$$\mathcal{L}(\Gamma, \Delta) = \{ P[c_1, \dots, c_n] \mid \underbrace{P[x_1, \dots, x_n] \in Sub(\varphi)}_{}, \varphi \in \Gamma; c_i \in \Delta \}$$

$C = (\mathbb{O}, \mathbb{P}, \Delta)$, $\quad C_0 = (\mathbb{O}_0, \{\varphi_0\}, \Delta_0)$, $\quad \mathbb{O}$ и $\mathbb{P} \subseteq \mathcal{L}(\Gamma, \Delta)$

$\Rightarrow \Gamma = \mathbb{O}_0 \cup \{\varphi_0\}$, $\quad \Delta_0 = \{c \mid c$ фигурирует в $\psi, \psi \in \Gamma\}$

$\Vdash$ в C ; ход: добавление любого кол-ва фо-л (пополн. Δ) и передача хода

$$\begin{cases} C \nVdash \bot \\ C \Vdash A[c_1, \dots, c_n] \rightleftharpoons A[c_1, \dots, c_n] \in \mathbb{O} \\ C \Vdash \varphi \star \psi \rightleftharpoons \varphi \star \psi \in \mathbb{O} \cup \mathbb{P} \text{ и } (C \Vdash \varphi) \star (C \Vdash \psi); \star \in \{\wedge, \vee, \to\} \\ C \Vdash q x P[x] \rightleftharpoons q x P[x] \in \mathbb{O} \cup \mathbb{P} \text{ и } q \alpha \in \Delta \, (C \Vdash P[\alpha]); q \in \{\exists, \forall\} \end{cases}$$

$$\forall y \exists x \left(P[x] \to P[y] \right) = \varphi \qquad \Delta_0 = \phi$$

$\emptyset$	$\mathbb{P}$
$\phi \to \{c\}$	φ
$\{c\} \to \{c, \alpha\}$	$\exists x (P[x] \to P[c])$
	$P[c] \to P[c]$

$$\neg P[c] \to \neg \exists x P[x] = \varphi$$

$\Delta_0 = \{c\}$

$\emptyset$	$\mathbb{P}$
$\{c\} \to \{c, \alpha\}$	φ
$\neg P[c]$, $P[\alpha]$	$\neg \exists P[x]$
$\exists x P[x]$	

$$\left(\forall x\left[(P[x] \to \forall x P[x]) \to \forall x P[x]\right] \to \forall x P[x]\right) = \varphi$$

$\emptyset$	$\mathbb{P}$
$\forall x\,[(\ ) \to \ldots]$	φ
$\phi \to \{c\}$	$\forall x P[x]$
$(P[c] \to \forall x P[x]) \to \forall x P[x]$	$\underbrace{}$
$\{c\} \to \{c, d\}$	$(P[c] \to \forall x P[x])$
$P[c]$	$\uparrow$

$$\triangle_0 = \emptyset$$

$$C_p = (\emptyset_0, \{\varphi_0\}),\ |\emptyset_0| \in \mathbb{N} \iff C_1 = (\phi, \wedge \emptyset_1 \to \varphi_1)$$

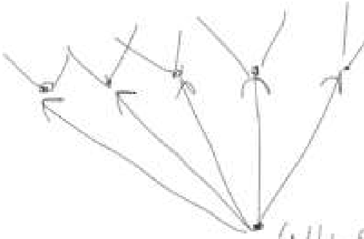
$$C_0 = (\emptyset_0, \{\varphi_0\}, \triangle_0)$$

$\mathbb{P}$ выв. из $C_0 \iff \emptyset_0 \models_{L} \varphi_0$

$C_p = (\mathbb{O}, \mathbb{P})$

$\mathbb{O} \vdash \mathbb{P} \iff \mathbb{O} \models \mathbb{P}$

$\mathcal{L}$



$w_i \Vdash \mathbb{O}, \mathbb{P}$

$w_i \nVdash \varphi_i$

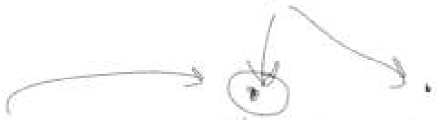
$\lhd$

$w \Vdash p \iff p \in \mathbb{O}$

$\Gamma \qquad \mathcal{L}(\Gamma)$

$\boxed{\cdot \Vdash p \iff p \in \mathbb{O}}$

C



C'

$C'' = (\mathbb{O}, \mathbb{P}'', \Delta)$

$\boxed{\mathcal{L} \setminus \mathbb{P}''}$

$$\boxed{(\mathcal{O}_0, \{\varphi_0\}_0, \Delta_0) \iff \underbrace{\mathcal{O}_0 \models_{N,\Pi} \varphi_0}}$$

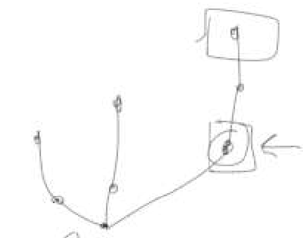
у $\mathbb{P}_{\text{выв}}$

$\mathcal{O}_0$

$$C = (\mathcal{O}, \mathbb{P}, \Delta)$$

$$\mathcal{O} \not\models_{N,\Pi} \mathbb{P}$$

$$\mathcal{L}(\Gamma, \Delta)$$



$\Delta \ni w$ $\quad w \Vdash \mathcal{O}$, $w \nVdash \varphi \in \mathbb{P}$

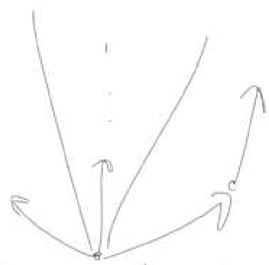
$(\Theta_0, \{\varphi_0\}, \Delta)$ бтил $\mathbb{P} \iff \Theta_0 \models_{\mathrm{cas},n} \varphi_0$

$|\Theta_0| \in \mathbb{N}$ $\Leftarrow$ $\Theta_0 \models_{N,n} \varphi_0$

$|\Gamma| \vdash |\Theta_0 \cup \{\varphi_0\}| \in \mathbb{N}$

$\mathcal{L}(P, \Delta)$ $\quad C = (\Theta, \mathbb{P}, \Delta)$

$\Theta \not\models_{\mathrm{cas},n} \mathbb{P}$



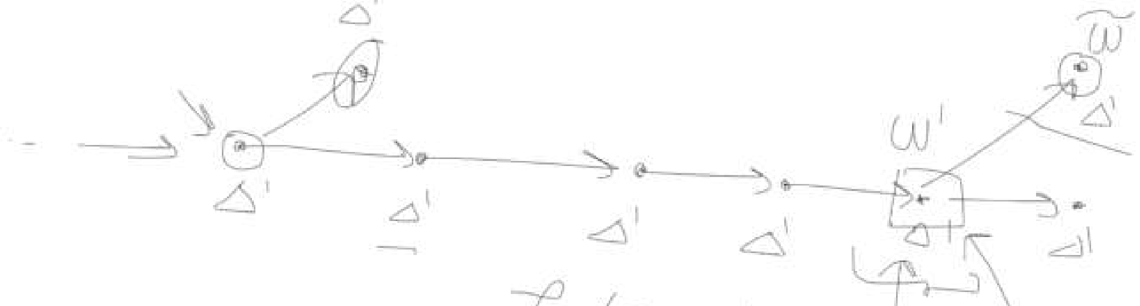
$\Delta \quad \omega \Vdash \Theta$

$\omega \nVdash \varphi \in \mathbb{P}$

1) $\omega : \exists \psi \in \mathbb{P} : \omega \nVdash \psi$

2) $\exists \omega', \Delta_{\omega} \supset \Delta_{\omega'};$ ω'

3) ω' $\underbrace{\mathcal{L}(\Gamma, \Delta)}$



$\mathcal{L}(\Gamma, \Delta')$

$\overline{\omega} \nVdash \varphi \in \mathbb{P} \Rightarrow \Delta_{\overline{\omega}} = \Delta_{\omega'}$

$\omega' \Vdash \varphi \Leftrightarrow \overline{\omega} \Vdash \varphi$

$\mathcal{L}(\Delta, \Gamma)$

$|\Delta| \in \mathbb{N}$

$(\Phi_0, \{\varphi_0\}, \Delta)$ P выч. $\iff \Phi_0 \models_{fin,n} \varphi_0 \iff \Phi_0 \models_{\mathbb{N},n} \varphi_0$ –

$|\Phi_0| \in \mathbb{N}$

$\iff \Phi_0 \models_{cas,b} \varphi_0$

$C = (\Phi_0, \{\varphi_0\}), \ |\Phi_0| \notin \mathbb{N}$