Constraint Power-Set Notation

by Sven Nilsen, 2017

The constraint power-set is written the following way:

$$f\{2\hat{}[g_i]\ b_i\} : [bool] \to Tf_{i \to n}$$

$$f : Tf_{i \to n}$$
$$g_{i \to n} : (Tf \to Tb)_{i \to n}$$
$$b_{i \to n} : Tb_{i \to n}$$

The constraint power-set creates a higher order function that returns a constrained function controlled by a binary encoding. The operation `2^...` is not arithmetic, but merely syntax for expressing the form of the power-set, using the exponent as pattern. This is needed because in the path `f[$g_{i \to n}$]` the arguments are separated to create the function type of the path.

If you think asymmetric path semantics is hard to read, just erase the indices to convert to symmetric path semantics:

$$f\{2\hat{}[g]\ b\} : [bool] \to Tf$$

$$f : Tf$$
$$g : Tf \to Tb$$
$$b : Tb$$