Fields

The set of all real numbers, $\mathbb{R}$, is a typical example of a **field**.

Fields

The set of all real numbers, $\mathbb{R}$, is a typical example of a **field**.
There are other fields, like $\mathbb{C}$ and $\{0, 1\}$.

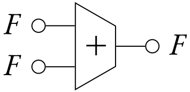
Fields

The set of all real numbers, $\mathbb{R}$, is a typical example of a **field**.
There are other fields, like $\mathbb{C}$ and $\{0, 1\}$. In general, a field $\mathbb{F}$ comprises a set F, a 3-sided relation $+$, a 3-sided relation $\cdot$, and inverse operators $+^{-1}$ and $\cdot^{-1}$, satisfying the following axioms:

Fields

The set of all real numbers, $\mathbb{R}$, is a typical example of a **field**.
There are other fields, like $\mathbb{C}$ and $\{0, 1\}$. In general, a field $\mathbb{F}$ comprises a set F, a 3-sided relation $+$, a 3-sided relation $\cdot$, and inverse operators $+^{-1}$ and $\cdot^{-1}$, satisfying the following axioms:

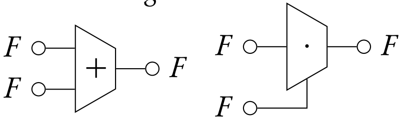
(Closure)



Fields

The set of all real numbers, $\mathbb{R}$, is a typical example of a **field**.
There are other fields, like $\mathbb{C}$ and $\{0, 1\}$. In general, a field $\mathbb{F}$ comprises
a set F, a 3-sided relation $+$, a 3-sided relation $\cdot$, and inverse operators $+^{-1}$ and $\cdot^{-1}$,
satisfying the following axioms:

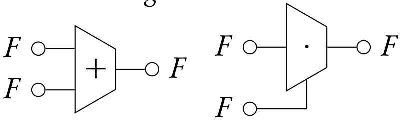
(Closure)



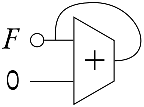
Fields

The set of all real numbers, $\mathbb{R}$, is a typical example of a **field**.
There are other fields, like $\mathbb{C}$ and $\{0, 1\}$. In general, a field $\mathbb{F}$ comprises a set F, a 3-sided relation $+$, a 3-sided relation $\cdot$, and inverse operators $+^{-1}$ and $\cdot^{-1}$, satisfying the following axioms:

(Closure)



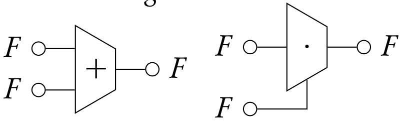
(Identities)



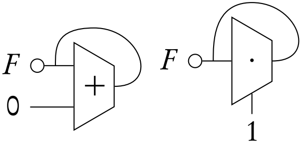
Fields

The set of all real numbers, $\mathbb{R}$, is a typical example of a **field**.
There are other fields, like $\mathbb{C}$ and $\{0, 1\}$. In general, a field $\mathbb{F}$ comprises a set F, a 3-sided relation $+$, a 3-sided relation $\cdot$, and inverse operators $+^{-1}$ and $\cdot^{-1}$, satisfying the following axioms:

(Closure)



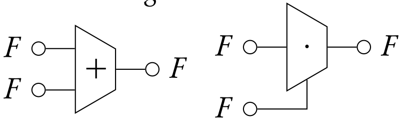
(Identities)



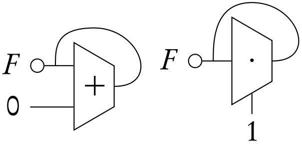
Fields

The set of all real numbers, $\mathbb{R}$, is a typical example of a **field**.
There are other fields, like $\mathbb{C}$ and $\{0, 1\}$. In general, a field $\mathbb{F}$ comprises a set F, a 3-sided relation $+$, a 3-sided relation $\cdot$, and inverse operators $+^{-1}$ and $\cdot^{-1}$, satisfying the following axioms:

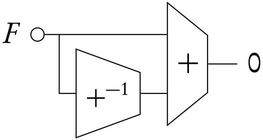
(Closure)



(Identities)



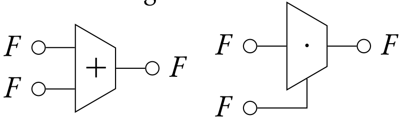
(Inverses)



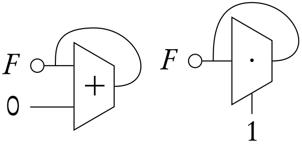
Fields

The set of all real numbers, $\mathbb{R}$, is a typical example of a **field**.
There are other fields, like $\mathbb{C}$ and $\{0, 1\}$. In general, a field $\mathbb{F}$ comprises a set F, a 3-sided relation $+$, a 3-sided relation $\cdot$, and inverse operators $+^{-1}$ and $\cdot^{-1}$, satisfying the following axioms:

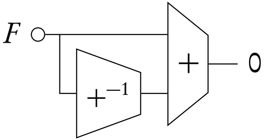
(Closure)

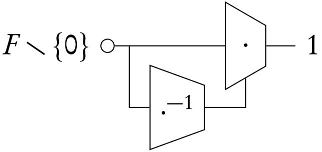


(Identities)



(Inverses)

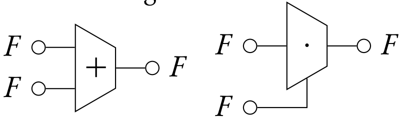




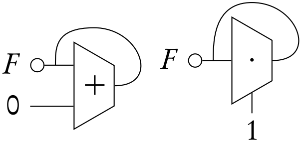
Fields

The set of all real numbers, $\mathbb{R}$, is a typical example of a **field**.
There are other fields, like $\mathbb{C}$ and $\{0, 1\}$. In general, a field $\mathbb{F}$ comprises a set F, a 3-sided relation $+$, a 3-sided relation $\cdot$, and inverse operators $+^{-1}$ and $\cdot^{-1}$, satisfying the following axioms:

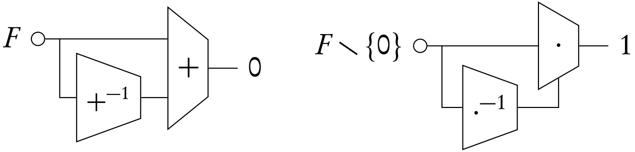
(Closure)



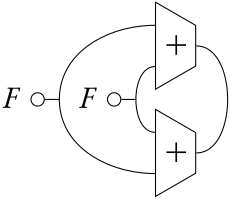
(Identities)



(Inverses)



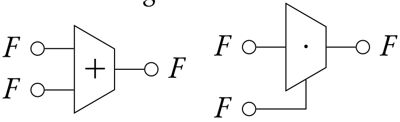
(Symmetry)



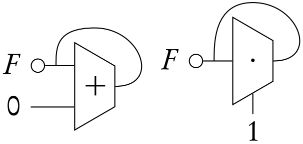
Fields

The set of all real numbers, $\mathbb{R}$, is a typical example of a **field**.
There are other fields, like $\mathbb{C}$ and $\{0, 1\}$. In general, a field $\mathbb{F}$ comprises a set F, a 3-sided relation $+$, a 3-sided relation $\cdot$, and inverse operators $+^{-1}$ and $\cdot^{-1}$, satisfying the following axioms:

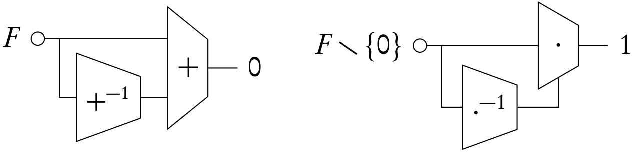
(Closure)



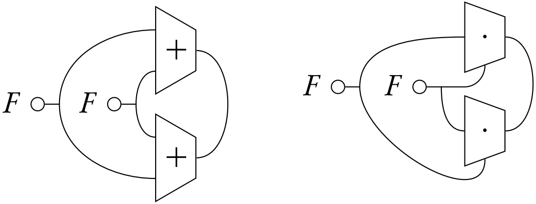
(Identities)



(Inverses)



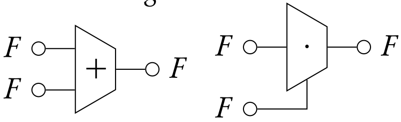
(Symmetry)



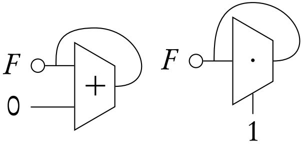
Fields

The set of all real numbers, $\mathbb{R}$, is a typical example of a **field**.
There are other fields, like $\mathbb{C}$ and $\{0, 1\}$. In general, a field $\mathbb{F}$ comprises a set F, a 3-sided relation $+$, a 3-sided relation $\cdot$, and inverse operators $+^{-1}$ and $\cdot^{-1}$, satisfying the following axioms:

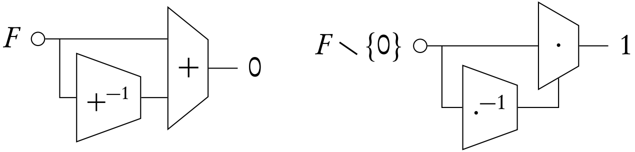
(Closure)



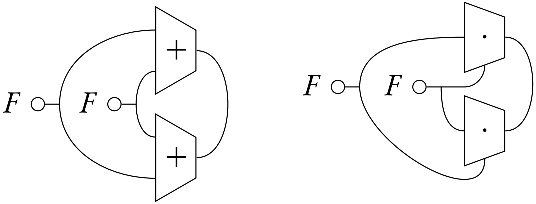
(Identities)



(Inverses)



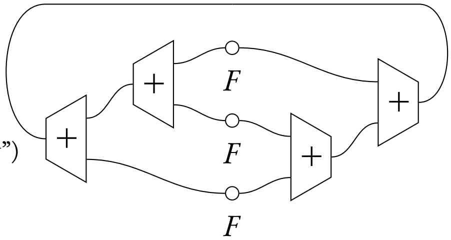
(Symmetry)



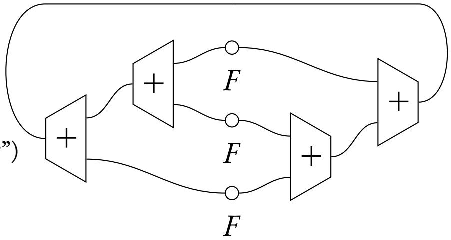
$\Leftarrow$ (some call these "commutativity")

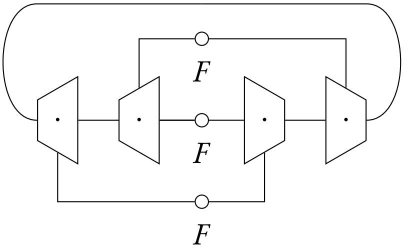
Fields (continued)

("Associativity")



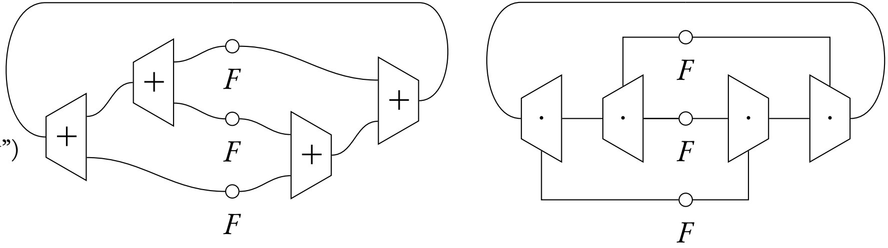
Fields (continued)

(“Associativity”) 

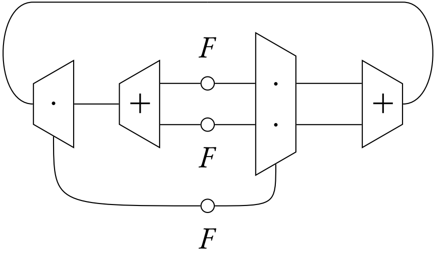


Fields (continued)

(“Associativity”)

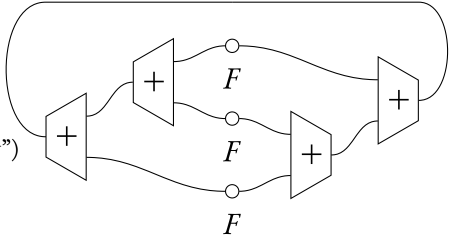


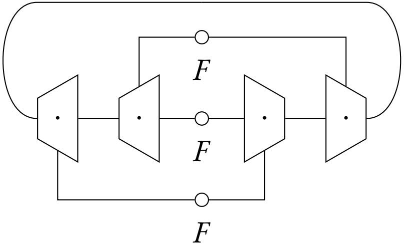
(“Distributivity”)



Fields (continued)

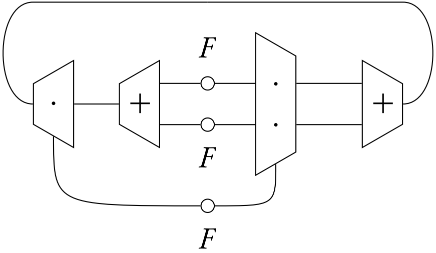
(“Associativity”)



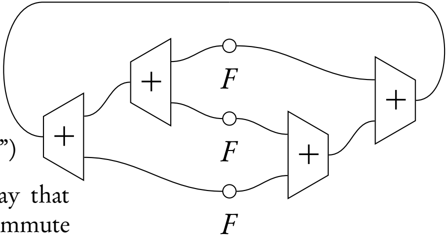


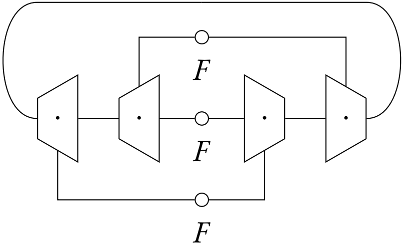
(“Distributivity”)

What this really says is that + (addition) and · (scaling) commute with each other!



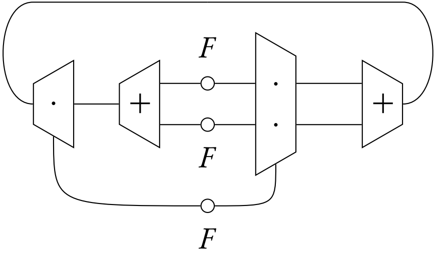
Fields (continued)





("Associativity")

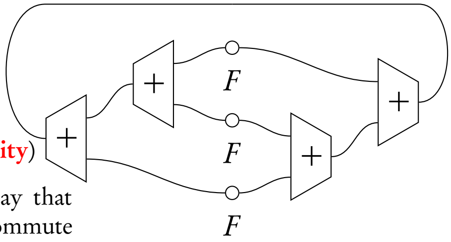
These really say that additions commute with other additions, and scalars commute with other scalars!

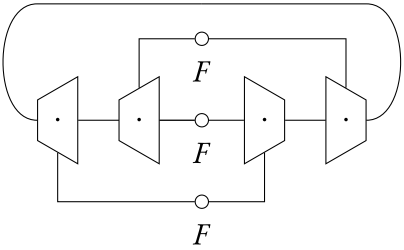


("Distributivity")

What this really says is that + (addition) and · (scaling) commute with each other!

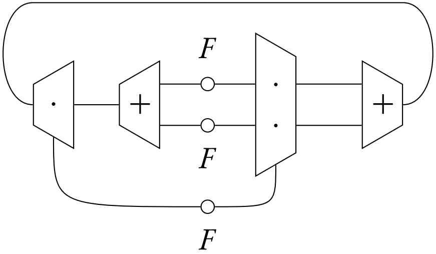
Fields (continued)





(**Commutativity**)

These really say that additions commute with other additions, and scalars commute with other scalars!



(**Commutativity**)

What this really says is that $+$ (addition) and $\cdot$ (scaling) commute with each other!