World} \\
w_0 & = & \langle (\lambda p.\, \langle 1, [] \rangle),\ [] \rangle & \text{Initial World}
\end{array}
$$

$\boxed{w \longrightarrow w'}$

$$
\frac{\langle c, h \rangle = n\ p \qquad m = \langle s, p, c, h \rangle}{\langle n,\ t \rangle \longrightarrow \langle n[p \mapsto \langle c + 1, \langle p, c \rangle :: h \rangle],\ m :: t \rangle}\ \textsc{Broadcast}
$$

$$
\frac{\langle c, h \rangle = n\ p \qquad \langle s, p_m, c_m, h_m \rangle \in t \qquad h_m \subseteq h \qquad \left[\langle p_m, c_m \rangle \notin h \right]}{\langle n,\ t \rangle \longrightarrow \langle n[p \mapsto \langle c, \langle p_m, c_m \rangle :: h \rangle],\ t \rangle}\ \textsc{Deliver}
$$