Logic Vector Version 8

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1 Introduction

$$\left(\frac{\forall y\in N, P(y)\to Q(y)}{\Delta}, \frac{\exists x\in N, R(x)\land S(x)}{\Delta}, \frac{\forall z\in N, T(z)\lor U(z)}{\Delta}\right),$$
$$\left(\frac{\leftrightarrow\exists y\in U: f(y)=x}{\Delta}, \frac{\leftrightarrow\exists s\in S: x=T(s)}{\Delta}, \frac{\leftrightarrow x\in f\circ g}{\Delta}\right),$$
$$\left(\frac{V\to U}{\Delta}, \frac{\sum_{f\subset g} f(g)}{\Delta}, \frac{\sum_{h\to\infty}\tan t\cdot\prod_{\Lambda} h}{\Delta}\right),$$
$$\left(\frac{f_{PQ}(x)-f_{RS}(x)}{\Delta}, \frac{f_{TU}(x)-f_{RS}(x)}{\Delta}, \frac{f_{PQ}(x)-f_{TU}(x)}{\Delta}\right),$$
$$\left(\frac{\partial\phi(\mathbf{x})}{\partial x_1}a_1 + \frac{\partial\phi(\mathbf{x})}{\partial x_2}a_2 + \cdots + \frac{\partial\phi(\mathbf{x})}{\partial x_n}a_n\right)$$
$$\left(\frac{\phi(\mathbf{x})\leq\psi(\mathbf{x})}{\Delta}, \frac{\phi(\mathbf{x})\geq\psi(\mathbf{x})}{\Delta}, \frac{\phi(\mathbf{x})=\psi(\mathbf{x})}{\Delta}\right)$$
$$\left(\frac{\neg\chi(\mathbf{x})}{\Delta}, \frac{\chi(\mathbf{x})\theta(\mathbf{x})}{\Delta}, \frac{\forall y\in X, \chi(y)\iff\theta(y)}{\Delta}\right).$$
$$\left(\frac{\exists z\in N, \phi(z)\land\psi(z)}{\Delta}, \frac{\forall w\in N, \chi(w)\theta(w)}{\Delta}, \frac{\exists x\in N, \phi(x)\lor\psi(x)}{\Delta}\right).$$
$$\left(\frac{\exists u\in N, \alpha(u)\lor\beta(u)}{\Delta}, \frac{\forall v\in N, \gamma(v)\to\delta(v)}{\Delta}, \frac{\forall y\in N, \epsilon(y)\iff\zeta(y)}{\Delta}\right).$$
$$\left(\frac{\exists m\in N, \lambda(m)\mu(m)}{\Delta}, \frac{\forall n\in N, \kappa(n)\lor\iota(n)}{\Delta}, \frac{\forall x\in N, \eta(x)\nu(x)}{\Delta}\right).$$
$$\left(\frac{\exists a\in N, \pi(a)\rho(a)}{\Delta}, \frac{\forall b\in N, \sigma(b)\land\tau(b)}{\Delta}, \frac{\exists c\in N, \xi(c)\leftrightarrow\theta(c)}{\Delta}\right).$$
$$\left(\frac{\exists d\in N, \upsilon(d)\varphi(d)}{\Delta}, \frac{\forall e\in N, \omega(e)\lor\psi(e)}{\Delta}, \frac{\exists f\in N, \chi(f)\to\eta(f)}{\Delta}\right).$$
$$\left(\frac{\exists p\in N, \kappa(p)\lambda(p)}{\Delta}, \frac{\forall q\in N, \mu(q)\nu(q)}{\Delta}, \frac{\forall r\in N, \xi(r)\leftrightarrow\iota(r)}{\Delta}\right).$$
$$\left(\frac{\exists g\in N, \tau(g)\upsilon(g)}{\Delta}, \frac{\forall h\in N, \varphi(h)\land\omega(h)}{\Delta}, \frac{\exists i\in N, \psi(i)\lor\chi(i)}{\Delta}\right).$$
$$\left(\frac{\exists j\in N, \eta(j)\leftrightarrow\kappa(j)}{\Delta}, \frac{\forall k\in N, \lambda(k)\mu(k)}{\Delta}, \frac{\exists l\in N, \nu(l)\to\xi(l)}{\Delta}\right).$$
$$\left(\frac{\forall a\in N, \iota(a)\iff\tau(a)}{\Delta}, \frac{\exists b\in N, \upsilon(b)\lor\varphi(b)}{\Delta}, \frac{\forall c\in N, \omega(c)\to\psi(c)}{\Delta}\right).$$
$$\left(\frac{\exists d\in N, \chi(d)\eta(d)}{\Delta}, \frac{\forall e\in N, \kappa(e)\lambda(e)}{\Delta}, \frac{\exists f\in N, \mu(f)\leftrightarrow\nu(f)}{\Delta}\right).$$
$$\left(\frac{\exists g\in N, \xi(g)\iota(g)}{\Delta}, \frac{\forall h\in N, \tau(h)\land\upsilon(h)}{\Delta}, \frac{\exists i\in N, \varphi(i)\lor\omega(i)}{\Delta}\right).$$
$$\left(\frac{\exists j\in N, \psi(j)\chi(j)}{\Delta}, \frac{\forall k\in N, \eta(k)\leftrightarrow\kappa(k)}{\Delta}, \frac{\forall l\in N, \lambda(l)\to\mu(l)}{\Delta}\right).$$
$$\left(\frac{\neg(\exists x\in N)\to\forall y\in N}{\Delta}, \frac{\forall z\in N, (\forall y\in N)\exists s\in S}{\Delta}, \frac{\exists y\in N, \forall y\in N, (\forall y\in N)(\exists y\in N)}{\Delta}\right),$$

$$\left(\frac{\forall y\in N,(\exists y\in N)(\forall y\in N)}{\Delta}, \frac{\forall z\in N,(\forall z\in N)\to(\exists z\in N)}{\Delta}, \frac{\exists z\in N,(\forall z\in N)\vee(\exists z\in N)}{\Delta}\right),$$

$$\left(\frac{\neg(\exists z\in N)(\exists z\in N)}{\Delta}, \frac{\exists x\in N,(\exists x\in N)(\exists x\in N)}{\Delta}, \frac{\forall t\in N,\exists x\in N(\exists x\in N)}{\Delta}\right).$$

$$\left(\frac{\neg(\forall y\in N)\vee(\forall y\in N) \iff \forall y\in N}{\Delta}, \frac{(\forall y\in N)(\forall y\in N)\to\exists y\in N}{\Delta}, \frac{\exists y\in N,(\forall y\in N) \iff \forall y\in N\exists y\in N}{\Delta}\right).$$

$$\left(\frac{\forall z\in N,\exists z\in N\forall z\in N}{\Delta}, \frac{\exists z\in N,(\forall z\in N)\to\forall z\in N}{\Delta}, \frac{\exists z\in N,(\forall z\in N)\leftrightarrow\exists z\in N}{\Delta}\right).$$

$$\left(\frac{\neg(\exists z\in N)\leftrightarrow\forall z\in N}{\Delta}, \frac{\exists x\in N,(\exists x\in N)\leftrightarrow\exists x\in N}{\Delta}, \frac{\forall t\in N,\exists x\in N\vee(\exists x\in N)}{\Delta}\right),$$

$$\left(\frac{\neg(\exists x\in U)\exists x\in U}{\Delta}, \frac{\forall y\in U,(\forall y\in U)\forall y\in U}{\Delta}, \frac{\forall z\in U,(\exists z\in U)\leftrightarrow\forall z\in U}{\Delta}\right),$$

$$\left(\frac{\forall y\in U,(\exists y\in U)\vee\forall y\in U}{\Delta}, \frac{\forall z\in U,\exists z\in U(\forall z\in U)}{\Delta}, \frac{\exists z\in U,(\forall z\in U)\exists z\in U}{\Delta}\right),$$

$$\left(\frac{\exists x\in N,\forall y\in U\to(\forall x\in N)}{\Delta}, \frac{\forall y\in U,\exists z\in U(\neg\exists x\in N)}{\Delta}, \frac{\exists z\in U,(\forall z\in U)\wedge\forall z\in U(\exists z\in U)}{\Delta}\right),$$

$$\left(\frac{\exists x\in U,\forall y\in U \iff \forall x\in U}{\Delta}, \frac{\exists y\in U,(\exists y\in U)\to\exists y\in U}{\Delta}, \frac{(\forall x\in U)\to\exists x\in U\wedge(\forall y\in U)}{\Delta}\right),$$

$$\left(\frac{\neg(\forall x\in U)\exists x\in U}{\Delta}, \frac{\forall y\in U,\exists z\in U\leftrightarrow(\exists z\in U)}{\Delta}, \frac{\exists z\in U,(\exists z\in U)\to\forall z\in U}{\Delta}\right).$$

$$\left(\frac{\exists a\in U,\neg\exists b\in U}{\Delta}, \frac{\forall c\in U,\exists d\in U}{\Delta}, \frac{\forall e\in U,\neg\exists f\in U\forall g\in U}{\Delta}\right),$$

$$\left(\frac{\exists h\in U,(\exists i\in U)}{\Delta}, \frac{\forall j\in U,\forall k\in U\vee\forall l\in U}{\Delta}, \frac{\exists m\in U,(\forall n\in U\vee\forall o\in U)}{\Delta}\right),$$

$$\left(\frac{\forall p\in U,\exists q\in U\vee\forall r\in U}{\Delta}, \frac{\exists s\in U,(\forall t\in U)}{\Delta}, \frac{\exists u\in U,\neg\forall v\in U}{\Delta}\right),$$

$$\left(\frac{\exists a\in N,(\exists a\in N)}{\Delta}, \frac{\forall b\in N,\forall b\in N}{\Delta}, \frac{\exists c\in N,(\forall c\in N)}{\Delta}\right),$$

$$\left(\frac{\forall d\in N,\exists e\in N\vee\forall f\in N}{\Delta}, \frac{\forall d\in N,(\exists d\in N)}{\Delta}, \frac{\forall h\in N,\forall h\in N}{\Delta}\right),$$

$$\left(\frac{\forall i\in N,\forall j\in N\exists k\in N}{\Delta}, \frac{\forall l\in N,\exists m\in N}{\Delta}, \frac{\forall n\in N,(\neg\forall r\in N)\vee\exists o\in N}{\Delta}\right),$$

$$\left(\frac{\exists p\in N,(\forall q\in N\wedge\forall r\in N)}{\Delta}, \frac{\forall s\in N,\forall t\in N\to\exists u\in N}{\Delta}, \frac{\forall v\in N,(\neg\exists w\in N)\wedge(\forall x\in N)}{\Delta}\right),$$

$$\left(\frac{\neg\exists a\in:\forall y\in U:\exists s\in S}{\Delta}, \frac{\forall h\in:\forall y\in U:\forall z\in N}{\Delta}, \frac{\exists h\in:\forall z\in N:\exists z\in U}{\Delta}\right),$$

$$\left(\frac{\forall x\in,\exists y\in N,\exists z\in,\exists u\in,\exists v\in}{\Delta}, \frac{\exists t\in,\forall y\in U,\forall z\in N,\forall u\in,\forall v\in}{\Delta}, \frac{\exists d\in,\forall a\in,\forall b\in,\forall c\in,\forall e\in U}{\Delta}\right),$$

$$\left(\frac{\forall f\in,\forall g\in,\forall h\in,\forall i\in,\forall j\in P}{\Delta}, \frac{\exists k\in,\exists l\in,\exists m\in,\exists n\in P,\forall o\in}{\Delta}, \frac{\exists p\in,\exists q\in,\exists r\in P,\exists s\in,\forall t\in Q}{\Delta}\right).$$

$$\left(\frac{\neg\exists b\in,\exists c\in P,\exists d\in,\exists e\in,\exists f\in R \iff \forall y\in\mathbf{R}^2}{\Delta}, \frac{\exists g\in,\forall h\in,\forall i\in R,\forall j\in,\forall k\in\mathbf{R}^2}{\Delta}, \frac{\exists l\in,\forall m\in R,\forall n\in,\forall o\in\mathbf{R}^2,\forall p\in^3}{\Delta}\right)$$

$$\left(\frac{\neg\exists q\in R,\exists r\in,\exists s\in\mathbf{R}^2,\exists t\in^3,\exists u\in\mathbf{R}^4}{\Delta}, \frac{\forall v\in,\forall w\in\mathbf{R}^2,\forall x\in^3,\forall y\in\mathbf{R}^4,\exists z\in^n}{\Delta}, \frac{\forall a\in\mathbf{R}^2,\forall b\in^3,\forall c\in\mathbf{R}^4,\forall d\in^n,\forall f\in}{\Delta}\right).$$

$$\left(\frac{(\exists a\in X,\forall y\in Y)}{\Delta}, \frac{\forall z\in X,(\forall y\in Y)}{\Delta}, \frac{(\neg\exists z\in X,\forall y\in Y)}{\Delta}\right),$$

$$\left(\frac{\forall z\in X,\exists y\in Y,\neg\exists a\in X}{\Delta}, \frac{\exists b\in X,\forall y\in Y,\exists b\in X}{\Delta}, \frac{\neg\exists c\in X,\exists b\in X,\forall y\in Y}{\Delta}\right),$$

$$\left(\frac{(\exists y\in Y,\exists a\in X)}{\Delta}, \frac{\neg\forall y\in Y,\exists y\in Y,\exists a\in X}{\Delta}, \frac{\neg\exists b\in X,\forall y\in Y,\exists a\in X}{\Delta}\right),$$

$$\left(\frac{\exists y\in Y,\exists a\in X,\neg\exists b\in X}{\Delta}, \frac{\neg\exists c\in X,\exists d\in Y,\exists a\in X}{\Delta}, \frac{\neg\exists e\in Y,\exists a\in X,\neg\exists c\in X}{\Delta}\right).$$

$$\left(\frac{\exists y\in P,\forall y\in Q}{\Delta}, \frac{\forall z\in P,\exists z\in Q}{\Delta}, \frac{\neg\forall z\in P,\forall z\in Q}{\Delta}\right).$$

$$\left(\frac{\exists y\in Q,\forall y\in P,\neg\exists z\in Z}{\Delta}, \frac{\forall z\in Z,\exists z\in P,\neg\exists a\in Q}{\Delta}, \frac{\forall a\in Q,\forall b\in P,\neg\exists c\in Z}{\Delta}\right),$$

$$\left(\frac{\forall a\in Q,\exists a\in P,\neg\exists z\in P}{\Delta}, \frac{\exists y\in Z,\forall y\in Q,\neg\exists z\in P}{\Delta}, \frac{\neg\exists z\in P,\exists z\in Z,\forall y\in Q}{\Delta}\right),$$

$$\left(\frac{\forall a{\in}Z,\exists b{\in}P,\neg\exists y{\in}Q}{\Delta},\frac{\forall y{\in}P,\exists b{\in}Z,\neg\exists x{\in}Q}{\Delta},\frac{\neg\exists c{\in}Q,\forall z{\in}Z,\exists z{\in}P}{\Delta}\right),$$
$$\left(\frac{\neg\exists y{\in}Q,\exists y{\in}P,\forall y{\in}Q}{\Delta},\frac{\exists a{\in}P,\forall z{\in}P,\forall z{\in}Q}{\Delta},\frac{\neg\forall z{\in}Z,\neg\exists z{\in}P,\forall b{\in}Q}{\Delta}\right),$$
$$\left(\frac{\forall a{\in}Q,\exists y{\in}Z,\neg\exists z{\in}Q}{\Delta},\frac{\neg\exists z{\in}Q,\exists z{\in}P,\neg\exists z{\in}Z}{\Delta},\frac{\exists y{\in}Q,\exists y{\in}P,\exists y{\in}Q}{\Delta}\right),$$
$$\left(\frac{(\exists y{\in}Y,\forall y{\in})}{\Delta},\frac{\forall z{\in}Y,(\forall y{\in})}{\Delta},\frac{(\neg\exists z{\in}Y,\forall y{\in})}{\Delta}\right),$$
$$\left(\frac{\exists y{\in},\forall y{\in}Y,\neg\exists z{\in}Y}{\Delta},\frac{\forall z{\in}Y,\exists z{\in},\neg\exists a{\in}Y}{\Delta},\frac{\forall a{\in}Y,\forall b{\in},\neg\exists c{\in}Y}{\Delta}\right),$$
$$\left(\frac{\exists a{\in},\forall y{\in}Y,\neg\exists z{\in}}{\Delta},\frac{\exists y{\in}Y,\forall z{\in},\neg\exists z{\in}}{\Delta},\frac{\neg\exists z{\in},\exists z{\in}Y,\forall b{\in}Y}{\Delta}\right),$$
$$\left(\frac{\forall a{\in}Y,\exists y{\in},\neg\exists y{\in}Y}{\Delta},\frac{\neg\exists z{\in}Y,\exists z{\in},\neg\exists z{\in}Y}{\Delta},\frac{\neg\exists y{\in}Y,\exists y{\in},\exists y{\in}Y}{\Delta}\right),$$
$$\left(\frac{\forall y{\in}Y,\exists y{\in},\neg\exists z{\in}}{\Delta},\frac{\forall z{\in},\neg\exists z{\in},\neg\exists z{\in}Y}{\Delta},\frac{\neg\exists z{\in}Y,\forall x{\in},\neg\exists z{\in}}{\Delta}\right),$$
$$\left(\frac{\neg\exists a{\in},\forall y{\in}Y,\neg\exists z{\in}Y}{\Delta},\frac{\forall x{\in},\forall y{\in}Y,\neg\exists z{\in}}{\Delta},\frac{\exists y{\in}Y,\exists y{\in},\exists y{\in}Y}{\Delta}\right),$$
$$\left(\frac{\forall x{\in},\exists y{\in}Y,\neg\forall z{\in}}{\Delta},\frac{\forall z{\in}Y,\neg\exists z{\in}Y,\neg\forall z{\in}}{\Delta},\frac{\exists y{\in}Y,\forall y{\in},\forall y{\in}Y}{\Delta}\right).$$
$$\left(\frac{\nexists x}{\Theta},\frac{\forall\alpha|\beta,\phi(\beta)}{\Theta}\right),$$
$$\left(\frac{\forall\alpha,\exists\beta|\gamma}{\Theta},\frac{\exists\rho|\sigma,\phi(\sigma)}{\Theta}\right).$$
$$\left(\frac{\forall\rho(x),\nexists\sigma(x)}{\Upsilon},\frac{\nexists\tau(x),\forall\upsilon(x)}{\Upsilon}\right)$$
$$\left(\frac{\forall\iota(x)|\kappa(x)|\lambda(x),\exists\mu(x)|\nu(x)|\xi(x)}{\Upsilon},\frac{\nexists\pi(x),\forall\rho(x)|\sigma(x)|\tau(x)}{\Upsilon}\right)$$
$$\left(\frac{\forall\delta(x)|\epsilon(x)|\zeta(x)|\eta(x),\exists\theta(x)|\iota(x)|\kappa(x)|\lambda(x)}{\Upsilon},\frac{\neg\exists\mu(x),\forall\nu(x)|\xi(x)|\pi(x)|\rho(x)}{\Upsilon}\right),$$
$$\left(\frac{\forall\sigma(x)|\tau(x)|\upsilon(x)|\phi(x)|\chi(x),\exists\psi(x)|\omega(x)|\kappa(x)|\lambda(x)|\varphi(x)}{\Upsilon},\frac{\neg\exists\eta(x),\forall\theta(x)|\iota(x)|\mu(x)|\nu(x)|\xi(x)|\pi(x)}{\Upsilon}\right),$$
$$\left(\frac{\exists\mathrm{x}_0{\in}R^2,\neg\forall\mathrm{x}_1{\in}N,\forall\mathrm{x}_2{\in}Z_4}{\Delta},\frac{\forall\mathrm{x}_0{\in}N,\exists\mathrm{x}_1{\in}Z_4}{\Delta},\frac{\neg\forall\mathrm{x}_2{\in}R^2,\exists\mathrm{x}_3{\in}N}{\Delta}\right),$$
$$\left(\frac{\forall\mathrm{x}_0{\in}N,\exists\mathrm{x}_1{\in}Z_4,\neg\exists\mathrm{x}_2{\in}N}{\Delta},\frac{\neg\exists\mathrm{x}_3{\in}R^2,\forall\mathrm{x}_4{\in}Z_4,\exists\mathrm{x}_5{\in}N}{\Delta},\frac{\neg\forall\mathrm{x}_6{\in}Z_4,\exists\mathrm{x}_7{\in}R^2,\exists\mathrm{x}_8{\in}N}{\Delta}\right),$$
$$\left(\frac{\forall\mathrm{x}_9{\in}Z_4,\exists\mathrm{x}_10{\in}R^2,\neg\exists\mathrm{x}_11{\in}N}{\Delta},\frac{\forall\mathrm{x}_12{\in}R^2,\neg\exists\mathrm{x}_13{\in}N,\neg\exists\mathrm{x}_14{\in}Z_4}{\Delta},\frac{\exists\mathrm{x}_15{\in}N,\neg\forall\mathrm{x}_16{\in}R^2,\forall\mathrm{x}_17{\in}N}{\Delta}\right),$$