- local SAFETY: will not outlive its region, may be stack allocated
- local REQUIREMENT: do not escape region
- local parameter isn't a requirement, it's a behavior guarantee
- global function can't capture local values
- No heap to stack pointer
- XING: Applies only to non immediate data

## $U_{past}$

unique < aliased

many < once

Affinity future

- unique LINEAGE: has not been aliased
- unique Entitlement: may be overwritten
- XING: Applies only to mutable and mutable containing data
- once SAFETY: function will not create an alias
- once REQUIREMENT: zero or one call allowed
- many function can't capture unique values
- Function capturing unique is once
- XING: Applies only to functions and function containers

## Contention past

 ${\tt uncontended} < {\tt shared} < {\tt contended}$ 

portable < nonportable

Portability future

- Non contended LINEAGE: value retains access lock
- ENTITLEMENT:
  - uncontended: may be read or written
  - share: may only be read
- XING: Applies only to mutable and mutable containing data
- nonportable SAFETY: function will not break captured non contended lineage
- nonportable REQUIREMENT: ...
- portable function can't capture non contended value
- Function capturing non contended is nonportable
- XING: Applies only to functions and function containers

unyielding < yielding

 $\operatorname{Yielding}_{\mathit{future}}$ 

- yielding SAFETY: function will not perform effect handled in parent stack
- yielding REQUIREMENT: ...
- XING: Applies only to functions and function containers

## Visibility

 ${\tt read\_write} < {\tt read} < {\tt immutable}$ 

stateless < observing < stateful

 ${f State fulness}_{future}$ 

- Non immutable LINEAGE: value ...
- ENTITLEMENT:
  - read\_write: may be read or written
  - read: may only be read
- XING: Applies only to mutable and mutable containing data
- SAFETY:
  - observing: will not W on captured read\_write data
  - stateful: will not read or write over captured non immutable data
- REQUIREMENT:
  - observing: no write
  - stateful: value ...
- XING: Applies only to functions and function contain-