$$A = \langle N, c, f, r \rangle$$

$$c^A = 1$$
$$f^A(n,m) = n+m+1$$
$$\langle m,n \rangle \in r^A \qquad \text{т.е.т.к.} \quad n=m$$
$$\{0\}, \{1\}, \{2\}, \{3\}$$

$$A, v \models r(x,c) \qquad \{\langle a,a \rangle \mid a \in N\} = \{\langle a,b \rangle \mid a=b\} = r^A$$

$$\|c\|_v^A = 1 \qquad \|x\|_v^A = v(x) \quad \text{определя} \ \{1\}$$
$$\{1\}$$

$$r(c, f(x,x)) \quad \text{определя} \ \{0\}$$

$$\|f(x,x)\|_v^A \qquad f^A(v(x), v(x)) = 2v(x)+1$$

$$r(x, f(c,c)) \qquad \{3\}$$
$$\exists y \big(r(x, f(c,y)) \land \psi_0(y) \big) \quad \text{определя} \ \{2\}$$

#
$$\overset{A}{g}(n) = n^2 \quad (\text{нас о соседата структура})$$
$$r(x, g(x)) \land \neg \psi_1(x)$$
$$h(g(u)) = h$$

$$h\big(g^A(a_1 \ldots a_n)\big) = g^b(h(a_1), h(a_2) \ldots h(a_n))$$
$$h(g^A(n)) = h^A(h(n))$$
$$h(n^2) = h^2(n)$$

$$n = p_1^{k_3} p_2^{k_2} \ldots p_n^{k_n} \ldots$$
$$h(n) = p_1^{k_2} p_2^{k_2} p_3^{k_3} \ldots p_n^{k_n} \ldots$$

$$h(n^2) = h\big(p_1^{2k_1} p_2^{2k_2} \ldots p_n^{2k_n} \ldots\big) = p_1^{2k_2} p_2^{2k_3} p_3^{2k_3} \ldots p_n^{2k_n}$$

$$h^2(n) = h^2\big(p_1^{k_2} p_2^{k_3} p_3^{k_2} \ldots p_n^{k_n} \ldots\big) = p_1^{2k_2} p_2^{2k_1} p_3^{2k_3} \ldots p_n^{2k_n} \ldots$$
$$\text{при } p_1 < 2 \ p_2 = 3$$

$$2^N \#$$

$$, \rho$$

$$\langle A, B, C \rangle \in \rho^A \quad \text{т.с.т.к.} \quad C = A \cap B$$

$$\{\emptyset\} \quad \{N\} \quad \langle A, B, C \rangle \mid C = B \cup A\} \quad \{\langle A, D \rangle \mid A \subseteq B\}$$

$$\forall_x \, p(x, y, y) \quad \text{определя} \quad \{\emptyset\}$$
$$\forall_x \, p(x, y, x) \quad \text{определя} \quad \{N\}$$

$$A \cap B = A$$
$$\forall \, p(x, y, x)$$

$$\forall \quad \varphi^\subseteq p(x, y, x)$$
$$A \subseteq C \wedge B \subseteq C \quad \exists_D (D \subset C \wedge A \subseteq D \wedge B \subseteq D)$$
$$\forall_D (A \subseteq D \wedge B \subseteq D \rightarrow C \subseteq D)$$
$$\varphi^\subseteq(A, C) \wedge \varphi(B, C) \wedge \forall_D \, \varphi^\subseteq(A, D) \wedge \varphi^\subseteq(B, D) \rightarrow \varphi^\subseteq(C, D))$$

$$\#$$

$$A - NULIL \; e \; \text{списък от естествени числа}$$
$$\langle A, \text{append}, \text{first}, \text{perm}, \text{tail} \rangle$$
$$N \; [\,] \quad [a] \quad [a, b] \quad \text{sublist}$$

$$\neg \exists_x \, \text{tail}(t, x); \; \neg \exists_x \exists_y \, \text{append}(z, x, y); \; \neg \exists_x \, \text{perm}(x, y) \qquad \text{за } N$$

$$\forall_x \, \text{append}(x, [Y], x); \; \neg \varphi_N(x) \wedge \neg \exists_y \, \text{first}(y, x) \qquad \text{за } [\,]$$

$$\exists_x \, \text{first}(x, y) \wedge \exists_z (\text{tail}(z, x) \wedge \varphi_{[\,]}(z)) \qquad \text{за едноелементен списък } [a]$$

$$\exists_x \exists_y \exists_z (\text{append}(x, S, z) \wedge \text{append}(z, y, L)) \qquad \text{за sublist}$$