C Strings

Strings

- Strings versus Single characters
- Pointers versus Arrays
- Accessing Array of Strings with Pointers

Strings

- Strings are arrays of characters treated as a single unit and terminated by '**\0**' (null).

- The **\0** occupies one char in the array of characters.

H	e	l	l	o	\0

Strings

- A string is accessed by a pointer to the first character in the string.

- Since the **value** of a string is the **address** of its first character, in C a **string is a pointer!**
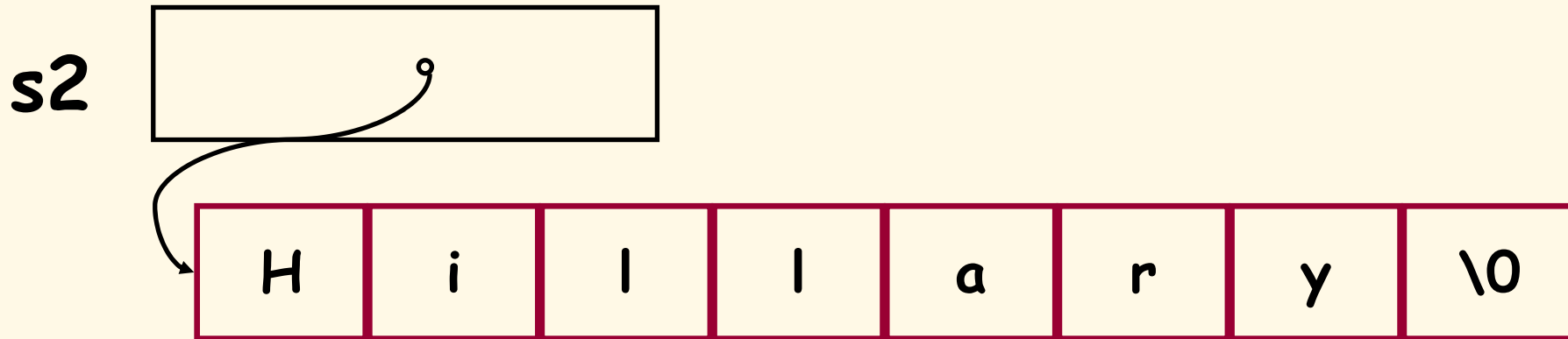
Character Strings

char c = 'W';   c | W |

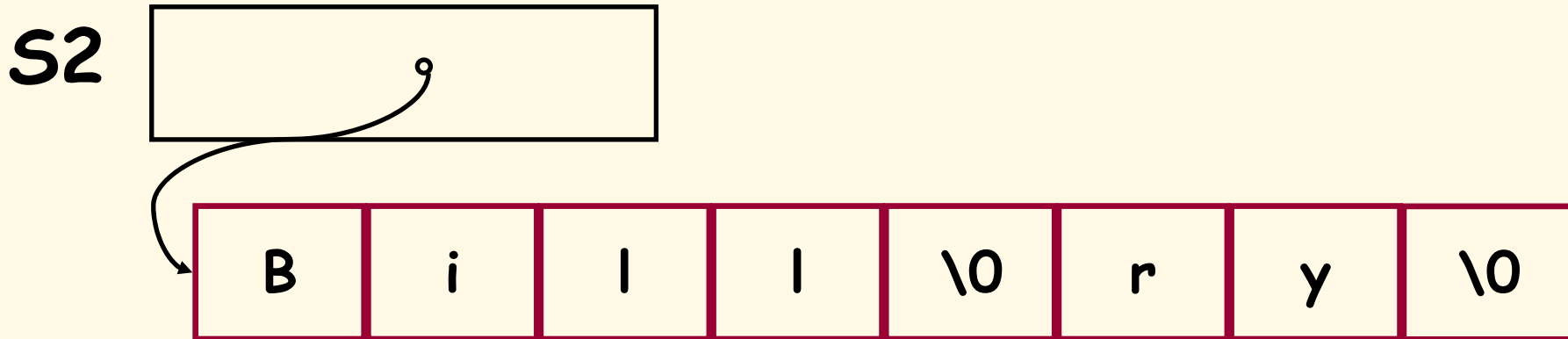char *s = "George Bush"

char s2[] = "Hillary"

s2 [   ]

| H | i | l | l | a | r | y | \0 |

s2[0] = 'B';

s2[4] = '\0';

S2

B	i	l	l	\0	r	y	\0

printf("%s\n", s2);

Character Strings

- A string can be stored into an array using scanf.

```
char president[20];
scanf ("%s", president);
```

An Array of Strings Example

```
/* An Example of an Array of Strings accessed using a string pointer  */
int main ()
{
  int i,j;
  char let = 'A';
  char cray [3][10];
  char *cptr[3];
  for (j=0; j<3; j++)
   cptr[j] = &cray [j][0];
  for (j=0; j<3; j++)
   { let = let +1;
    for (i=0; i<9; i++)
     cray [j][i] = let + i;
    cray [j][9] = '\0';
   }
  for (j=0; j<3; j++)
   printf("j = %d, char = %s\n", j, cptr[j]);
  return 0;
}
```

```
./charray
j = 0, char = BCDEFGHIJ
j = 1, char = CDEFGHIJK
j = 2, char = DEFGHIJKL
```

More on Strings!!

- not right now

- Read parts of Chapter 8 for Program 4

WPI