

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

$$\text{series}(dp_1, dp_2) \doteq \langle F_1, R_2, I, \text{prov}, \text{req} \rangle,$$

where:

$$I = \{ \langle i_1, i_2 \rangle \in I_1 \times I_2 \mid \text{req}_1(i_1) \leq_{R_1} \text{prov}_2(i_2) \}, \quad (0.1)$$

$$\text{prov} : \langle i_1, i_2 \rangle \mapsto \text{prov}_1(i_1), \quad (0.2)$$

$$\text{req} : \langle i_1, i_2 \rangle \mapsto \text{req}_2(i_2). \quad (0.3)$$