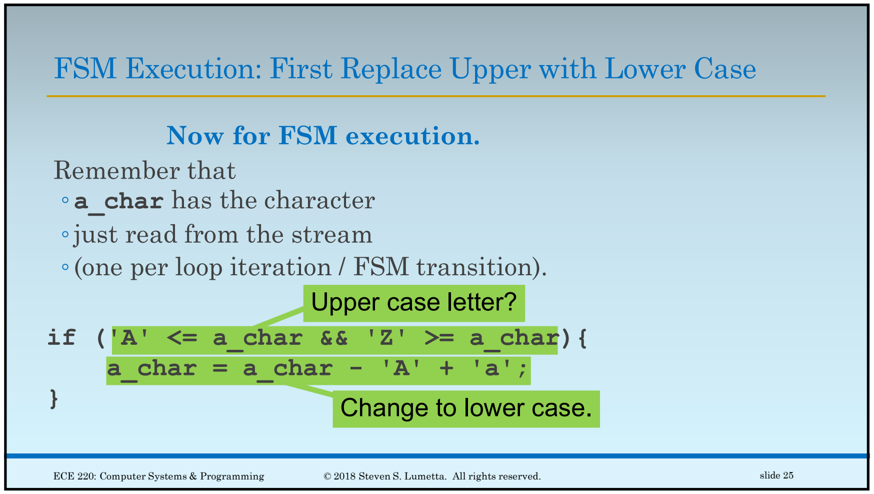

FSM Execution: First Replace Upper with Lower Case

Now for FSM execution.

Remember that

- **a_char** has the character
- just read from the stream
- (one per loop iteration / FSM transition).

Upper case letter?

```
if ('A' <= a_char && 'Z' >= a_char){
    a_char = a_char - 'A' + 'a';
}
```

Change to lower case.

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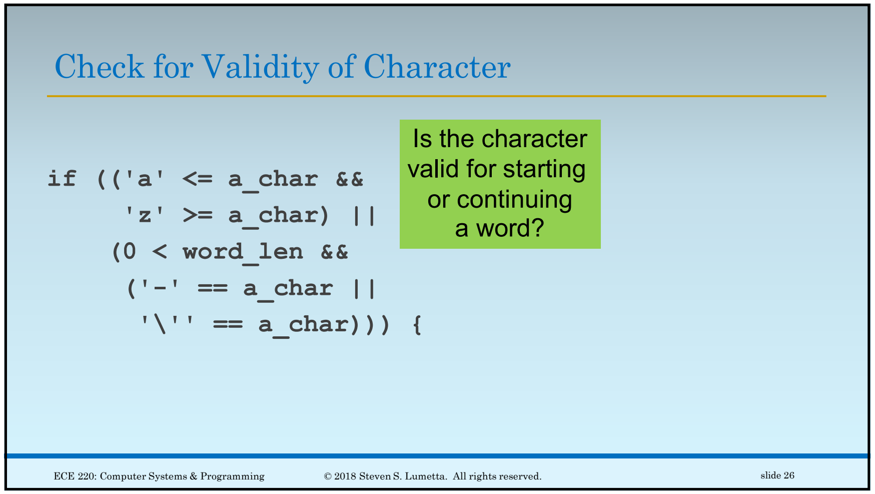

Check for Validity of Character

```
if (('a' <= a_char &&
     'z' >= a_char) ||
    (0 < word_len &&
     ('-' == a_char ||
      '\'' == a_char))) {
```

Is the character valid for starting or continuing a word?

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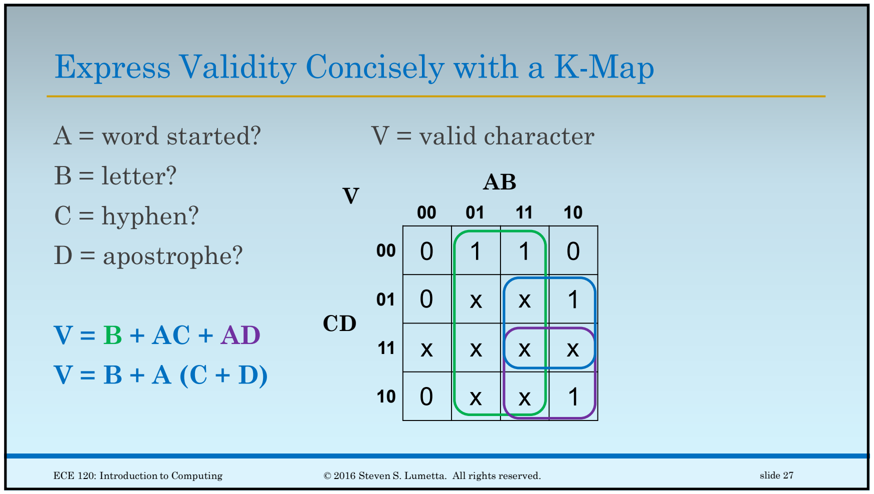

Express Validity Concisely with a K-Map

A = word started?

B = letter?

C = hyphen?

D = apostrophe?

V = valid character

V (CD \ AB)	00	01	11	10
00	0	1	1	0
01	0	x	x	1
11	x	x	x	x
10	0	x	x	1

V = B + AC + AD

V = B + A (C + D)

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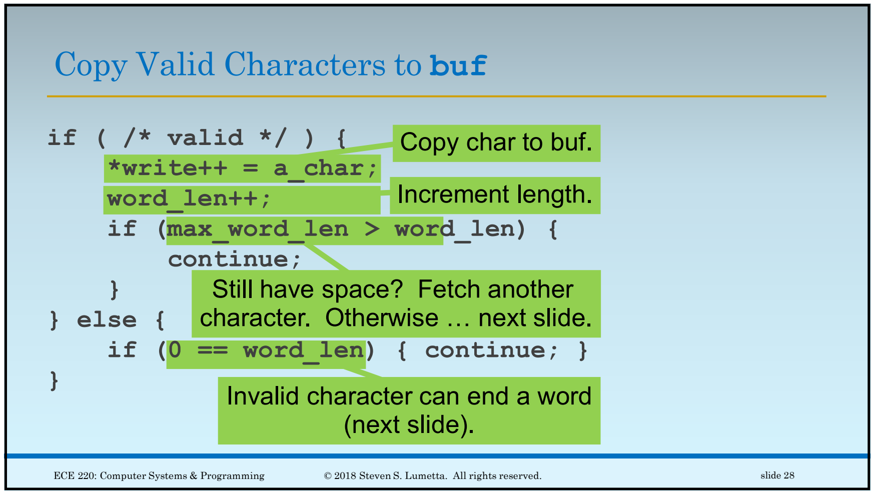

Copy Valid Characters to **buf**

```
if ( /* valid */ ) {
    *write++ = a_char;
    word_len++;
    if (max_word_len > word_len) {
        continue;
    }
} else {
    if (0 == word_len) { continue; }
}
```

Copy char to buf.

Increment length.

Still have space? Fetch another character. Otherwise … next slide.

Invalid character can end a word (next slide).

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