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# Recognition of Cancer With Bipartite and Path as Neutrosophic SuperHyperGraph By the Tool Called Stability

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Keywords: Neutrosophic SuperHyperGraph; SuperHyperSTABLE; Cancer's Neutrosophic Recognition



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Article

# Recognition of Cancer with Bipartite and Path as Neutrosophic SuperHyperGraph by the Tool Called Stability

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**Abstract:** New ideas on the framework of Neutrosophic SuperHyperGraph for different styles of Neutrosophic SuperHyper-Bipartite and Neutrosophic SuperHyper-Path are introduced. More instances and more clarifications alongside sufficient references.

**Keywords:** Neutrosophic SuperHyperGraph; SuperHyper<sub>STABLE</sub>; cancer's neutrosophic recognition

**AMS Subject Classification:** 05C17; 05C22; 05E45

## 1. Scientific Research

Referred to Ref. [2].

### Theorem 1.1.

$$\begin{aligned}
 & |(\sum_{V_i \in V'} T(V_i), \sum_{V_i \in V'} I(V_i), \sum_{V_i \in V'} F(V_i))| \\
 &= \max_{V'' \subseteq V_{NSHG}} \{(\sum_{V_i \in V''} T(V_i), \sum_{V_i \in V''} I(V_i), \sum_{V_i \in V''} F(V_i)) \mid \forall V_i \in V'', \forall V_j \in V'' : \\
 & T'_V(V_i, V_j \in E_{i'}) \not\leq \min[T_V(V'_i), T_V(V'_j)]_{V'_i, V'_j \in E_{NSHG}'} \\
 & I'_V(V_i, V_j \in E_{i'}) \not\leq \min[I_V(V'_i), I_V(V'_j)]_{V'_i, V'_j \in E_{NSHG}'} \\
 & \text{and } F'_V(E_{i'})(V_i, V_j \in E_{i'}) \not\leq \min[F_V(V'_i), F_V(V'_j)]_{V'_i, V'_j \in E_{NSHG}'} \\
 & \}
 \end{aligned}$$

**Example 1.2.** Referred to the Figure 1.

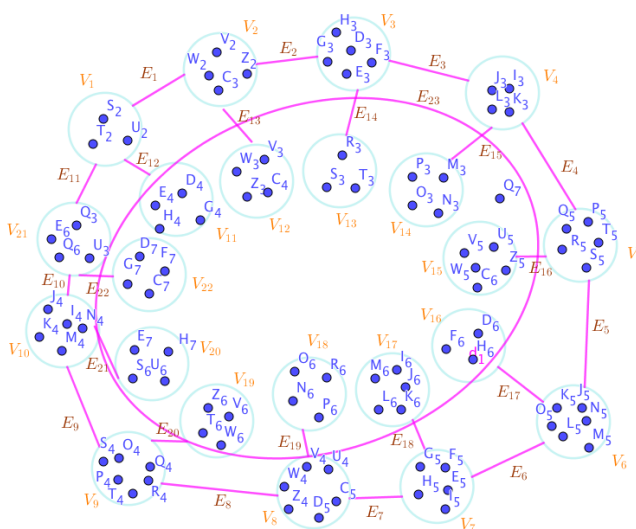


Figure 1. Referred to the Example 1.2.

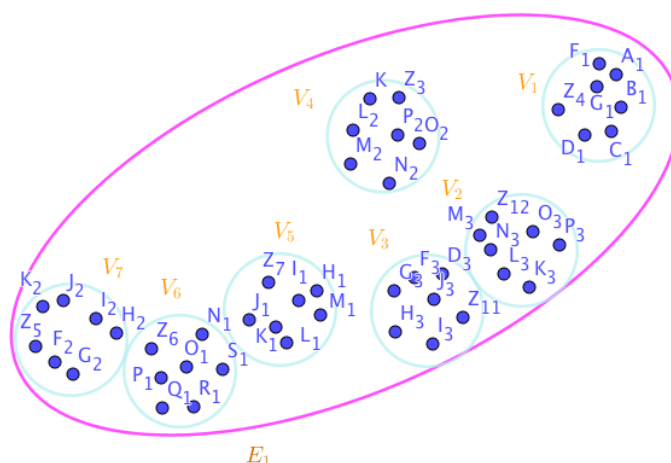
**Theorem 1.3.** *Neutrosophic SuperHyperBipartiteStyles-I don't coincide.*

**Proof.**

$$|(\sum_{V_i \in V'=\{V_1\}} T(V_i), \sum_{V_i \in V'=\{V_1\}} I(V_i), \sum_{V_i \in V'=\{V_1\}} F(V_i))| = (0.26, 0.26, 0.26).$$

□

**Example 1.4.** *Referred to the Figure 2.*



**Figure 2.** Referred to the Example 1.4.

**Theorem 1.5.** *Neutrosophic SuperHyperBipartiteStyles-II don't coincide.*

**Proof.**

$$|(\sum_{V_i \in V'=\{V_1, V_2\}} T(V_i), \sum_{V_i \in V'=\{V_1, V_2\}} I(V_i), \sum_{V_i \in V'=\{V_1, V_2\}} F(V_i))| = (0.5, 0.5, 0.5) = \max_{V'' \subseteq V_{SHG}} |(\sum_{V_i \in V''} T(V_i), \sum_{V_i \in V''} I(V_i), \sum_{V_i \in V''} F(V_i))|$$

$V_1 \in V'', \forall V_2 \in V'' :$

$$T'_{V'}(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \min[T_{V'}(V_1), T_{V'}(V_2)]_{V_1, V_2 \in E_1},$$

$$I'_{V'}(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \min[I_{V'}(V_1), I_{V'}(V_2)]_{V_1, V_2 \in E_1},$$

and  $F'_{V'}(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \min[F_{V'}(V_1), F_{V'}(V_2)]_{V_1, V_2 \in E_1},$

□

**Example 1.6.** *Referred to the Figure 3.*

**Theorem 1.7.** *Neutrosophic SuperHyperBipartiteStyles-III don't coincide.*

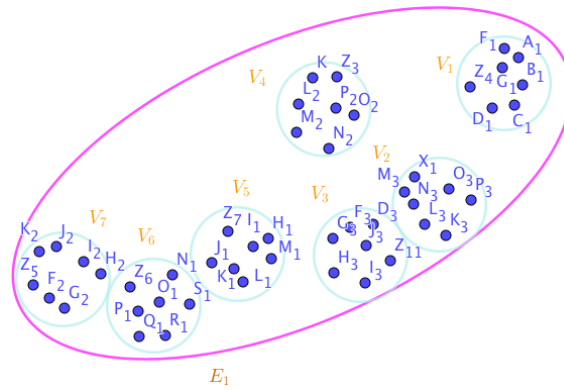


Figure 3. Referred to the Example 1.6.

Proof.

$$\begin{aligned}
 & \left| \left( \sum_{V_i \in V' = \{V_i\}_{i=1}^3} T(V_i), \right. \right. \\
 & \quad \left. \sum_{V_i \in V' = \{V_i\}_{i=1}^3} I(V_i), \right. \\
 & \quad \left. \sum_{V_i \in V' = \{V_i\}_{i=1}^3} F(V_i) \right| \\
 & = (0.75, 0.75, 0.75) = \\
 & = \max_{V'' \subseteq V_{SHG}} \left| \left( \sum_{V_i \in V''} T(V_i), \sum_{V_i \in V''} I(V_i), \sum_{V_i \in V''} F(V_i) \right) \right| \\
 & \quad V_i \in V'', \forall V_j \in V'' :
 \end{aligned}$$

$$\begin{aligned}
 & T'_{V'}(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & I'_{V'}(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & \text{and } F'_{V'}(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & \}
 \end{aligned}$$

□

Example 1.8. Referred to the Figure 4.

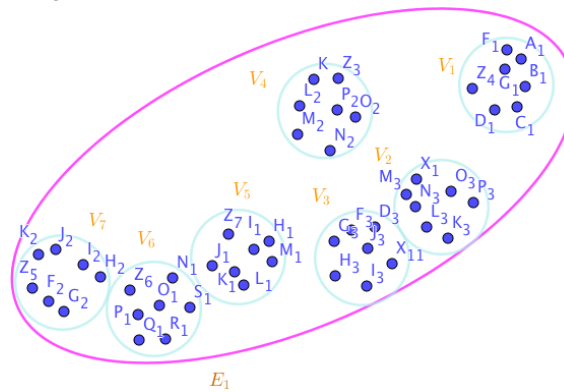


Figure 4. Referred to the Example 1.8.

**Theorem 1.9.** *Neutrosophic SuperHyperBipartiteStyles-IV don't coincide.*

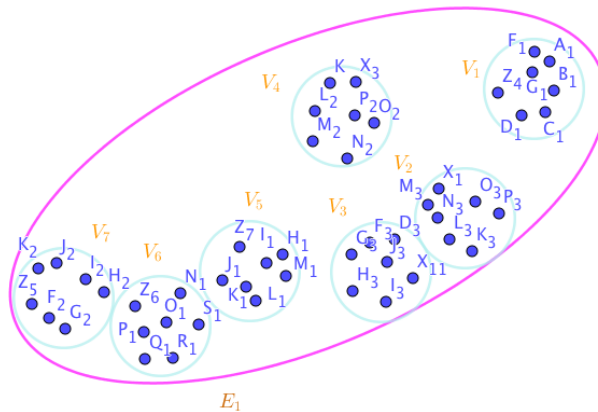
**Proof.**

$$\begin{aligned}
 & \left| \left( \sum_{V_i \in V' = \{V_i\}_{i=1}^4} T(V_i), \right. \right. \\
 & \quad \left. \sum_{V_i \in V' = \{V_i\}_{i=1}^4} I(V_i), \right. \\
 & \quad \left. \sum_{V_i \in V' = \{V_i\}_{i=1}^4} F(V_i) \right) \left| \right. \\
 & = (0.99, 0.99, 0.99) = \\
 & = \max_{V'' \subseteq V_{SHG}} \left| \left( \sum_{V_i \in V''} T(V_i), \sum_{V_i \in V''} I(V_i), \sum_{V_i \in V''} F(V_i) \right) \right| \\
 & \quad V_i \in V'', \forall V_j \in V'' :
 \end{aligned}$$

$$\begin{aligned}
 T'_{V'}(E_1) & = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 I'_{V'}(E_1) & = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 \text{and } F'_{V'}(E_1) & = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & \}
 \end{aligned}$$

□

**Example 1.10.** *Referred to the Figure 5.*



**Figure 5.** Referred to the Example 1.10.

**Theorem 1.11.** *Neutrosophic SuperHyperBipartiteStyles-V don't coincide.*

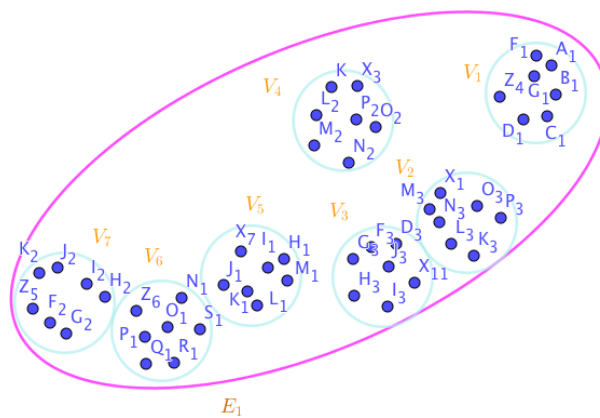
**Proof.**

$$\begin{aligned}
 & \left| \left( \sum_{V_i \in V' = \{V_i\}_{i=1}^5} T(V_i), \right. \right. \\
 & \quad \left. \sum_{V_i \in V' = \{V_i\}_{i=1}^5} I(V_i), \right. \\
 & \quad \left. \sum_{V_i \in V' = \{V_i\}_{i=1}^5} F(V_i) \right) \left| \right. \\
 & = (1.23, 1.23, 1.23) = \\
 & = \max_{V'' \subseteq V_{SHG}} \left| \left( \sum_{V_i \in V''} T(V_i), \sum_{V_i \in V''} I(V_i), \sum_{V_i \in V''} F(V_i) \right) \right| \\
 & \quad V_i \in V'', \forall V_j \in V'' :
 \end{aligned}$$

$$\begin{aligned}
 T'_{V'}(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 I'_{V'}(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 \text{and } F'_{V'}(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & \}
 \end{aligned}$$

□

**Example 1.12.** Referred to the Figure 6.



**Figure 6.** Referred to the Example 1.12.

**Theorem 1.13.** Neutrosophic SuperHyperBipartiteStyles-VI don't coincide.

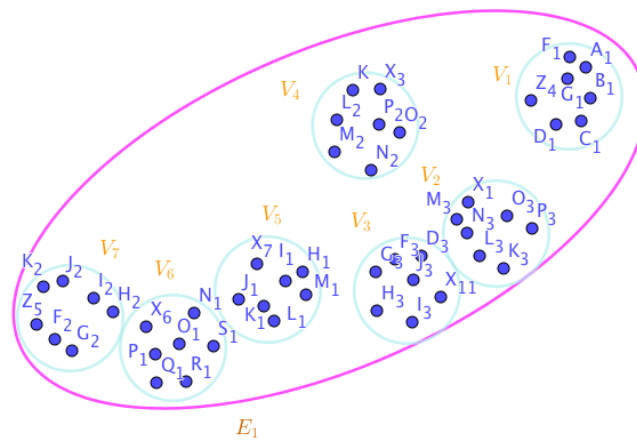
**Proof.**

$$\begin{aligned}
 & \left| \left( \sum_{V_i \in V' = \{V_i\}_{i=1}^6} T(V_i), \right. \right. \\
 & \quad \left. \sum_{V_i \in V' = \{V_i\}_{i=1}^6} I(V_i), \right. \\
 & \quad \left. \sum_{V_i \in V' = \{V_i\}_{i=1}^6} F(V_i) \right) \left| \right. \\
 & = (1.47, 1.47, 1.47) = \\
 & = \max_{V'' \subseteq V_{SHG}} \left| \left( \sum_{V_i \in V''} T(V_i), \sum_{V_i \in V''} I(V_i), \sum_{V_i \in V''} F(V_i) \right) \right| \\
 & \quad V_i \in V'', \forall V_j \in V'' :
 \end{aligned}$$

$$\begin{aligned}
 T'_{V'}(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 I'_{V'}(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 \text{and } F'_{V'}(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & \}
 \end{aligned}$$

□

**Example 1.14.** Referred to the Figure 7.



**Figure 7.** Referred to the Example 1.14.

**Theorem 1.15.** Neutrosophic SuperHyperBipartiteStyles-VII don't coincide.

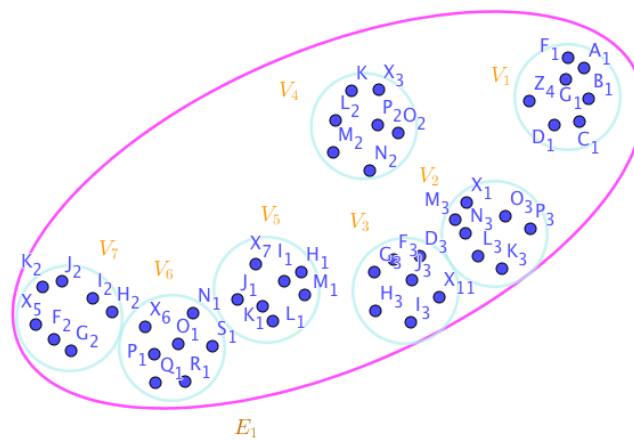
**Proof.**

$$\begin{aligned}
 & \left| \left( \sum_{V_i \in V' = \{V_i\}_{i=1}^7} T(V_i), \right. \right. \\
 & \quad \left. \sum_{V_i \in V' = \{V_i\}_{i=1}^7} I(V_i), \right. \\
 & \quad \left. \sum_{V_i \in V' = \{V_i\}_{i=1}^7} F(V_i) \right) \left| \right. \\
 & = (1.71, 1.71, 1.71) = \\
 & = \max_{V'' \subseteq V_{SHG}} \left| \left( \sum_{V_i \in V''} T(V_i), \sum_{V_i \in V''} I(V_i), \sum_{V_i \in V''} F(V_i) \right) \right| \\
 & \quad V_i \in V'', \forall V_j \in V'' :
 \end{aligned}$$

$$\begin{aligned}
 T'_{V'}(E_1) & = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 I'_{V'}(E_1) & = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 \text{and } F'_{V'}(E_1) & = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & \}
 \end{aligned}$$

□

**Example 1.16.** Referred to the Figure 8.



**Figure 8.** Referred to the Example 1.16.

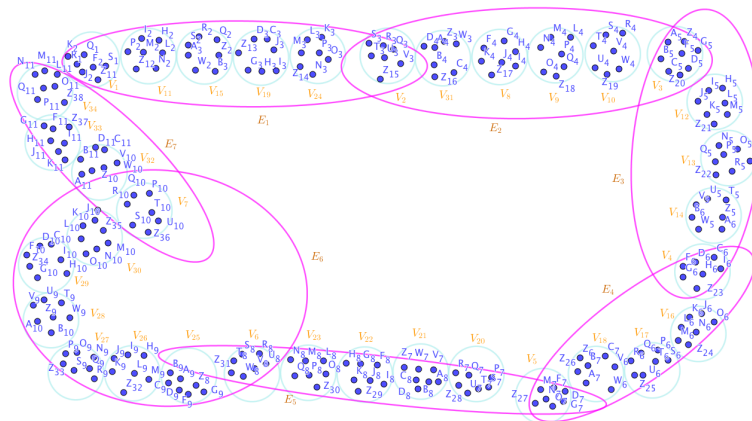
**Theorem 1.17.** Neutrosophic SuperHyperPathStyles-I don't coincide.

**Proof.**

$$\begin{aligned}
 & \left| \left( \sum_{V_i \in V' = \{V_1, V_8, V_{12}, V_{16}, V_{20}, V_{25}, V_{32}\}} T(V_i), \right. \right. \\
 & \left. \sum_{V_i \in V' = \{V_1, V_8, V_{12}, V_{16}, V_{20}, V_{25}, V_{32}\}} I(V_i), \right. \\
 & \left. \sum_{V_i \in V' = \{V_1, V_8, V_{12}, V_{16}, V_{20}, V_{25}, V_{32}\}} F(V_i) \right) \Big| \\
 & = (1.82, 1.82, 1.82) \\
 & = \max_{V'' \subseteq V_{SHG}} \left\{ \left( \sum_{V_i \in V''} T(V_i), \sum_{V_i \in V''} I(V_i), \sum_{V_i \in V''} F(V_i) \right) \Big| \right. \\
 & \left. V_i = 1, 8, 12, 16, 20, 25, 32 \in V'', \forall V_j = 1, 8, 12, 16, 20, 25, 32 \in V'' : \right. \\
 & T'_V(E_k) \sim_{\text{NOT DEFINED}} \min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \notin E_k}, \\
 & I'_V(E_k) \sim_{\text{NOT DEFINED}} \min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \notin E_k}, \\
 & \left. \text{and } F'_V(E_k) \sim_{\text{NOT DEFINED}} \min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \notin E_k} \right\}
 \end{aligned}$$

□

**Example 1.18.** Referred to the Figure 9.



**Figure 9.** Referred to the Example (1.18)

**Theorem 1.19.** Neutrosophic SuperHyperPathStyles-II don't coincide.

**Proof.**

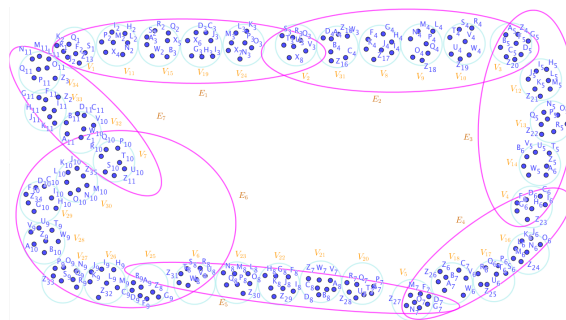
$$\begin{aligned}
 & \left| \left( \sum_{V_i \in V' = \{V_{1-2,8,11-12,15-16,19-20,24-25,32-34}\}} T(V_i), \right. \right. \\
 & \left. \sum_{V_i \in V' = \{V_{1-2,8,11-12,15-16,19-20,24-25,32-34}\}} I(V_i), \right. \\
 & \left. \sum_{V_i \in V' = \{V_{1-2,8,11-12,15-16,19-20,24-25,32-34}\}} F(V_i) \right| \\
 & = (3.48, 3.48, 3.48) \\
 & = \max_{V'' \subseteq V_{SHG}} \left| \left( \sum_{V_i \in V''} T(V_i), \sum_{V_i \in V''} I(V_i), \sum_{V_i \in V''} F(V_i) \right) \right| \\
 & \quad V_{i=1,8,12,16,20,25,32} \in V'', \forall V_{j=1,8,12,16,20,25,32} \in V'' : \\
 & \quad T'_{V'}(E_k) \sim_{\text{NOT DEFINED}} \min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \notin E_k}, \\
 & \quad I'_{V'}(E_k) \sim_{\text{NOT DEFINED}} \min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \notin E_k}, \\
 & \quad \text{and } F'_{V'}(E_k) \sim_{\text{NOT DEFINED}} \min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \notin E_k}, \\
 & \quad V_{i=1-2,11,15,19,24} \in V'', \forall V_{j=1-2,11,15,19,24} \in V'' :
 \end{aligned}$$

$$\begin{aligned}
 T'_{V'}(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 I'_{V'}(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 \text{and } F'_{V'}(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & V_{i=32-34} \in V'', \forall V_{j=32-34} \in V'' :
 \end{aligned}$$

$$\begin{aligned}
 T'_{V'}(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 I'_{V'}(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 \text{and } F'_{V'}(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & \}
 \end{aligned}$$

□

**Example 1.20.** Referred to the Figure 10.



**Figure 10.** Referred to the Example 1.20.

**Theorem 1.21.** *Neutrosophic SuperHyperPathStyles-III don't coincide.*

**Proof.**

$$\begin{aligned}
 & |(\sum_{V_i \in V'} T(V_i), \sum_{V_i \in V'} I(V_i), \sum_{V_i \in V'} F(V_i))| \\
 & = (4.2, 4.2, 4.2) \\
 & = \max_{V'' \subseteq V_{SHG}} |(\sum_{V_i \in V''} T(V_i), \sum_{V_i \in V''} I(V_i), \sum_{V_i \in V''} F(V_i))| \\
 & \quad V_{i=1,8,12,16,20,25,32} \in V'', \forall V_{j=1,8,12,16,20,25,32} \in V'' : \\
 & \quad T'_{V'}(E_k) \sim^{\text{NOT DEFINED}} \min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \notin E_k}, \\
 & \quad I'_{V'}(E_k) \sim^{\text{NOT DEFINED}} \min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \notin E_k}, \\
 & \quad \text{and } F'_{V'}(E_k) \sim^{\text{NOT DEFINED}} \min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \notin E_k}, \\
 & \quad V_{i=1-2,11,15,19,24} \in V'', \forall V_{j=1-2,11,15,19,24} \in V'' : \\
 \\
 & T'_{V'}(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & I'_{V'}(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & \text{and } F'_{V'}(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & \quad V_{i=32-34} \in V'', \forall V_{j=32-34} \in V'' : \\
 \\
 & T'_{V'}(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & I'_{V'}(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & \text{and } F'_{V'}(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & \quad V_{i=8-10,31,2} \in V'', \forall V_{j=8-10,31,2} \in V'' : \\
 \\
 & T'_{V'}(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & I'_{V'}(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & \text{and } F'_{V'}(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & \}
 \end{aligned}$$

□

Example 1.22. Referred to the Figure 11.

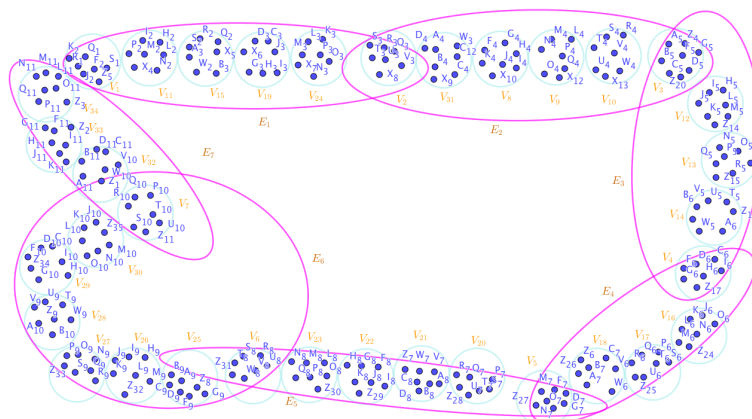


Figure 11. Referred to the Example (1.22)

Theorem 1.23. Neutrosophic SuperHyperPathStyles-IV don't coincide.

Proof.

$$\begin{aligned}
 & \left| \left( \sum_{V_i \in V'} T(V_i), \sum_{V_i \in V'} I(V_i), \sum_{V_i \in V'} F(V_i) \right) \right| \\
 & V_i \in V' = \{V_1-4, 8-12-16, 19-20, 24-25, 31-34\} \\
 & V_i \in V' = \{V_1-4, 8-12-16, 19-20, 24-25, 31-34\} \\
 & V_i \in V' = \{V_1-4, 8-12-16, 19-20, 24-25, 31-34\} \\
 & = (5.16, 5.16, 5.16) \\
 & = \max_{V'' \subseteq V_{SHG}} \left| \left( \sum_{V_i \in V''} T(V_i), \sum_{V_i \in V''} I(V_i), \sum_{V_i \in V''} F(V_i) \right) \right| \\
 & V_i=1,8,12,16,20,25,32 \in V'', \forall V_j=1,8,12,16,20,25,32 \in V'' : \\
 & T'_V(E_k) \sim_{\text{NOT DEFINED}} \min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \notin E_k}, \\
 & I'_V(E_k) \sim_{\text{NOT DEFINED}} \min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \notin E_k}, \\
 & \text{and } F'_V(E_k) \sim_{\text{NOT DEFINED}} \min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \notin E_k}, \\
 & V_i=1-2,11,15,19,24 \in V'', \forall V_j=1-2,11,15,19,24 \in V'' : \\
 & T'_V(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & I'_V(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & \text{and } F'_V(E_1) = (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
 & \min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
 & V_i=32-34 \in V'', \forall V_j=32-34 \in V'' :
 \end{aligned}$$

$$\begin{aligned}
T'_V(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
&\min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
I'_V(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
&\min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
\text{and } F'_V(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
&\min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
&V_{i=8-10,31,2} \in V'', \forall V_{j=8-10,31,2} \in V'' :
\end{aligned}$$

$$\begin{aligned}
T'_V(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
&\min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
I'_V(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
&\min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
\text{and } F'_V(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
&\min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
&V_{i=12-14,3-4} \in V'', \forall V_{j=12-14,3-4} \in V'' :
\end{aligned}$$

$$\begin{aligned}
T'_V(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
&\min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
I'_V(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
&\min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
\text{and } F'_V(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
&\min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
&V_{i=4,16} \in V'', \forall V_{j=4,16} \in V'' :
\end{aligned}$$

$$\begin{aligned}
T'_V(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
&\min[T_{V'}(V_i), T_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
I'_V(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
&\min[I_{V'}(V_i), I_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
\text{and } F'_V(E_1) &= (0.26, 0.26, 0.26) \not\leq (0.24, 0.24, 0.24) = \\
&\min[F_{V'}(V_i), F_{V'}(V_j)]_{V_i, V_j \in E_1}, \\
&\}
\end{aligned}$$

□

**Example 1.24.** Referred to the Figure 12.

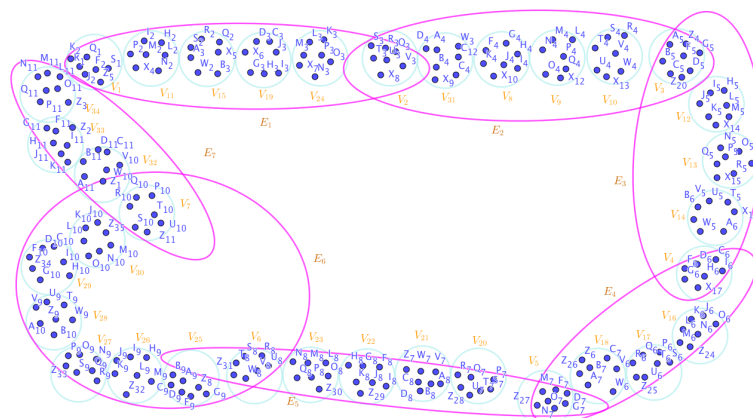


Figure 12. Referred to the Example 1.24.

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