\begin{prooftree}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathbb{N}$ type}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathrm{s} : \mathbb{N} \to \mathbb{N}$}
\RightLabel{ev}
\UnaryInfC{$\Gamma, m{:}\mathbb{N} \vdash \mathrm{s}(m) : \mathbb{N}$}
\RightLabel{W}
\BinaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash \mathrm{s}(m) : \mathbb{N}$}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathbb{N}$ type}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathbb{N}$ type}
\RightLabel{δ}
\UnaryInfC{$\Gamma, n{:}\mathbb{N} \vdash n{:}\mathbb{N}$}
\RightLabel{W}
\BinaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash n{:}\mathbb{N}$}
\BinaryInfC{$\Gamma, m : \mathbb{N}, n : \mathbb{N} \vdash (\mathrm{s}(m) + n) : \mathbb{N}$}
\AxiomC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash (m + n) : \mathbb{N}$}
\UnaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash \mathrm{s}(m+n) : \mathbb{N}$}
\BinaryInfC{$\Gamma, m : \mathbb{N}, n : \mathbb{N} \vdash (\mathrm{s}(m) + n = \mathrm{s}(m + n))$ type}
\AxiomC{$\Gamma, m{:}\mathbb{N} \vdash m{+}0 \equiv m : \mathbb{N}$}
\UnaryInfC{$\Gamma, m{:}\mathbb{N} \vdash m \equiv m{+}0 : \mathbb{N}$}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathrm{s} : \mathbb{N} \to \mathbb{N}$}
\RightLabel{ev}
\UnaryInfC{$\Gamma, m{:}\mathbb{N} \vdash \mathrm{s}(m) : \mathbb{N}$}
\UnaryInfC{$\Gamma, m{:}\mathbb{N} \vdash \mathrm{s}(m) \equiv \mathrm{s}(m){+}0 : \mathbb{N}$}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathrm{s} : \mathbb{N} \to \mathbb{N}$}
\RightLabel{ev}
\UnaryInfC{$\Gamma, m{:}\mathbb{N} \vdash \mathrm{s}(m) : \mathbb{N}$}
\UnaryInfC{$\Gamma, m{:}\mathbb{N} \vdash \mathrm{refl}_{\mathrm{s}(m)} : \mathrm{s}(m) = \mathrm{s}(m)$}
\BinaryInfC{$\Gamma, m : \mathbb{N} \vdash \mathrm{refl}_{\mathrm{s}(m)} : \mathrm{s}(m) + 0 = \mathrm{s}(m)$}
\BinaryInfC{$\Gamma, m : \mathbb{N} \vdash \mathrm{refl}_{\mathrm{s}(m)} : \mathrm{s}(m) + 0 = \mathrm{s}(m + 0)$}
\AxiomC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash (\mathrm{s}(m){+}\mathrm{s}(n)) : \mathbb{N}$}
\AxiomC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash \mathrm{s}(m{+}\mathrm{s}(n)) : \mathbb{N}$}
\BinaryInfC{$\Gamma, m : \mathbb{N}, n : \mathbb{N} \vdash (\mathrm{s}(m) + \mathrm{s}(n) = \mathrm{s}(m + \mathrm{s}(n)))$ type}
\AxiomC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash m + \mathrm{s}(n) \equiv \mathrm{s}(m{+}n) : \mathbb{N}$}
\UnaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash \mathrm{s}(m{+}n) \equiv m + \mathrm{s}(n) : \mathbb{N}$}
\RightLabel{W}
\UnaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N}, a : \mathrm{s}(m){+}n = \mathrm{s}(m{+}n) \vdash \mathrm{s}(m{+}n) \equiv m{+}\mathrm{s}(n) : \mathbb{N}$}
\AxiomC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash \mathrm{s}(m) + \mathrm{s}(n) \equiv \mathrm{s}(\mathrm{s}(m) + n) : \mathbb{N}$}
\UnaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash \mathrm{s}(\mathrm{s}(m) + n) \equiv \mathrm{s}(m) + \mathrm{s}(n) : \mathbb{N}$}
\RightLabel{W}
\UnaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N}, a : \mathrm{s}(m){+}n = \mathrm{s}(m{+}n) \vdash \mathrm{s}(\mathrm{s}(m) + n) \equiv \mathrm{s}(m) + \mathrm{s}(n) : \mathbb{N}$}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathbb{N}$ type}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathrm{s} : \mathbb{N} \to \mathbb{N}$}
\RightLabel{ev}
\UnaryInfC{$\Gamma, m{:}\mathbb{N} \vdash \mathrm{s}(m) : \mathbb{N}$}
\RightLabel{W}
\BinaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash \mathrm{s}(m) : \mathbb{N}$}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathbb{N}$ type}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathbb{N}$ type}
\RightLabel{δ}
\UnaryInfC{$\Gamma, n{:}\mathbb{N} \vdash n{:}\mathbb{N}$}
\RightLabel{W}
\BinaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash n{:}\mathbb{N}$}
\BinaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash (\mathrm{s}(m){+}n) : \mathbb{N}$}
\AxiomC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash (m{+}n) : \mathbb{N}$}
\UnaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash \mathrm{s}(m{+}n) : \mathbb{N}$}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathrm{s} : \mathbb{N} \to \mathbb{N}$}
\RightLabel{W}
\UnaryInfC{$\Gamma, m{:}\mathbb{N} \vdash \mathrm{s} : \mathbb{N} \to \mathbb{N}$}
\RightLabel{W}
\UnaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash \mathrm{s} : \mathbb{N} \to \mathbb{N}$}
\UnaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash \mathrm{ap}_{\mathrm{s}} : \Pi_{(x:\mathbb{N})}\Pi_{(y:\mathbb{N})}(x{=}y \to \mathrm{s}(x){=}\mathrm{s}(y))$}
\RightLabel{ev}
\UnaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N}, x{:}\mathbb{N} \vdash \mathrm{ap}_{\mathrm{s}}(x) : \Pi_{(y:\mathbb{N})}(x{=}y \to \mathrm{s}(x){=}\mathrm{s}(y))$}
\RightLabel{ev}
\UnaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N}, x{:}\mathbb{N}, y{:}\mathbb{N} \vdash \mathrm{ap}_{\mathrm{s}}(x, y) : x{=}y \to \mathrm{s}(x){=}\mathrm{s}(y)$}
\RightLabel{S}
\BinaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N}, x{:}\mathbb{N} \vdash \mathrm{ap}_{\mathrm{s}}(x, \mathrm{s}(m{+}n)) : x{=}\mathrm{s}(m{+}n) \to \mathrm{s}(x){=}\mathrm{s}(\mathrm{s}(m + n))$}
\RightLabel{S}
\BinaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N} \vdash \mathrm{ap}_{\mathrm{s}}(\mathrm{s}(m){+}n, \mathrm{s}(m{+}n)) : \mathrm{s}(m){+}n{=}\mathrm{s}(m{+}n) \to \mathrm{s}(\mathrm{s}(m){+}n){=}\mathrm{s}(\mathrm{s}(m + n))$}
\RightLabel{ev}
\UnaryInfC{$\Gamma, m{:}\mathbb{N}, n{:}\mathbb{N}, a : \mathrm{s}(m) + n = \mathrm{s}(m + n) \vdash \mathrm{ap}_{\mathrm{s}}(\mathrm{s}(m){+}n, \mathrm{s}(m{+}n))(a) : \mathrm{s}(\mathrm{s}(m) + n) = \mathrm{s}(\mathrm{s}(m + n))$}
\BinaryInfC{$\Gamma, m : \mathbb{N}, n : \mathbb{N}, a : \mathrm{s}(m) + n = \mathrm{s}(m + n) \vdash \mathrm{ap}_{\mathrm{s}}(\mathrm{s}(m){+}n, \mathrm{s}(m{+}n))(a) : \mathrm{s}(m) + \mathrm{s}(n) = \mathrm{s}(\mathrm{s}(m + n))$}
\BinaryInfC{$\Gamma, m : \mathbb{N}, n : \mathbb{N}, a : \mathrm{s}(m) + n = \mathrm{s}(m + n) \vdash \mathrm{ap}_{\mathrm{s}}(\mathrm{s}(m){+}n, \mathrm{s}(m{+}n))(a) : \mathrm{s}(m) + \mathrm{s}(n) = \mathrm{s}(m + \mathrm{s}(n))$}
\RightLabel{λ}
\BinaryInfC{$\Gamma, m : \mathbb{N}, n : \mathbb{N} \vdash \lambda a\,.\,\mathrm{ap}_{\mathrm{s}}(\mathrm{s}(m){+}n, \mathrm{s}(m{+}n))(a) : \mathrm{s}(m) + n = \mathrm{s}(m + n) \to \mathrm{s}(m) + \mathrm{s}(n) = \mathrm{s}(m + \mathrm{s}(n))$}
\RightLabel{η}
\UnaryInfC{$\Gamma, m : \mathbb{N}, n : \mathbb{N} \vdash \mathrm{ap}_{\mathrm{s}}(\mathrm{s}(m){+}n, \mathrm{s}(m{+}n)) : \mathrm{s}(m) + n = \mathrm{s}(m + n) \to \mathrm{s}(m) + \mathrm{s}(n) = \mathrm{s}(m + \mathrm{s}(n))$}
\RightLabel{λ}
\UnaryInfC{$\Gamma, m : \mathbb{N} \vdash \lambda n.\,\mathrm{ap}_{\mathrm{s}}(\mathrm{s}(m){+}n, \mathrm{s}(m{+}n)) : \Pi_{(n:\mathbb{N})}\,(\mathrm{s}(m) + n = \mathrm{s}(m + n) \to \mathrm{s}(m) + \mathrm{s}(n) = \mathrm{s}(m + \mathrm{s}(n)))$}
\RightLabel{$\mathbb{N}$-ind}
\TrinaryInfC{$\Gamma, m : \mathbb{N} \vdash \mathrm{ind}_{\mathbb{N}}(\mathrm{refl}_{\mathrm{s}(m)}, \lambda n.\,\mathrm{ap}_{\mathrm{s}}(\mathrm{s}(m) + n, \mathrm{s}(m + n))) : \Pi_{(n:\mathbb{N})}(\mathrm{s}(m) + n = \mathrm{s}(m + n))$}
\RightLabel{λ}
\UnaryInfC{$\Gamma \vdash \lambda m.\,\mathrm{ind}_{\mathbb{N}}(\mathrm{refl}_{\mathrm{s}(m)}, \lambda n.\,\mathrm{ap}_{\mathrm{s}}(\mathrm{s}(m) + n, \mathrm{s}(m + n))) : \Pi_{(m:\mathbb{N})}\Pi_{(n:\mathbb{N})}(\mathrm{s}(m) + n = \mathrm{s}(m + n))$}
\end{prooftree}