We have an universe of hypersets over some set of atoms $\mathscr{A}: V_{\mathscr{A}}$.

• Let us take a set \mathscr{X} of new atoms called <u>indeterminates</u>.

- Let us take a set \mathscr{X} of new atoms called <u>indeterminates</u>.
- The new set of atoms is $\mathscr{A}' = \mathscr{A} \cup \mathscr{X}$, the new universe is $V_{\mathscr{A}'}$.

- Let us take a set \mathscr{X} of new atoms called <u>indeterminates</u>.
- The new set of atoms is $\mathscr{A}' = \mathscr{A} \cup \mathscr{X}$, the new universe is $V_{\mathscr{A}'}$.
- An *a* member of $V_{\mathcal{A}'}$ is a term in the indeterminates occurring in the transitive closure of *a*.

- Let us take a set \mathscr{X} of new atoms called <u>indeterminates</u>.
- The new set of atoms is $\mathscr{A}' = \mathscr{A} \cup \mathscr{X}$, the new universe is $V_{\mathscr{A}'}$.
- An *a* member of $V_{\mathcal{A}'}$ is a term in the indeterminates occurring in the transitive closure of *a*.
 - The transitive closure of the set *a* is the set $a \cup (\cup a) \cup (\cup \cup a) \cup \dots$

- Let us take a set \mathscr{X} of new atoms called <u>indeterminates</u>.
- The new set of atoms is $\mathscr{A}' = \mathscr{A} \cup \mathscr{X}$, the new universe is $V_{\mathscr{A}'}$.
- An *a* member of $V_{\mathcal{A}'}$ is a term in the indeterminates occurring in the transitive closure of *a*.
 - The transitive closure of the set *a* is the set $a \cup (\cup a) \cup (\cup \cup a) \cup \dots$
- An equation for the indeterminate x in X is an expression x = a(x, y, z, ...), where a is some term in the indeterminates x, y, z,

- Let us take a set \mathscr{X} of new atoms called <u>indeterminates</u>.
- The new set of atoms is $\mathscr{A}' = \mathscr{A} \cup \mathscr{X}$, the new universe is $V_{\mathscr{A}'}$.
- An *a* member of $V_{\mathcal{A}'}$ is a term in the indeterminates occurring in the transitive closure of *a*.
 - The transitive closure of the set *a* is the set $a \cup (\cup a) \cup (\cup \cup a) \cup \dots$
- An equation for the indeterminate x in X is an expression x = a(x, y, z, ...), where a is some term in the indeterminates x, y, z,
- A system of equations in the indeterminates \mathscr{X} is a set of equations that contains exactly one equation for each member of \mathscr{X} .

• An assignment for \mathscr{X} is a function $f: \mathscr{X} \longrightarrow \mathscr{V}_{\mathscr{A}}$.

- An assignment for \mathscr{X} is a function $f: \mathscr{X} \longrightarrow \mathscr{V}_{\mathscr{A}}$.
- An assignment is a solution of the equation $\mathbf{x} = a(\mathbf{x}, \mathbf{y}, \mathbf{z}, ... \text{ if } f(\mathbf{x}) = a(f(\mathbf{x}), f(\mathbf{y}), f(\mathbf{z}),$

- An assignment for \mathscr{X} is a function $f: \mathscr{X} \longrightarrow \mathscr{V}_{\mathscr{A}}$.
- An assignment is a solution of the equation $\mathbf{x} = a(\mathbf{x}, \mathbf{y}, \mathbf{z}, ...$ if $f(\mathbf{x}) = a(f(\mathbf{x}), f(\mathbf{y}), f(\mathbf{z}),$
- Solution lemma: Every system of equations in \mathscr{X} has exactly one solution.

- An assignment for \mathscr{X} is a function $f: \mathscr{X} \longrightarrow \mathscr{V}_{\mathscr{A}}$.
- An assignment is a solution of the equation $\mathbf{x} = a(\mathbf{x}, \mathbf{y}, \mathbf{z}, ... \text{ if } f(\mathbf{x}) = a(f(\mathbf{x}), f(\mathbf{y}), f(\mathbf{z}),$
- Solution lemma: Every system of equations in $\mathscr X$ has exactly one solution.
- If a system of equations is finite, and each term is in *HF*₁, then the value of the solution for every indeterminate will be in *HF*₁, too.