

from the previous section. A DTD for this element type<sup>1</sup> looks like this:

```
<!ELEMENT lecturer (name,phone)>
<!ELEMENT name (#PCDATA)>
<!ELEMENT phone (#PCDATA)>
```

The meaning of this DTD is as follows:

- The element types lecturer, name, and phone may be used in the document.
- A lecturer element contains a name element and a phone element, in that order.
- A name element and a phone element may have any content. In DTDs, #PCDATA is the only atomic type for elements.

We express that a lecturer element contains either a name element or a phone element as follows:

```
<!ELEMENT lecturer (name|phone)>
```

It gets more difficult when we wish to specify that a lecturer element contains a name element and a phone element *in any order*. We can only use the trick

```
<!ELEMENT lecturer ((name,phone)|(phone,name))>
```

However, this approach suffers from practical limitations (imagine ten elements in any order).

## Attributes

Consider the element

---

<sup>1</sup>The distinction between the element type lecturer and a particular element of this type, such as David Billington, should be clear. All particular elements of type lecturer (referred to as lecturer elements) share the same structure, which is defined here.