

Curious OCaml

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From logic rules to programming constructs

What logical connectives do you know?

\top	\perp	\wedge	\vee	\rightarrow
truth	falsehood	$a \wedge b$	$a \vee b$	$a \rightarrow b$
“trivial”	“impossible”	conjunction	disjunction	implication
	shouldn’t get	a and b	a or b	a gives b
		got both	got at least one	given a , we get b

How can we define them? Think in terms of *derivation trees*:

$$\frac{\frac{\text{a premise} \quad \text{another premise}}{\text{some fact}} \quad \frac{\text{a premise} \quad \text{another premise}}{\text{another fact}}}{\text{final conclusion}}$$

To define the connectives, we provide rules for using them: for example, a rule $\frac{a \ b}{c}$ matches parts of the tree that have two premises, represented by variables a and b , and have any conclusion, represented by variable c .

Rules for Logical Connectives

Introduction rules say how to produce a connective. Elimination rules say how to use it. Text in parentheses is comments. Letters are variables: stand for anything.

Try to use only the connective you define in its definition.

TODO