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ATOMISTIC MEREOLOGY II

BOLESŁAW SOBOCIŃSKI

4* In this section I will prove that which was mentioned at the beginning of this paper, that the axiom-system in which functor "**el**" occurs as the single primitive mereological notion of atomistic mereology, and which contains only two axioms, namely:

$A\ \ [AB] :\cdot: A\,\varepsilon\,\mathbf{el}(B) \,.\equiv::\, B\,\varepsilon\,B :\ :[Ta]::[C] \therefore C\,\varepsilon\,T \,.\equiv: [E] : E\,\varepsilon\,a \,.\supset.\, E\,\varepsilon\,\mathbf{el}(C) :$
$[E] : E\,\varepsilon\,\mathbf{el}(C) \,.\supset.\, [\exists FG] \,.\, F\,\varepsilon\,a \,.\, G\,\varepsilon\,\mathbf{el}(F) \,.\, G\,\varepsilon\,\mathbf{el}(E) \therefore B\,\varepsilon\,\mathbf{el}(B) \,.\, B\,\varepsilon\,a \,.$
$\supset.\, A\,\varepsilon\,\mathbf{el}(T)$

and

$V\ \ [A] :: A\,\varepsilon\,A \,.\supset\therefore [\exists B] \therefore B\,\varepsilon\,\mathbf{el}(A) : [C] : C\,\varepsilon\,\mathbf{el}(B) \,.\supset.\, C = B$

is inferentially equivalent to the following four axioms:

$S1\ \ [A] : A\,\varepsilon\,\mathbf{at}(B) \,.\supset.\, B\,\varepsilon\,B$
$S2\ \ [ABC] : A\,\varepsilon\,\mathbf{at}(B) \,.\, C\,\varepsilon\,\mathbf{at}(A) \,.\supset.\, C = A$
$S3\ \ [AB] \therefore A\,\varepsilon\,A \,.\, B\,\varepsilon\,B : [C] : C\,\varepsilon\,\mathbf{at}(A) \,.\equiv.\, C\,\varepsilon\,\mathbf{at}(B) :\supset.\, A = B$
$S4\ \ [Aa] :: A\,\varepsilon\,a \,.\supset\therefore [\exists B] \therefore [\exists E] \,.\, E\,\varepsilon\,\mathbf{at}(B) : [C] : C\,\varepsilon\,\mathbf{at}(B) \,.\equiv.\, [\exists D] \,.\, C\,\varepsilon\,\mathbf{at}(D) \,.$
$D\,\varepsilon\,a$

in which Rickey's functor "**at**" occurs, as their single mereological term.

4.1 Let us assume the axioms A and V. Since A is the single axiom of mereology, we have at our disposal all its consequences presented in section **2.** Then:

$DI\ \ [A] \therefore A\,\varepsilon\,A : [B] : B\,\varepsilon\,\mathbf{el}(A) \,.\supset.\, B = A :\equiv.\, A\,\varepsilon\,\mathbf{atm}$
$DII\ [AB] : A\,\varepsilon\,\mathbf{atm} \,.\, A\,\varepsilon\,\mathbf{el}(B) \,.\equiv.\, A\,\varepsilon\,\mathbf{at}(B)$

Cf. **3.3,** points (A) and (B).

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