Curious OCaml

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From logic rules to programming constructs

What logical connectives do you know?

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

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

$$\dfrac{\dfrac{\overline{\text{a premise}}\quad\overline{\text{another premise}}}{\overline{\text{some fact}}}\qquad\dfrac{\overline{\text{a premise}}\quad\overline{\text{another premise}}}{\overline{\text{another fact}}}}{\text{final conclusion}}$$

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