ASIS 95

The ASIS interface for Ada 95

ASIS 95 Panel, Ada-Europe ´96

ASIS Interface

A set of packages used for querying the Ada environment

» Environment

– compilation units as black boxes

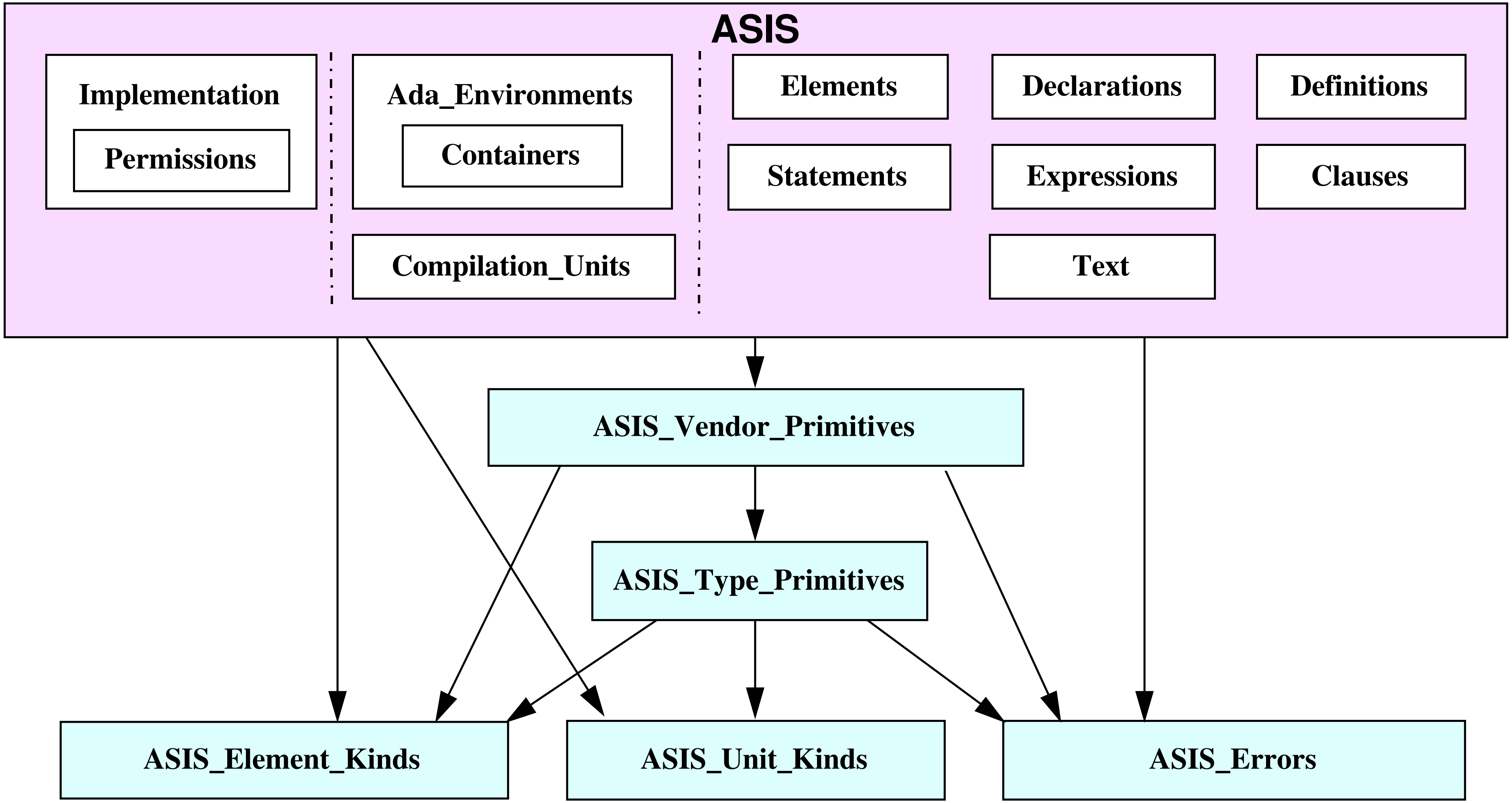
– relations between compilation units

» Compilation units as white boxes

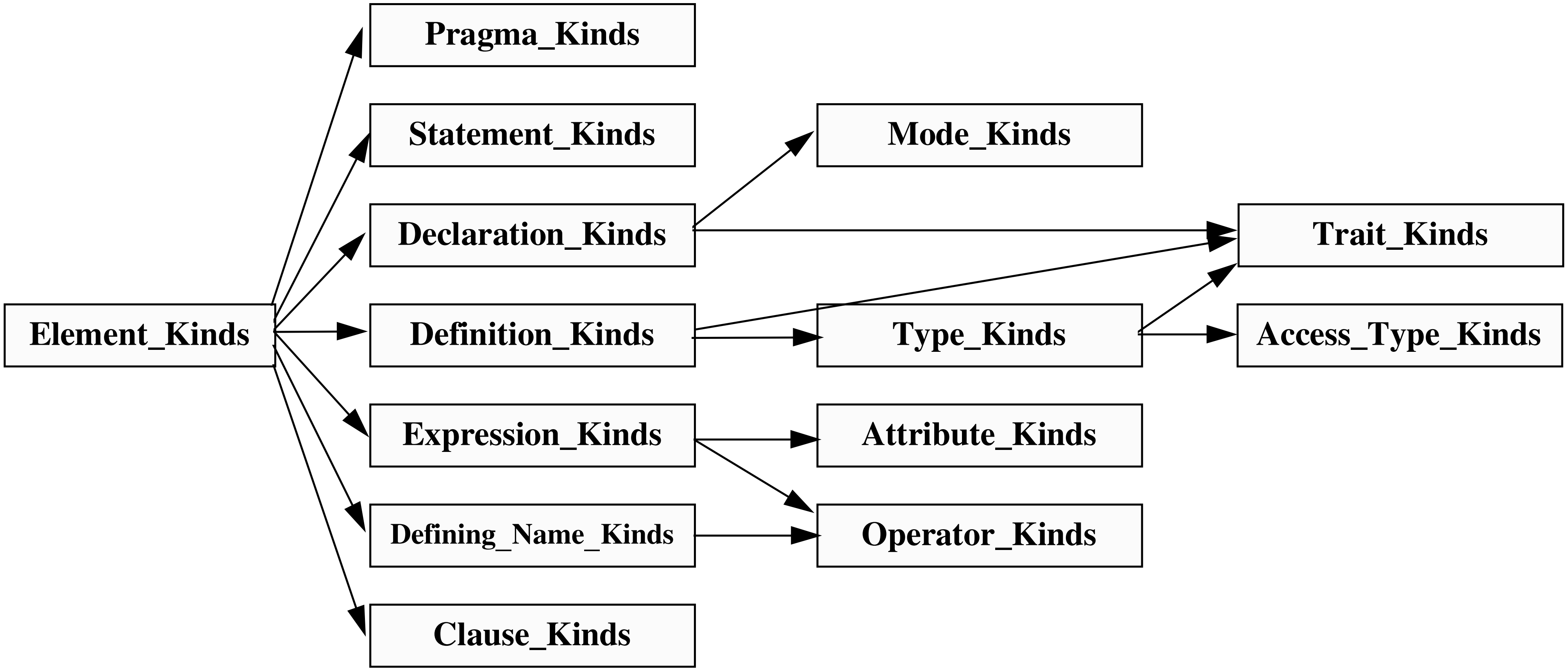
– syntactic information

– semantic information

ASIS Overview



Asis_Element_Kinds



Asis.Ada_Environments

- *Context* represents ASIS view of Ada environment: a set of compilation units
- Also support for source-based libraries
- Operations:

```
procedure Associate( Context    : in out Asis.Context;
                     Name       : in     Asis.Asis_String;
                     Parameters : in     Asis.Asis_String );
function Exists( Context : in Asis.Context ) return Boolean;
procedure Open( Context : in out Asis.Context );
```

- Further operations: `Close, Dissociate, Is_Open, Name, Default_Name, Default_Parameters, ...`

Asis.Compilation_Units

- Black box view of units
  - » Attributes: kind, text file name, can-be-main
  - » Relationships: supporters, closure, ...
- Operations:

```
function Library_Unit_Declaration( Name    : String;
                                   Context : Asis.Context )
                                 return Asis.Compilation_Unit;
function Corresponding_Body( Library_Item : Asis.Compilation_Unit )
                           return Asis.Compilation_Unit;
```

- Further operations: `Has_Attribute, Semantic_Dependence_Order, Elaboration_Order, Subunits, Corresponding_Children, Text_Name, Unit_Kind, ...`

Asis.Elements

- White box view of units
- Queries that operate on all elements
- Operations:

```
function Unit_Declaration( Unit : Asis.Compilation_Unit )
                          return Asis.Declaration;
function Declaration_Kind( Element : Asis.Declaration )
                          return Asis.Declaration_Kinds;
generic
   type State_Information is limited private;
   with procedure Pre_Operation( ... );
   with procedure Post_Operation( ... );
procedure Traverse_Element( Element : in     Asis.Element;
                            Control : in out Traverse_Control;
                            State   : in out State_Information );
```

- Further operations: `Element_Kind, Type_Kind, Enclosing_Element, ...`

Asis.Declarations

- Querying declarations
- Syntactically:

```
function Names( Declaration : Asis.Declaration )
                return Asis.Defining_Name_List;
function Initial_Value( Declaration : Asis.Declaration )
                        return Asis.Expression;
function Parameter_Profile( Declaration : Asis.Declaration )
                            return Asis.Parameter_Specification_List;
```

- Semantically:

```
function Corresponding_Type_Declaration( Decl : Asis.Declaration )
                                         return Asis.Declaration;
```

Asis.Text

- Access to the text of ASIS elements
- Operations:

```
function Element_Span( Element : Asis.Element ) return Asis.Span;
function Line_Image( Line : Asis.Line ) return Asis.Asis_String;
function Element_Image( Line : Asis.Element )
                        return Asis.Asis_String;
```

Asis_Errors

- Defines kinds of errors
  - » Inappropriate_Element, Inappropriate_Line, ...
- All errors reported by raising an exception
- Status and Diagnosis values supplied to indicate cause of error
  - » Initialization_Error, Name_Error, ...