

Example 5.0.1 (Client/Server System)

Consider the process $C[url] \mid C[url] \mid S[url]$ modelling two clients and a sequential server, with the corresponding process identifiers defined as

$$C(url) := \nu ip.\overline{url}\langle ip \rangle.ip(s).s(x).C[url]$$

$$S(url) := url(y).\nu ses.\overline{y}\langle ses \rangle.\overline{ses}\langle ses \rangle.S[url].$$

The server is located at some URL, $S[url]$. To contact it, a client sends its ip address on the channel url . The server receives the IP address and—to establish a private connection with the client—creates a temporary session νses , which it passes to the client, $\overline{y}\langle ses \rangle$. Upon reception of the session, $ip(s)$, client and server continue to interact, which is not modelled explicitly. At some point, the server decides that the session has expired. It sends the session object itself to the client, $\overline{ses}\langle ses \rangle$, and becomes a server again, $S[url]$. The client receives the message, $s(x)$, and calls its recursive definition to be able to contact the server once more, $C[url]$. The model can contain several clients (two in our case), but the server is engaged with one client at a time. ♦

