

## **I**SOMORPHISMS

## Why

We often have two alebgras for which we can identify elements of the ground set.

## **Definition**

Let  $(A, +_A)$  and  $(B, +_B)$  be two algebras.<sup>1</sup>

An isomorphism between these two algebras is a bijection  $f: A \to B$  satisfying:

$$f(a +_A a') = f(a) +_B f(a')$$

and

$$f^{-1}(b +_B b') = f^{-1}(b) +_A f^{-1}(b').$$

<sup>&</sup>lt;sup>1</sup>Future editions will change this notation to avoid clashes with right and left identity elements (see *Identity Elements*).

