$\overset{?}{?}$
$\circ e$
$\forall v_0 \exists v_1 v_0 \circ$
$v_1 \equiv$
e
$\forall v_0 \forall v_1 \forall v_2 (v_0 \circ$
$v_1) \circ$
$v_2 \equiv$
$v_0 \circ$
$(v_1 \circ$
$v_2)$
$\Gamma \neg \phi \overset{\circ e}{\psi}$
$\frac{\Gamma \neg \phi \neg \psi}{\Gamma \phi}$
$\models \vdash \Phi \Phi \vDash \Phi^{\vdash}$
$\Phi^{\vdash} =$
$\Phi^{\vDash}$
$\neg \Phi \vdash$
$\psi \Phi \vdash$
$\neg \psi \Phi$
Φ
$\exists x \phi x$
1
$\Phi^{\vdash} =$
$\Phi^{\vDash}$
$\forall x (x \equiv$
$e \vee$
$x \circ$
$x \equiv$
$e \vee$
$(x \circ$
$x) \circ$
$x \equiv$
$e \vee$
...)

$\forall x \neg \sigma x \equiv 0 \forall x \forall y (\sigma x \equiv \sigma y \to x \equiv y) \forall X ((X0 \wedge \forall x (Xx \to X \sigma x)) \to \forall y Xy)$
(1)
$\sigma \forall X$
Q
η
xyx, y
$x_1, \cdots, x_n \phi(x, y, x_1, \cdots, x_n) x \to$
y
$\in L^{\in}$
$L^{\in}$
$R_1, R_2 \cdots, R_n$
$R_i =$
$R_i +$
a_j
$\Phi \Phi \Phi$
$\psi \Phi \Phi$
$\cup \{A, B, C, \cdots, X, Y, Z\} \cup$
$\{0, 1, \cdots, 8, 9\} \cup$
$\{=$
$, +, -, , \S\}$
ξ
$R_1 =$
$R_1 -$
a_0
B^*
$a_0 \S \S$
$n \xi_P =$
$a_0 \cdots a_0 a_0 n \xi_P P \Pi :=$
$\{\xi_P | PA\}$

$\Pi'_{halt} = \{\xi_P | PAPP :\to Halt\}$

$\Pi'_{halt} \{\phi \in$
$L_0^{S_\infty} | \models$
$\phi\} P$
10^{16}
2
$T \subset$
$L_0^S T T \Re$
$\Phi \Re \Phi \models$
$\Re$
β
$\Phi \overset{\models}{_{PA}} Th(\Re)$
Wir müssen wissen, wir werden wissen. — David Hilbert
Φ
$n_0, \cdots, n_r R(n_0, \cdots, n_r) \phi_R(n_0, \cdots, n_r) \Phi \vdash$