

4.E. Conditional Statements

A *conditional statement* selects a single statement of its component statements for execution. Pascal offers two kinds of conditional statements, the *if* and *case* statements.

4.E.1 The *if* statement

The *if statement* specifies that a statement be executed only if a certain condition (Boolean expression) is true. If it is false, then either no statement or the statement following the symbol `else` is executed.

The form of an *if* statement is:

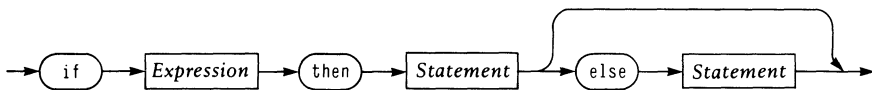


Figure 4.m Syntax diagram for *IfStatement*

The expression between the symbols `if` and `then` must be of type `Boolean`. Note that the first form may be regarded as an abbreviation of the second when the alternative statement is the empty statement. Caution: there is never a semicolon before an `else`! Hence, the text:

```
if P then begin S1; S2; S3 end; else S4
```

is incorrect. More deceptive is the text:

```
if P then; begin S1; S2; S3 end
```

Here, the statement controlled by the `if` is the empty statement between the `then` and the semicolon; hence, the compound statement following the *if* statement will always be executed.

The syntactic ambiguity arising from the construction:

```
if expression1 then if expression2 then statement1
else statement2
```

is resolved by interpreting this construction as equivalent to