

## Automatic Horizontal and Vertical Player-Missile Movement

### PRATE

To use the built-in mechanism for automatically moving a figure, you need to specify its horizontal and vertical speed using the PRATE command. Its format is

PRATE integerexpress,integerexpress,integerexpress,integerexpress

The first integerexpression determines which player-missile you are working with (Table 14-1). The second integerexpression sets the horizontal speed and the third integerexpression sets the vertical speed. The fourth integerexpression sets the rate at which changes are made in the figure itself. I will discuss this later in the chapter. For now, let's just keep it 0. Speeds around 256 provide moderate and smooth motion. 32767 is the maximum. Motion is so fast for speeds greater than a few thousand, that the effect is rather weird. Speeds which divide evenly into 256 (e.g., 128, 64, etc.) and speeds which are multiples of 256 (e.g., 512, 768, etc.) give the smoothest motion. Positive horizontal speeds give motion to the right and negative give motion to the left. Positive vertical speeds give downward motion and negative give upward motion. Note that figures going off one edge of the screen will reappear at the opposite edge.

Sometimes you want motion to begin immediately after the PRATE command and sometimes you want to wait. For example, you may be trying to synchronize the motion of several figures. If you want the PRATE command to start the motion, you must add 256 to the first integerexpression. The following line sets movement rates for player 1 and then actually starts the motion:

```
100 PRATE 257%,256%,256%,0%
```

You can also use PRATE to stop the automatic motion of a player or missile by adding 512 to the first integerexpression. The following line stops the automatic motion of player 1:

```
100 PRATE 513%,0%,0%,0%,
```

I should mention that you can use PRATE to change the speed of a player already moving. For example, the following line changes the horizontal speed of player 1 to 512:

```
100 PRATE 1%,512%,256%,0%
```

### PCONTROL

PCONTROL lets you synchronize the movement of players and missiles. You must first give PDISPLAY and PRATE commands for each player and missile you want to move. (In the PRATE commands, do not add 256.) Then you can use the PCONTROL command to simultaneously start or stop all players and missiles. The format of PCONTROL is

PCONTROL integerexpress,integerexpress,integerexpress,integerexpress

The first integerexpression controls player-missile 0, the second controls player-missile 1, etc. The following chart shows how the value of the