

- Because *merge* is **commutative**, Stanley and Lily can sync their local states in any order
- Because *merge* is **idempotent**, in the event of a network failure, Stanley and Lily can sync their local states multiple times for the same updates, and still end up with a consistent state

The G-Set

From a programmer's perspective

```
-- | A simple grow-only set, where the merge function is just a union of the sets
newtype GSet t = GSet (Set.HashSet t)
```

```
instance stateBasedCRDTGSet :: (Hashable t) => StateBasedCRDT (GSet t) where
    merge (GSet a) (GSet b) = GSet $ a <| b
```

```
query :: forall t. GSet t -> Set.HashSet t
query (GSet set) = set
```

```
insert :: forall t. Hashable t => t -> GSet t -> GSet t
insert value (GSet set) = GSet $ Set.insert value set
```

