1 Introduction

This is a simple document to get you up and running with LaTeX. See the fUZZ manual (`http://spivey.oriel.ox.ac.uk/mike/fuzz/fuzzman.pdf`) for a good introduction to the symbols we use.

2 Maths

We drop into math-font simply: the variable, $x \in \{1, 2, 3\}$.

3 Types, etc.

This is a basic definition:

$[A]$

This is a free type definition:

$B ::= b1 \mid b2$

This is an axiomatic definition:

$$
\begin{array}{|l}
var_1, var_2 : B \\
\hline
var_1 \neq var_2
\end{array}
$$

This is an abbreviation:

$Pair == A \times B$

And here's a generic axiomatic definition:

$$
\begin{array}{|l}
[X, Y] \\
\hline
first : (X \times Y) \to X \\
second : (X \times Y) \to Y \\
\hline
\forall x : X;\ y : Y \bullet first\,(x, y) = x \\
\forall x : X;\ y : Y \bullet second\,(x, y) = y
\end{array}
$$

4 Proofs

This is how to format a proof:

$$
\begin{aligned}
& (1 \times 2) + 3 \\
={}& 2 + 3 && [\text{definition of multliplication}] \\
={}& 5 && [\text{definition of addition}]
\end{aligned}
$$

5 Proof trees

$$\frac{\dfrac{\lceil p \wedge p \rceil^{[1]}}{p} \; [\wedge-\text{elim}]}{(p \wedge p) \Rightarrow p} \; [\Rightarrow-\text{intro}^{[1]}]$$

$$\frac{p \vee q \quad \dfrac{\lceil p \rceil^{[1]}}{q \vee p} \; [\vee-\text{intro}] \quad \dfrac{\lceil q \rceil^{[1]}}{q \vee p} \; [\vee-\text{intro}]}{q \vee p} \; [\vee-\text{elim}^{[1]}]$$

Here's an example from the solutions.
In one direction:

$$\frac{\dfrac{\lceil (p \wedge q) \vee (p \wedge r) \rceil^{[3]} \qquad \dfrac{\dfrac{\lceil p \wedge q \rceil^{[4]}}{p} [\wedge-\text{elim1}] \quad \dfrac{\dfrac{\lceil p \wedge q \rceil^{[4]}}{q} [\wedge-\text{elim2}]}{q \vee r} [\vee-\text{intro1}]}{p \wedge (q \vee r)} [\wedge-\text{intro}] \qquad \dfrac{\dfrac{\lceil p \wedge r \rceil^{[4]}}{p} [\wedge-\text{elim1}] \quad \dfrac{\dfrac{\lceil p \wedge r \rceil^{[4]}}{r} [\wedge-\text{elim2}]}{q \vee r} [\vee-\text{intro2}]}{p \wedge (q \vee r)} [\wedge-\text{intro}]}{p \wedge (q \vee r)} [\vee-\text{elim}^{[4]}]}{((p \wedge q) \vee (p \wedge r)) \Rightarrow (p \wedge (q \vee r))} [\Rightarrow-\text{intro}^{[3]}]$$

and the other:

$$\dfrac{\dfrac{\lceil p \wedge (q \vee r) \rceil^{[1]}}{p} \ [\wedge-\text{elim1}] \qquad \lceil r \rceil^{[2]}}{\dfrac{p \wedge r}{(p \wedge q) \vee (p \wedge r)} \ [\vee-\text{intro2}]} \ [\wedge-\text{intro}]$$

$$\dfrac{\dfrac{\lceil p \wedge (q \vee r) \rceil^{[1]}}{p} \ [\wedge-\text{elim1}] \qquad \lceil q \rceil^{[2]}}{\dfrac{p \wedge q}{(p \wedge q) \vee (p \wedge r)} \ [\vee-\text{intro1}]} \ [\wedge-\text{intro}]$$

$$\dfrac{\dfrac{\dfrac{\lceil p \wedge (q \vee r) \rceil^{[1]}}{q \vee r} \ [\wedge-\text{elim2}] \qquad \qquad}{(p \wedge q) \vee (p \wedge r)} \ [\vee-\text{elim}^{[2]}]}{(p \wedge (q \vee r)) \Rightarrow ((p \wedge q) \vee (p \wedge r))} \ [\Rightarrow-\text{intro}^{[1]}]$$