

Definition (par). The parallel composition of two DPIS $dp_1 = \langle F_1, R_1, I_1, \text{prov}_1, \text{req}_1 \rangle$ and $dp_2 = \langle F_2, R_2, I_2, \text{prov}_2, \text{req}_2 \rangle$ is

$$\text{par}(dp_1, dp_2) := \langle F_1 \times F_2, R_1 \times R_2, I_1 \times I_2, \text{prov}, \text{req} \rangle,$$

where:

$$\begin{aligned} \text{prov} &: \langle i_1, i_2 \rangle \mapsto \langle \text{prov}_1(i_1), \text{prov}_2(i_2) \rangle, \\ \text{req} &: \langle i_1, i_2 \rangle \mapsto \langle \text{req}_1(i_1), \text{req}_2(i_2) \rangle. \end{aligned} \tag{0.1}$$