$$
\begin{prooftree}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathbb{N}\ \mathrm{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}\ \mathrm{type}$}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathbb{N}\ \mathrm{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))\ \mathrm{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)))\ \mathrm{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{}
\UnaryInfC{$\Gamma \vdash \mathbb{N}\ \mathrm{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}\ \mathrm{type}$}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathbb{N}\ \mathrm{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)+\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}\ \mathrm{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}\ \mathrm{type}$}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathbb{N}\ \mathrm{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{}
\UnaryInfC{$\Gamma \vdash \mathbb{N}\ \mathrm{type}$}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathbb{N}\ \mathrm{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}$}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathbb{N}\ \mathrm{type}$}
\AxiomC{}
\UnaryInfC{$\Gamma \vdash \mathbb{N}\ \mathrm{type}$}
\RightLabel{δ}
\UnaryInfC{$\Gamma, n:\mathbb{N} \vdash m:\mathbb{N}$}
\RightLabel{W}
\BinaryInfC{$\Gamma, m:\mathbb{N}, n:\mathbb{N} \vdash m:\mathbb{N}$}
\BinaryInfC{$\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}
$$