

# Variance



# Takeaways

Variance question: if A extends B, should Thing[A] "extend" Thing[B]?

- yes – covariant
- no – invariant
- hell no, quite the contrary – contravariant

```
trait List[+A] // covariant
trait Semigroup[A] // invariant
trait Vet[-A] // invariant
```

Rule of thumb: how to determine variance

- if the type produces values of type A, then covariant
- if the type consumes values of type A, then contravariant
- otherwise, invariant

Variance positions

**Scala rocks**

