Graph-Theoretic Property: *atis*HierarchyConnectedComponentsSet

(Graph-theoretic properties are those properties that are part of the meta-theory and have been abducted from graph 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.)

Hierarchy-connected components set, $_{HI}\mathcal{C}$, $=_{df}$ a set of components that are unilaterally connected from a primary-initiating component.

$$_{HI}\mathcal{C} =_{df} \mathcal{X} = \{\varkappa |\ \varkappa \in \mathcal{R} \subset \mathbb{S}_0 \wedge \exists z \in \mathcal{R}[(z \in_{pi} E \wedge \forall \gamma \in \mathcal{R}[\gamma \neq z \wedge (z,\gamma) \in_{uc} E]\}$$

Hierarchy-connected components set is a set of components, $\varkappa$; such that, the components, $\varkappa$, are in a subset of the object-set, and there exist distinct components, z, of the subset, such that z are primary-initiating components and for all distinct components, γ, in the subset, (z,γ) are unilaterally connected.

The following diagram depicts a *Hierarchy-Connected Components Set*.

Hierarchy-Connected Components Set

This is a 3-level hierarchy connected components set.