Metalogica

Ad constructione de apparatu de Metalogica que es generalizatione de Logica nette ... ubi symbolos $a, b \ldots$ habe duo valore: classe et propositione (in Metalogica hyperclasse et hyper propositione) liceutloco de duo operatione fundamentale: de additione et multiplicatione capetotres operationes cum notationes:

$$abc\ ,\ \overset{\frown}{abc}\ ,\ \underset{\smile}{abc}$$

loco de symbolos: veritate V et falso $\wedge$

tres symbolos: $V,\ \overline{V},\ \underline{V}$

loco duo termino a', a genere et specie, propositione data et educta — tres terminos specie a, genere a', hypergenere a'', prop. data a, educta a', hypereducta a''

Es necesse etiam de postulato

$$a\,\underline{a}\,\bar{a} \equiv V$$
$$\overset{\frown}{a\,\underline{a}\,\bar{a}} \equiv \overline{V}$$
$$\underset{\smile}{a\,\underline{a}\,\bar{a}} \equiv \underline{V}$$

commutativo

$$abc \equiv bca \equiv cab$$
$$\overset{\frown}{abc} \equiv \overset{\frown}{bca} \equiv \overset{\frown}{cab}$$
$$\underset{\smile}{abc} \equiv \underset{\smile}{bca} \equiv \underset{\smile}{cab}$$

associativo

$$ab(cde) \equiv \cancel{abc)de} \equiv bc(dea) \equiv cd(eab) \equiv de(abc) \equiv eabcd$$

In omnes hoc leges es symbolo $\equiv$ de identitate que ~~[illegible]~~ ais in [illegible] equalitate circulare

$$a = b = c$$

que reduce ad identitate cum $b \equiv a$

[illegible] equalitate circulare:

$$|a''bc| \supset |b''c'a| \supset |c''a'b|$$

Alios postulatos:

de simplificatione:

$|abc'' \; a'a| \equiv |a'' \; \widehat{abc}' \; a| \equiv |a'' \; a' \; \underline{abc}|$

de compositione

$$\begin{vmatrix} a'' & b' & c \\ a'' & d' & e \\ a'' & f' & h \end{vmatrix} \supset |a'' \; bdf' \; ceh| \qquad \begin{vmatrix} a'' & b' & c \\ d'' & b & e \\ f'' & b & h \end{vmatrix} \supset |\widehat{adf}'' \; e \; ceh|$$

$$\begin{vmatrix} a'' & b' & c \\ a'' & b' & c \\ f'' & h' & c \end{vmatrix} \supset |\underline{adf}'' \; \underline{beh}', c|$$

de tautologia

$$aaa \equiv a, \quad \widehat{aaa} \equiv a, \quad \underline{aaa} \equiv a$$

~~Nos da duo exemplo de deductione~~

Postulato de hypersyllogismo:

$$\begin{vmatrix} a'' & b' & c \\ d'' & h' & i \\ g'' & d & a \end{vmatrix} \supset |g'' \; i' \; c|$$

Nos da duo exemplo de deductione:

Teorema que responde ad teorema de multiplicatione:

$$|a''b'c| \supset |adg'' \; bdg' \; cdg|$$

cuja postulato de hypersillogismo

$$\begin{vmatrix} a'' & b' & c \\ a'' & b' & c \\ adg'' & a' & a \end{vmatrix} \supset |adg'' \; b' \; c| .$$

pro postulato de compositione

$$\begin{vmatrix} adg'' & b' & c \\ adg'' & d' & d \\ adg'' & g' & g \end{vmatrix} \supset |adg'' \; bdg' \; cdg|$$

Exemplo secundo - deductione de formula de absumptione

$$\underline{abc.aa} \equiv a$$

Per postulato de simplicatione

$$|a'' \; a' \; \underline{abc.aa}|$$

de compositione

$$\begin{vmatrix} a'' & a' & a \\ a'' & a' & a \\ abc'' & a' & a \end{vmatrix} \supset |abc.aa'' \; a' \; a| .$$

$$\begin{vmatrix} a'' & a' & a \\ a'' & a' & a \\ a'' & \cdots & \end{vmatrix} \supset |a'' \; abc.aa' \; a|$$

unde sequito equalitate

$$\underline{abc\,.\,aa} = a = a$$

et identitate

$$\underline{abc\,aa} \equiv a$$

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Metaalgebra

Ad constructióne de Metaalgebra nos ~~debe~~ cape loco duo operatione fundamentale: additióne et multiplicatione tres operatione super tres objecto cum notationes:

$$abc,\ \widehat{abc},\ \underline{abc}$$

Leges fundamentales:

<u>commutativo</u>

I. $abc \equiv bca \equiv cab$

$\widehat{abc} \equiv \widehat{bca} \equiv \widehat{cab}$

$\underline{abc} \equiv \underline{bca} \equiv \underline{cab}$

II <u>associativo</u>

$(abc)de \equiv (bcd)ea \equiv (cde)ab$

$\widehat{(abc)de} \equiv \widehat{(bcd)ea} \equiv \widehat{(cde)ab}$

$\underline{(abc)de} \equiv \underline{(bcd)ea} \equiv \underline{(cde).ab}$

III <u>distributivo</u> de primo specie

$\widehat{agh\,.\,bgh\,.\,cgh} = \widehat{abc}\,.\,gh$

$\underline{agh\,.\,bgh\,.\,cgh} = \underline{abc}\,.\,gh$

$\underline{\widehat{agh}\,.\,\widehat{bgh}\,.\,\widehat{cgh}} = \underline{abc}\,.\,gh$

Differentia essentiale in comparatione cum Metalogica constat in hoc: Secundo et tertio operatióne es distributivo respectu ad primo sed respectu ad secundo solum tertio es distributivo. Hoc lege responde ad formula

$$(a+b)g = ag + bg$$

distributivo de secundo specie

IV) $\underline{abc}.\underline{def}.\underline{ghi} \equiv \underline{adg}.\underline{beh}.\underline{cfi}$

$\overline{abc}.\overline{def}.\overline{ghi} \equiv \overline{adg}.\overline{beh}.\overline{cfi}$

$\underbrace{\underline{abc}.\underline{def}.\underline{ghi}} \equiv \underbrace{\underline{adg}.\underline{beh}.\underline{cfi}}$

hoc es analogo de formula

$$ab.cd = ac.bd$$

$$(a+b)+(c+d) = (a+c)+(b+d)$$

que in algebra pote demonstra per I, II, III

sed hic necesse es de postula

V)

$\underbrace{[abc.de]}\, fg = \overbrace{a.bdf.eg}$

$\overline{[abc.de]}\, fg = \overline{a.b\,f.ceg}$

$\underbrace{[abc.de]\, fg} = \underbrace{a.bdf.ceg}$

VI) associativo

$(abc)\, de \equiv$

Actione de [illegible] formale [illegible] a posse de vide in theoria de hyperfractiones

Fractione pote de defini per equatione

$$x\alpha \equiv a$$

ubi a numeratore, α denominatore

In hoc equatione ~~lice~~ substitue

$$x\alpha\alpha' \equiv a$$

Hyperfractione habe uno numeratore et duo denominatore

Nos i ostende quomodo posse applica leges fundamentales ad deductione de regulas de additione + multiplicatione de hyperfractione

$x\alpha\alpha' \equiv a$

$y\alpha\alpha' \equiv b$

$z\alpha\alpha' \equiv c$

$\overline{x\alpha\alpha'.y\alpha\alpha'.z\alpha\alpha'} = abc$

et per (III)

$\underline{\overline{xyz}.\alpha\alpha'} = \overline{abc}$

Eodem modo

$$\underbrace{\frac{a}{\alpha|\alpha'} \cdot \frac{b}{\alpha|\alpha'} \cdot \frac{c}{\alpha|\alpha'}} \equiv \frac{abc}{\alpha|\alpha'}$$

In casu de denominatores diversos necesse es inquisitione de maximo commune multiplo.

Invenito

$$\begin{array}{c|c|c} A_1 A_2 & B_1 B_2 & C_1 C_2 \\ A'_1 A'_2 & B'_1 B'_2 & C'_1 C'_2 \end{array}$$

tales, ut

$$\alpha A_1 A_2 \equiv \beta B_1 B_2 \equiv \gamma C_1 C_2 = M$$

$$\alpha' A'_1 A'_2 \equiv \beta' B'_1 B'_2 \equiv \gamma' C'_1 C'_2 = M'$$

Multiplicato $\quad x\alpha\alpha' \equiv a \quad$ per $A_1 A_2$

$$(x\alpha\alpha') A_1 A_2 \equiv a A_1 A_2$$

et postea per $A'_1 A'_2$

$$[(x\alpha\alpha') A_1 A_2] A'_1 A'_2 \equiv (a A_1 A_2) A'_1 A'_2$$

et per (V)

$$x(\alpha A_1 A_2)(\alpha' A'_1 A'_2) \equiv (a A_1 A_2) A'_1 A'_2$$

$$x \equiv \frac{(a A_1 A_2) . A'_1 A'_2}{M|M'}$$

$$y \equiv \frac{(b B_1 B_2) . B'_1 B'_2}{M|M'}$$

$$z = \frac{(c C_1 C_2) . C'_1 C'_2}{M|M'}$$

Nos vide ut additione de hyperfractione cum denominatores diversos redi ad additione de hyperfractione cum denominatores identicos

Multiplicatione de hyperfractiones facto per hoc modo

$$\left. \begin{array}{l} x\alpha\alpha' \equiv a \\ y\beta\beta' \equiv b \\ z\gamma\gamma' \equiv c \end{array} \right| \quad x\alpha\alpha' . y\beta\beta' . z\gamma\gamma' \equiv abc$$

Et per (IV) $\qquad xyz . \alpha\beta\gamma . \alpha'\beta'\gamma' = abc$

$$\frac{a}{\alpha|\alpha'} \cdot \frac{b}{\beta|\beta'} \cdot \frac{c}{\gamma|\gamma'} \equiv \frac{abc}{\alpha\beta\gamma|\alpha'\beta'\gamma'}$$

Operatione de substractione et de numeros negativos definito per equatione

$$\widehat{x\alpha} \equiv a$$

de que analogo

$$\widehat{x\alpha\alpha'} \equiv a$$

aut

$$\underbrace{x\alpha\alpha'} \equiv a$$

unde evolve teoria de hypernumeros negativos.

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