

COMP6991 23T3

Ownership & Borrowing

Owned vs Copy

...somewhat recapped

- > What does it mean to be an "owned" type
- > What types are Copy?
- > Can I make a new Copy type?

Cascading ownership

If X owns Y and Y owns Z...

> Example: Student name

Ownership sucks!

(for legal reasons this is a joke)

> Example: `pain.rs`

The perils of *shared mutability*

(we're going to spend a lot of time here)

Otherwise known as:

"Shared mutable state gonna hurt you!" ~jashankj

Shared borrows

> Example: `shared.rs`

Shared borrows

Superpowers:

- > Can be shared infinitely many times
- > Very cheap to pass to fns

Limitations:

- > Cannot mutate data: read-only.
- > Cannot take any exclusive borrows during its lifetime

Exclusive borrows

> Example: `exclusive.rs`

Exclusive borrows

Superpowers:

- > Can mutate data without taking ownership
- > Very cheap to pass to fns

Limitations:

- > Cannot take any further exclusive borrows during its lifetime
- > Cannot take any shared borrows during its lifetime

Dangling references

> Example: `dangling.rs`