Language: FOL + Primitive binary relations: "is a part of" denoted by p and "is collected by" denoted by @.

Axiom: $(\forall x.\ x \text{ p } y \Rightarrow x \text{ p } z) \Rightarrow y \text{ p } z$

Axiom: $x \text{ p } y \wedge y \text{ p } z \Rightarrow x \text{ p } z$

Define (=): $x=y \Leftrightarrow x \text{ p } y \wedge y \text{ p } x$

Define (pp): $x \text{ pp } y \Leftrightarrow x \text{ p } y \wedge \neg\, y \text{ p } x$

Axiom: $x\ @\ y \wedge z \text{ p } x \Rightarrow z\ @\ y$

Define (unit): $\text{unit}(x) \Leftrightarrow (\exists c.\forall y.\ y\ @\ c \Leftrightarrow y \text{ p } x) \wedge (\neg\, \exists c,z.\ z \text{ pp } x \wedge \forall y.\ y\ @\ c \Leftrightarrow y \text{ p } z)$

Axiom: $\text{unit}(x) \wedge \text{unit}(y) \wedge x \neq y \Rightarrow \neg\, \exists z.\ z \text{ p } x \wedge z \text{ p } y$

A particle is a proper part of a unit.

Define (collection): $\text{collection}(x) \Leftrightarrow (\forall y.\ y \text{ p } x \Rightarrow \exists c,z.\ z \text{ p } y \wedge z \text{ p } c \wedge \text{unit}(c) \wedge c \text{ p } x)$

Define (e): $x \text{ e } y \Leftrightarrow \text{unit}(x) \wedge x \text{ p } y \wedge \text{collection}(y)$

e is read as: is a trivial member of.

Axiom schema: if phi is a formula in which x is not free, then $(\exists z.\text{unit}(z)\text{phi} \Rightarrow \exists x.\forall y.\ y \text{ e } x \Leftrightarrow \text{unit}(y)\text{phi})$ is an axiom.

Define [|]: $y=[x|\text{phi}] \Leftrightarrow \text{collection}(y) \wedge (\forall x.\ x \text{ e } y \Leftrightarrow \text{unit}(x)\text{phi})$

Define (precollector): $\text{precollector}(x) \Leftrightarrow \exists y.\ y\ @\ x$

Define (collector): $\text{collector}(x) \Leftrightarrow \text{unit}(x) \wedge \exists y.\ y\ @\ x$

A proper precollector is a precollector that is not a unit.

A class is a collection of collectors where distinct collectors do collect distinct collections.

Define (class): $\text{class}(x) \Leftrightarrow \text{collection}(x) \wedge$
$(\forall y.\ y \text{ e } x \Rightarrow \text{collector}(y)) \wedge (\forall y,z.\ y \text{ e } x \wedge z \text{ e } x \wedge y \neq z \Rightarrow$
$\exists u,w.\ u=[k|\ k\ @\ y] \wedge w=[k|\ k\ @\ z] \wedge u \neq w)$

For every collector x the collection $[y|\ y\ @\ x]$ is called

the *extension* of x, and x is its *exclusive* collector.

When this extension is a class, it's called

a *class extension* of x.

A set is a class extension of a collector.

Epsilon membership is defined as:

$x \in y \Leftrightarrow \text{class}(y) \wedge \exists z.\ \text{collector}(z) \wedge x=[u|\ u\ @\ z] \wedge z \text{ e } y.$

This explains those terms in standard set\class theories.

However in set theories it is sufficient to interpret sets as collectors and epsilon membership as "is a unit collected by the collector".

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