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

$$\mathrm{par}(\mathrm{dp}_1, \mathrm{dp}_2) := \langle F_1 \times F_2, R_1 \times R_2, I_1 \times I_2, \mathrm{prov}, \mathrm{req} \rangle,$$

where:

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