Structural System Property: *atis*Strongness

(Structural system properties are those properties that are part of the theory and describe patterns of system and negasystem connectedness. The structural properties define the topology of the system, and every affect relation defines a topology on the system.)

Strongness, $_s\mathbb{S}$, $=_{df}$ a *partition*, $\mathcal{Y} = (V{\subset}\mathcal{G}_0, \mathcal{R}{\subset}\mathcal{G}_\mathcal{A})$, characterized by affect-relations that are the directed-connected shortest-path-length between any two components.

$$_s\mathbb{S} =_{df} \mathcal{Y} \mid \forall \mathbf{u},\mathbf{v} \in \mathcal{Y}(V) \exists \mathbf{e} \in \mathcal{Y}(\mathcal{R})[\mathbf{e} = (\mathbf{u},\mathbf{v}) \supset \ell(\mathbf{e}) = \ell^{\min}(\mathbf{e})]$$

$\mathcal{M}$: **Strongness measure**, $_s\mathbb{S}$, $=_{df}$ a measure of the shortest path between components.

$$\mathcal{M}(_s\mathbb{S}) =_{df} \left\{ [\log_2 \sum_{i=1,\ldots,n} (\prod_{j=1,\ldots,m} (|\ell(\mathbf{e}) \mid \ell(\mathbf{e}) = \ell^{\min}(\mathbf{e})|_j)_i] \div \mathbf{C} \right\} \times 100$$
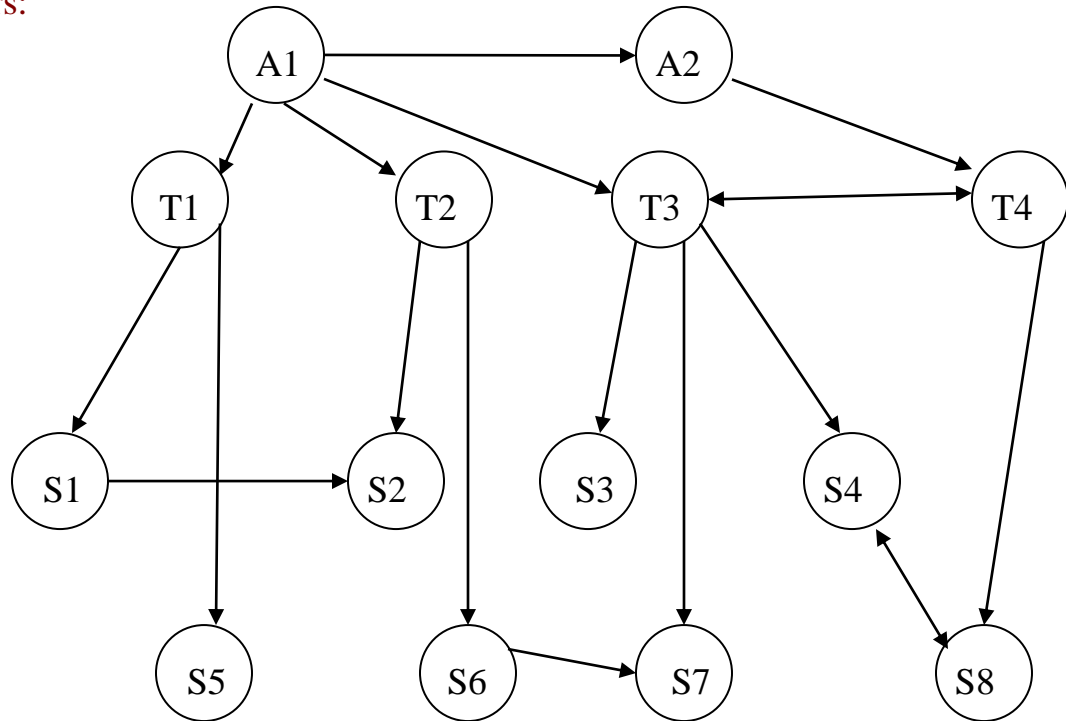
The diagram on the next page shows **strongness** in a school system:

Strongness in a School System

Administrators:

Teachers:

Students:

Affect Relation: *Controls Activities of*

In this system, there are 14 components that *Control Activities of* other components with respect to *Strongness* since all components are connected and numerous components are directed adjacent or non-adjacent connected. Since there is only 1 affect-relation and 14 components, then the total possible affect relation paths is $P[\mathcal{Z}(\mathfrak{S_0})] = 236,975,181,590$; and therefore, $\mathbf{C} = \log_2(P[\mathcal{Z}(\mathfrak{S_0})]) \approx 37$. The product of the component degrees is 248,832, with a $\log_2|248,832| \approx 18$. There are 18 paths related to *Strongness*.

Therefore: $\mathcal{M}(_S\mathfrak{S}) \approx$ **47.44.**