Mathematics 308—Fall 1996

Arrays in PostScript

An array in PostScript is a list of items enclosed in square brackets. We have already seen them in talking about the CTM, but the CTM was a special array with special operations to handle it.

Arrays can be built in a number of ways, but the best is just to put **`[`** on the stack, followed by the items you want in it, followed by **`]`**. When you put the **`]`** there, the items back to the last **`[`** are loaded into one array, which is put on the stack.

If you want to access an array element, you put (1) the array on the stack, followed by (2) the index of the item you want, followed by (3) the command **`get`**. The sequence

```
/u [ 1 2 3 ] def
u 0 get
```

defines u to be an array of three numbers, then puts **`u[0]`** on the stack. The indices in an array of N items go from 0 to $N-1$, and if you try to access something else you will get a **`rangecheck`** error.

If you want to put something into an array that already exists: (1) you put the array on the stack, followed by (2) the index of the place you want to put something, followed by (3) the item you want to put there, followed finally by (4) the command **`put`**.

```
u 1 4 put
```

will change u to $[1\ 4\ 3]$.

Arrays can be of any length, and can hold any type of items. The entries in an array do not even have to be of the same type. You can even have arrays of arrays. That is the way we shall implement our own $3D$ matrix routines later on in this course.