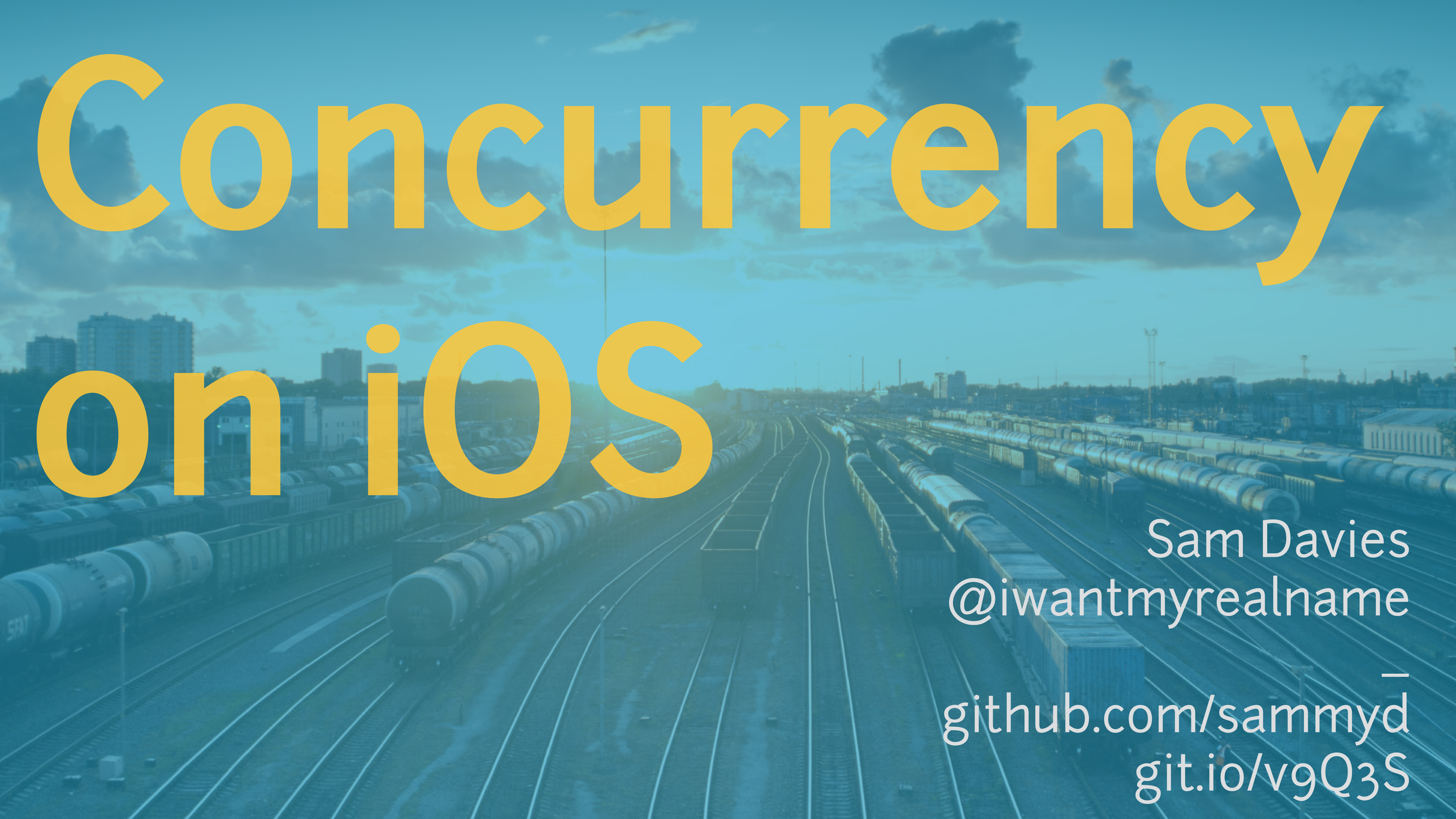
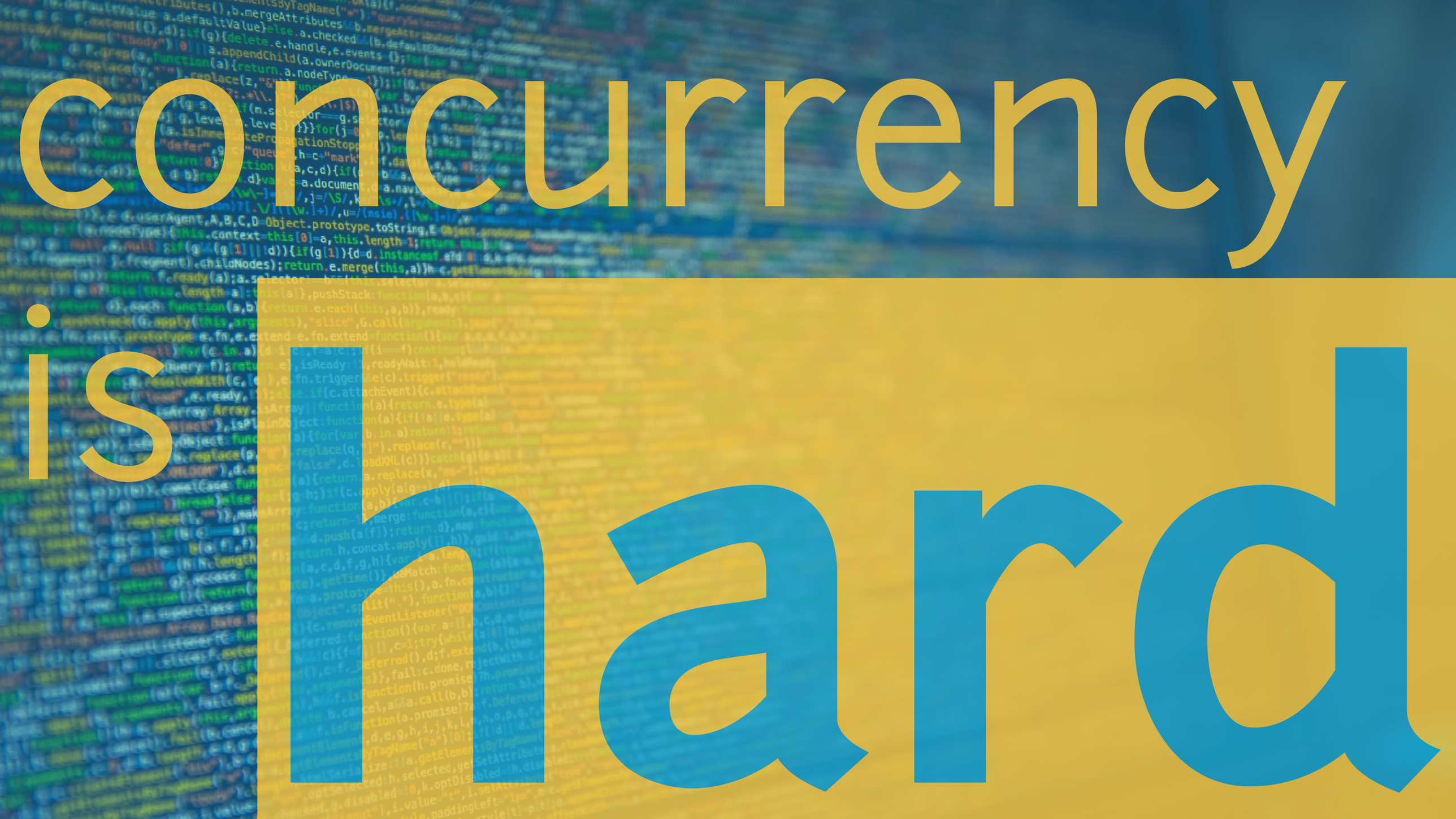


Concurrency on iOS

Sam Davies
@iwantmyrealname

github.com/sammyd_
git.io/v9Q3S


concurrency
is
hard


what is
concurrency?


why use
concurrency?

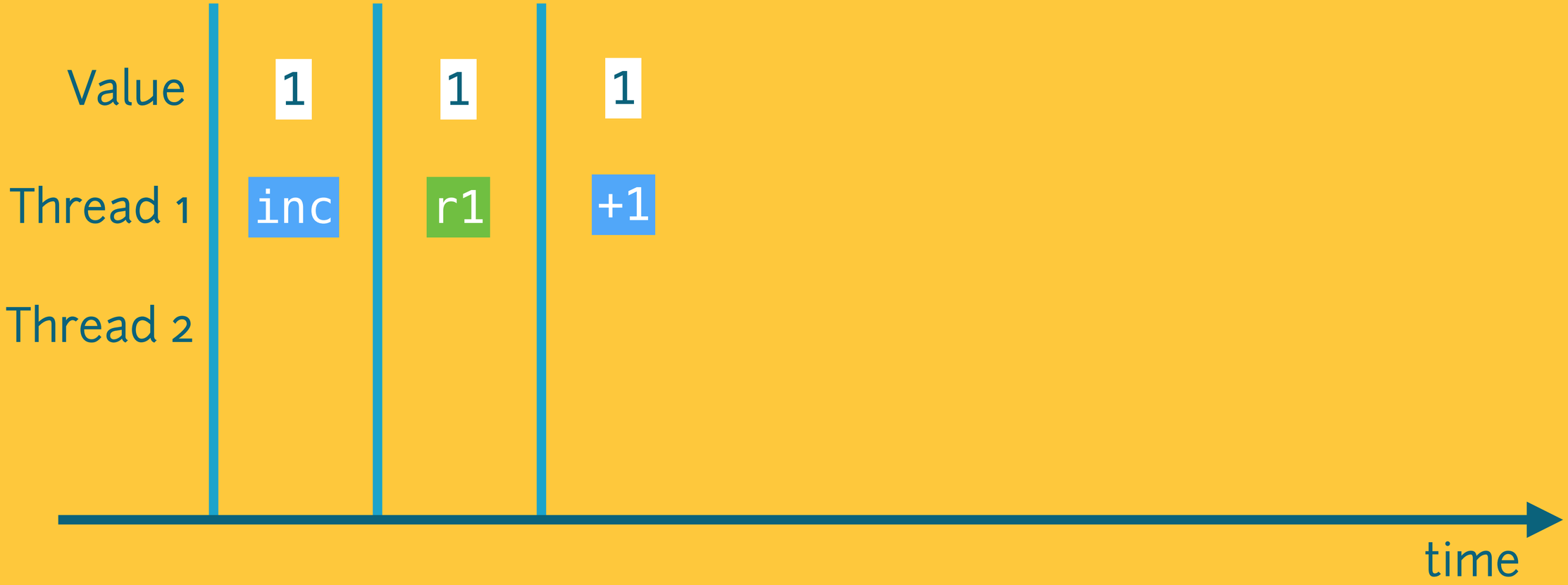

common
concurrency
problems


race condition

Race Condition

Race Condition

Race Condition



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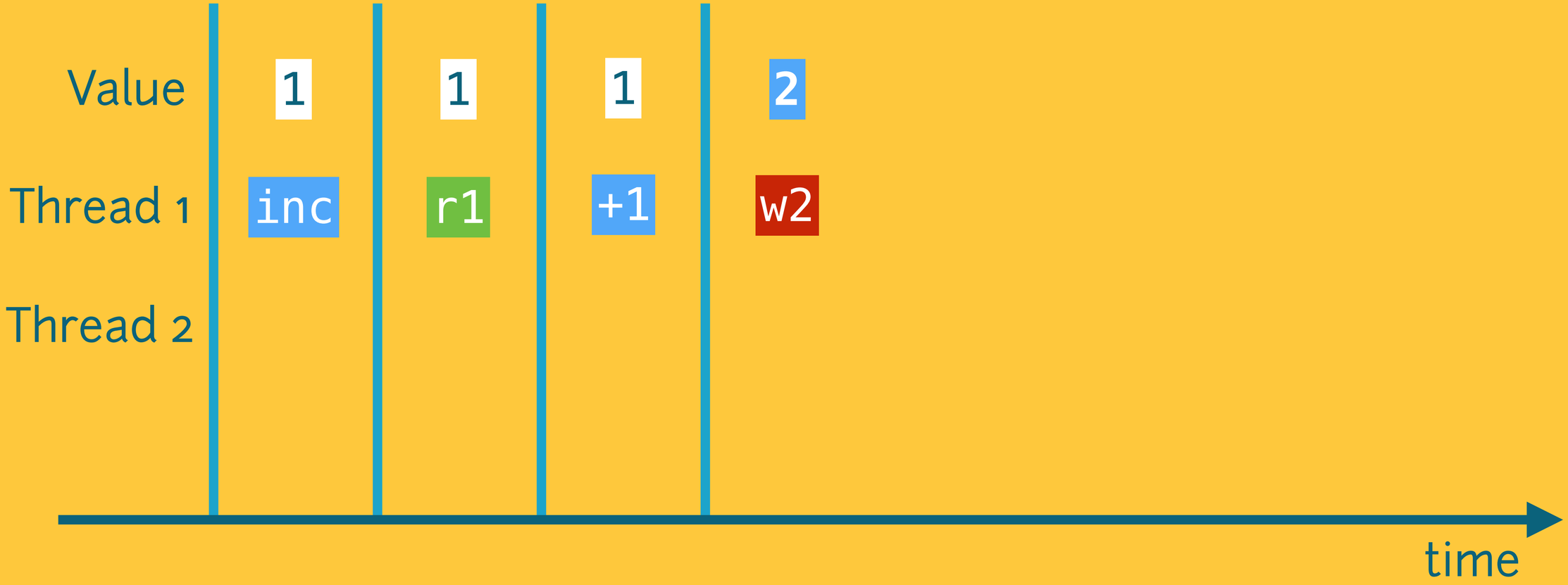

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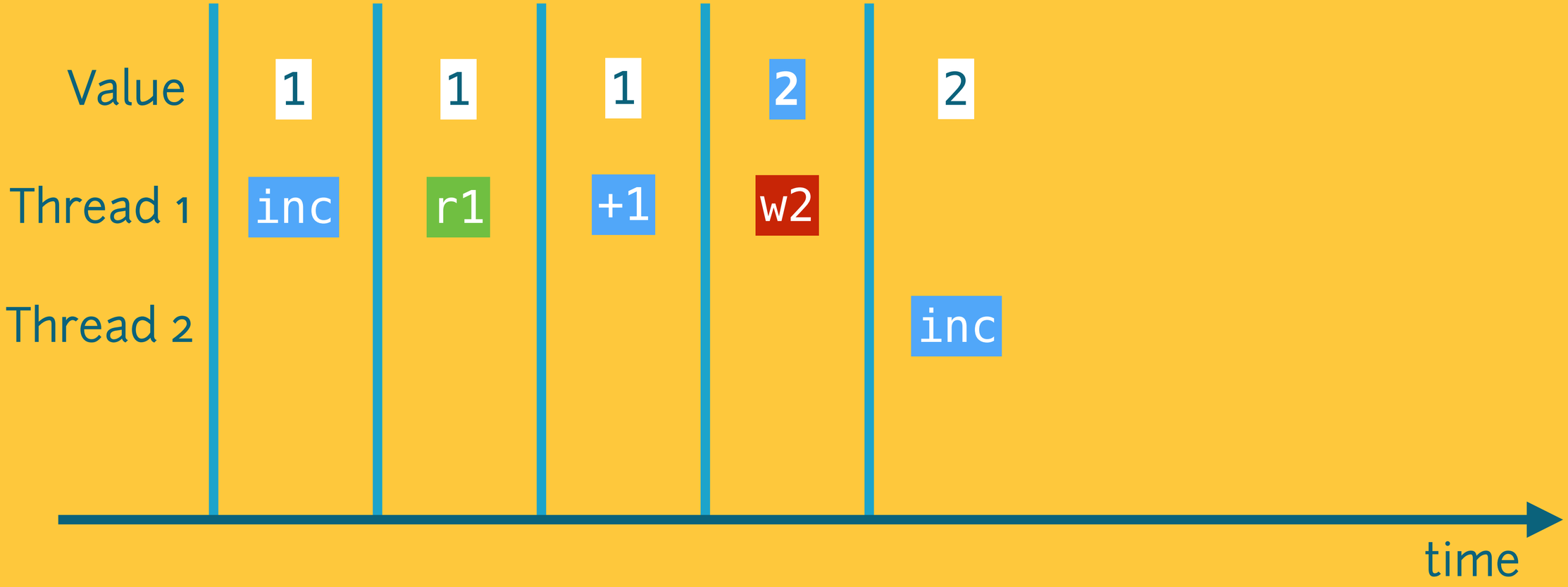
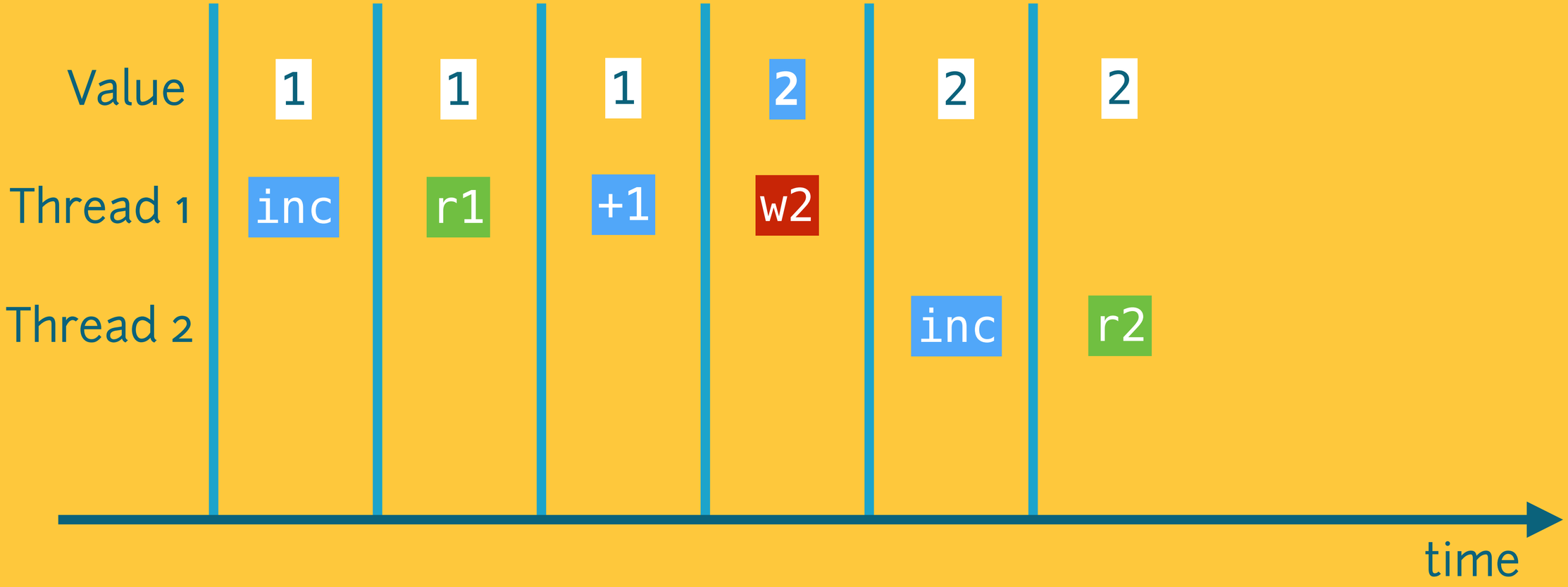


Race Condition



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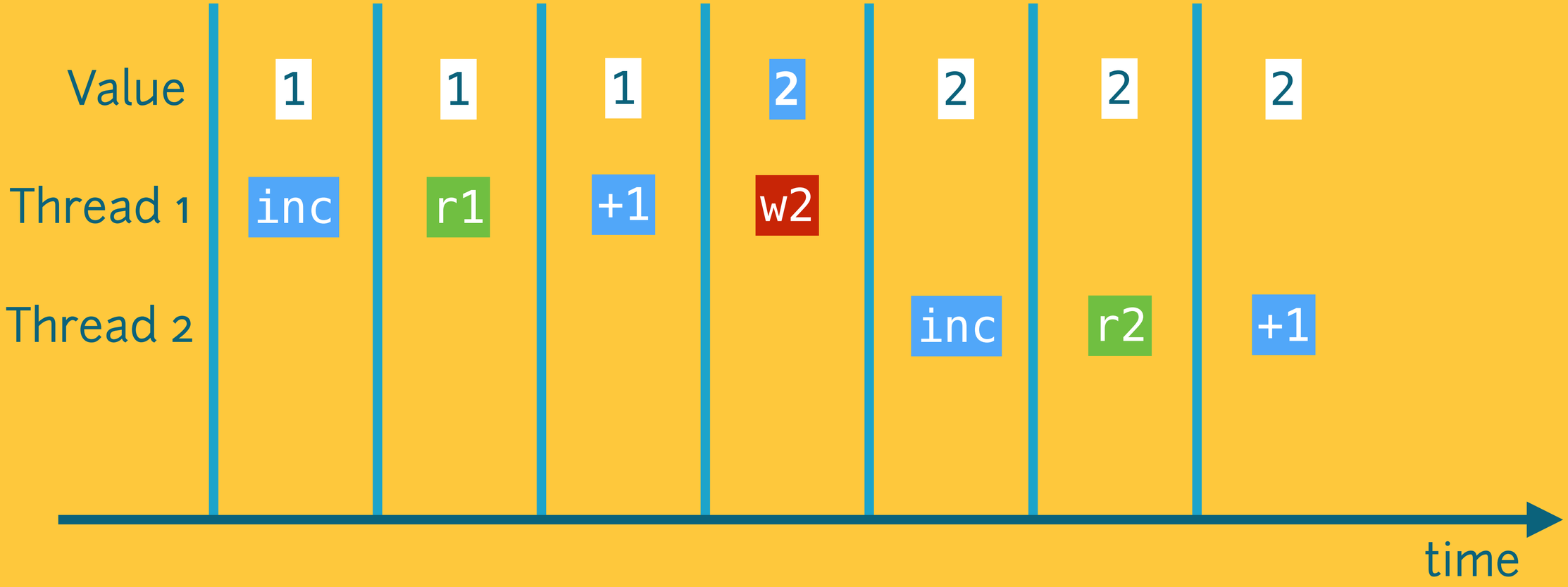

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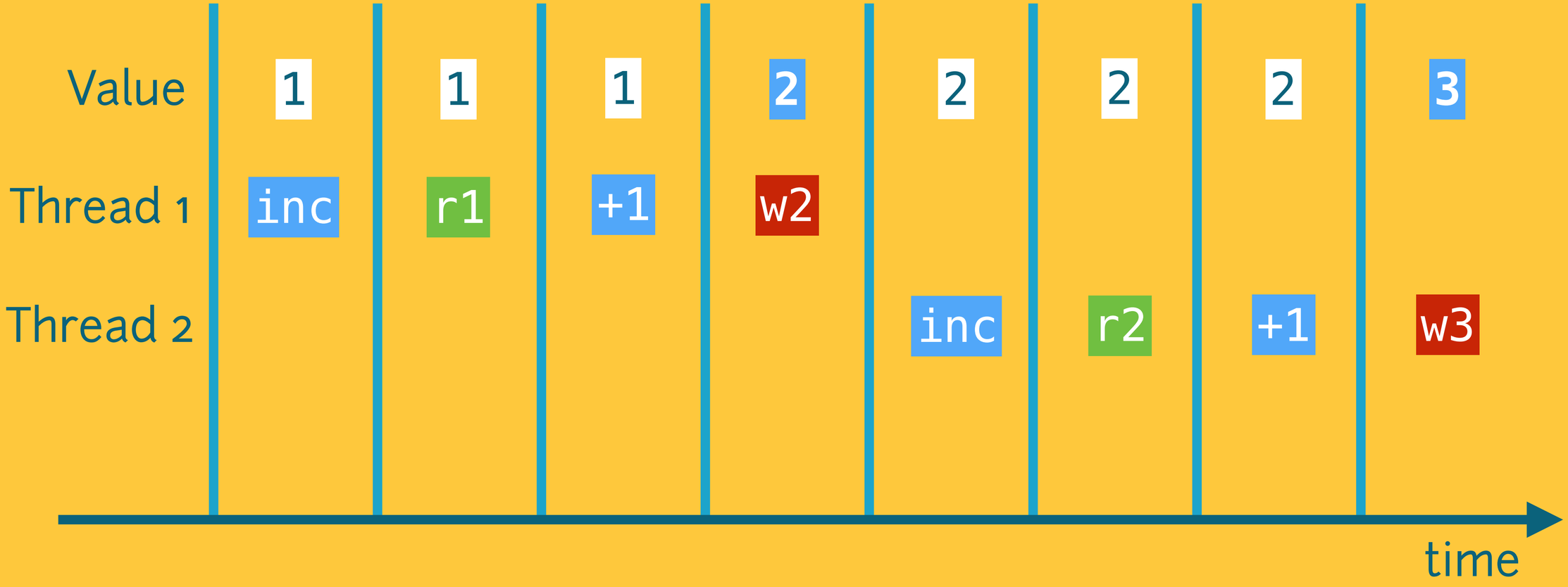
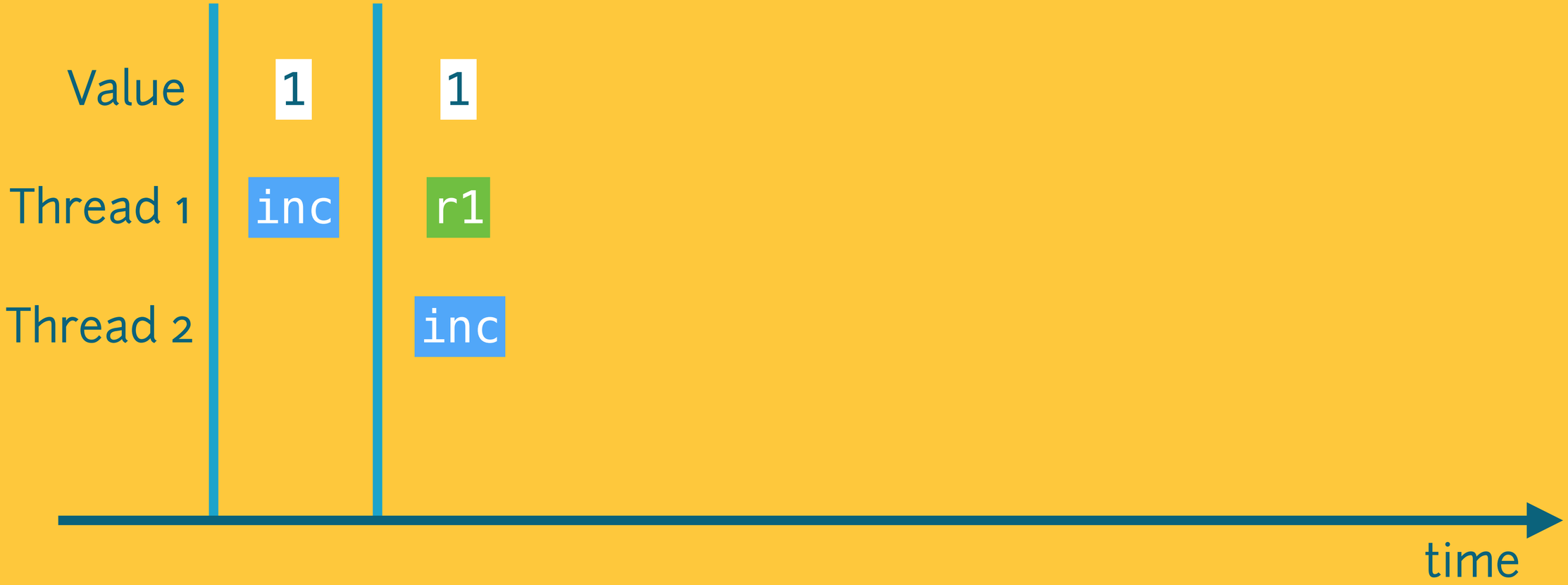


Race Condition

Race Condition



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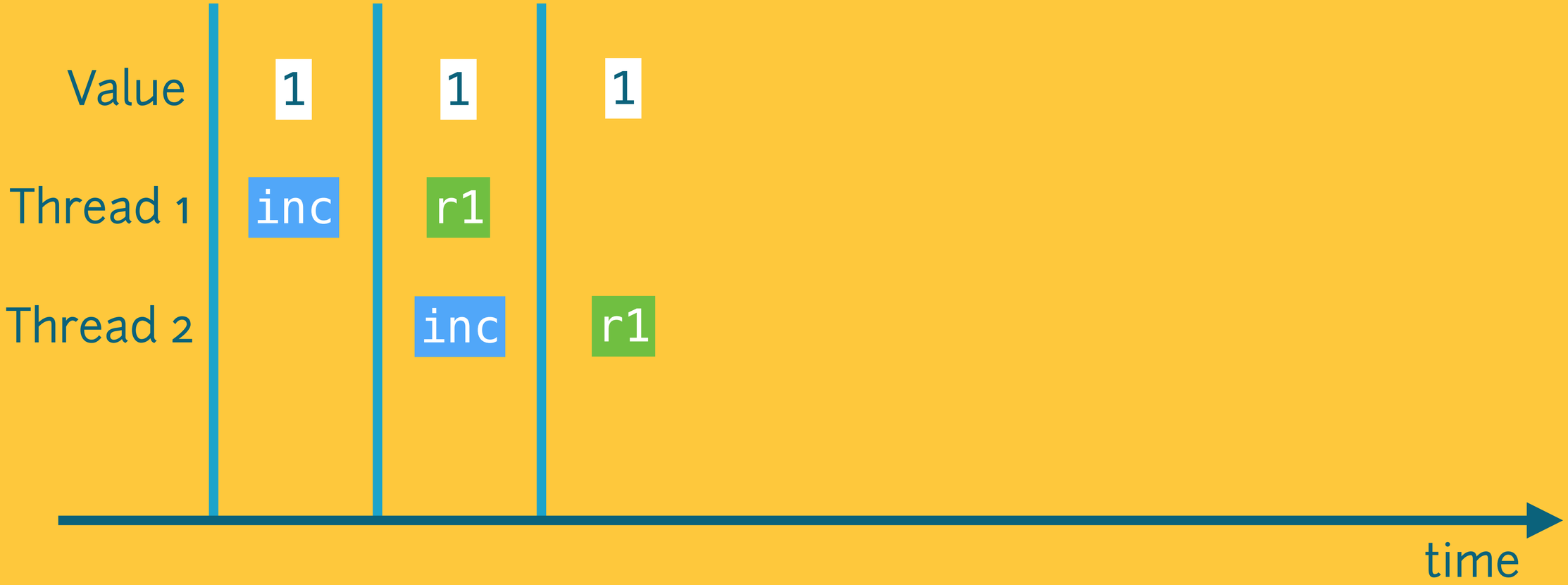

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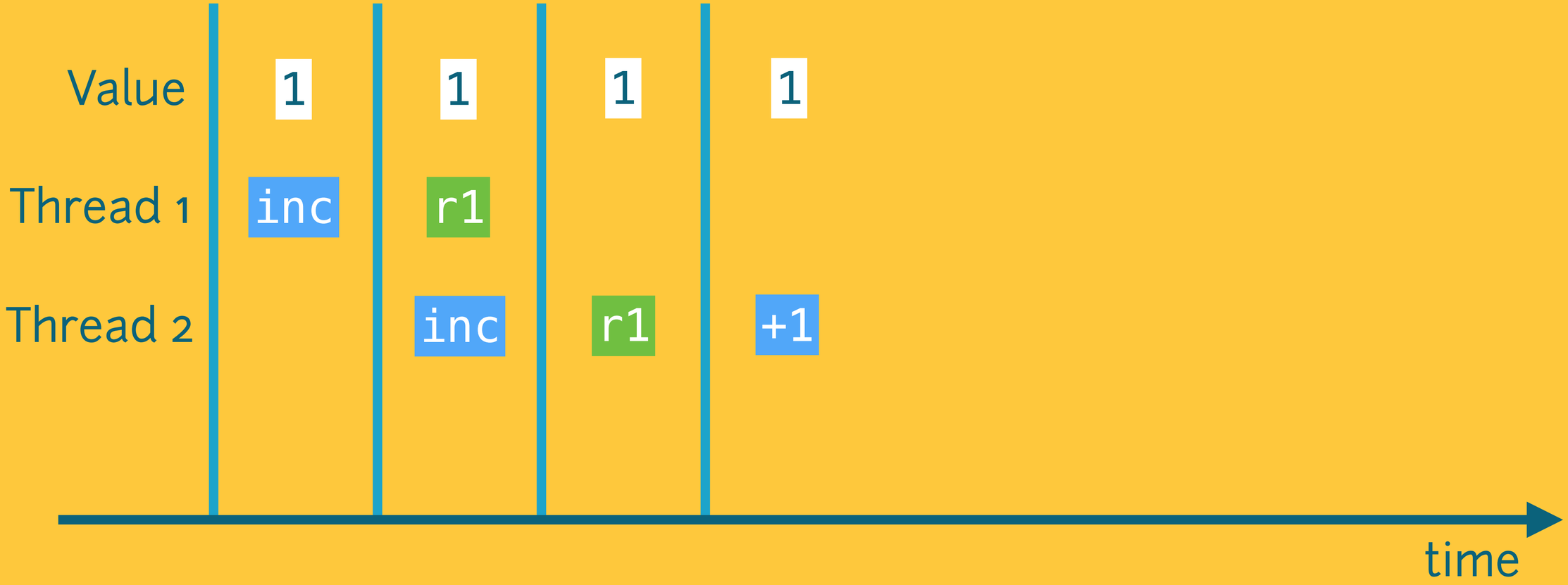

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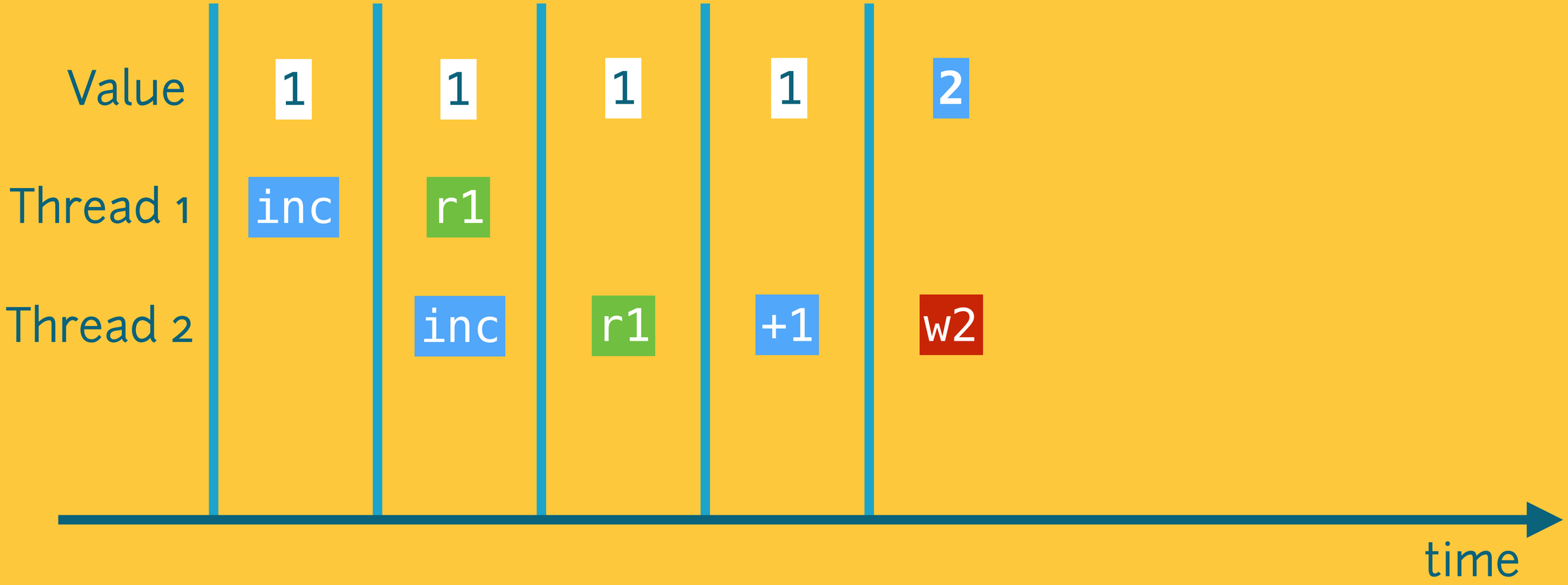

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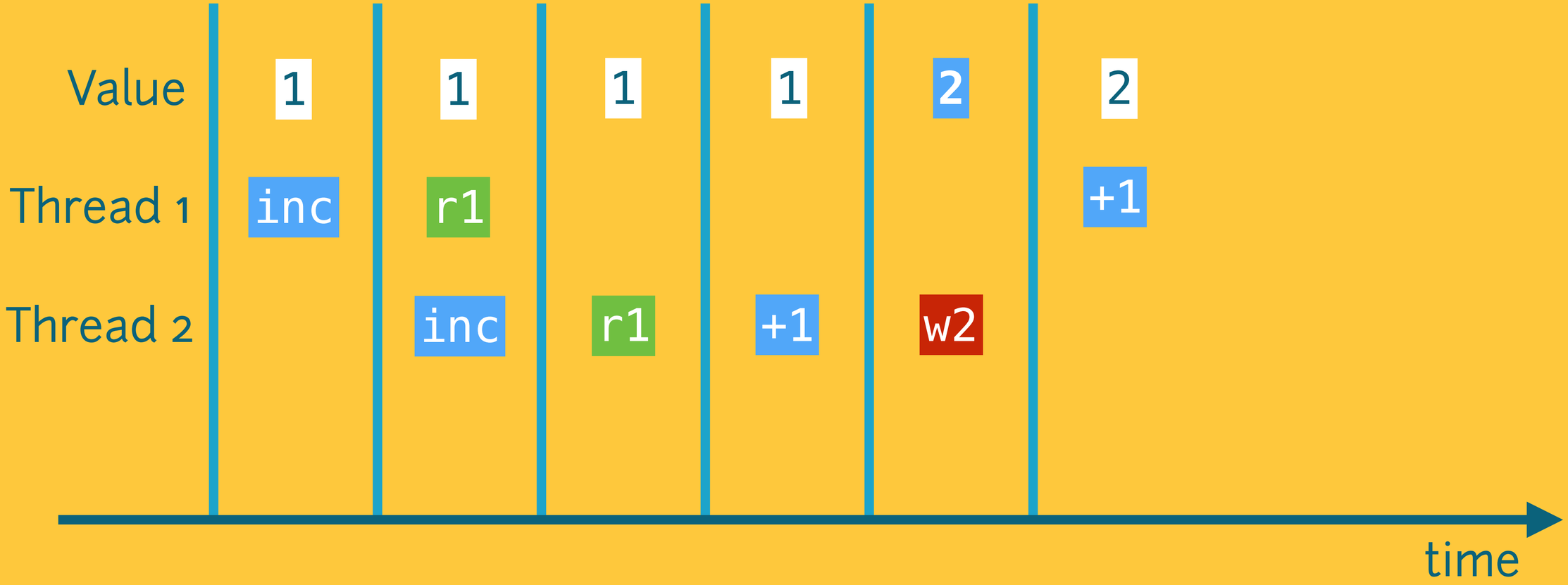

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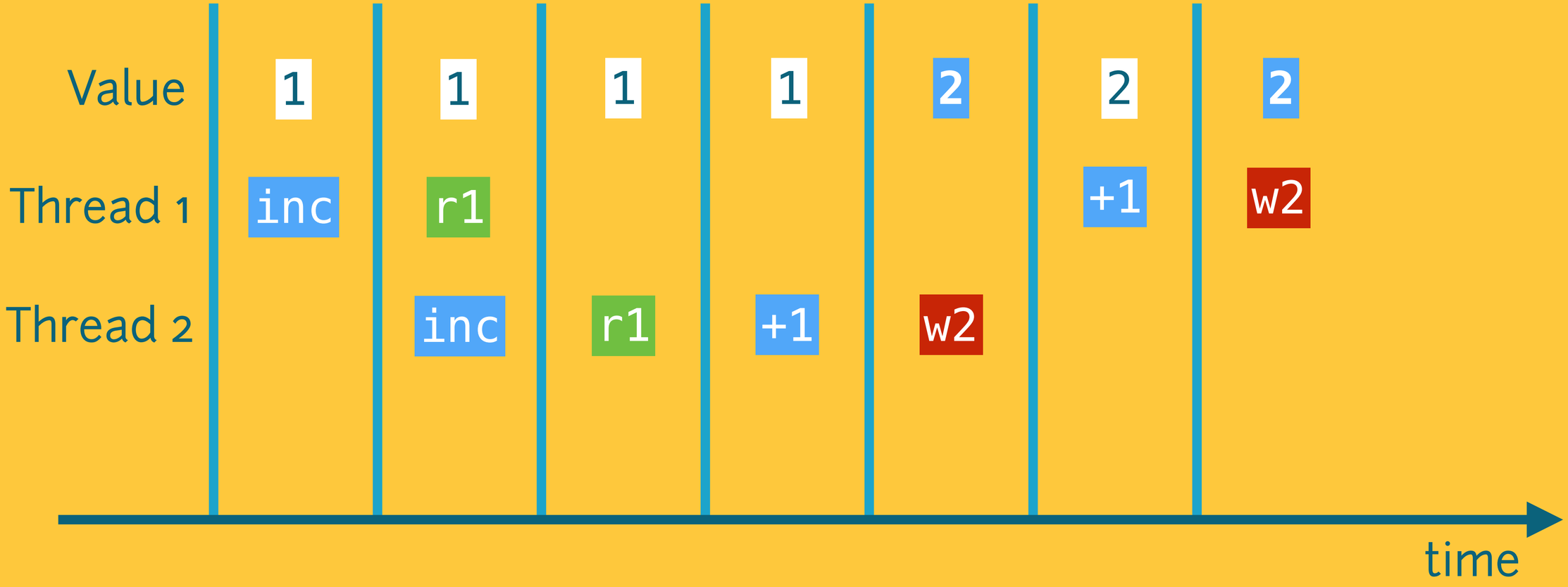
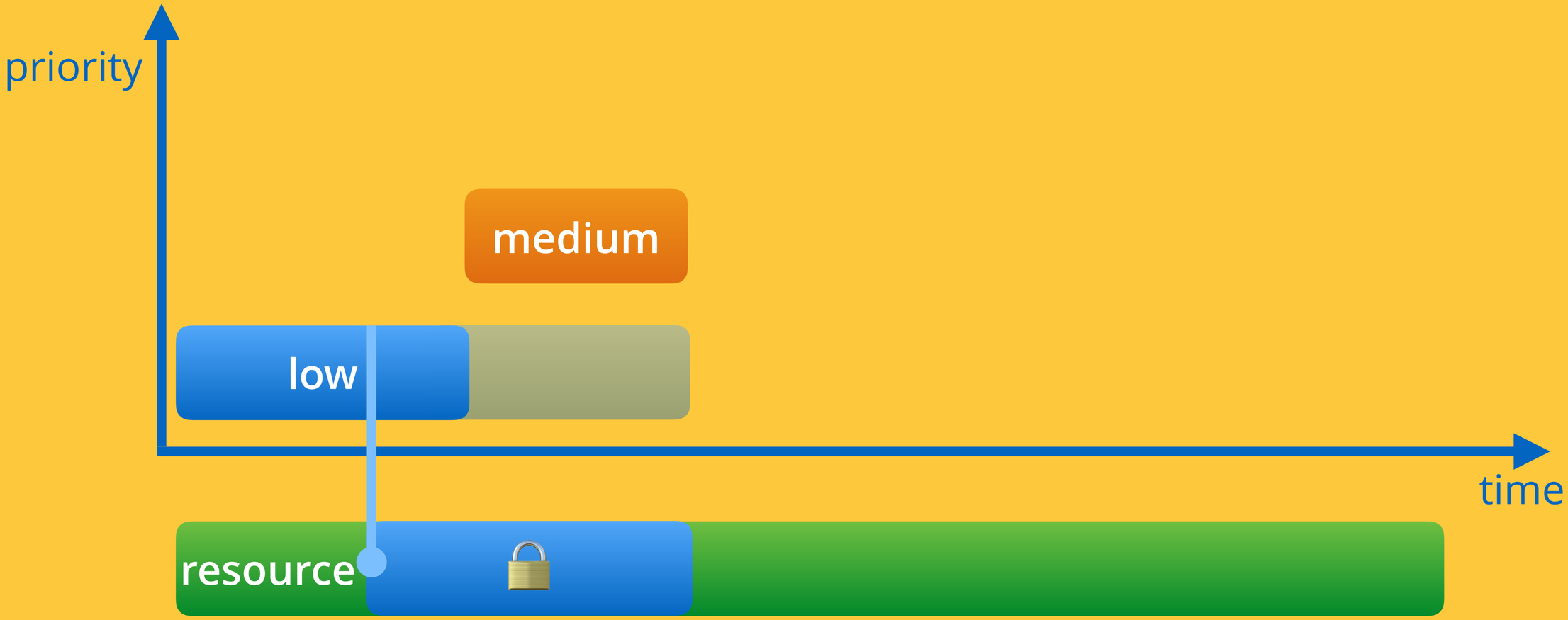


priority
inversion

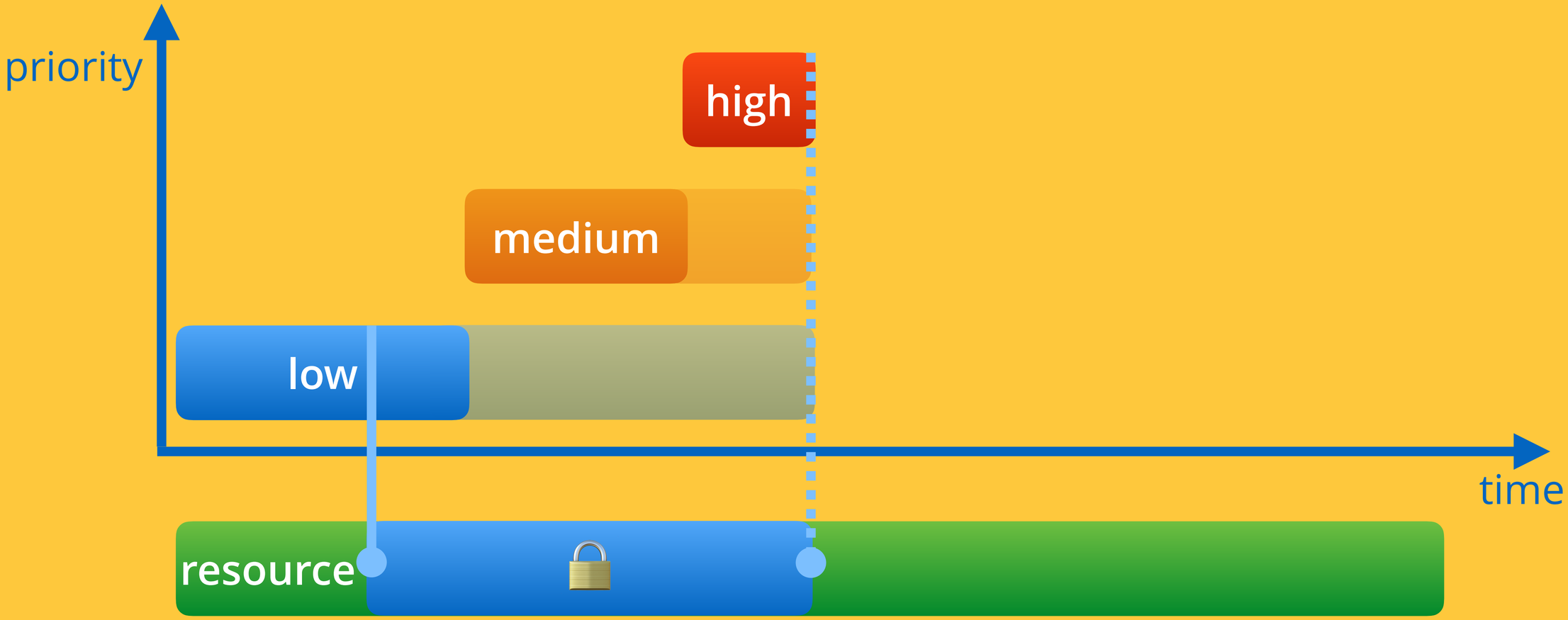
Priority Inversion

Priority Inversion

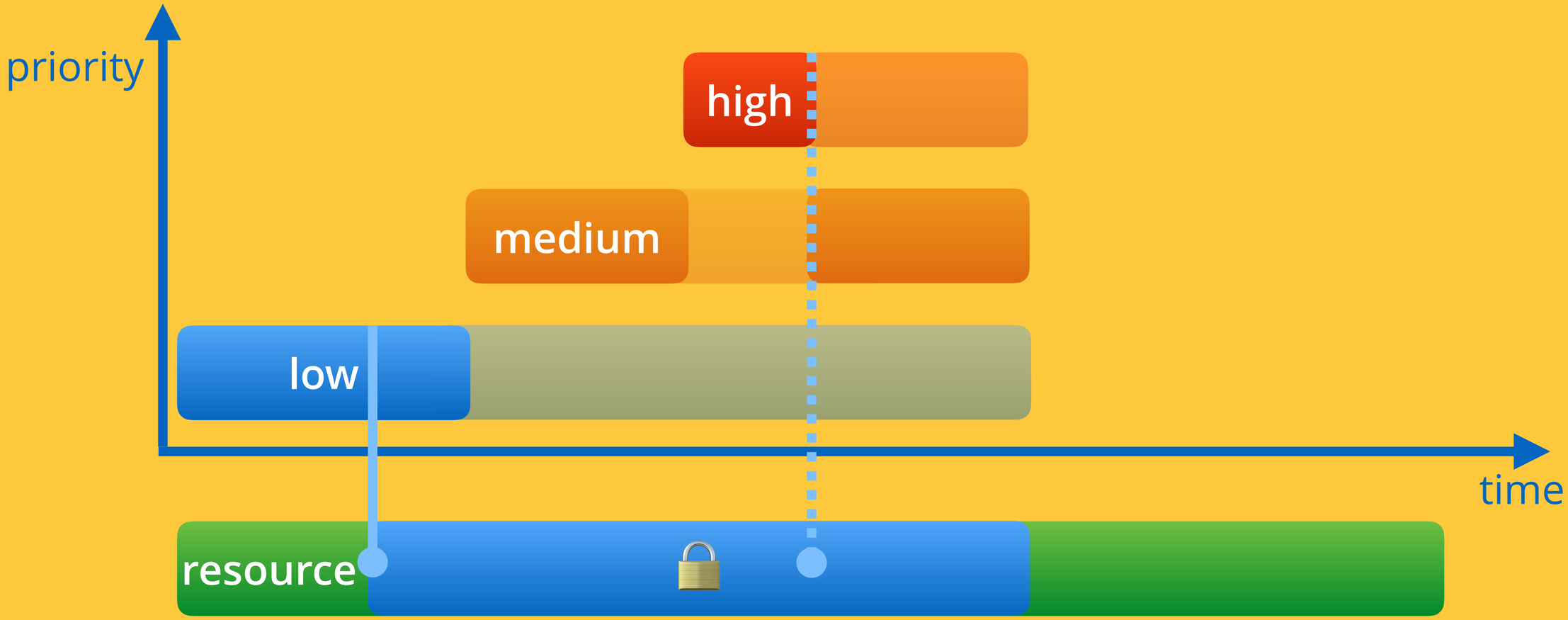
Priority Inversion



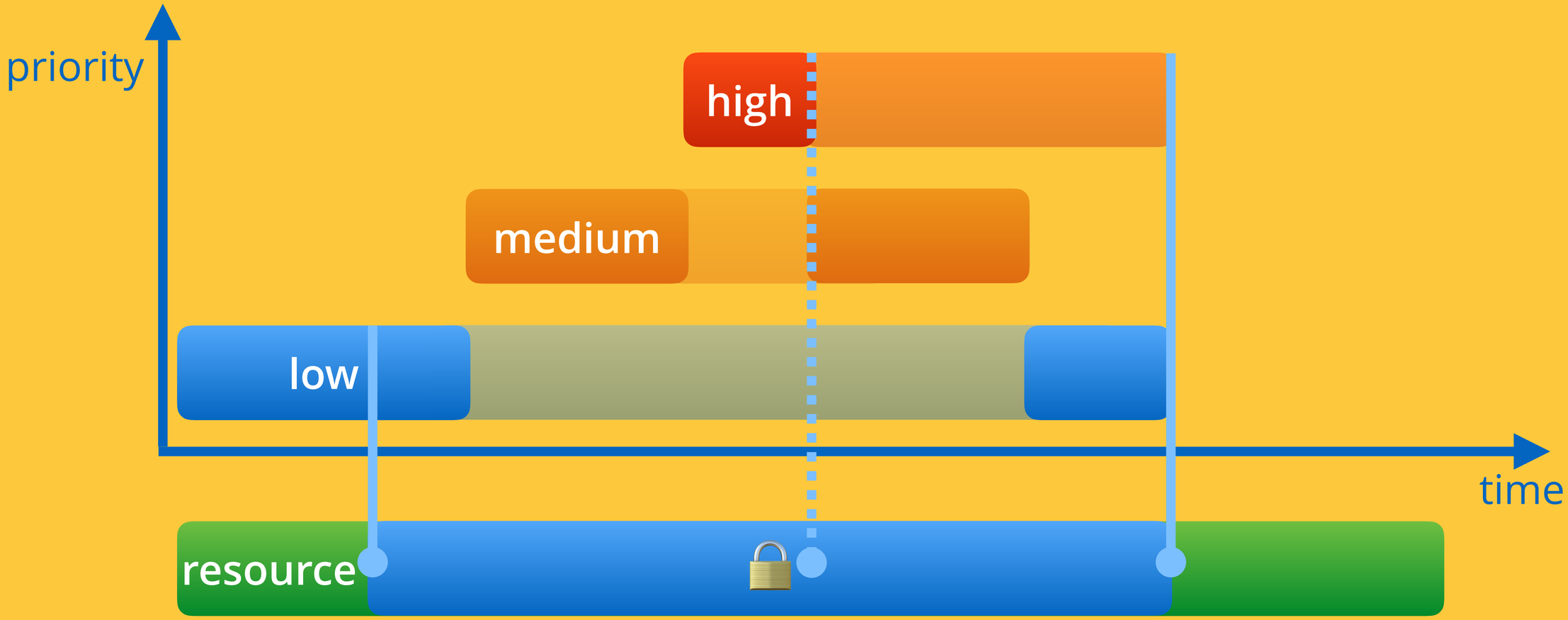
Priority Inversion



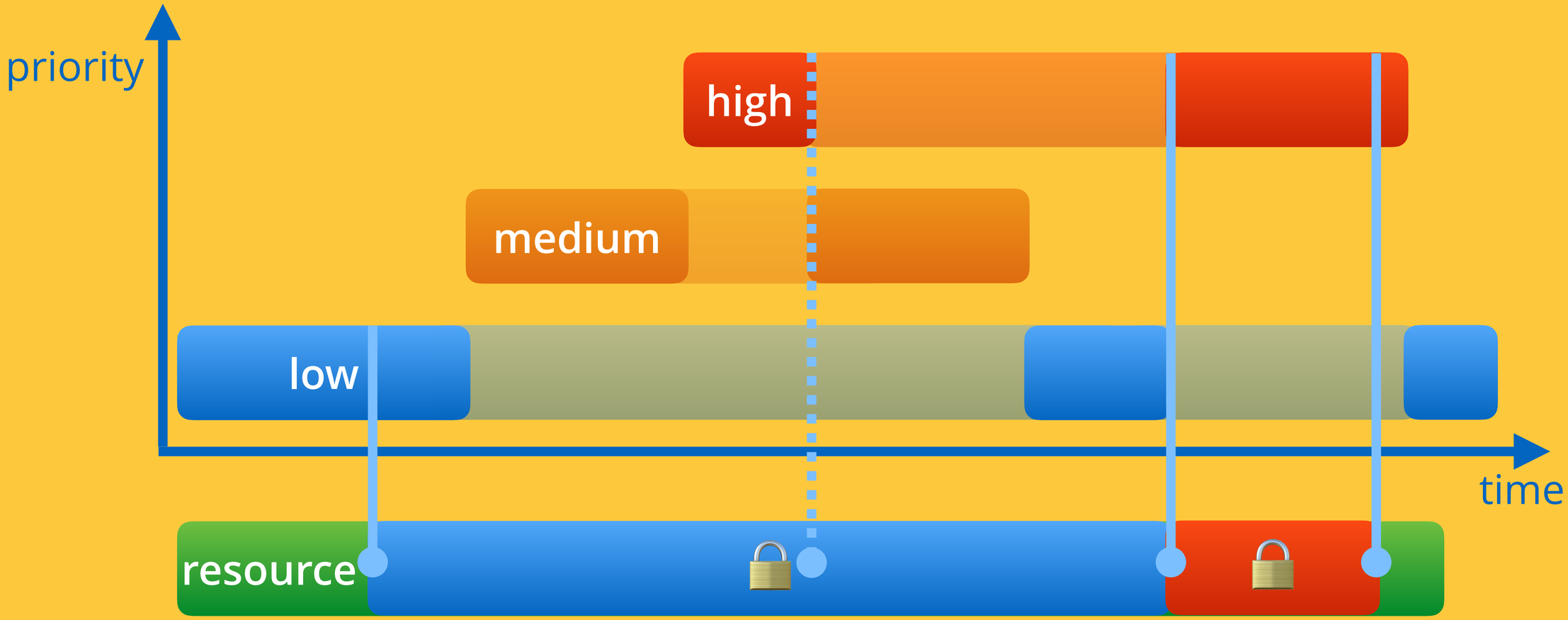
Priority Inversion



Priority Inversion

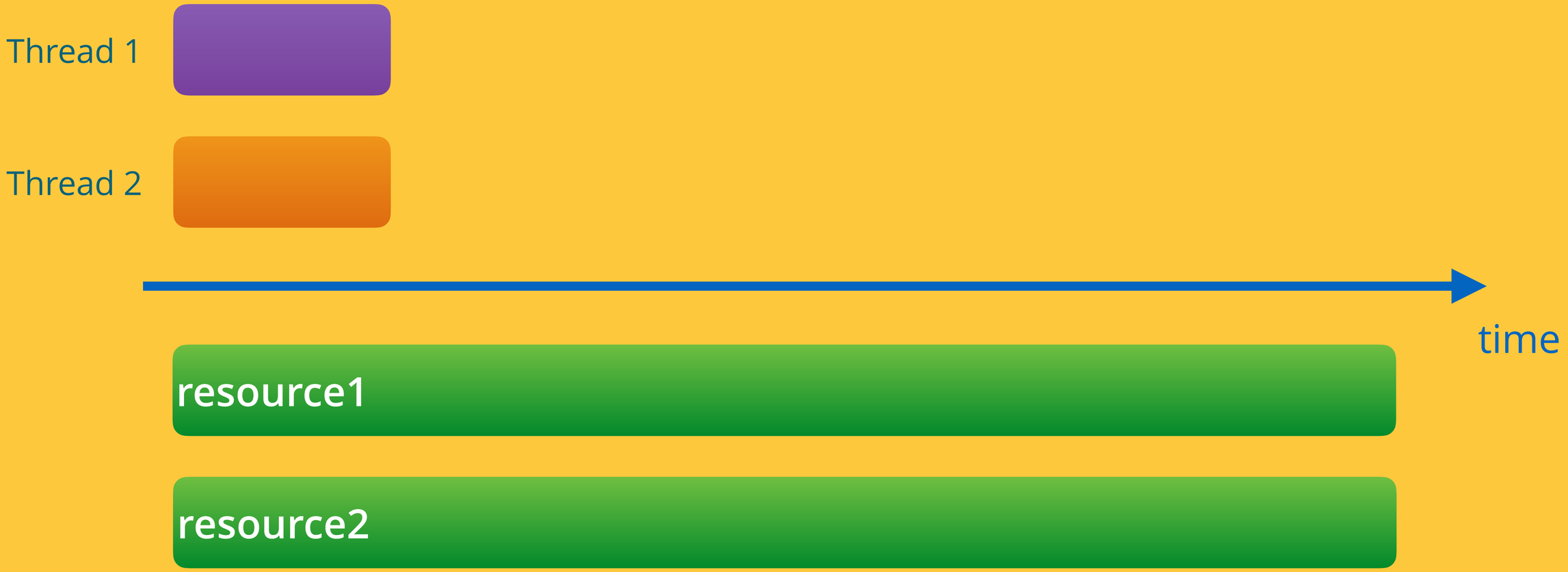


Priority Inversion

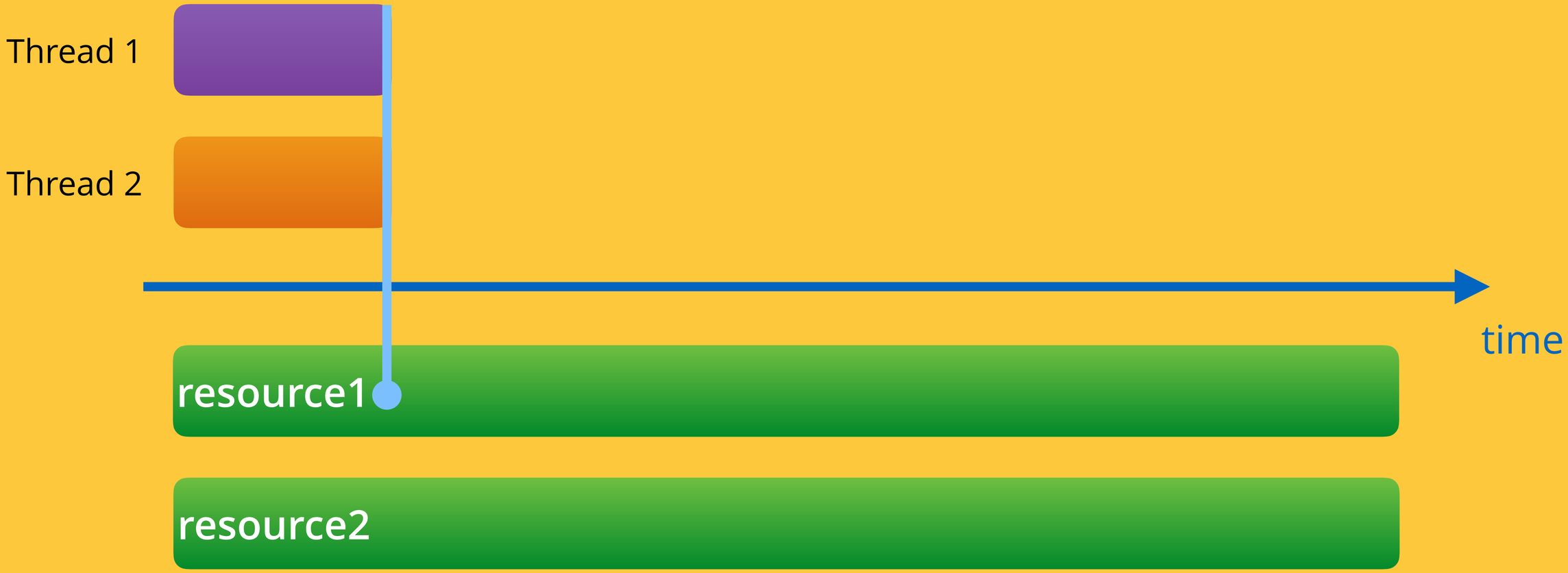



deadlock

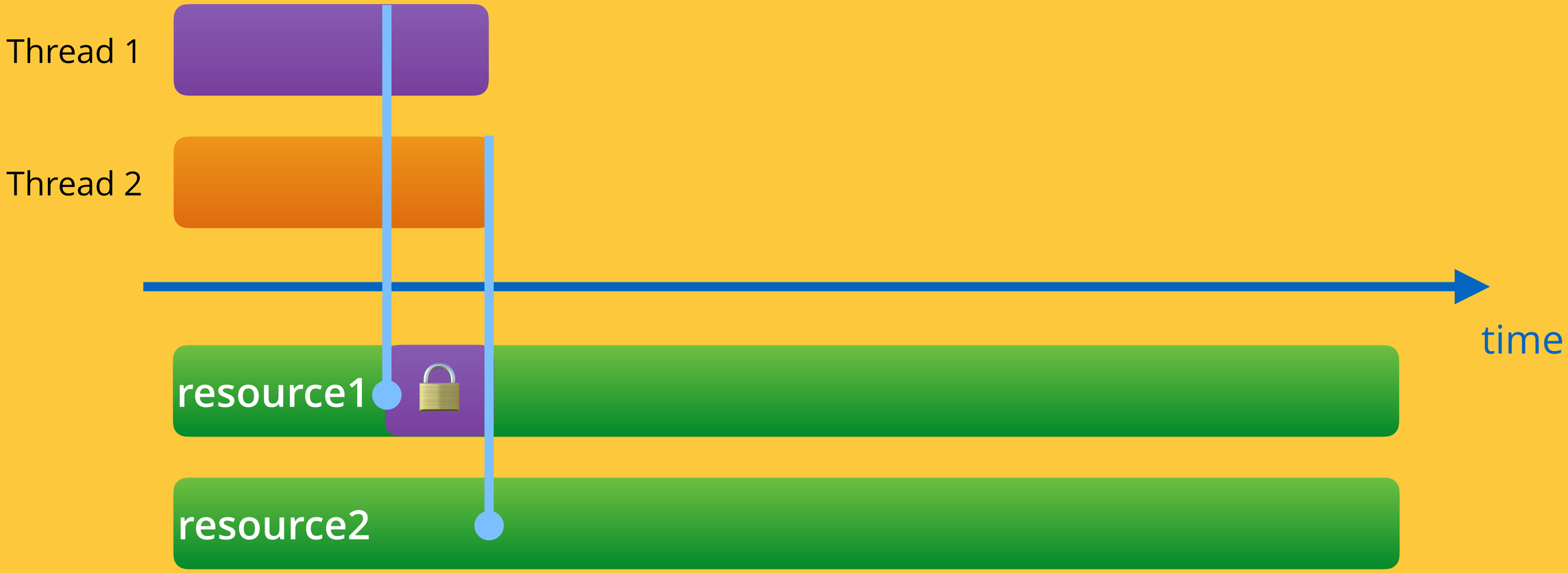
Deadlock



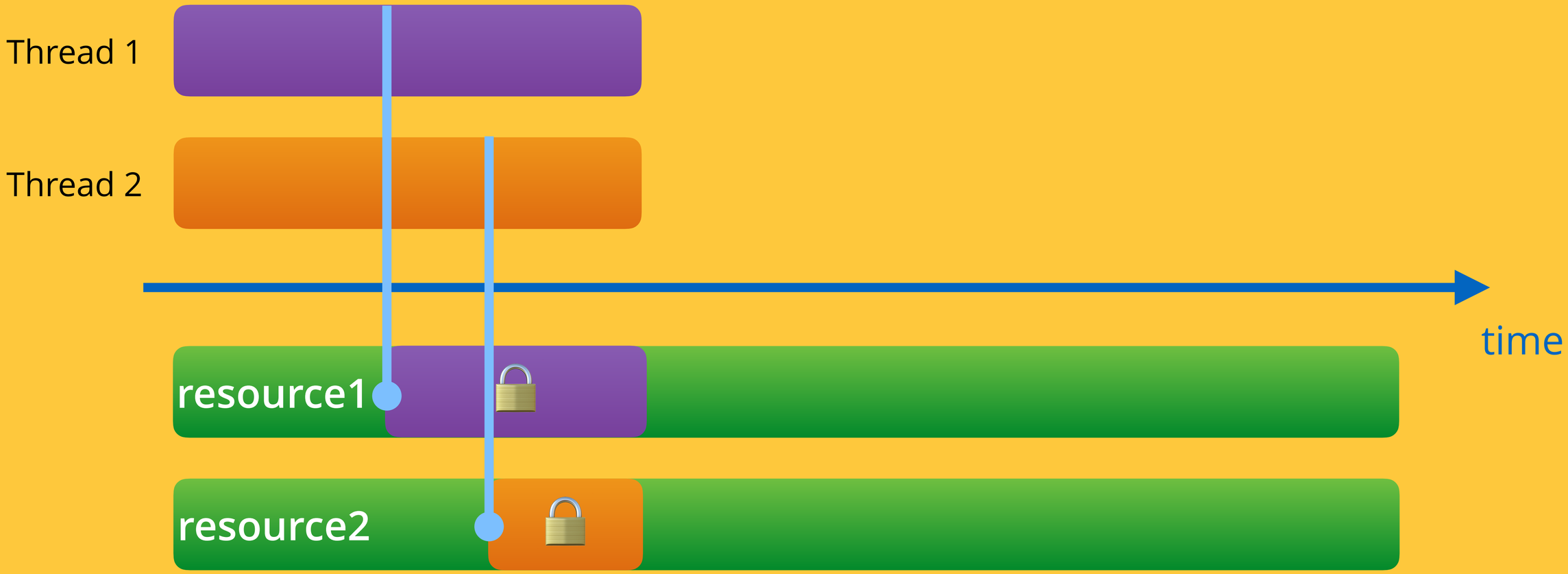
Deadlock



Deadlock

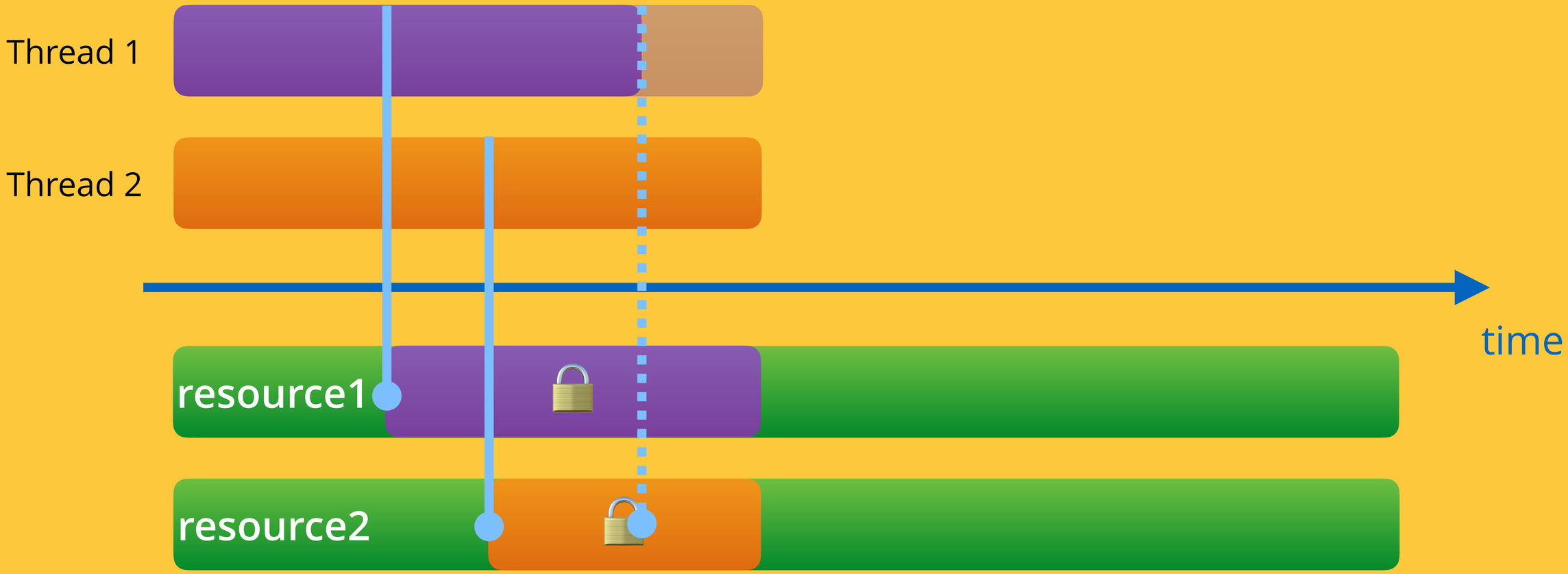


Deadlock

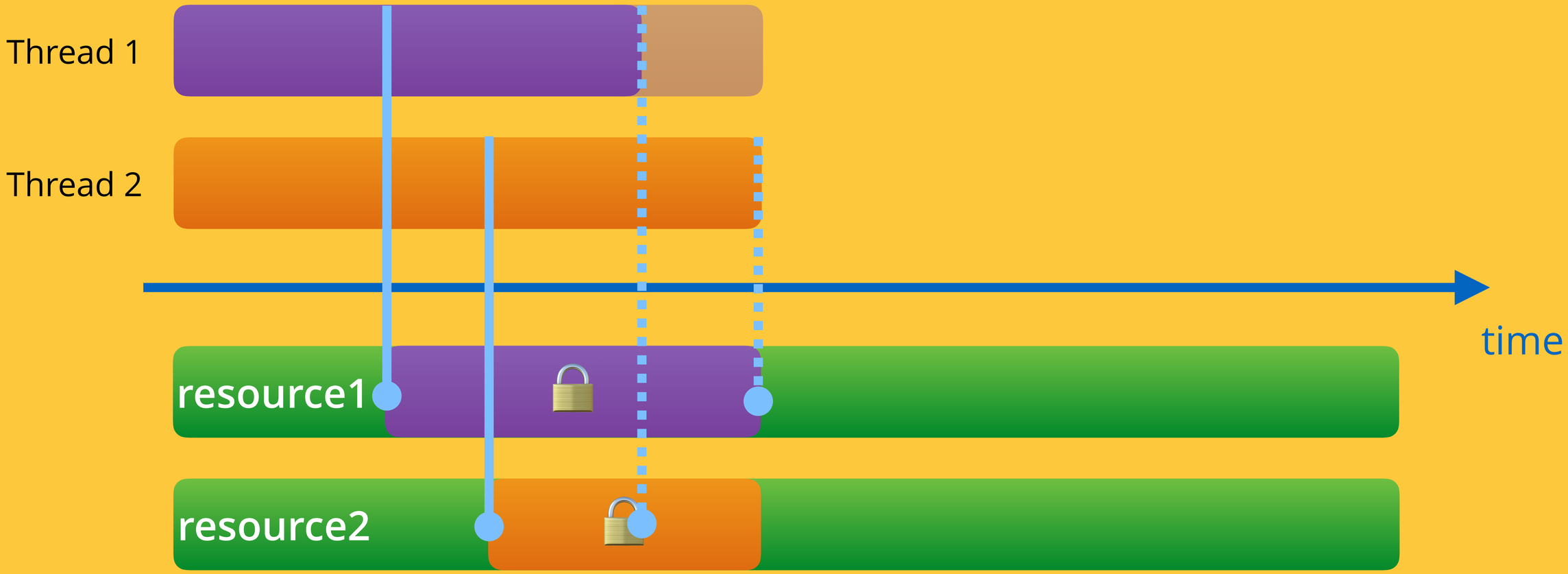


Deadlock

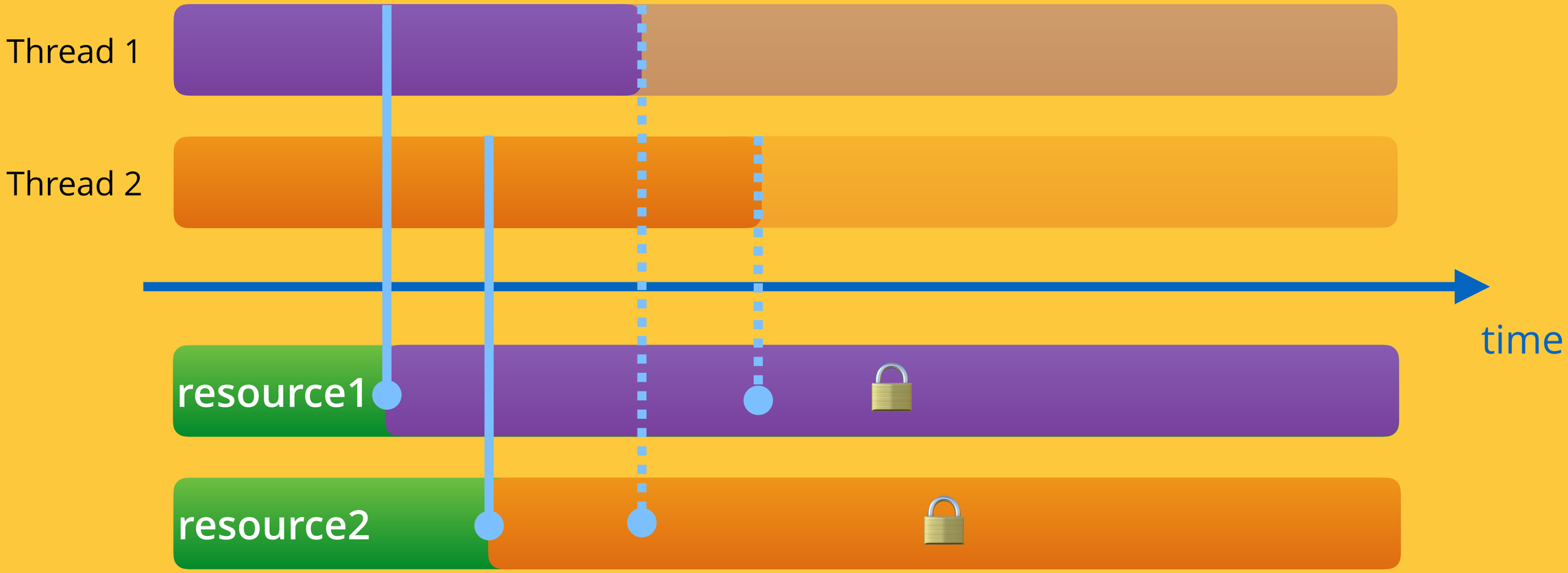
Deadlock



Deadlock



Deadlock



queueueueueueue paradigm

Tasks & Queues

Queue 

Thread 1

Thread 2

Tasks & Queues

Queue 

Thread 1 

Thread 2

Tasks & Queues

Queue

Thread 1

Thread 2

Tasks & Queues

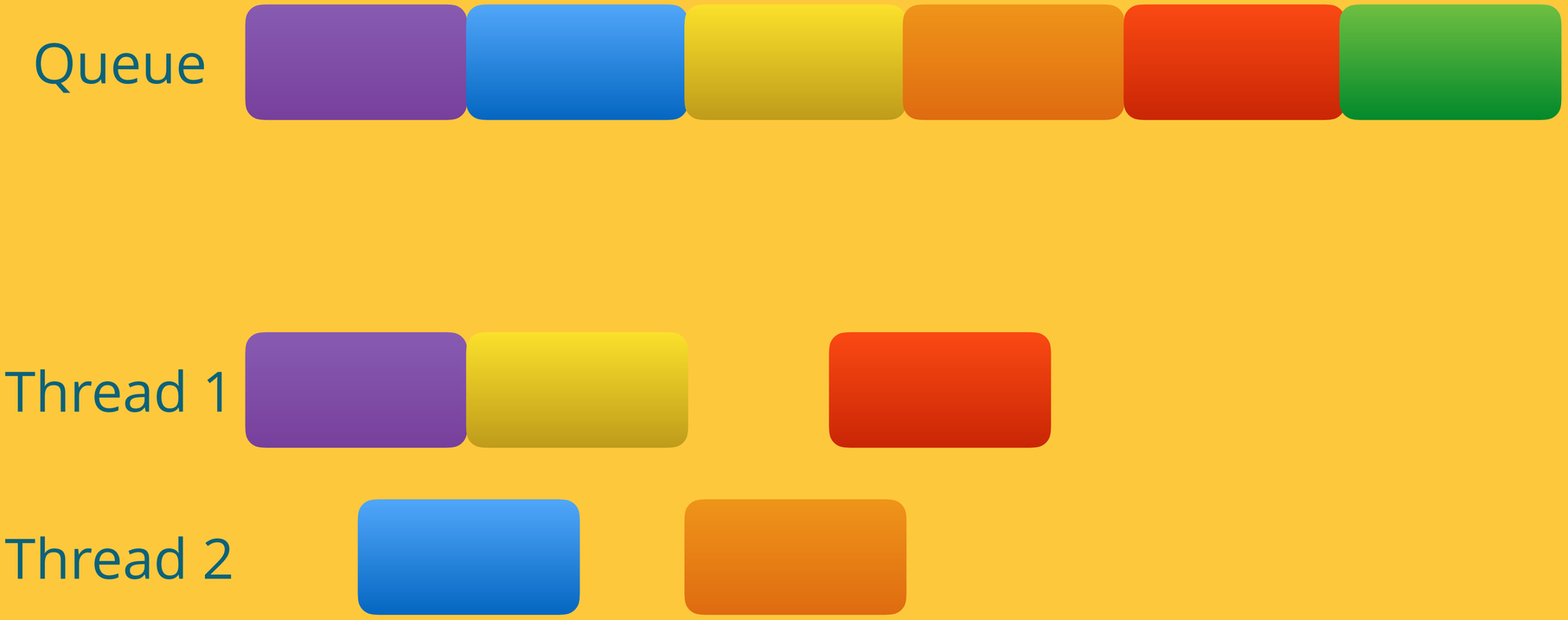
Queue

Thread 1

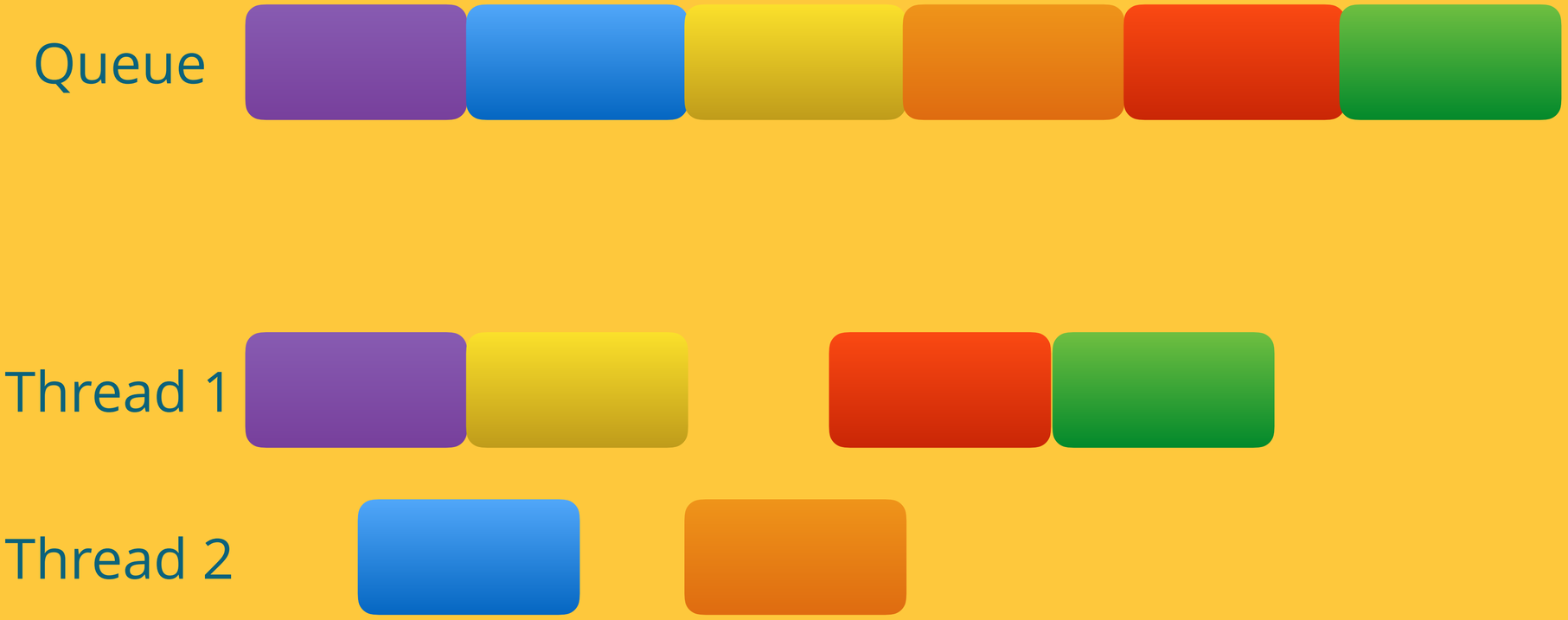
Thread 2

Tasks & Queues

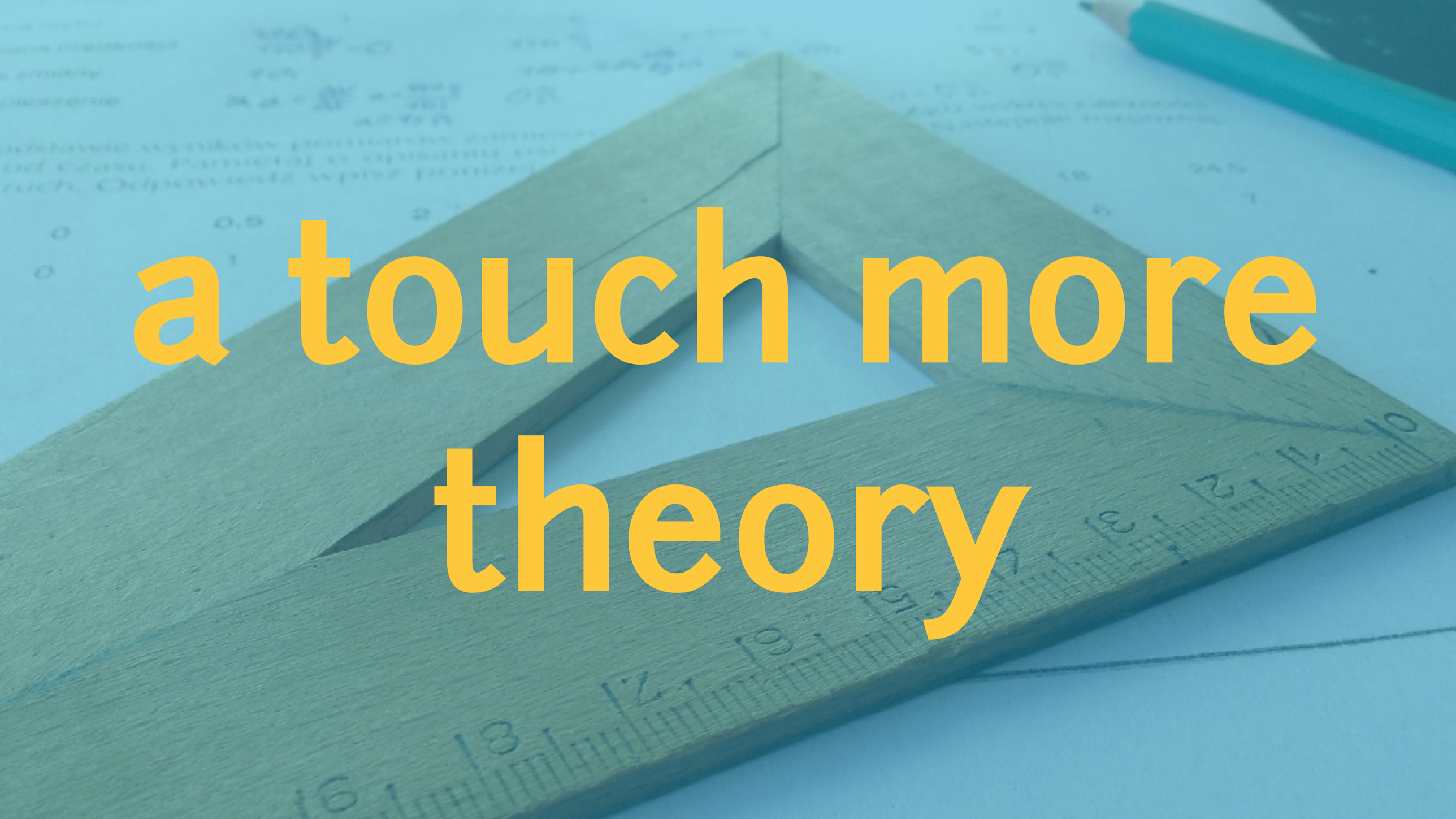
Tasks & Queues



Tasks & Queues




feeling
brave?

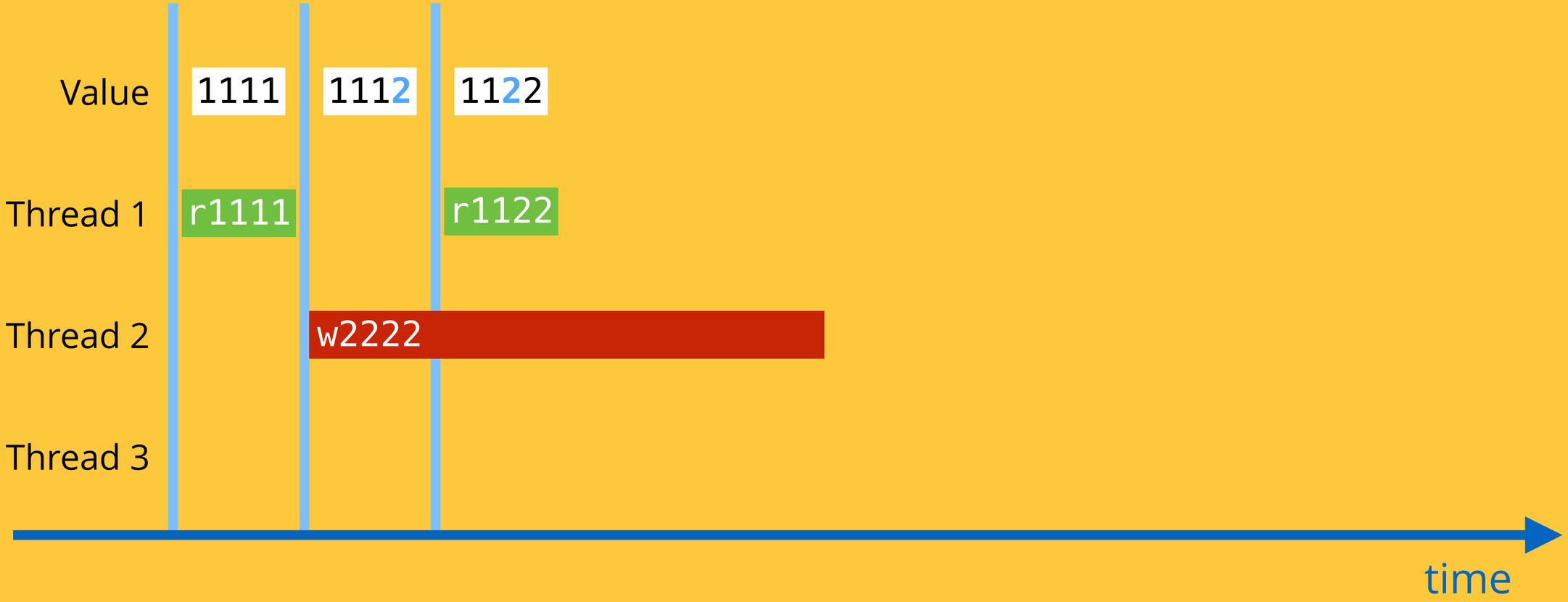

a touch more
theory

Thread Safety

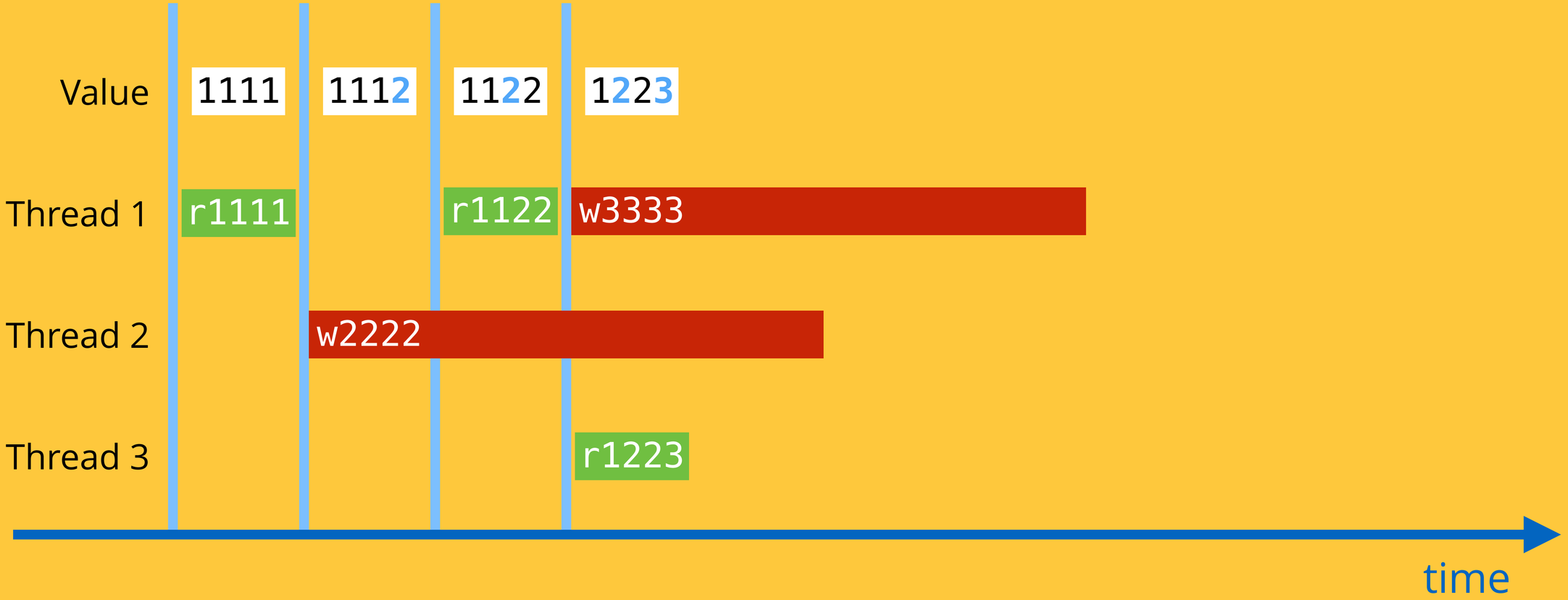
Thread Safety

Thread Safety

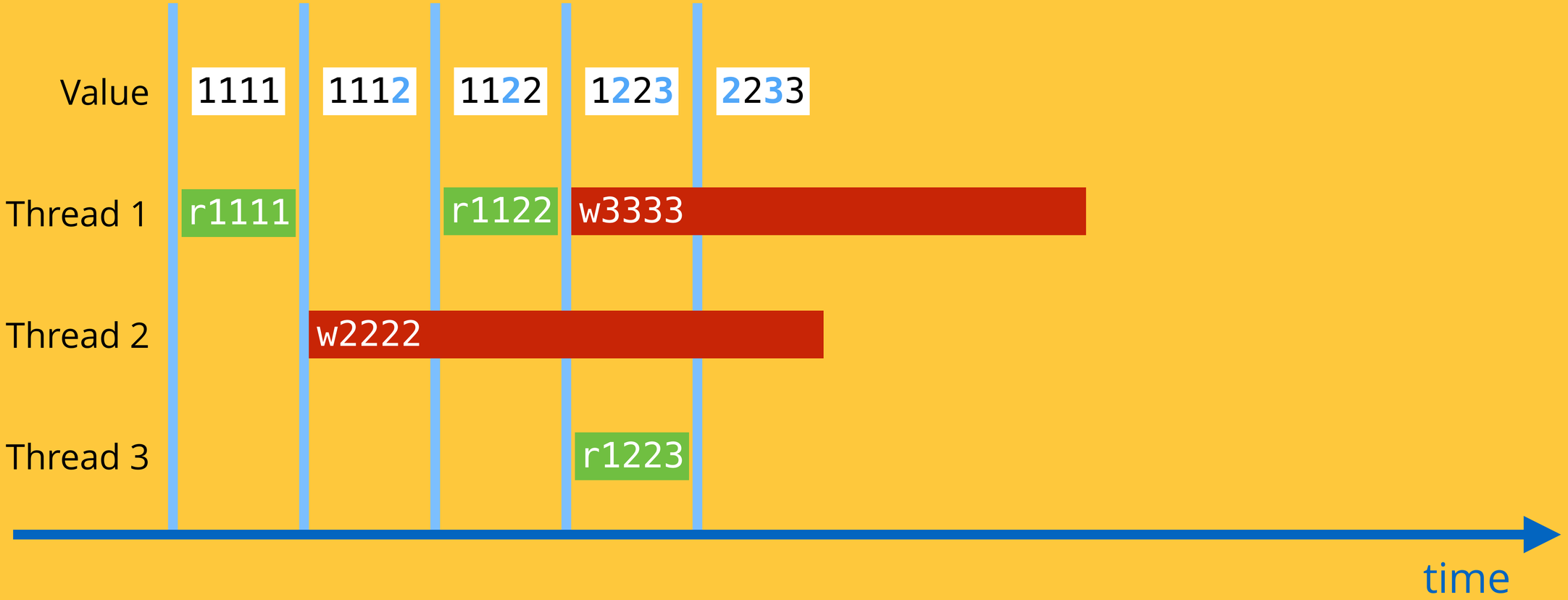
Thread Safety



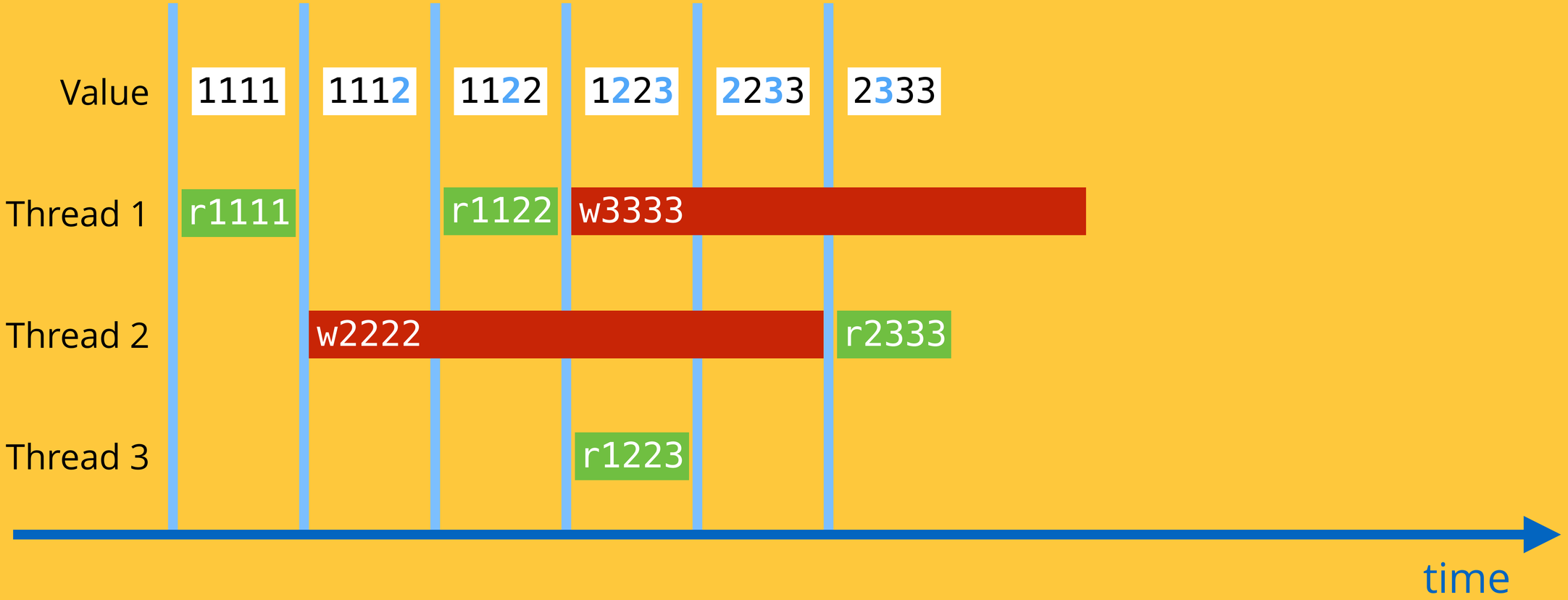
Thread Safety



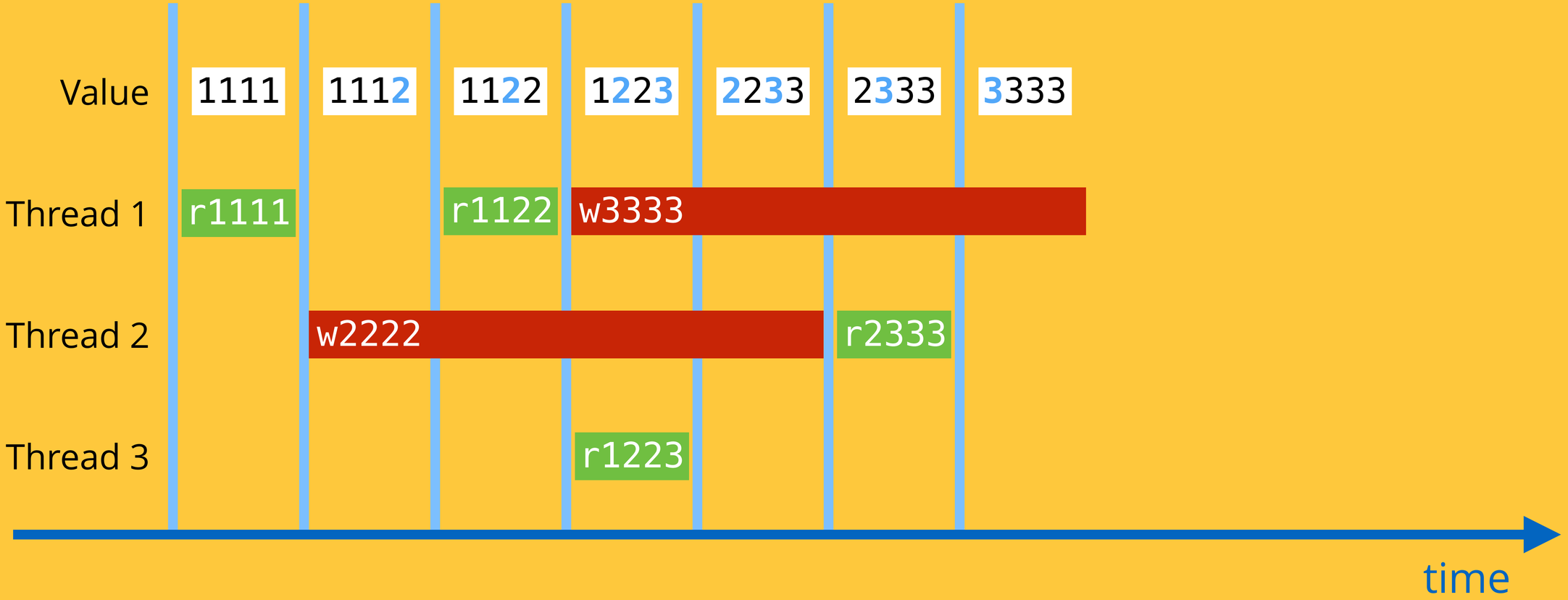
Thread Safety



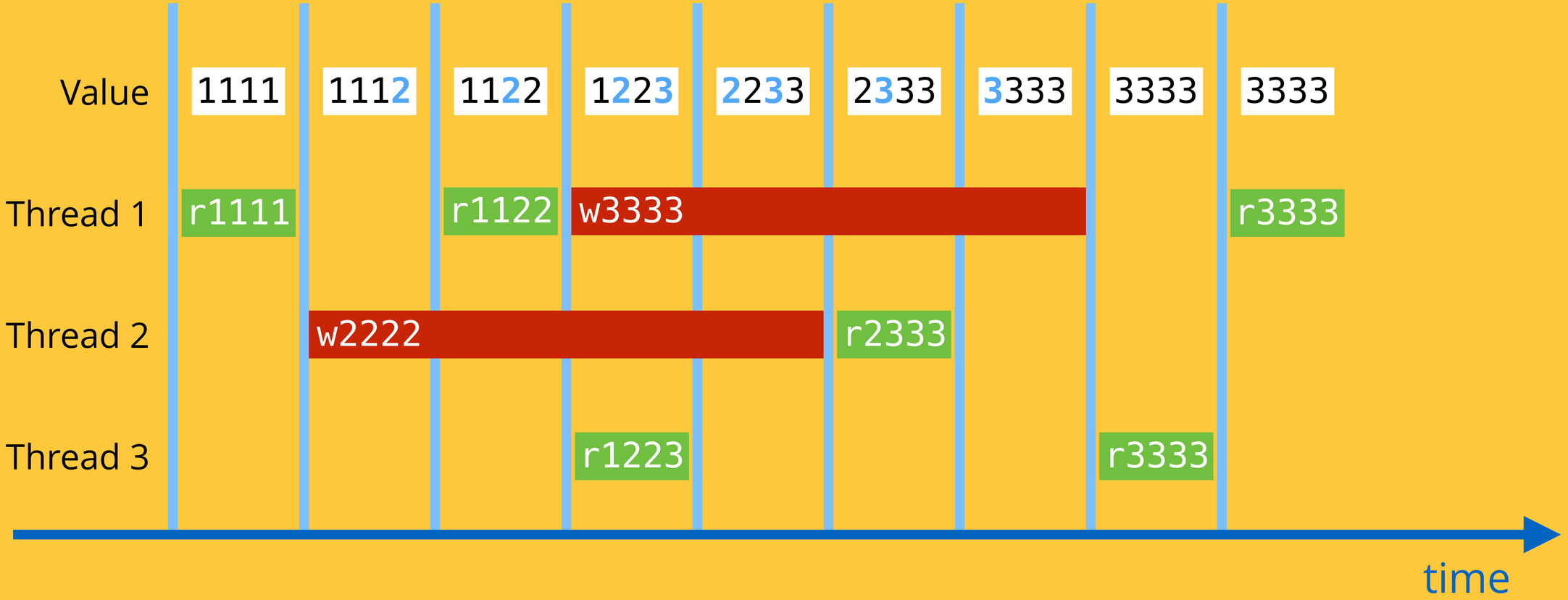
Thread Safety



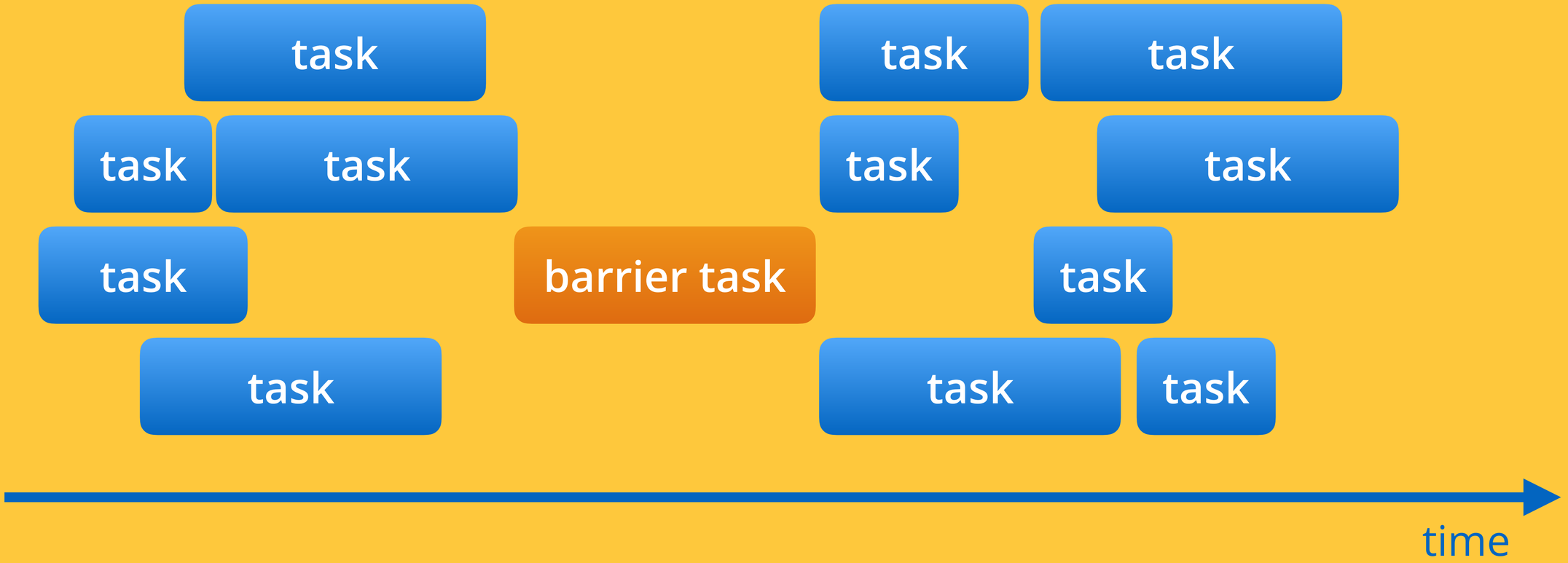
Thread Safety



Thread Safety



Dispatch Barrier



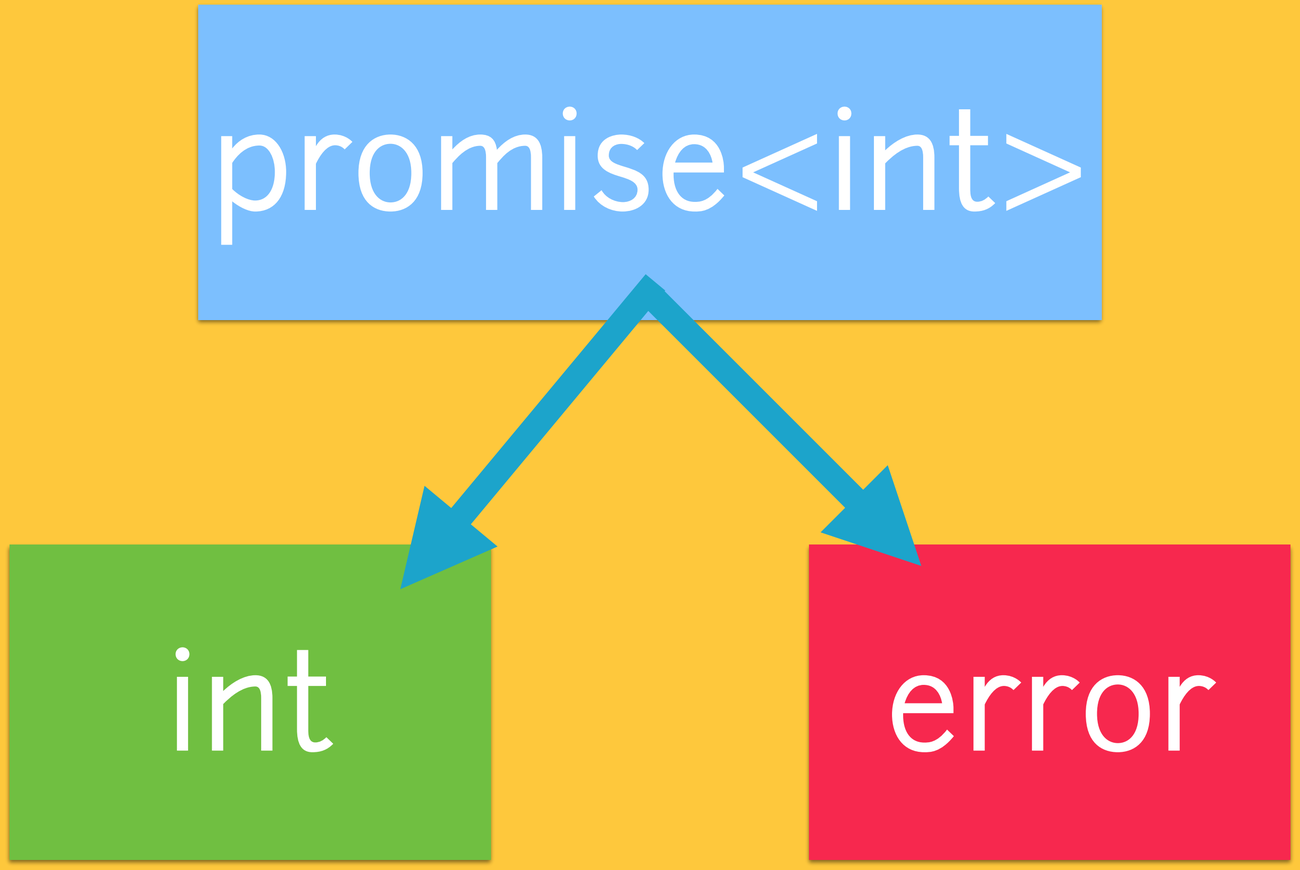
Dispatch Barrier


alternatives
to

promises

```
networkRequest(url, callback: { data in
  decompressor(data, callback: { image in
    imageResizer(image, callback: { small in
      filterImage(small, callback: { filtered in
        displayImage(filtered)
      })
    })
  })
})
```

promises



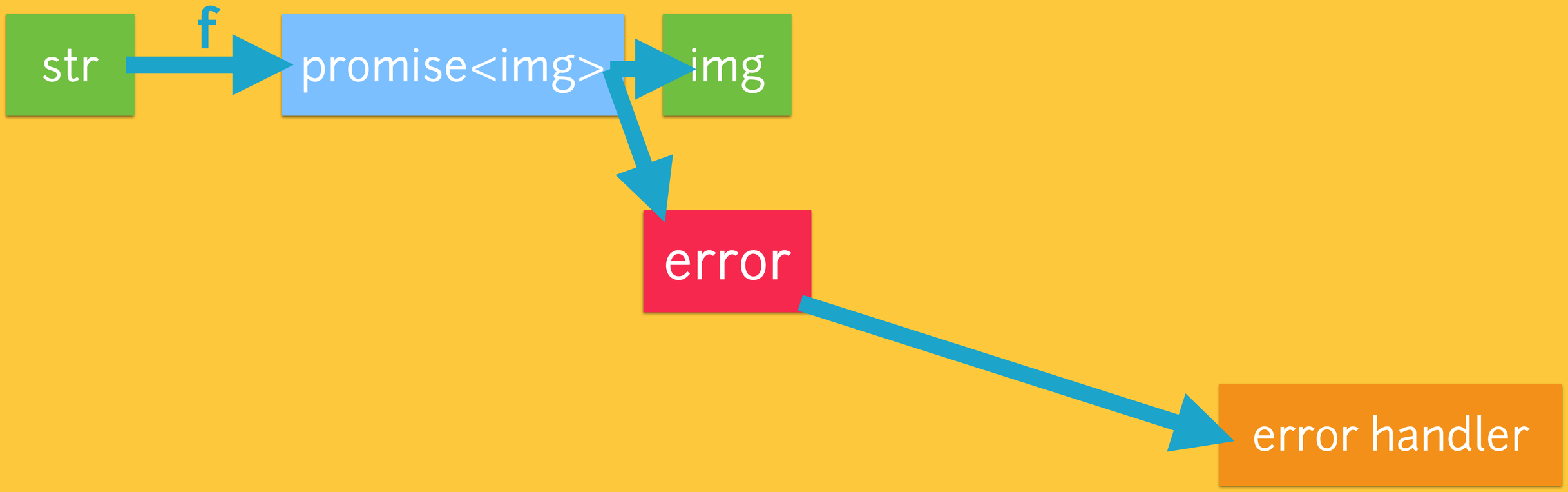
promises

str

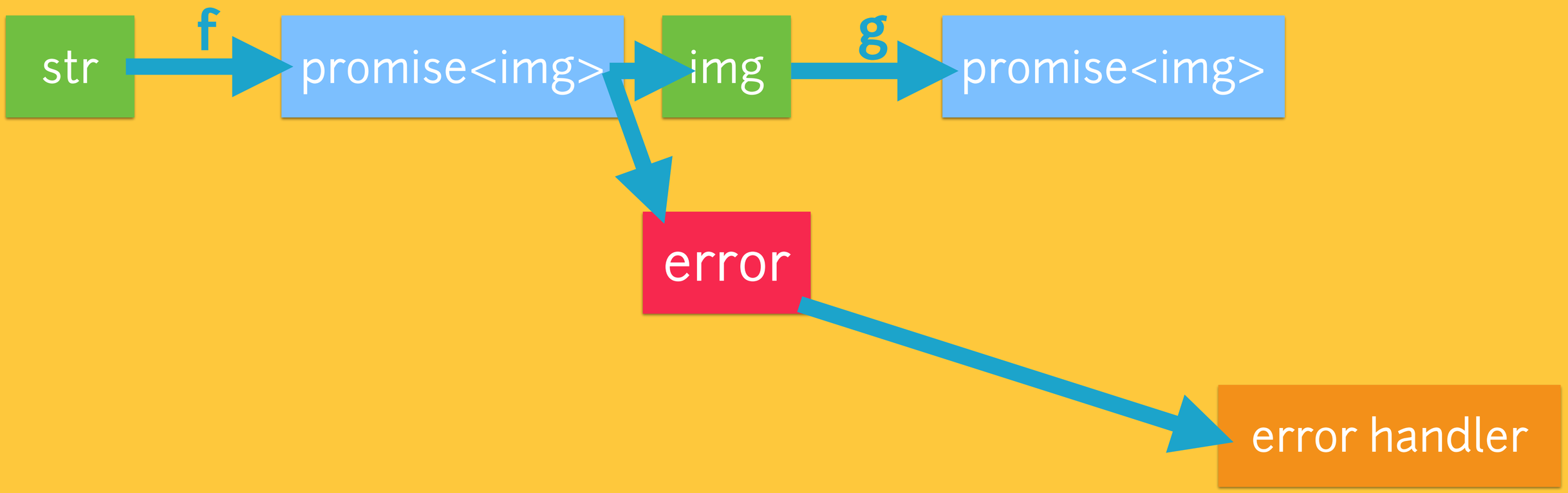
promises

promises

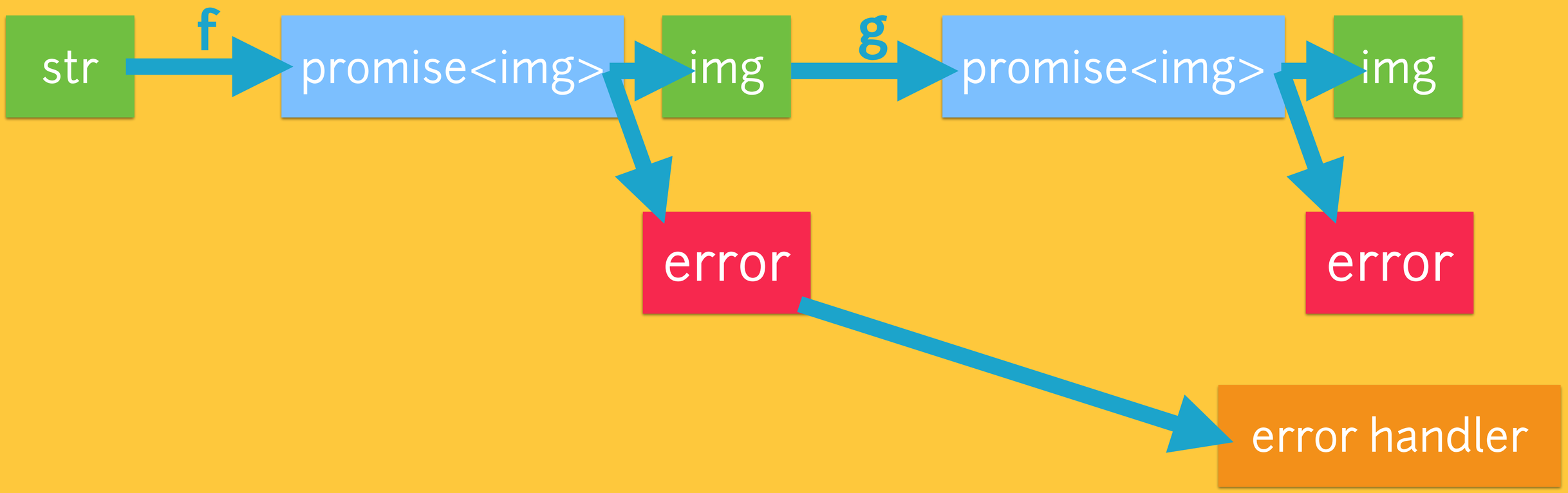
promises



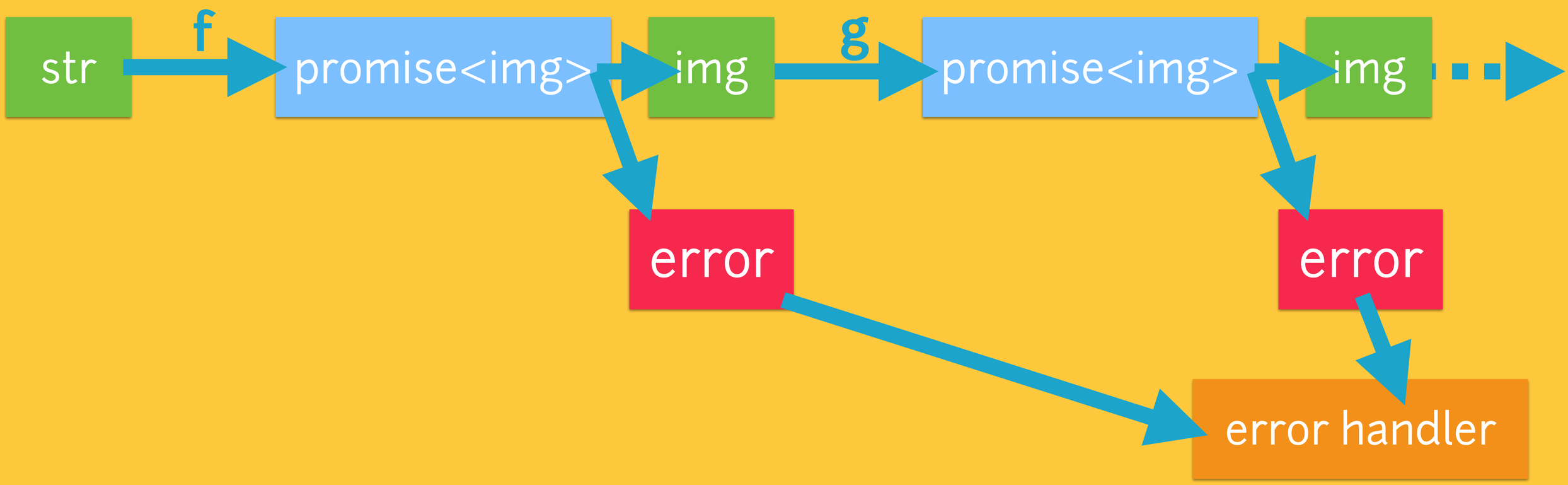
promises



promises


str
f
promise<img>
img
g
promise<img>
img
error
error
error handler

promises


str
f
promise<img>
img
g
promise<img>
img
error
error
error handler

promises

```
networkRequest(url)
  .then(decompressor)
  .then(imageResizer)
  .then({ (image) in
    return filterImage(image)
  }).then(displayImage)
  .catch({ (error) in print(error) })
```

imagine the
“promise pipeline”
accepted a
sequence of values…

that's reactive programming


conclusion


concurrency
is
hard


you will get
it
wrong

- videos.raywenderlich.com
- git.io/v9Q3S
- @iwantmyrealname