A.2 Structuring

An XML document is well-formed if it respects certain syntactic rules. However, those rules say nothing specific about the structure of the document. Now, imagine two applications that try to communicate, and that wish to use the same vocabulary. For this purpose it is necessary to define all the element and attribute names that may be used. Moreover, the structure should also be defined: what values an attribute may take, which elements may or must occur within other elements, and so on.

In the presence of such structuring information we have an enhanced possibility of document validation. We say that an XML document is *valid* if it is well-formed, uses structuring information, and respects that structuring information.

There are two ways of defining the structure of XML documents: DTDs, the older and more restricted way, and XML Schema, which offers extended possibilities, mainly for the definition of data types.

A.2.1 DTDs

External and Internal DTDs

The components of a DTD can be defined in a separate file (*external DTD*) or within the XML document itself (*internal DTD*). Usually it is better to use external DTDs, because their definitions can be used across several documents; otherwise duplication is inevitable, and the maintenance of consistency over time becomes difficult.

Elements

Consider the element

```
<lecturer>
  <name>David Billington</name>
  <phone>+61-7-3875 507</phone>
</lecturer>
```