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natural deduction

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Natural deduction refers to related proof systems for several different kinds of logic, intended to be similar to the way people actually reason. Unlike many other proof systems, it has many rules and few axioms. Sequents in natural deduction have only one formula on the right side.

Typically the rules consist of one pair for each connective, one of which allows the introduction of that symbol and the other its elimination.

To give one example, the proof rules $\rightarrow I$ and $\rightarrow E$ are:

$$\frac{\Gamma, \alpha \Rightarrow \beta}{\Gamma \Rightarrow \alpha \rightarrow \beta}(\rightarrow I)$$

and

$$\frac{\Gamma \Rightarrow \alpha \rightarrow \beta \quad \Sigma \Rightarrow \alpha}{[\Gamma, \Sigma] \Rightarrow \beta}(\rightarrow E)$$