Structs and Such

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By QuentinUK (Own work), via Wikimedia Commons

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Declaring a structure

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    prices: Vec<Item>,
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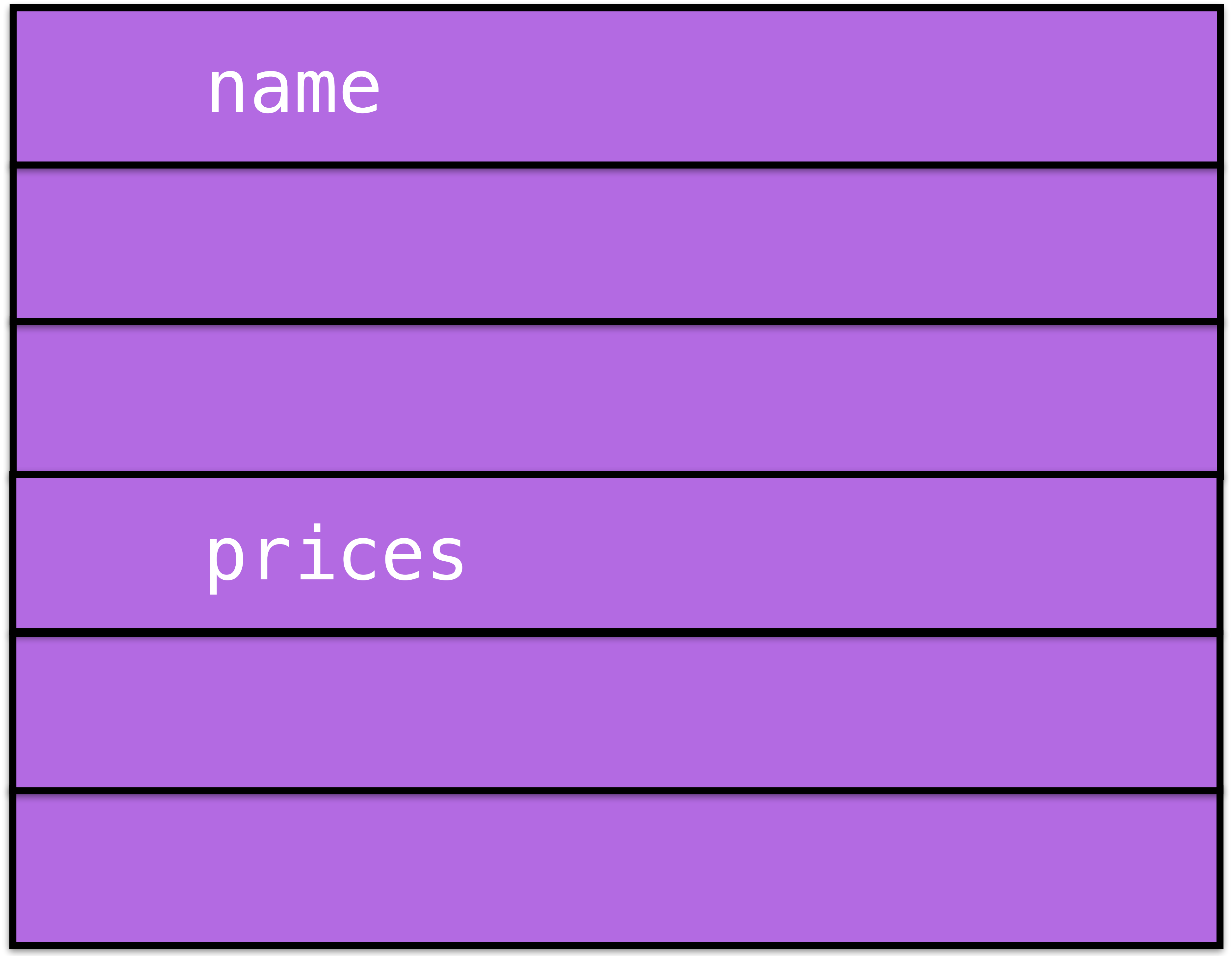

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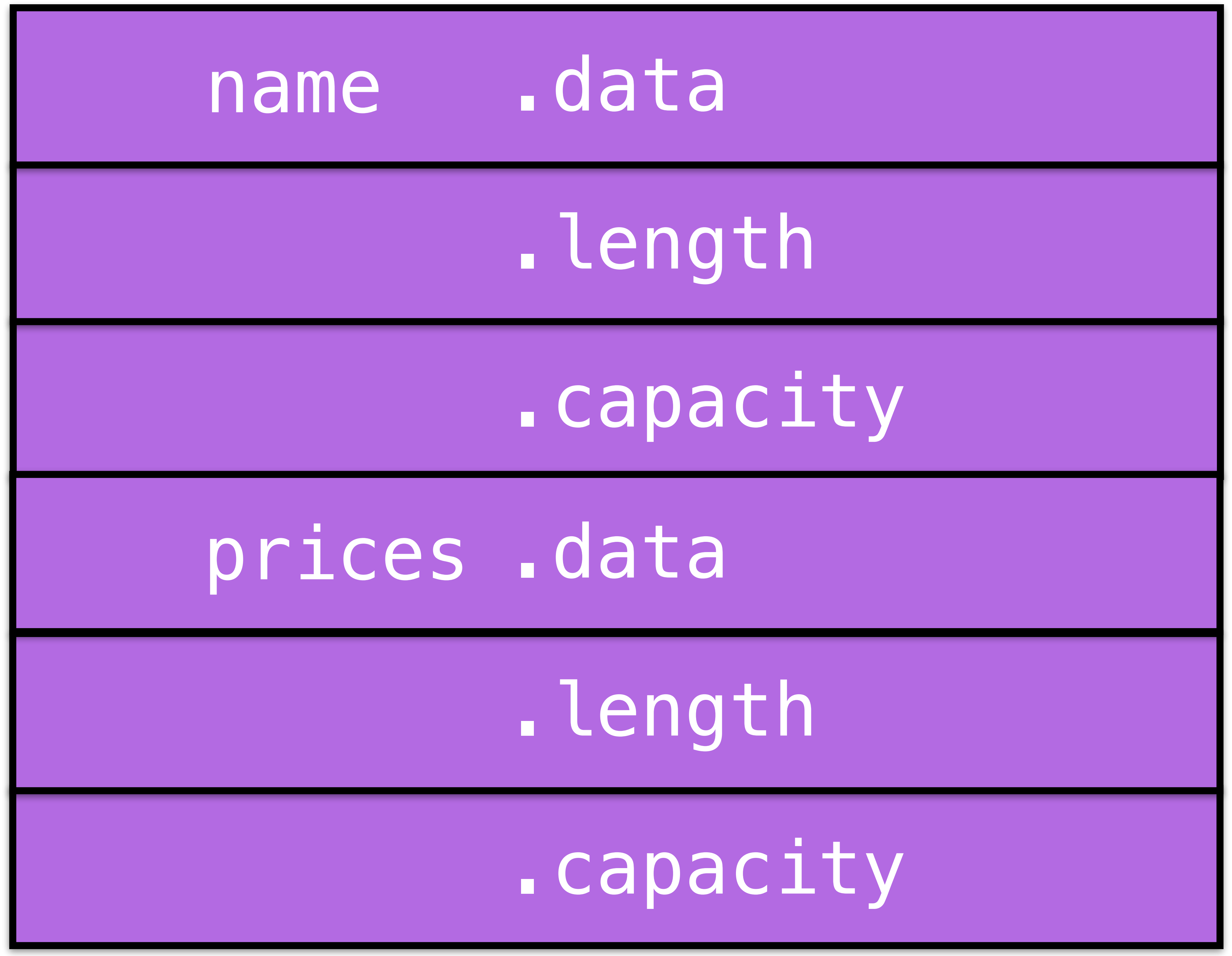

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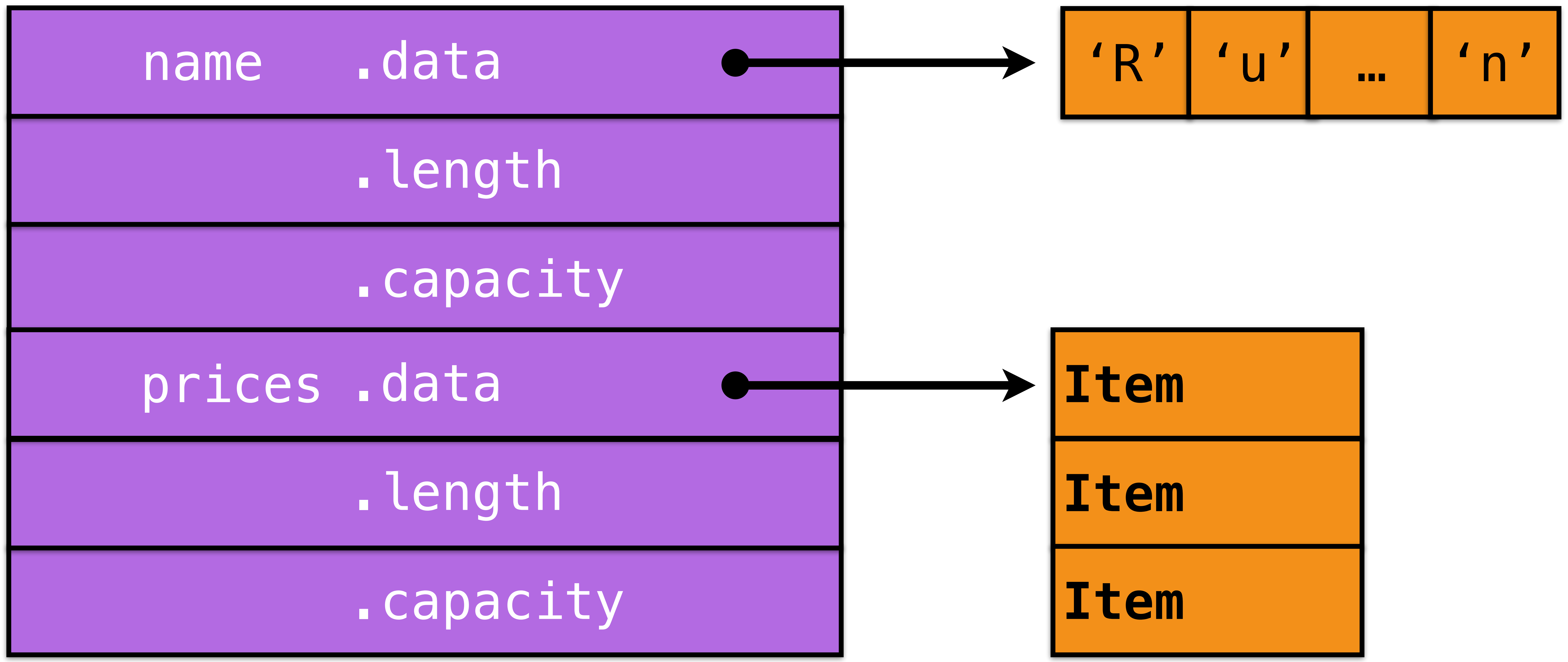

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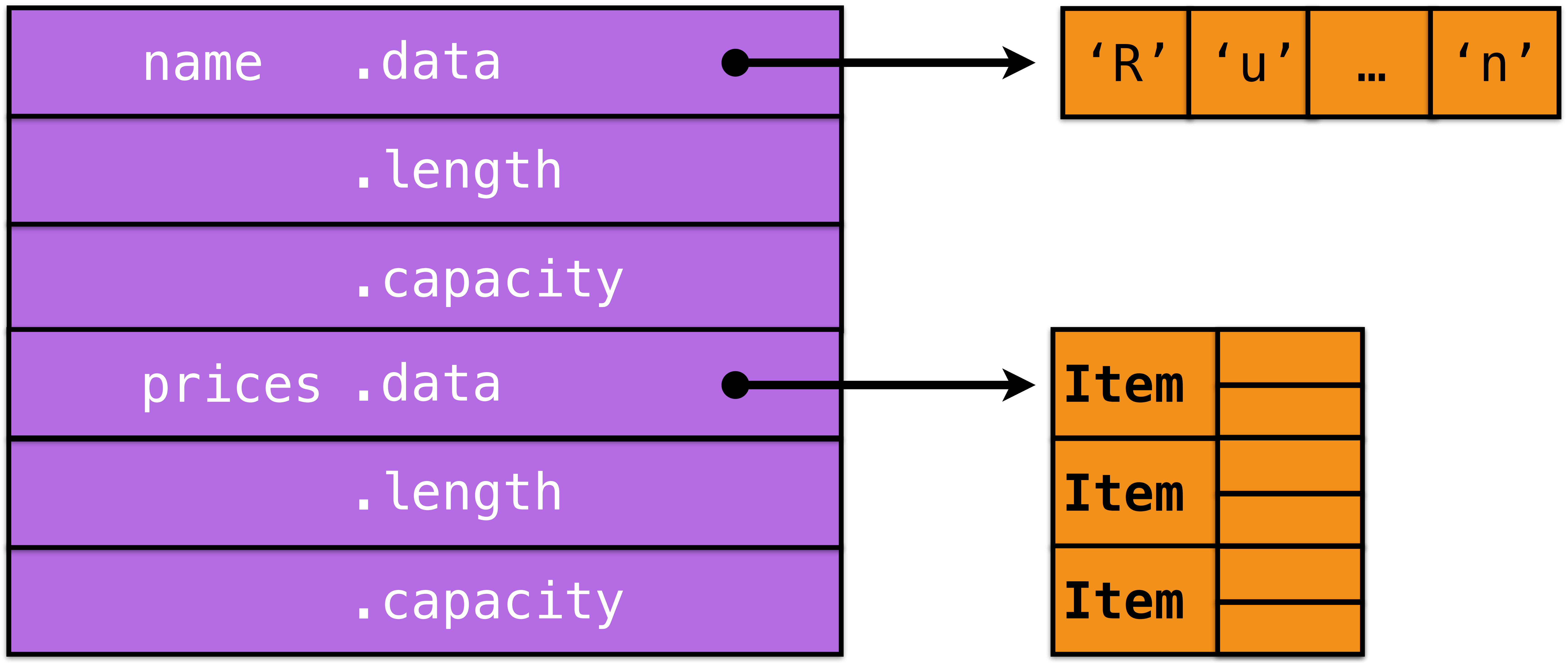

```rust
struct Item {
    name: String,
    price: f32,
}
```

Other fundamental types

`f32`	`i8`	`u8`	`&str`
`f64`	`i16`	`u16`	`&[T]`
	`i32`	`u32`	
	`i64`	`u64`	
	`isize`	`usize`	
floats	signed	unsigned	slices

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struct Store { .. }
struct Item { .. }

impl Store {
  fn add_item(&mut self, item: Item) {
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  fn price(&self, item_name: &str) -> f32 {
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struct Store { .. }

impl Store {
  fn new(name: String) -> Store {
    return Store {
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Return is optional

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Return is optional

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No `;` on last expression:
“return this value”

Options and Enums

```
enum Option<T> {
  Some(T),
  None
}
fn main() {
  use Option::*;
  let v: Option<i32> = Some(22);
  match v {
    Some(x) => println!(“v = {}”, x),
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  println!(“v = {}”, v.unwrap()); // risky
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For Loops

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fn main() {
  let v = vec![format!(“Alpha”),
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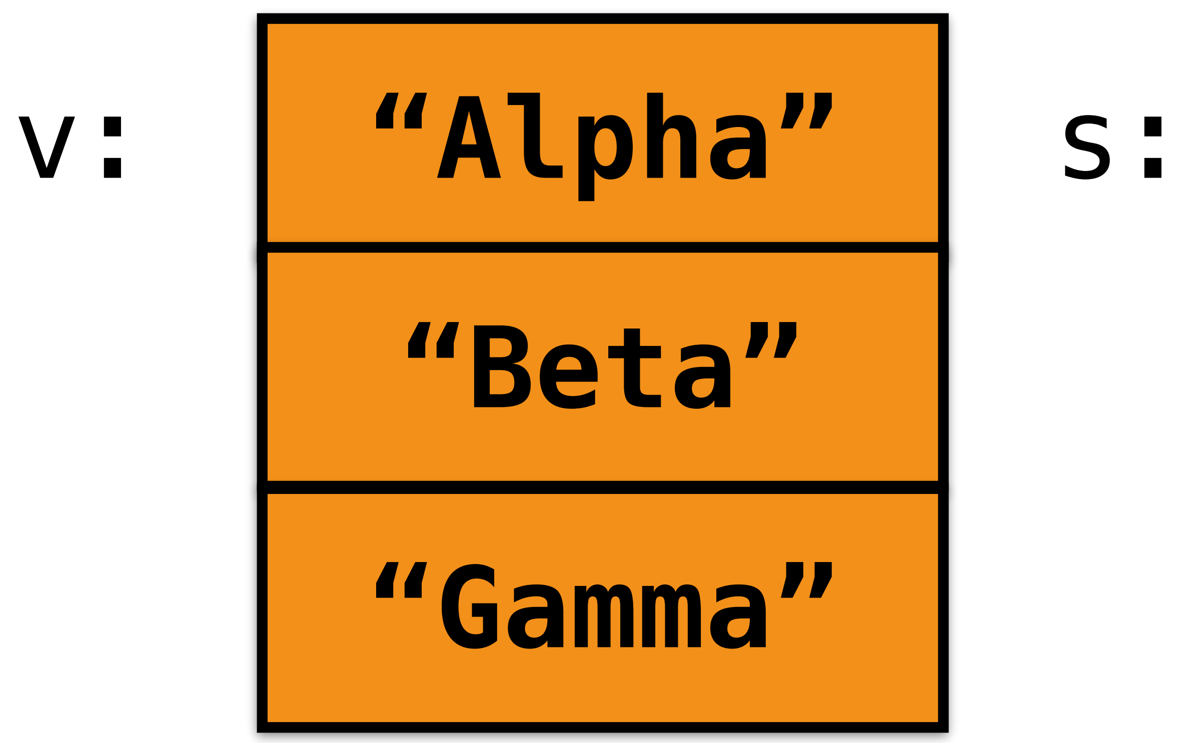

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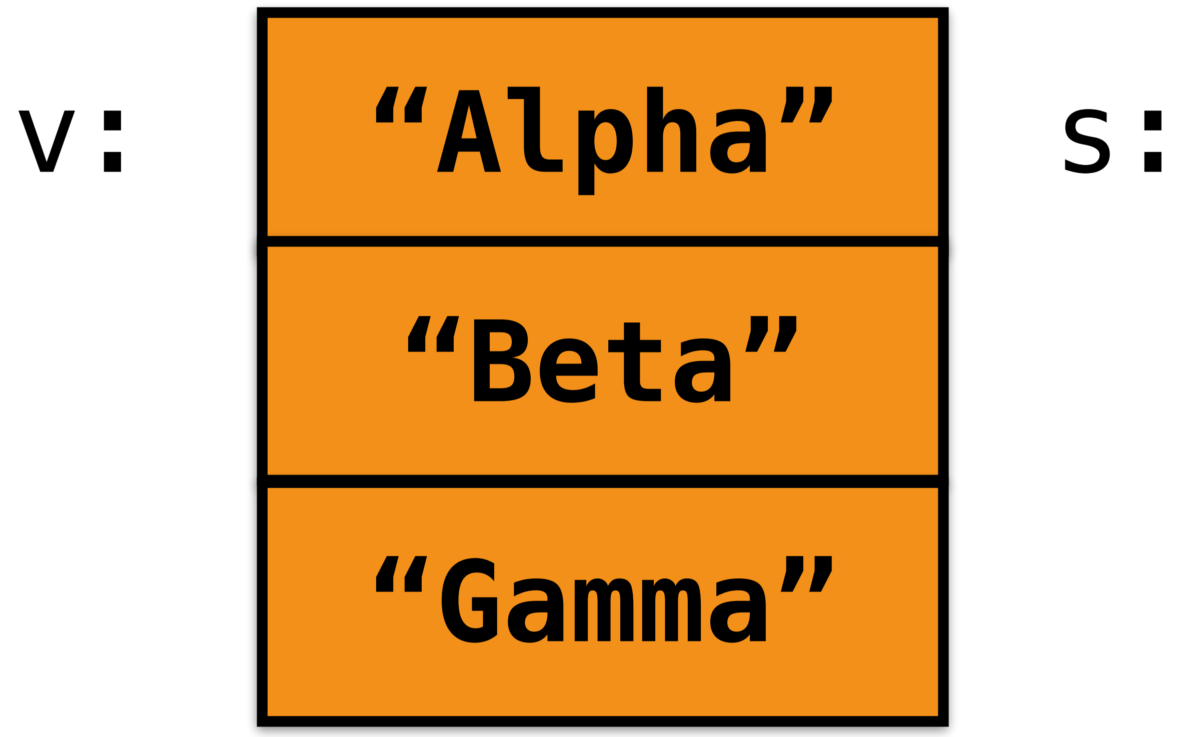

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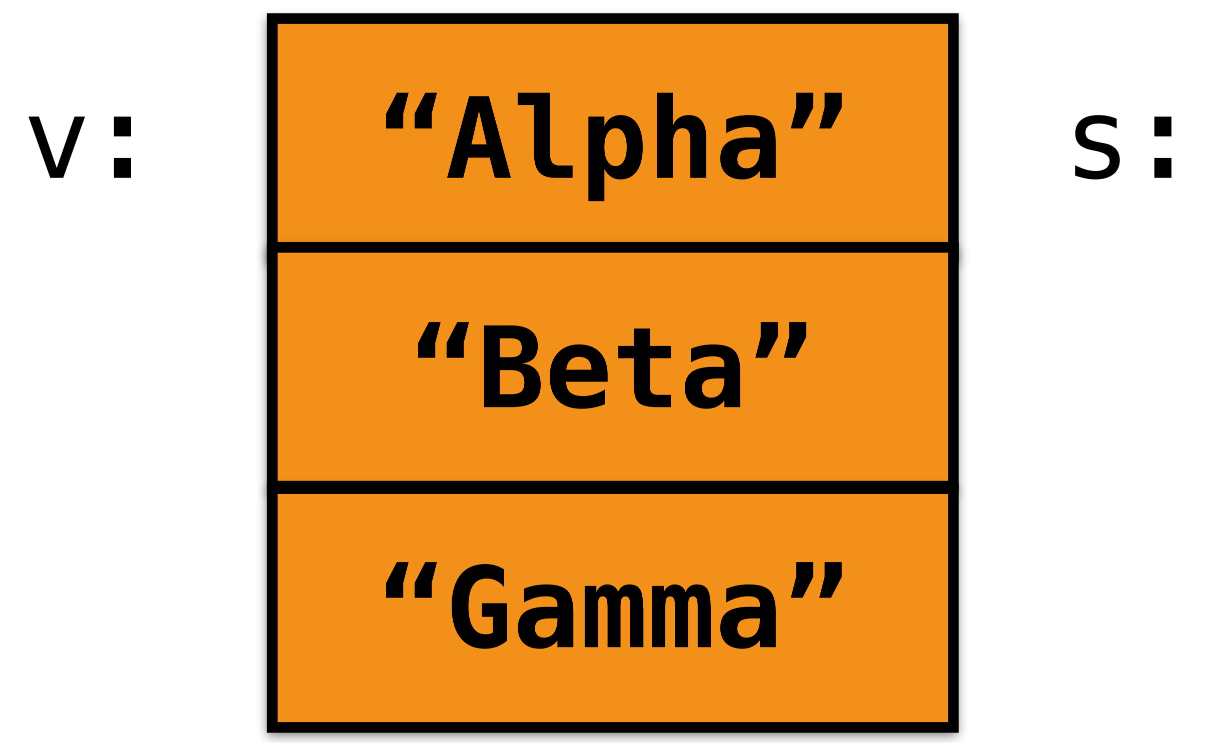

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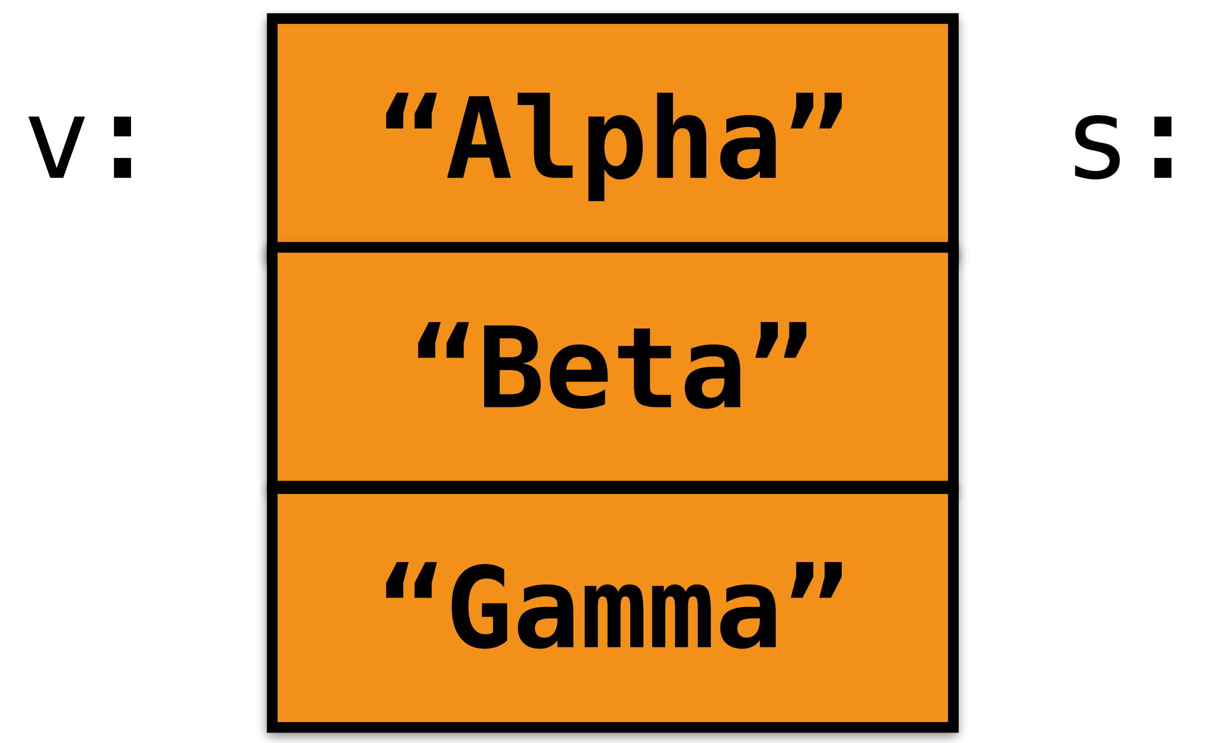

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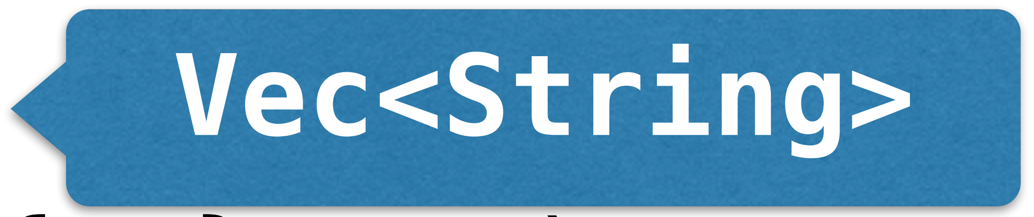

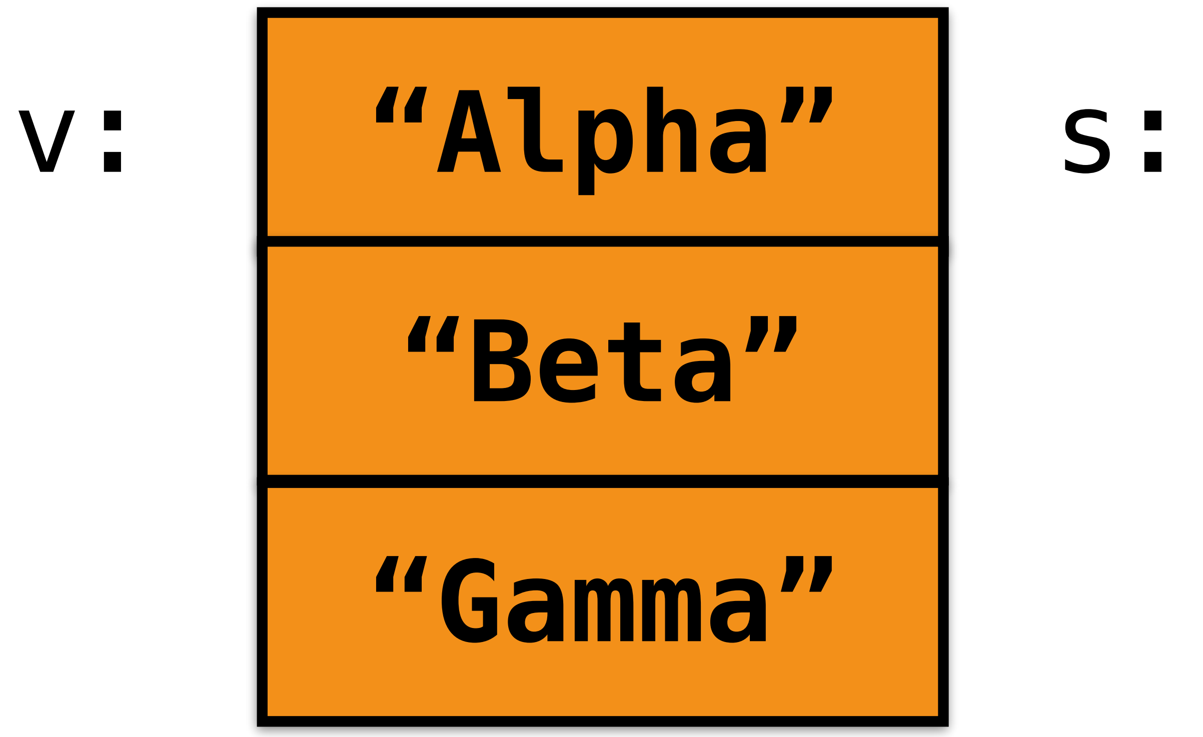

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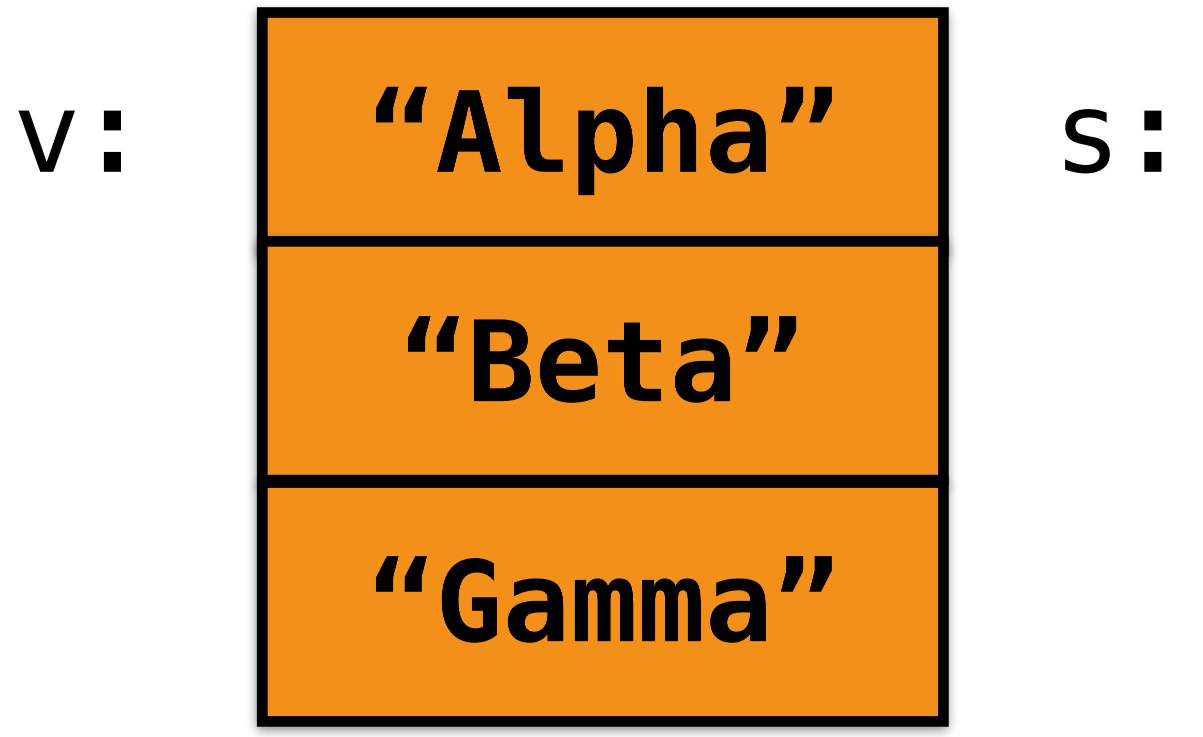
String

Vec<String>



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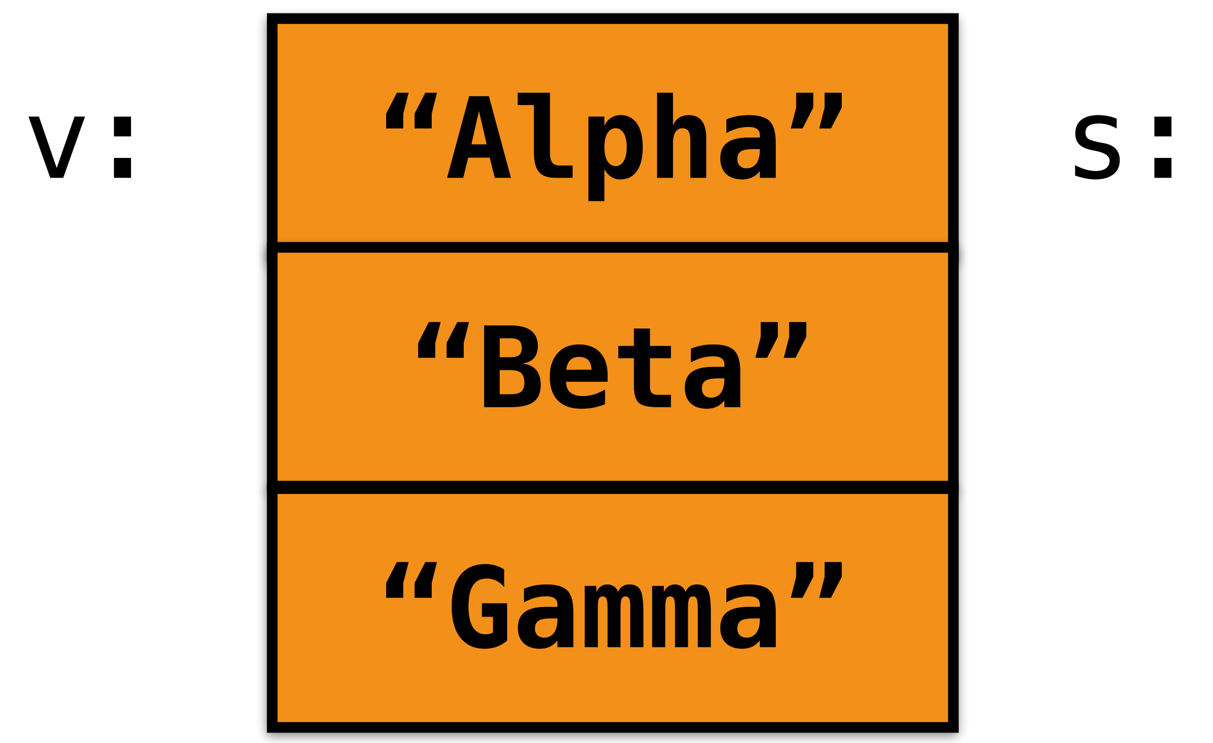

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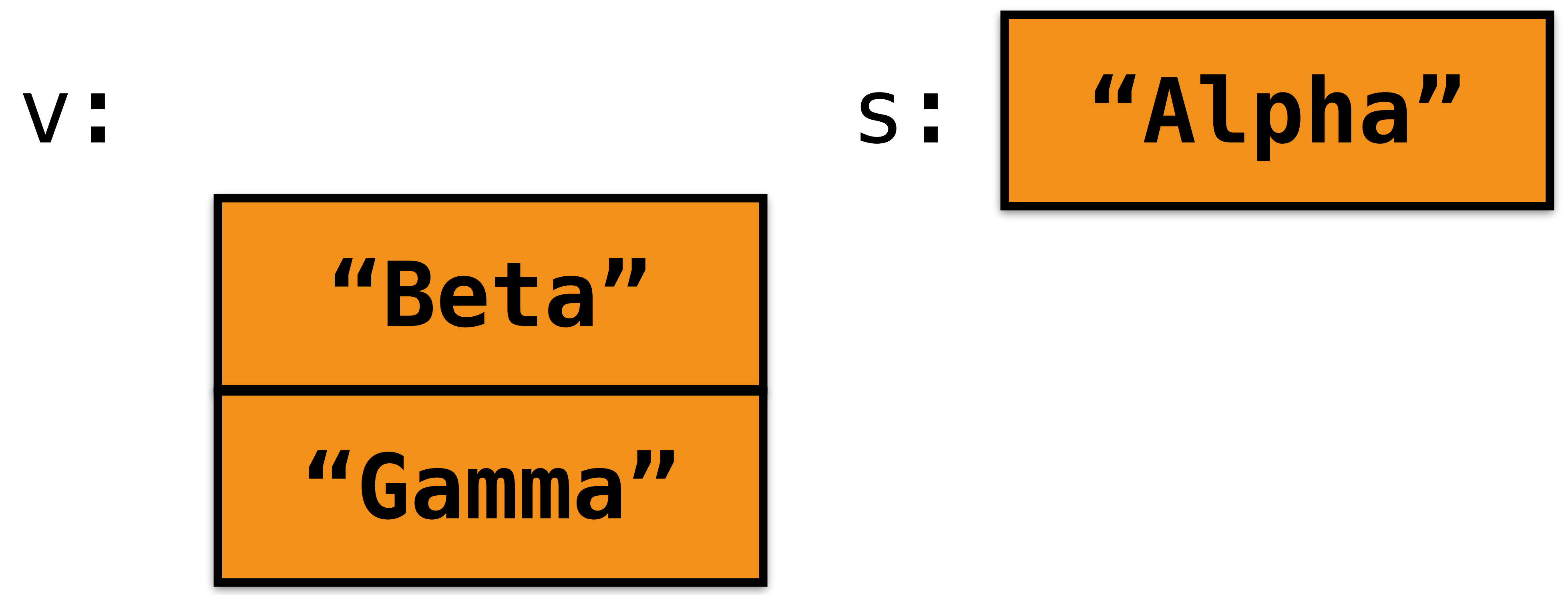

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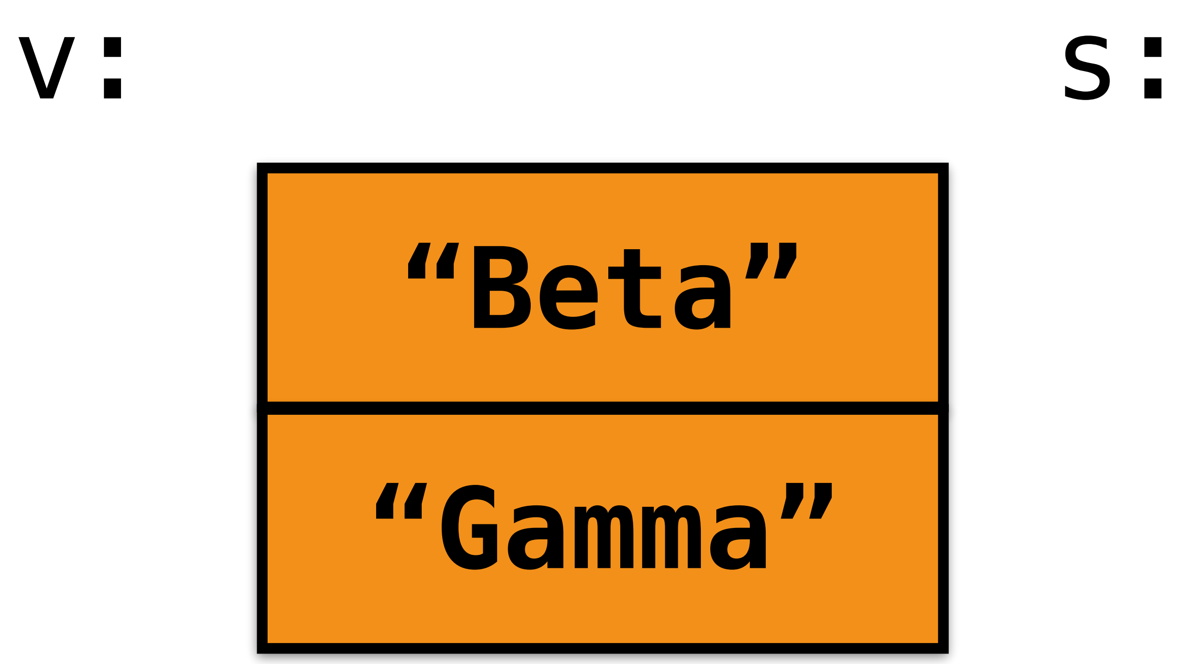
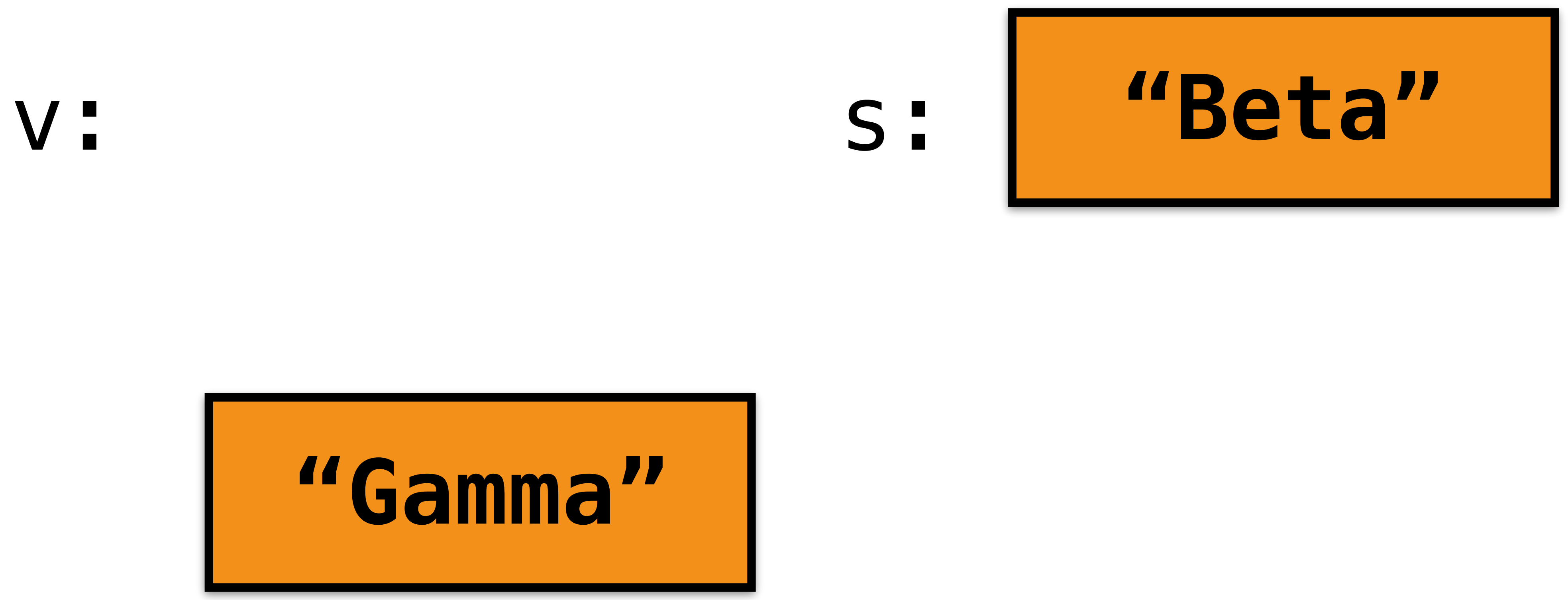


For Loops

```
fn main() {
  let v = vec![format!("Alpha"),
               format!("Beta"),
               format!("Gamma")];
  for s in v {
    println!("{:?}", s);
  }
}
```



For Loops

```
fn main() {
  let v = vec![format!("Alpha"),
               format!("Beta"),
               format!("Gamma")];
  for s in v {
    println!("{:?}", s);
  }
}
```

v: s:

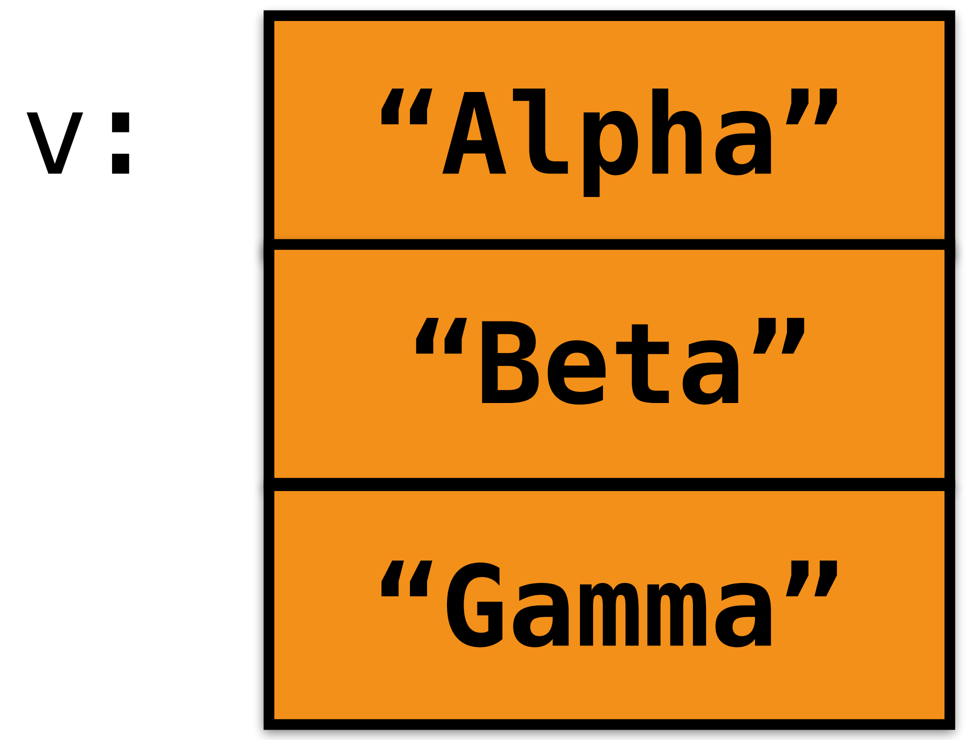
"Gamma"

For Loops

```
fn main() {
  let mut v = vec![format!(“Alpha”),
                   format!(“Beta”),
                   format!(“Gamma”)];

  for s in &v {
    println!(“{:?}”, s);
  }

  for s in &mut v {
    s.push_str(“.”);
  }
}
```

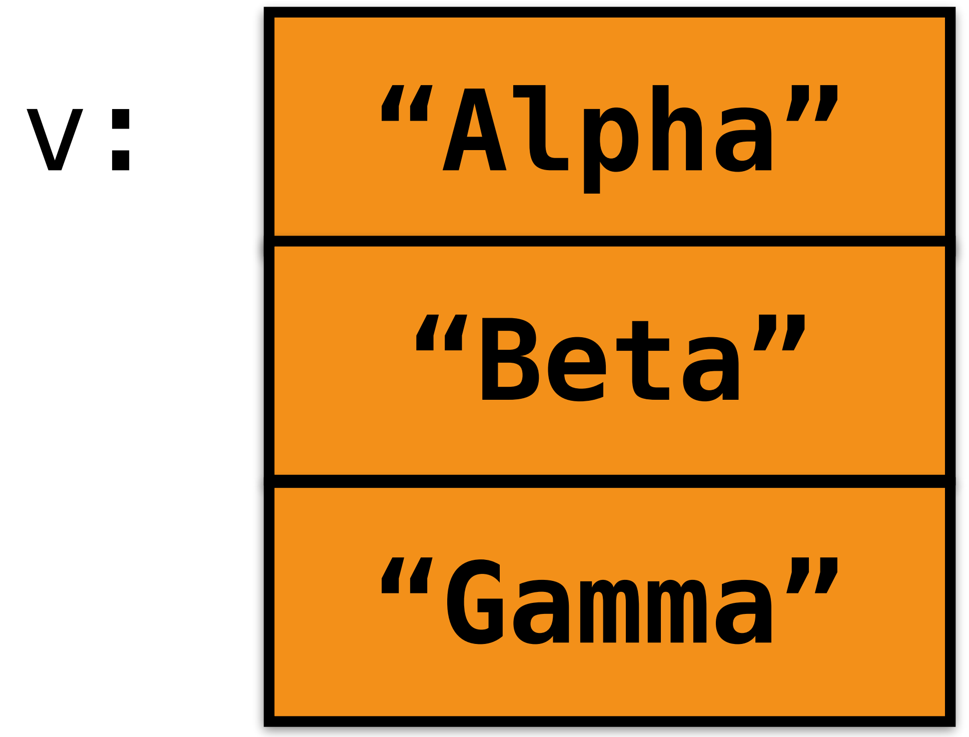


For Loops

```
fn main() {
  let mut v = vec![format!("Alpha"),
                   format!("Beta"),
                   format!("Gamma")];

  for s in &v {
    println!("{:?}", s);
  }

  for s in &mut v {
    s.push_str(".");
  }
}
```

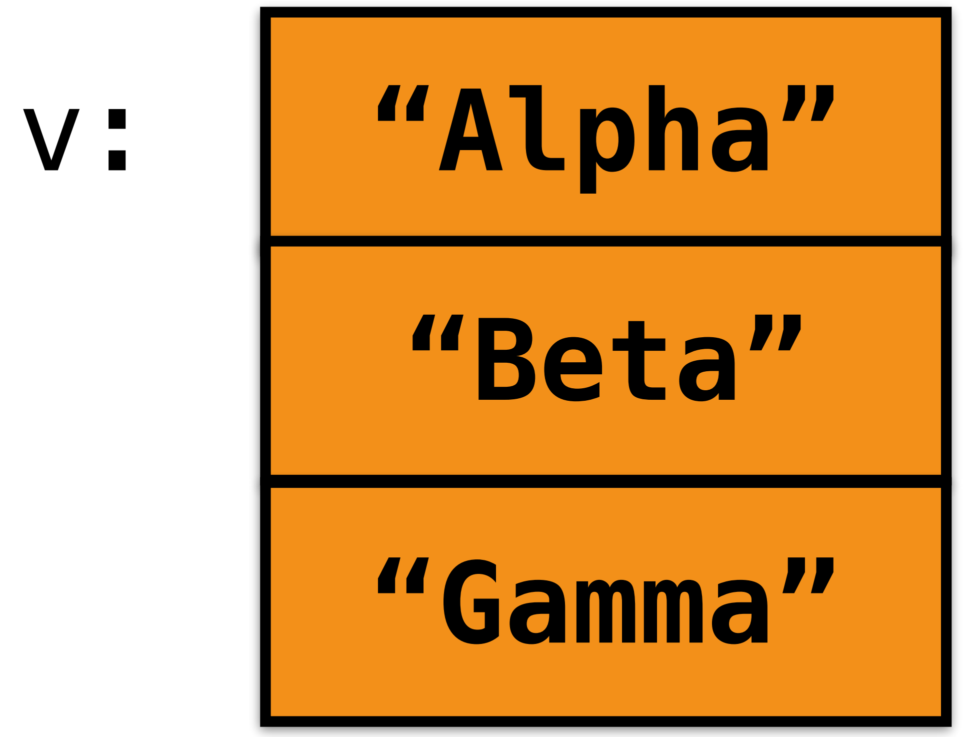


For Loops

```
fn main() {
  let mut v = vec![format!(“Alpha”),
                   format!(“Beta”),
                   format!(“Gamma”)];

  for s in &v {   &Vec<String>
    println!(“{:?}”, s);
  }

  for s in &mut v {
    s.push_str(“.”);
  }
}
```



For Loops

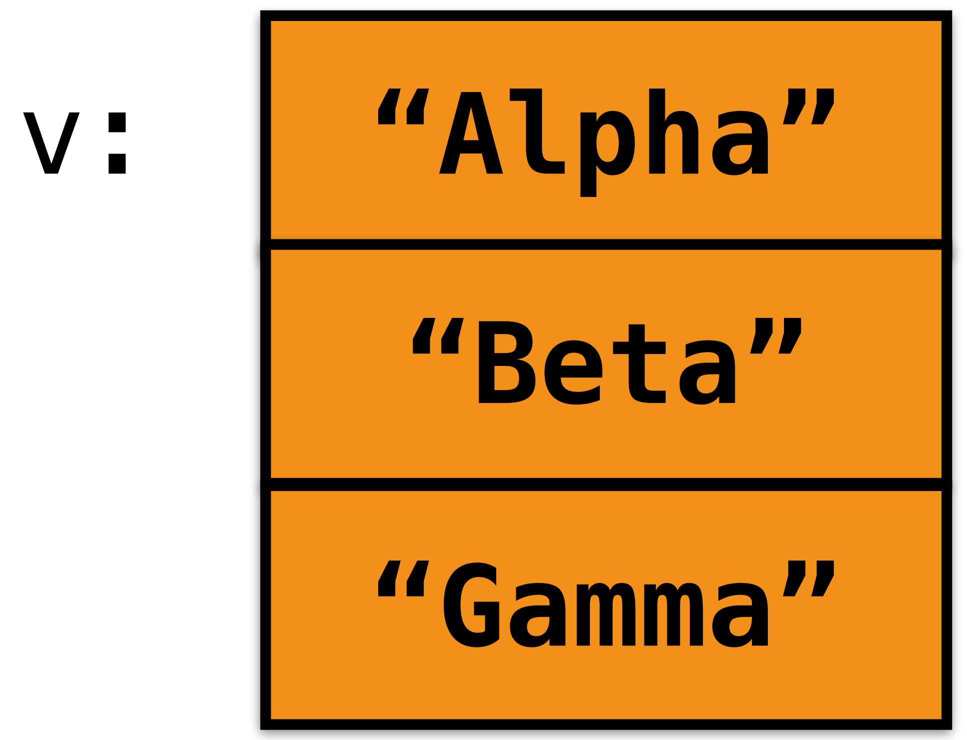
```
fn main() {
  let mut v = vec![format!("Alpha"),
                   format!("Beta"),
                   format!("Gamma")];

  for s in &v {
    println!("{:?}", s);
  }

  for s in &mut v {
    s.push_str(".");
  }
}
```

&String

&Vec<String>

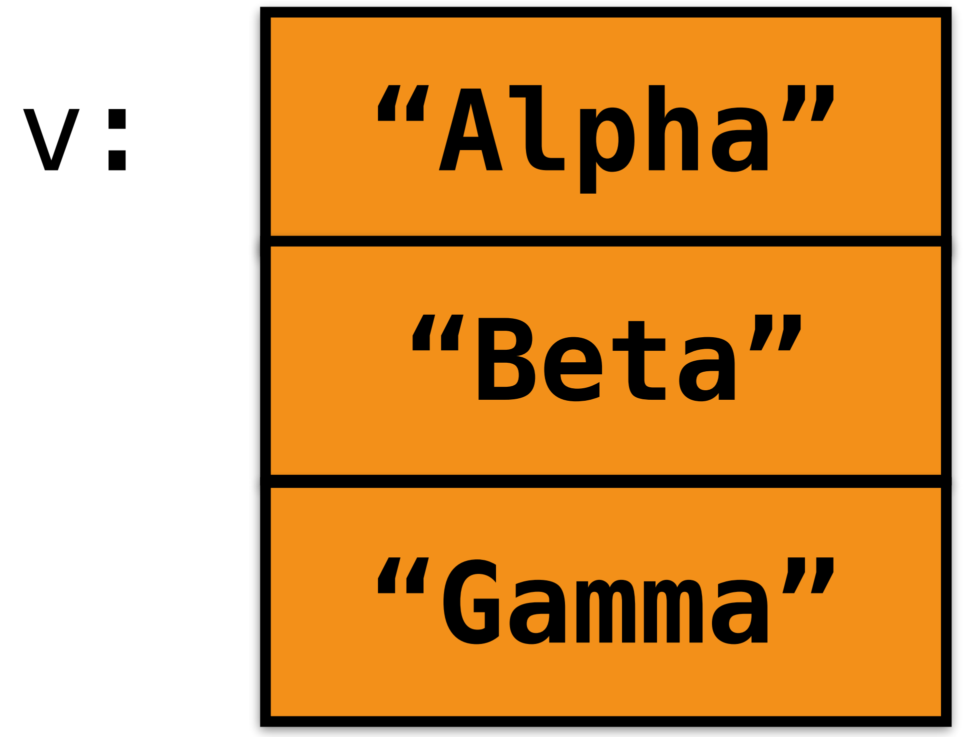


For Loops

```
fn main() {
  let mut v = vec![format!("Alpha"),
                   format!("Beta"),
                   format!("Gamma")];

  for s in &v {
    println!("{:?}", s);
  }

  for s in &mut v {
    s.push_str(".");
  }
}
```

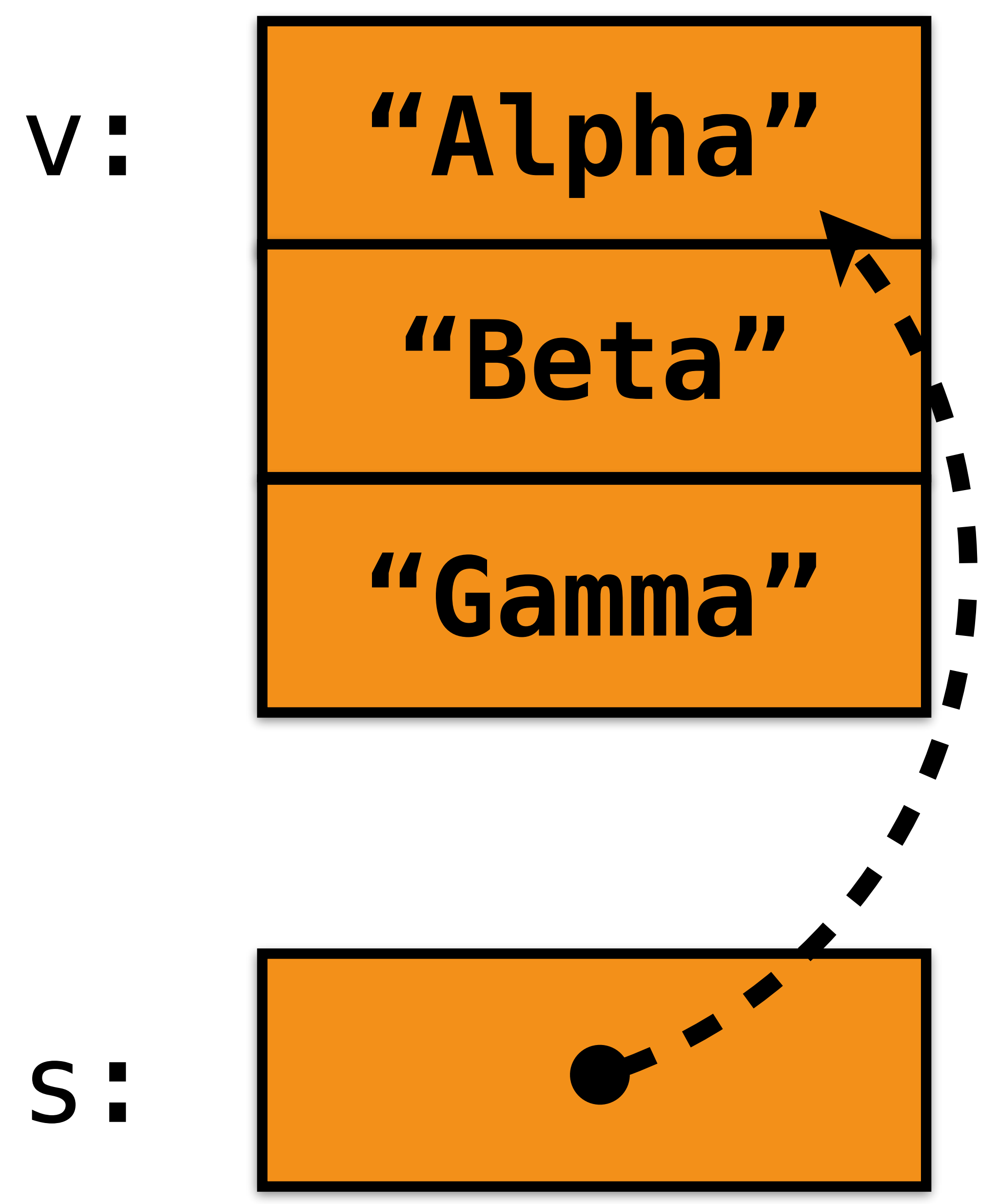


For Loops

```
fn main() {
  let mut v = vec![format!("Alpha"),
                   format!("Beta"),
                   format!("Gamma")];

  for s in &v {
    println!("{:?}", s);
  }

  for s in &mut v {
    s.push_str(".");
  }
}
```

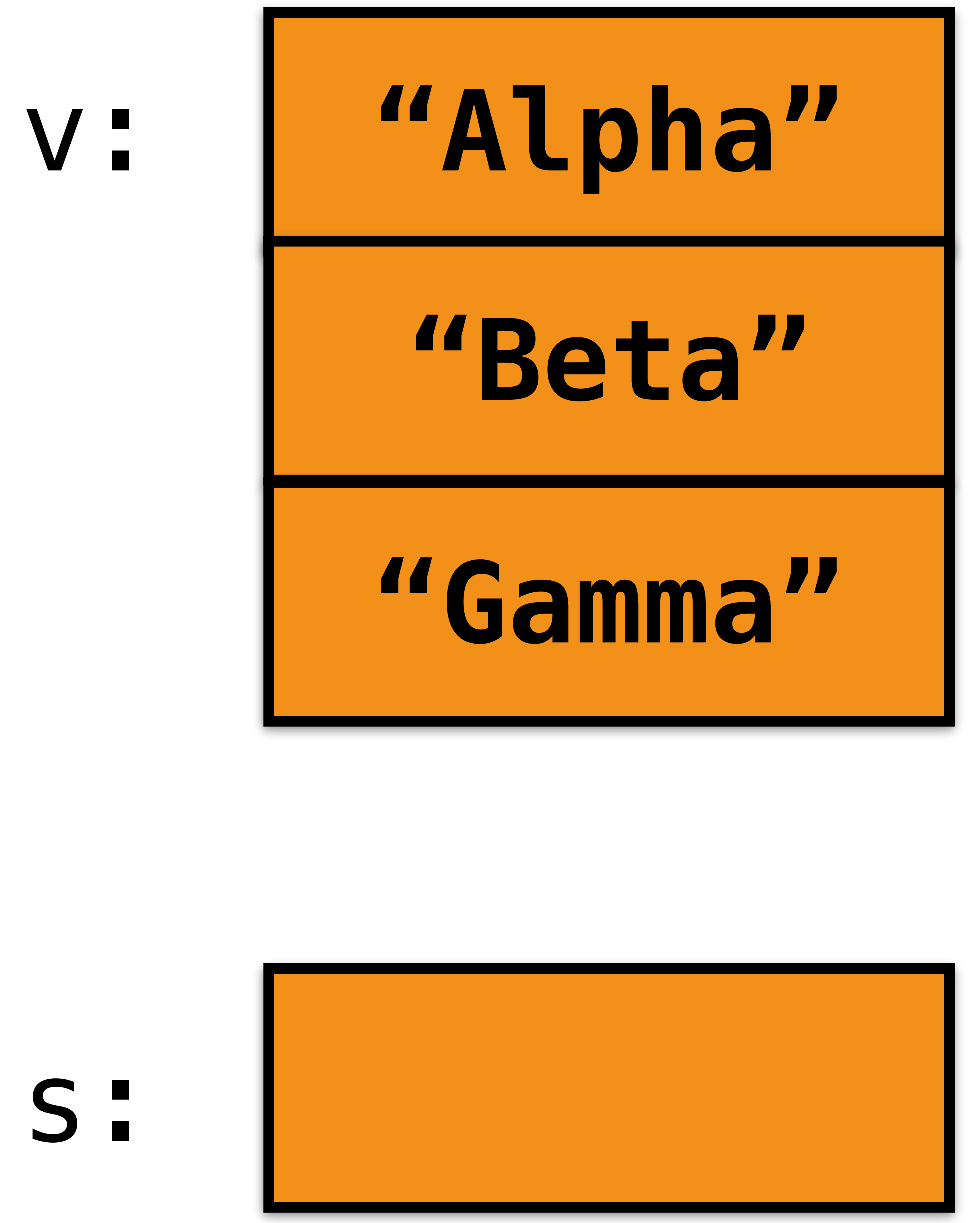


For Loops

```
fn main() {
  let mut v = vec![format!("Alpha"),
                   format!("Beta"),
                   format!("Gamma")];

  for s in &v {
    println!("{:?}", s);
  }

  for s in &mut v {
    s.push_str(".");
  }
}
```

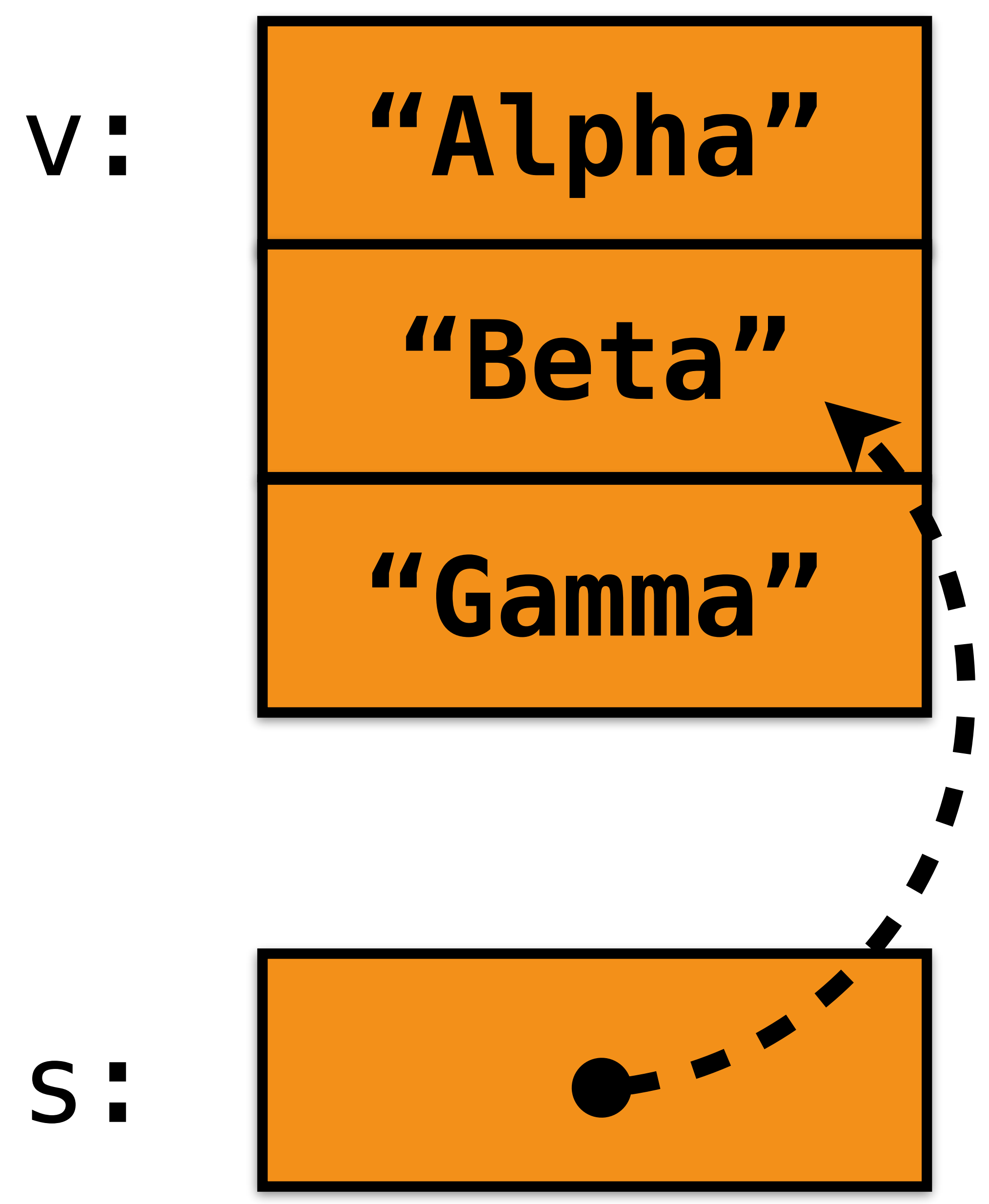


For Loops

```
fn main() {
  let mut v = vec![format!("Alpha"),
                   format!("Beta"),
                   format!("Gamma")];

  for s in &v {
    println!("{:?}", s);
  }

  for s in &mut v {
    s.push_str(".");
  }
}
```



For Loops

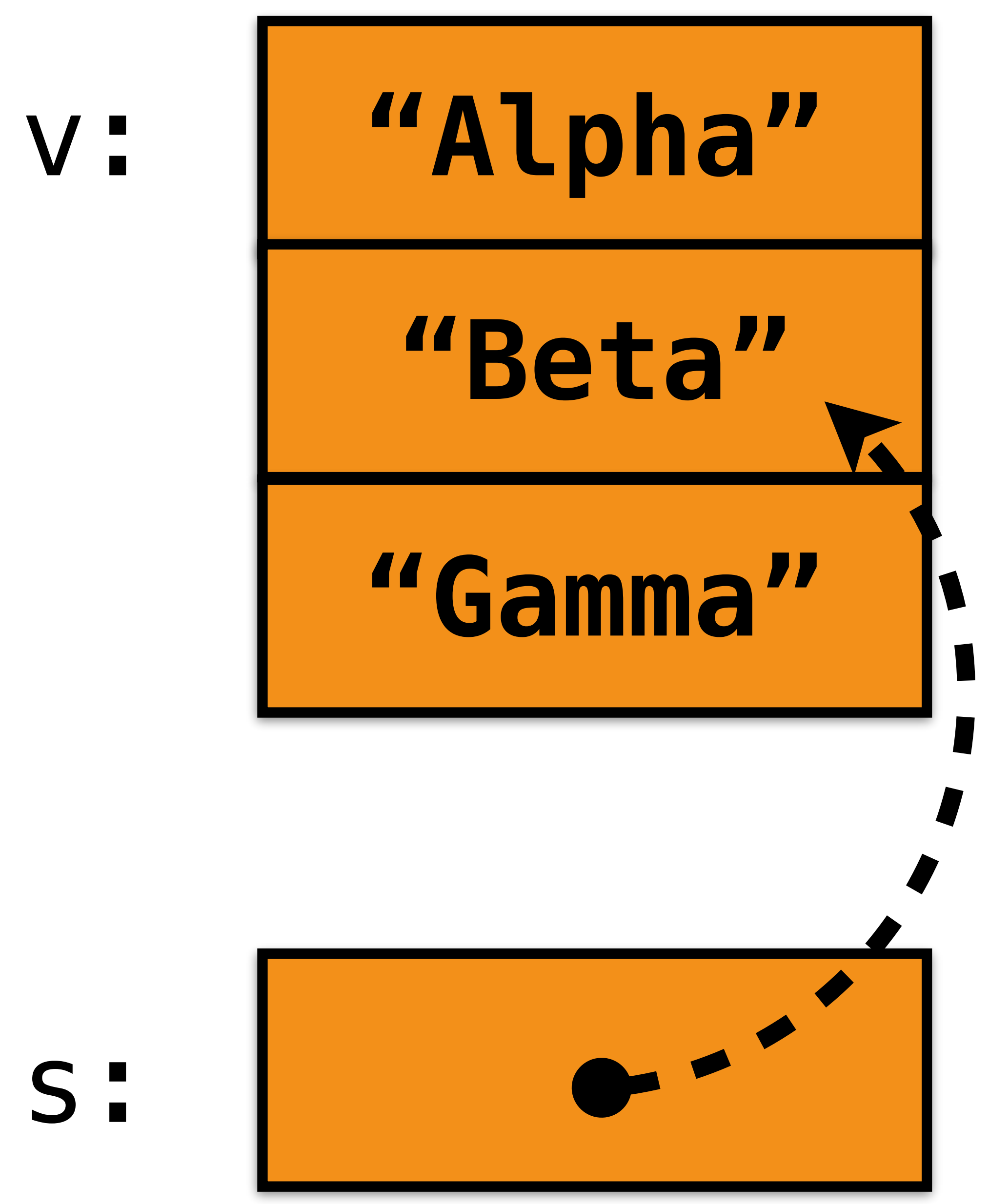
```
fn main() {
  let mut v = vec![format!(“Alpha”),
                   format!(“Beta”),
                   format!(“Gamma”)];

  for s in &v {
    println!(“{:?}”, s);
  }

  for s in &mut v {
    s.push_str(“.”);
  }
}
```

&mut String

&mut Vec<String>

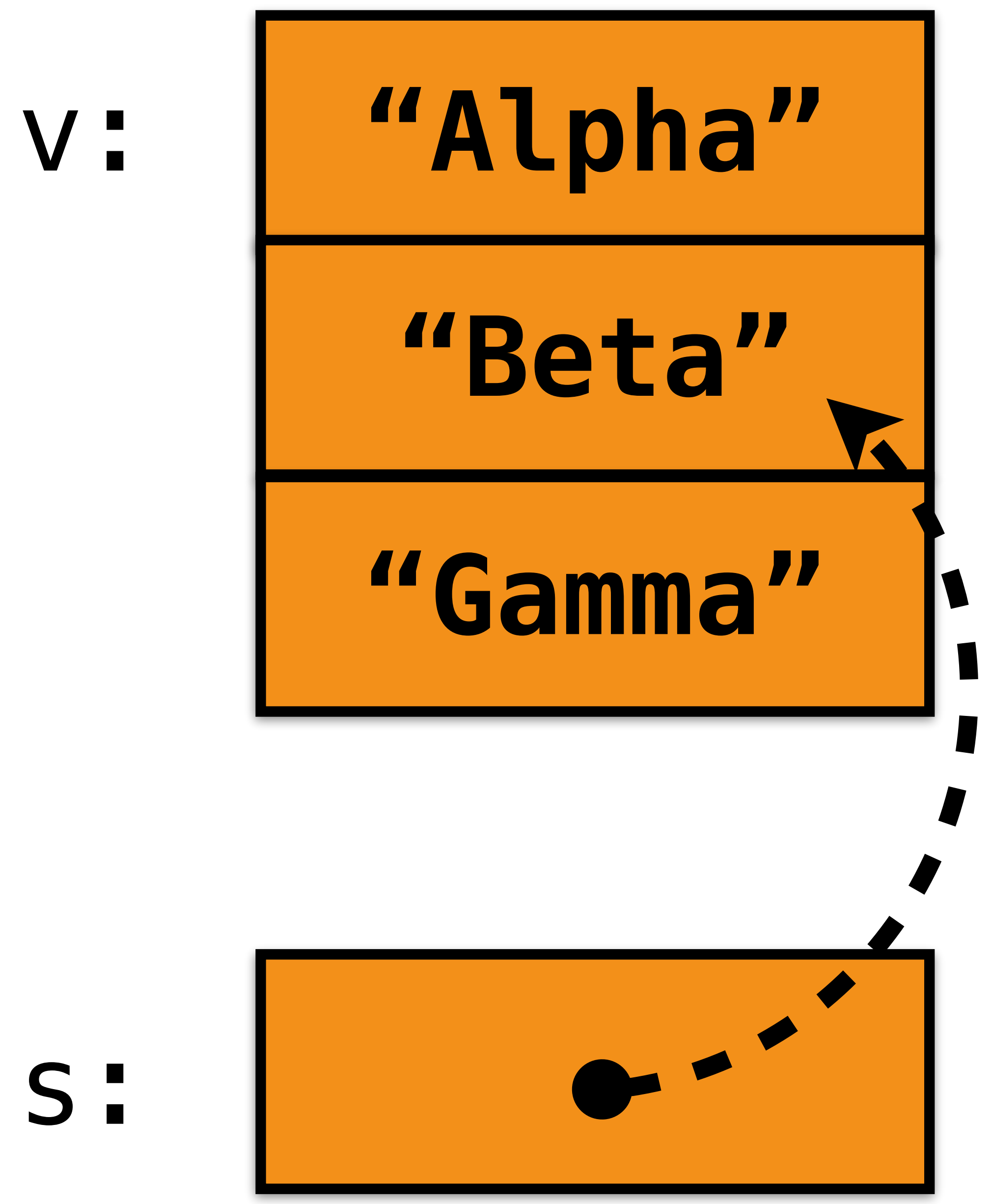


For Loops

```
fn main() {
  let mut v = vec![format!("Alpha"),
                   format!("Beta"),
                   format!("Gamma")];


  for s in &v {
    println!("{:?}", s);
  }

  for s in &mut v {
    s.push_str(".");
  }
}
```



Exercise: **structs**

http://rust-tutorials.com/RustConf17

Implement

```
fn total_price(..)
```

Cheat sheet:

```
for s in v { … }          let mut some_var = 0.0;

for s in &v { … }         some_var += x;

while … { … }             println!(“{:?}”, s);
```

http://doc.rust-lang.org/std