

University of Illinois at Urbana-Champaign
Dept. of Electrical and Computer Engineering

ECE 220: Computer Systems & Programming

Pointer-Based Data Structures

Can We Speed Up Deletion from Linked Lists?

Can we speed up deletion from a linked list?

To delete `p`, we need to find `p`'s predecessor.

Any ideas?

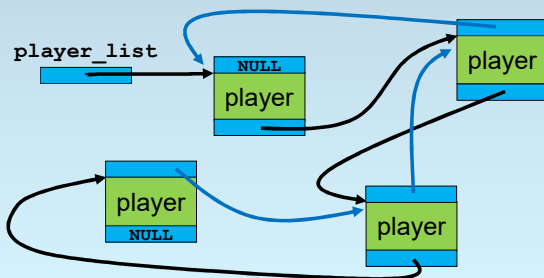
Why not **add a second `player_t*`**?

We can **call it `prev`**.

Doing so gives us **a doubly-linked list**.

There are Many Ways to Doubly-Link a List

Drawn somewhat sloppily...



Use a Sentinel and a Cyclic List to Simplify the Code

One good way,

- where “good” means that
- both insertion and deletion are simple,
- is to **use a sentinel**:

```
static player_t player_list;
```

Notice that `player_list` is not a pointer.

It's a fake player for use as a sentinel.

To avoid `NULL`, **the list is then cyclic**.