Definition (Design problem with implementation)

A design problem with implementation (DPI) is a tuple

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

where:

- ▶ **F** is a poset, called *functionality space*;
- ▶ R is a poset, called requirements space;
- ▶ I is a set, called implementation space;
- > the map prov: $I \rightarrow F$ maps an implementation to the functionality it provides;
- \triangleright the map req: $I \rightarrow R$ maps an implementation to the resources it requires.