Definition (Design problem with implementation). A *design problem with implementation* (DPI) is a tuple

$$\langle F, R, I, \mathsf{prov}, \mathsf{req} \rangle$$

where:

▷ F is a poset, called *functionality* space;
▷ R is a poset, called *requirements* space;
▷ I is a set, called *implementation* space;
▷ the map $\mathsf{prov} \colon I \to F$ maps an implementation to the functionality it provides;
▷ the map $\mathsf{req} \colon I \to R$ maps an implementation to the resources it requires.