Definition (DPI composition). The series composition of two DPIs

$$\mathbf{f}_1 = \langle \mathbf{F}_1, \mathbf{R}_1, \mathbf{I}_1, \mathsf{prov}_1, \mathsf{req}_1 \rangle,$$

 $\mathbf{f}_2 = \langle \mathbf{F}_2, \mathbf{R}_2, \mathbf{I}_2, \mathsf{prov}_2, \mathsf{req}_2 \rangle,$

for which $\mathbf{F}_2 = \mathbf{R}_1$, is defined as

$$(\mathbf{f}_1 \stackrel{\circ}{,} \mathbf{f}_2) := \langle \mathbf{F}_1, \mathbf{R}_2, \mathbf{I}, \text{prov}, \text{req} \rangle,$$

where:

$$I = \{[i_1 \; ; \; i_2] \in (I_1 \; ; \; I_2) \mid req_1(i_1) \leq_{\mathbf{R}_1} prov_2(i_2)\},$$

$$prov : \quad [i_1 \; ; \; i_2] \mapsto prov_1(i_1),$$

$$req : \quad [i_1 \; ; \; i_2] \mapsto req_2(i_2).$$