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0.1 Binary functions

0.1.1 Properties of binary functions

Binary functions can be written as:

$f(a, b) = a \oplus b$

A function is commutative if:

$x \oplus y = y \oplus x$

A function is associative if:

$(x \oplus y) \oplus z = x \oplus (y \oplus z)$

A function $\otimes$ is left distributive over $\oplus$ if:

$x \otimes (y \oplus z) = (x \otimes y) \oplus (x \otimes z)$

Alternatively, function $\otimes$ is right distributive over $\oplus$ if: $(x \oplus y) \otimes z = (x \otimes z) \oplus (y \oplus z)$

A function is distributive over another function if it both left and right distributive over it.