Set-Theoretic Property: $_{atis}$AffectRelationFamily

(*Set-theoretic properties* are those properties that are part of the meta-theory and have been abducted from set theory to be used as a tool to provide solutions concerning the theory. Those solutions may be assigned as values to components or relations of the theory and thereby become part of the theory.)

Affect relation family, $\mathcal{A}$, $=_{df}$ a family of *relation-sets* of the *general system relation-set*, $\mathbb{S}_\phi$, defined by *qualifier predicates*, $\mathscr{L}$.

$$\mathcal{A} =_{df} \{\mathbb{S}_{\phi i} \mid \exists i \in \mathscr{I} \forall \mathbb{S}_{\phi i}(\mathbb{S}_{\phi i} = \{(x,y) \mid P(x,y) \in \mathscr{L}\} \subset \mathbb{S}_\phi\}$$; where $\mathscr{I}$ is the set of positive integers, and 'x' and 'y' are *extensions* of the predicate 'P'.

'$\mathscr{L}$' is the set of *qualifying predicates* with elements $P(x,y)$, such that $P(x,y)$ is a statement that has x and y as variables. The elements of $\mathbb{S}_{\phi i}$ have the following form, $(x,y) = \{\{x\},\{x, y\}\}$:

$$\mathbb{S}_{\phi i} =_{df} \{ \{\{x_i\},\{x_i, y_i\}\} \mid \forall x_i,y_i \, (x_i,y_i \in \mathbb{S}_0)\}.$$

We will then say that $\mathbb{S}_{\phi i} = \mathcal{A}_i \in \mathcal{A}$.

An affect relation family is defined as a set of relations, such that there exists an integer such that for all relations, each relation satisfies a qualifying predicate, and the set of relations is a subset of the system relation-set.