## An analysis object factory

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#### The "analysis factory"

The creation of EventDump and ElementReco objects is delegated to a class AnalysisFactory object.

- All analyzers derive from the common AnalysisSteering interface.
- The concrete analyzers must be known by the objects creating them.



#### **Requirements**

- We want avoid an explicit dependence of AnalysisFactory on the concrete analyzers.
- We want avoid the need of modifying AnalysisFactory when new analyzers are available.

In this way the flexibility of the system is significantly improved.

#### Analysis builder

We create an AbsFactory interface, with a virtual function create returning a pointer to AnalysisSteering.

- A concrete factory, e.g. EventDumpFactory:
  - is a class deriving from AbsFactory ,
  - implements create to return a concrete analyzer, e.g. EventDump .
- In an analogous way:
  - ElementRecoFactory creates an ElementReco,
  - other concrete factories create other possible objects inheriting from AnalysisSteering.
- AnalysisFactory holds a list of pointers to AbsFactory.

#### AbsFactory **list fill**



How do we create the AbsFactory objects and fill the list of their pointers in AnalysisFactory ?

- In AnalysisFactory we provide a static function taking a pointer to AbsFactory as parameter, and saving it in the list.
- In the constructor of AbsFactory that function is called giving this as parameter.
- We create static concrete AbsFactorys, so that:
  - they're created at the execution start,
  - when they're created, the AbsFactory constructor is run,
  - they're automatically registered in the list.

#### AbsFactory names

# We want to decide at runtime which analyzers are to be created and run.

- In AnalysisFactory we store pointers to AbsFactory into a std::map, using std::strings as key.
- Each AbsFactory is identified by its name.
- The function create in AnalysisFactory selects only AbsFactory whose name is given in the command line, and runs their create function.