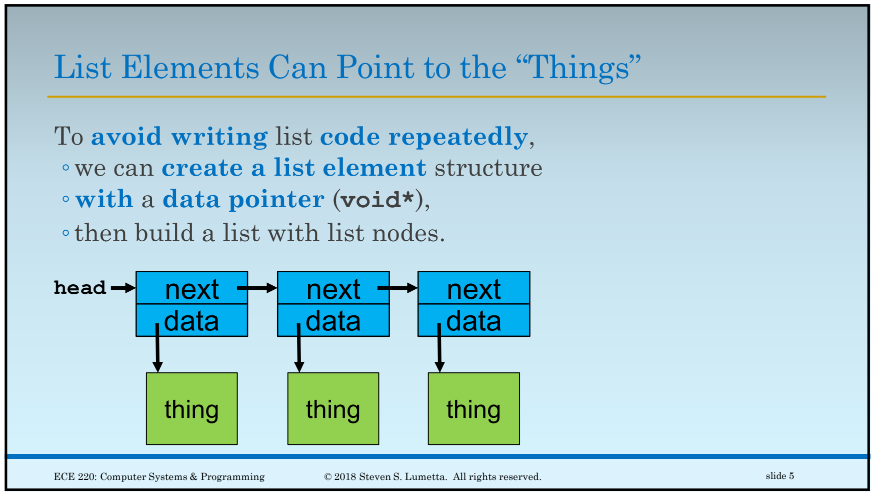
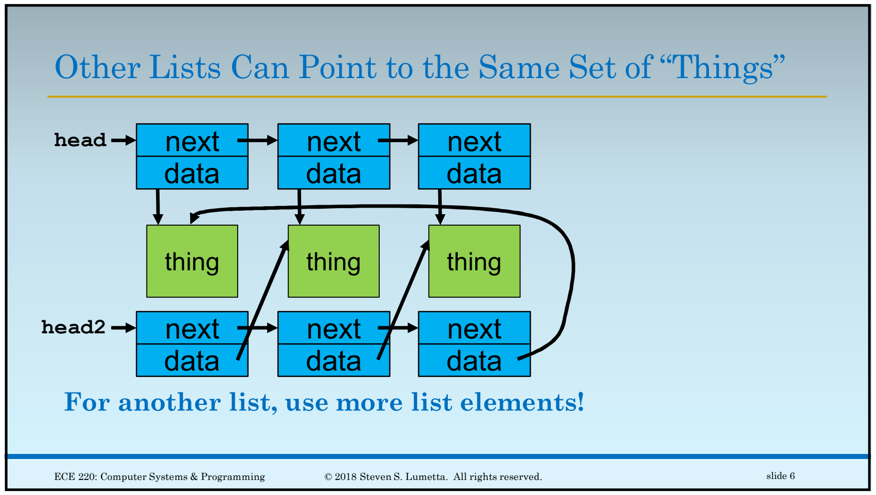


List Elements Can Point to the "Things"

To **avoid writing** list **code repeatedly**,
- we can **create a list element** structure
- **with** a **data pointer** (`void*`),
- then build a list with list nodes.

head
next
data
next
data
next
data
thing
thing
thing

5

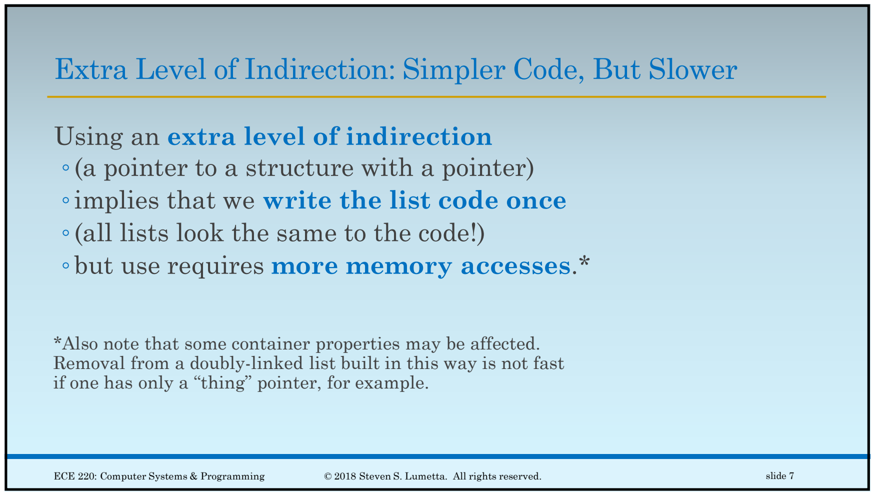


Other Lists Can Point to the Same Set of "Things"

head
next
data
next
data
next
data
thing
thing
thing
head2
next
data
next
data
next
data

For another list, use more list elements!

6

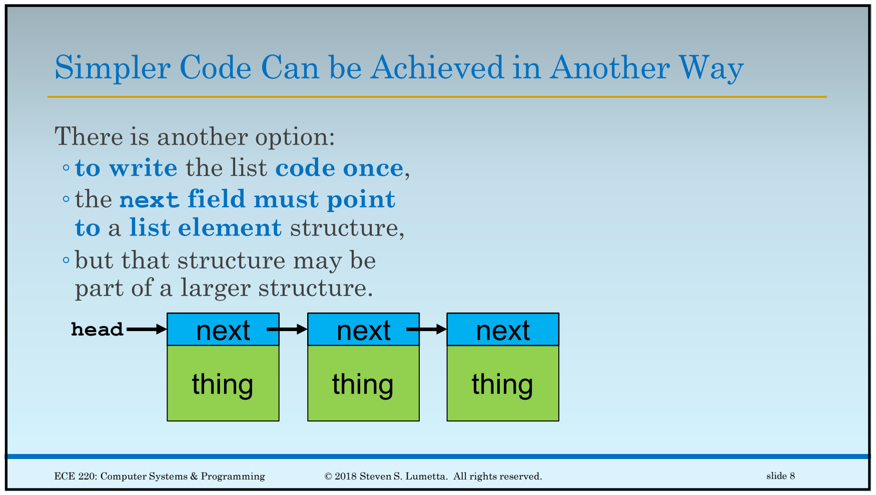


Extra Level of Indirection: Simpler Code, But Slower

Using an **extra level of indirection**
- (a pointer to a structure with a pointer)
- implies that we **write the list code once**
- (all lists look the same to the code!)
- but use requires **more memory accesses**.*

*Also note that some container properties may be affected. Removal from a doubly-linked list built in this way is not fast if one has only a "thing" pointer, for example.

7



Simpler Code Can be Achieved in Another Way

There is another option:
- **to write** the list **code once**,
- the **next field must point to** a **list element** structure,
- but that structure may be part of a larger structure.

head
next
thing
next
thing
next
thing

8