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# Neutrosophic SuperHyperGraphs Warns Hyper Landmark of neutrosophic SuperHyperGirth In Super Type-Versions of Cancer's neutrosophic Recognition

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*Article*

# Neutrosophic SuperHyperGraphs Warns Hyper Landmark of neutrosophic SuperHyperGirth In Super Type-Versions of Cancer's neutrosophic Recognition

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**Abstract:** In this research, the neutrosophic SuperHyperNotion, namely, neutrosophic SuperHyperGirth, is up. $E_1$ and $E_3$ are some empty neutrosophic SuperHyperEdges but $E_2$ is a loop neutrosophic SuperHyperEdge and $E_4$ is an neutrosophic SuperHyperEdge. Thus in the terms of neutrosophic SuperHyperNeighbor, there's only one neutrosophic SuperHyperEdge, namely, $E_4$. The neutrosophic SuperHyperVertex, $V_3$ is neutrosophic isolated means that there's no neutrosophic SuperHyperEdge has it as an neutrosophic endpoint. Thus the neutrosophic SuperHyperVertex, $V_3$, is excluded in every given neutrosophic SuperHyperGirth. $\mathcal{C}(NSHG) = \{E_i\}$ is an neutrosophic SuperHyperGirth.$\mathcal{C}(NSHG) = jz^i$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.$\mathcal{C}(NSHG) = \{V_i\}$ is an neutrosophic R-SuperHyperGirth. $\mathcal{C}(NSHG) = jz^I$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices], is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices], is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with the maximum neutrosophic cardinality of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only four neutrosophic SuperHyperVertices inside the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet includes only less than four neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices], doesn't have less than four SuperHyperVertices inside the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth isn't up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices], isn't the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices], is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth and it's an neutrosophic SuperHyperGirth . Since it 's the maximum neutrosophic cardinality of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are only less than four neutrosophic SuperHyperVertices inside the intended neutrosophic SuperHyperSet, thus the obvious neutrosophic SuperHyperGirth, is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is: ,is the neutrosophic SuperHyperSet, is: does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the neutrosophic SuperHyperGirth , is only and only. A basic familiarity with neutrosophic SuperHyperGirth theory, SuperHyperGraphs, and neutrosophic SuperHyperGraphs theory are proposed.

**Keywords:** neutrosophic SuperHyperGraph; (neutrosophic) SuperHyperGirth; Cancer's neutrosophic Recognition

**MSC:** 05C17; 05C22; 05E45

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## 1. Background

Fuzzy set in **Ref.** [63] by Zadeh (1965), intuitionistic fuzzy sets in **Ref.** [50] by Atanassov (1986), a first step to a theory of the intuitionistic fuzzy graphs in **Ref.** [60] by Shannon and Atanassov (1994), a unifying field in logics neutrosophy: neutrosophic probability, set and logic, rehoboth in **Ref.** [61] by Smarandache (1998), single-valued neutrosophic sets in **Ref.** [62] by Wang et al. (2010), single-valued neutrosophic graphs in **Ref.** [54] by Broumi et al. (2016), operations on single-valued neutrosophic graphs in **Ref.** [46] by Akram and Shahzadi (2017), neutrosophic soft graphs in **Ref.** [59] by Shah and Hussain (2016), bounds on the average and minimum attendance in preference-based activity scheduling in **Ref.** [48] by Aronshtam and Ilani (2022), investigating the recoverable robust single machine scheduling problem under interval uncertainty in **Ref.** [53] by Bold and Goerigk (2022), polyhedra associated with locating-dominating, open locating-dominating and locating total-dominating sets in graphs in **Ref.** [47] by G. Argiroffo et al. (2022), a Vizing-type result for semi-total domination in **Ref.** [49] by J. Asplund et al. (2020), total domination cover rubbling in **Ref.** [51] by R.A. Beeler et al. (2020), on the global total k-domination number of graphs in **Ref.** [52] by S. Bermudo et al. (2019), maker–breaker total domination game in **Ref.** [55] by V. Gledel et al. (2020), a new upper bound on the total domination number in graphs with minimum degree six in **Ref.** [56] by M.A. Henning, and A. Yeo (2021), effect of predomination and vertex removal on the game total domination number of a graph in **Ref.** [57] by V. Irsic (2019), hardness results of global total k-domination problem in graphs in **Ref.** [58] by B.S. Panda, and P. Goyal (2021), are studied.
Look at [41–45] for further researches on this topic. See the seminal researches [1–3]. The formalization of the notions on the framework of neutrosophic Failed SuperHyperClique theory, Neutrosophic Failed SuperHyperClique theory, and (Neutrosophic) SuperHyperGraphs theory at [4–38]. Two popular research books in Scribd in the terms of high readers, 2638 and 3363 respectively, on neutrosophic science is on [39,40].

## 2. General Neutrosophic Results

For the SuperHyperGirth, neutrosophic SuperHyperGirth, and the neutrosophic SuperHyperGirth, some general results are introduced.

**Remark 2.1.** Let remind that the neutrosophic SuperHyperGirth is "redefined" on the positions of the alphabets.

**Corollary 2.2.** Assume neutrosophic SuperHyperGirth. Then

$$Neutrosophic\ SuperHyperGirth = \{theSuperHyperGirthoftheSuperHyperVertices \mid \max |SuperHyperOffensiveSuperHyper Clique|_{neutrosophiccardinalityamidthoseSuperHyperGirth.}\}$$

plus one neutrosophic SuperHypeNeighbor to one. Where $\sigma_i$ is the unary operation on the SuperHyperVertices of the SuperHyperGraph to assign the determinacy, the indeterminacy and the neutrality, for $i = 1, 2, 3$, respectively.

**Corollary 2.3.** Assume a neutrosophic SuperHyperGraph on the same identical letter of the alphabet. Then the notion of neutrosophic SuperHyperGirth and SuperHyperGirth coincide.

**Corollary 2.4.** Assume a neutrosophic SuperHyperGraph on the same identical letter of the alphabet. Then a consecutive sequence of the SuperHyperVertices is a neutrosophic SuperHyperGirth if and only if it's a SuperHyperGirth.

**Corollary 2.5.** Assume a neutrosophic SuperHyperGraph on the same identical letter of the alphabet. Then a consecutive sequence of the SuperHyperVertices is a strongest SuperHyperCycle if and only if it's a longest SuperHyperCycle.

**Corollary 2.6.** Assume SuperHyperClasses of a neutrosophic SuperHyperGraph on the same identical letter of the alphabet. Then its neutrosophic SuperHyperGirth is its SuperHyperGirth and reversely.

**Corollary 2.7.** Assume a neutrosophic SuperHyperPath(-/SuperHyperCycle, SuperHyperStar, SuperHyperBipartite, SuperHyperMultipartite, SuperHyperWheel) on the same identical letter of the alphabet. Then its neutrosophic SuperHyperGirth is its SuperHyperGirth and reversely.

**Corollary 2.8.** Assume a neutrosophic SuperHyperGraph. Then its neutrosophic SuperHyperGirth isn't well-defined if and only if its SuperHyperGirth isn't well-defined.

**Corollary 2.9.** Assume SuperHyperClasses of a neutrosophic SuperHyperGraph. Then its neutrosophic SuperHyperGirth isn't well-defined if and only if its SuperHyperGirth isn't well-defined.

**Corollary 2.10.** Assume a neutrosophic SuperHyperPath(-/SuperHyperCycle, SuperHyperStar, SuperHyperBipartite, SuperHyperMultipartite, SuperHyperWheel). Then its neutrosophic SuperHyperGirth isn't well-defined if and only if its SuperHyperGirth isn't well-defined.

**Corollary 2.11.** Assume a neutrosophic SuperHyperGraph. Then its neutrosophic SuperHyperGirth is well-defined if and only if its SuperHyperGirth is well-defined.

**Corollary 2.12.** Assume SuperHyperClasses of a neutrosophic SuperHyperGraph. Then its neutrosophic SuperHyperGirth is well-defined if and only if its SuperHyperGirth is well-defined.

**Corollary 2.13.** Assume a neutrosophic SuperHyperPath(-/SuperHyperCycle, SuperHyperStar, SuperHyperBipartite, SuperHyperMultipartite, SuperHyperWheel). Then its neutrosophic SuperHyperGirth is well-defined if and only if its SuperHyperGirth is well-defined.

**Proposition 2.14.** Let $ESHG : (V, E)$ be a neutrosophic SuperHyperGraph. Then $V$ is

$(i)$ : the dual SuperHyperDefensive SuperHyperGirth;
$(ii)$ : the strong dual SuperHyperDefensive SuperHyperGirth;
$(iii)$ : the connected dual SuperHyperDefensive SuperHyperGirth;
$(iv)$ : the $\delta$-dual SuperHyperDefensive SuperHyperGirth;
$(v)$ : the strong $\delta$-dual SuperHyperDefensive SuperHyperGirth;

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$(vi)$ : the connected $\delta$-dual SuperHyperDefensive SuperHyperGirth.

**Proposition 2.15.** Let $NTG : (V, E, \sigma, \mu)$ be a neutrosophic SuperHyperGraph. Then $\emptyset$ is

$(i)$ : the SuperHyperDefensive SuperHyperGirth;
$(ii)$ : the strong SuperHyperDefensive SuperHyperGirth;
$(iii)$ : the connected defensive SuperHyperDefensive SuperHyperGirth;
$(iv)$ : the $\delta$-SuperHyperDefensive SuperHyperGirth;
$(v)$ : the strong $\delta$-SuperHyperDefensive SuperHyperGirth;
$(vi)$ : the connected $\delta$-SuperHyperDefensive SuperHyperGirth.

**Proposition 2.16.** Let $ESHG : (V, E)$ be a neutrosophic SuperHyperGraph. Then an independent SuperHyperSet is

$(i)$ : the SuperHyperDefensive SuperHyperGirth;
$(ii)$ : the strong SuperHyperDefensive SuperHyperGirth;
$(iii)$ : the connected SuperHyperDefensive SuperHyperGirth;
$(iv)$ : the $\delta$-SuperHyperDefensive SuperHyperGirth;
$(v)$ : the strong $\delta$-SuperHyperDefensive SuperHyperGirth;
$(vi)$ : the connected $\delta$-SuperHyperDefensive SuperHyperGirth.

**Proposition 2.17.** Let $ESHG : (V, E)$ be a neutrosophic SuperHyperUniform SuperHyperGraph which is a SuperHyperCycle/SuperHyperPath. Then $V$ is a maximal

$(i)$ : SuperHyperDefensive SuperHyperGirth;
$(ii)$ : strong SuperHyperDefensive SuperHyperGirth;
$(iii)$ : connected SuperHyperDefensive SuperHyperGirth;
$(iv)$ : $\mathcal{O}(ESHG)$-SuperHyperDefensive SuperHyperGirth;
$(v)$ : strong $\mathcal{O}(ESHG)$-SuperHyperDefensive SuperHyperGirth;
$(vi)$ : connected $\mathcal{O}(ESHG)$-SuperHyperDefensive SuperHyperGirth;

Where the exterior SuperHyperVertices and the interior SuperHyperVertices coincide.

**Proposition 2.18.** Let $ESHG : (V, E)$ be a neutrosophic SuperHyperGraph which is a SuperHyperUniform SuperHyperWheel. Then $V$ is a maximal

$(i)$ : dual SuperHyperDefensive SuperHyperGirth;
$(ii)$ : strong dual SuperHyperDefensive SuperHyperGirth;
$(iii)$ : connected dual SuperHyperDefensive SuperHyperGirth;
$(iv)$ : $\mathcal{O}(ESHG)$-dual SuperHyperDefensive SuperHyperGirth;
$(v)$ : strong $\mathcal{O}(ESHG)$-dual SuperHyperDefensive SuperHyperGirth;
$(vi)$ : connected $\mathcal{O}(ESHG)$-dual SuperHyperDefensive SuperHyperGirth;

Where the exterior SuperHyperVertices and the interior SuperHyperVertices coincide.

**Proposition 2.19.** Let $ESHG : (V, E)$ be a neutrosophic SuperHyperUniform SuperHyperGraph which is a SuperHyperCycle/SuperHyperPath. Then the number of

$(i)$ : the SuperHyperGirth;
$(ii)$ : the SuperHyperGirth;
$(iii)$ : the connected SuperHyperGirth;
$(iv)$ : the $\mathcal{O}(ESHG)$-SuperHyperGirth;
$(v)$ : the strong $\mathcal{O}(ESHG)$-SuperHyperGirth;
$(vi)$ : the connected $\mathcal{O}(ESHG)$-SuperHyperGirth.

is one and it's only $V$. Where the exterior SuperHyperVertices and the interior SuperHyperVertices coincide.

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**Proposition 2.20.** Let $ESHG : (V, E)$ be a neutrosophic SuperHyperUniform SuperHyperGraph which is a SuperHyperWheel. Then the number of

$(i)$ : the dual SuperHyperGirth;
$(ii)$ : the dual SuperHyperGirth;
$(iii)$ : the dual connected SuperHyperGirth;
$(iv)$ : the dual $\mathcal{O}(ESHG)$-SuperHyperGirth;
$(v)$ : the strong dual $\mathcal{O}(ESHG)$-SuperHyperGirth;
$(vi)$ : the connected dual $\mathcal{O}(ESHG)$-SuperHyperGirth.

is one and it's only $V$. Where the exterior SuperHyperVertices and the interior SuperHyperVertices coincide.

**Proposition 2.21.** Let $ESHG : (V, E)$ be a neutrosophic SuperHyperUniform SuperHyperGraph which is a SuperHyperStar/SuperHyperComplete SuperHyperBipartite/SuperHyperComplete SuperHyperMultipartite. Then a SuperHyperSet contains [the SuperHyperCenter and] the half of multiplying $r$ with the number of all the SuperHyperEdges plus one of all the SuperHyperVertices is a

$(i)$ : dual SuperHyperDefensive SuperHyperGirth;
$(ii)$ : strong dual SuperHyperDefensive SuperHyperGirth;
$(iii)$ : connected dual SuperHyperDefensive SuperHyperGirth;
$(iv)$ : $\frac{\mathcal{O}(ESHG)}{2} + 1$-dual SuperHyperDefensive SuperHyperGirth;
$(v)$ : strong $\frac{\mathcal{O}(ESHG)}{2} + 1$-dual SuperHyperDefensive SuperHyperGirth;
$(vi)$ : connected $\frac{\mathcal{O}(ESHG)}{2} + 1$-dual SuperHyperDefensive SuperHyperGirth.

**Proposition 2.22.** Let $ESHG : (V, E)$ be a neutrosophic SuperHyperUniform SuperHyperGraph which is a SuperHyperStar/SuperHyperComplete SuperHyperBipartite/SuperHyperComplete SuperHyperMultipartite. Then a SuperHyperSet contains the half of multiplying $r$ with the number of all the SuperHyperEdges plus one of all the SuperHyperVertices in the biggest SuperHyperPart is a

$(i)$ : SuperHyperDefensive SuperHyperGirth;
$(ii)$ : strong SuperHyperDefensive SuperHyperGirth;
$(iii)$ : connected SuperHyperDefensive SuperHyperGirth;
$(iv)$ : $\delta$-SuperHyperDefensive SuperHyperGirth;
$(v)$ : strong $\delta$-SuperHyperDefensive SuperHyperGirth;
$(vi)$ : connected $\delta$-SuperHyperDefensive SuperHyperGirth.

**Proposition 2.23.** Let $ESHG : (V, E)$ be a neutrosophic SuperHyperUniform SuperHyperGraph which is a SuperHyperStar/SuperHyperComplete SuperHyperBipartite/SuperHyperComplete SuperHyperMultipartite. Then Then the number of

$(i)$ : dual SuperHyperDefensive SuperHyperGirth;
$(ii)$ : strong dual SuperHyperDefensive SuperHyperGirth;
$(iii)$ : connected dual SuperHyperDefensive SuperHyperGirth;
$(iv)$ : $\frac{\mathcal{O}(ESHG)}{2} + 1$-dual SuperHyperDefensive SuperHyperGirth;
$(v)$ : strong $\frac{\mathcal{O}(ESHG)}{2} + 1$-dual SuperHyperDefensive SuperHyperGirth;
$(vi)$ : connected $\frac{\mathcal{O}(ESHG)}{2} + 1$-dual SuperHyperDefensive SuperHyperGirth.

is one and it's only $S$, a SuperHyperSet contains [the SuperHyperCenter and] the half of multiplying $r$ with the number of all the SuperHyperEdges plus one of all the SuperHyperVertices. Where the exterior SuperHyperVertices and the interior SuperHyperVertices coincide.

**Proposition 2.24.** Let $ESHG : (V, E)$ be a neutrosophic SuperHyperGraph. The number of connected component is $|V - S|$ if there's a SuperHyperSet which is a dual

$(i)$ : SuperHyperDefensive SuperHyperGirth;

$(ii)$ : strong SuperHyperDefensive SuperHyperGirth;
$(iii)$ : connected SuperHyperDefensive SuperHyperGirth;
$(iv)$ : SuperHyperGirth;
$(v)$ : strong 1-SuperHyperDefensive SuperHyperGirth;
$(vi)$ : connected 1-SuperHyperDefensive SuperHyperGirth.

**Proposition 2.25.** Let $ESHG : (V, E)$ be a neutrosophic SuperHyperGraph. Then the number is at most $\mathcal{O}(ESHG)$ and the neutrosophic number is at most $\mathcal{O}_n(ESHG)$.

**Proposition 2.26.** Let $ESHG : (V, E)$ be a neutrosophic SuperHyperGraph which is SuperHyperComplete. The number is $\frac{\mathcal{O}(ESHG:(V,E))}{2} + 1$ and the neutrosophic number is $\min \Sigma_{v \in \{v_1, v_2, \cdots, v_t\}_{t > \frac{\mathcal{O}(ESHG:(V,E))}{2}} \subseteq V} \sigma(v)$, in the setting of dual

$(i)$ : SuperHyperDefensive SuperHyperGirth;
$(ii)$ : strong SuperHyperDefensive SuperHyperGirth;
$(iii)$ : connected SuperHyperDefensive SuperHyperGirth;
$(iv)$ : $(\frac{\mathcal{O}(ESHG:(V,E))}{2} + 1)$-SuperHyperDefensive SuperHyperGirth;
$(v)$ : strong $(\frac{\mathcal{O}(ESHG:(V,E))}{2} + 1)$-SuperHyperDefensive SuperHyperGirth;
$(vi)$ : connected $(\frac{\mathcal{O}(ESHG:(V,E))}{2} + 1)$-SuperHyperDefensive SuperHyperGirth.

**Proposition 2.27.** Let $ESHG : (V, E)$ be a neutrosophic SuperHyperGraph which is $\emptyset$. The number is 0 and the neutrosophic number is 0, for an independent SuperHyperSet in the setting of dual

$(i)$ : SuperHyperDefensive SuperHyperGirth;
$(ii)$ : strong SuperHyperDefensive SuperHyperGirth;
$(iii)$ : connected SuperHyperDefensive SuperHyperGirth;
$(iv)$ : 0-SuperHyperDefensive SuperHyperGirth;
$(v)$ : strong 0-SuperHyperDefensive SuperHyperGirth;
$(vi)$ : connected 0-SuperHyperDefensive SuperHyperGirth.

**Proposition 2.28.** Let $ESHG : (V, E)$ be a neutrosophic SuperHyperGraph which is SuperHyperComplete. Then there's no independent SuperHyperSet.

**Proposition 2.29.** Let $ESHG : (V, E)$ be a neutrosophic SuperHyperGraph which is SuperHyperCycle/SuperHyperPath/SuperHyperWheel. The number is $\mathcal{O}(ESHG : (V, E))$ and the neutrosophic number is $\mathcal{O}_n(ESHG : (V, E))$, in the setting of a dual

$(i)$ : SuperHyperDefensive SuperHyperGirth;
$(ii)$ : strong SuperHyperDefensive SuperHyperGirth;
$(iii)$ : connected SuperHyperDefensive SuperHyperGirth;
$(iv)$ : $\mathcal{O}(ESHG : (V, E))$-SuperHyperDefensive SuperHyperGirth;
$(v)$ : strong $\mathcal{O}(ESHG : (V, E))$-SuperHyperDefensive SuperHyperGirth;
$(vi)$ : connected $\mathcal{O}(ESHG : (V, E))$-SuperHyperDefensive SuperHyperGirth.

**Proposition 2.30.** Let $ESHG : (V, E)$ be a neutrosophic SuperHyperGraph which is SuperHyperStar/complete SuperHyperBipartite/complete SuperHyperMultiPartite. The number is $\frac{\mathcal{O}(ESHG:(V,E))}{2} + 1$ and the neutrosophic number is $\min \Sigma_{v \in \{v_1, v_2, \cdots, v_t\}_{t > \frac{\mathcal{O}(ESHG:(V,E))}{2}} \subseteq V} \sigma(v)$, in the setting of a dual

$(i)$ : SuperHyperDefensive SuperHyperGirth;
$(ii)$ : strong SuperHyperDefensive SuperHyperGirth;
$(iii)$ : connected SuperHyperDefensive SuperHyperGirth;
$(iv)$ : $(\frac{\mathcal{O}(ESHG:(V,E))}{2} + 1)$-SuperHyperDefensive SuperHyperGirth;
$(v)$ : strong $(\frac{\mathcal{O}(ESHG:(V,E))}{2} + 1)$-SuperHyperDefensive SuperHyperGirth;
$(vi)$ : connected $(\frac{\mathcal{O}(ESHG:(V,E))}{2} + 1)$-SuperHyperDefensive SuperHyperGirth.

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**Proposition 2.31.** Let $\mathcal{NSHF} : (V, E)$ be a SuperHyperFamily of the $ESHGs : (V, E)$ neutrosophic SuperHyperGraphs which are from one-type SuperHyperClass which the result is obtained for the individuals. Then the results also hold for the SuperHyperFamily $\mathcal{NSHF} : (V, E)$ of these specific SuperHyperClasses of the neutrosophic SuperHyperGraphs.

**Proposition 2.32.** Let $ESHG : (V, E)$ be a strong neutrosophic SuperHyperGraph. If $S$ is a dual SuperHyperDefensive SuperHyperGirth, then $\forall v \in V \setminus S$, $\exists x \in S$ such that

$(i)$ $v \in N_s(x)$;
$(ii)$ $vx \in E$.

**Proposition 2.33.** Let $ESHG : (V, E)$ be a strong neutrosophic SuperHyperGraph. If $S$ is a dual SuperHyperDefensive SuperHyperGirth, then

$(i)$ $S$ is SuperHyperDominating set;
$(ii)$ there's $S \subseteq S'$ such that $|S'|$ is SuperHyperChromatic number.

**Proposition 2.34.** Let $ESHG : (V, E)$ be a strong neutrosophic SuperHyperGraph. Then

$(i)$ $\Gamma \leq \mathcal{O}$;
$(ii)$ $\Gamma_s \leq \mathcal{O}_n$.

**Proposition 2.35.** Let $ESHG : (V, E)$ be a strong neutrosophic SuperHyperGraph which is connected. Then

$(i)$ $\Gamma \leq \mathcal{O} - 1$;
$(ii)$ $\Gamma_s \leq \mathcal{O}_n - \Sigma_{i=1}^3 \sigma_i(x)$.

**Proposition 2.36.** Let $ESHG : (V, E)$ be an odd SuperHyperPath. Then

$(i)$ the SuperHyperSet $S = \{v_2, v_4, \cdots, v_{n-1}\}$ is a dual SuperHyperDefensive SuperHyperGirth;
$(ii)$ $\Gamma = \lfloor \frac{n}{2} \rfloor + 1$ and corresponded SuperHyperSet is $S = \{v_2, v_4, \cdots, v_{n-1}\}$;
$(iii)$ $\Gamma_s = \min\{\Sigma_{s \in S=\{v_2,v_4,\cdots,v_{n-1}\}} \Sigma_{i=1}^3 \sigma_i(s), \Sigma_{s \in S=\{v_1,v_3,\cdots,v_{n-1}\}} \Sigma_{i=1}^3 \sigma_i(s)\}$;
$(iv)$ the SuperHyperSets $S_1 = \{v_2, v_4, \cdots, v_{n-1}\}$ and $S_2 = \{v_1, v_3, \cdots, v_{n-1}\}$ are only a dual SuperHyperGirth.

**Proposition 2.37.** Let $ESHG : (V, E)$ be an even SuperHyperPath. Then

$(i)$ the set $S = \{v_2, v_4, \cdots .v_n\}$ is a dual SuperHyperDefensive SuperHyperGirth;
$(ii)$ $\Gamma = \lfloor \frac{n}{2} \rfloor$ and corresponded SuperHyperSets are $\{v_2, v_4, \cdots .v_n\}$ and $\{v_1, v_3, \cdots .v_{n-1}\}$;
$(iii)$ $\Gamma_s = \min\{\Sigma_{s \in S=\{v_2,v_4,\cdots,v_n\}} \Sigma_{i=1}^3 \sigma_i(s), \Sigma_{s \in S=\{v_1,v_3,\cdots .v_{n-1}\}} \Sigma_{i=1}^3 \sigma_i(s)\}$;
$(iv)$ the SuperHyperSets $S_1 = \{v_2, v_4, \cdots .v_n\}$ and $S_2 = \{v_1, v_3, \cdots .v_{n-1}\}$ are only dual SuperHyperGirth.

**Proposition 2.38.** Let $ESHG : (V, E)$ be an even SuperHyperCycle. Then

$(i)$ the SuperHyperSet $S = \{v_2, v_4, \cdots, v_n\}$ is a dual SuperHyperDefensive SuperHyperGirth;
$(ii)$ $\Gamma = \lfloor \frac{n}{2} \rfloor$ and corresponded SuperHyperSets are $\{v_2, v_4, \cdots, v_n\}$ and $\{v_1, v_3, \cdots, v_{n-1}\}$;
$(iii)$ $\Gamma_s = \min\{\Sigma_{s \in S=\{v_2,v_4,\cdots,v_n\}} \sigma(s), \Sigma_{s \in S=\{v_1,v_3,\cdots,v_{n-1}\}} \sigma(s)\}$;
$(iv)$ the SuperHyperSets $S_1 = \{v_2, v_4, \cdots, v_n\}$ and $S_2 = \{v_1, v_3, \cdots, v_{n-1}\}$ are only dual SuperHyperGirth.

**Proposition 2.39.** Let $ESHG : (V, E)$ be an odd SuperHyperCycle. Then

$(i)$ the SuperHyperSet $S = \{v_2, v_4, \cdots, v_{n-1}\}$ is a dual SuperHyperDefensive SuperHyperGirth;
$(ii)$ $\Gamma = \lfloor \frac{n}{2} \rfloor + 1$ and corresponded SuperHyperSet is $S = \{v_2, v_4, \cdots, v_{n-1}\}$;
$(iii)$ $\Gamma_s = \min\{\Sigma_{s \in S=\{v_2,v_4,\cdots .v_{n-1}\}} \Sigma_{i=1}^3 \sigma_i(s), \Sigma_{s \in S=\{v_1,v_3,\cdots .v_{n-1}\}} \Sigma_{i=1}^3 \sigma_i(s)\}$;
$(iv)$ the SuperHyperSets $S_1 = \{v_2, v_4, \cdots .v_{n-1}\}$ and $S_2 = \{v_1, v_3, \cdots .v_{n-1}\}$ are only dual SuperHyperGirth.

**Proposition 2.40.** Let $ESHG : (V, E)$ be SuperHyperStar. Then

$(i)$ the SuperHyperSet $S = \{c\}$ is a dual maximal SuperHyperGirth;
$(ii)$ $\Gamma = 1$;
$(iii)$ $\Gamma_s = \Sigma_{i=1}^{3}\sigma_i(c)$;
$(iv)$ the SuperHyperSets $S = \{c\}$ and $S \subset S'$ are only dual SuperHyperGirth.

**Proposition 2.41.** Let $ESHG : (V, E)$ be SuperHyperWheel. Then

$(i)$ the SuperHyperSet $S = \{v_1, v_3\} \cup \{v_6, v_9 \cdots, v_{i+6}, \cdots, v_n\}_{i=1}^{6+3(i-1)\leq n}$ is a dual maximal SuperHyperDefensive SuperHyperGirth;
$(ii)$ $\Gamma = |\{v_1, v_3\} \cup \{v_6, v_9 \cdots, v_{i+6}, \cdots, v_n\}_{i=1}^{6+3(i-1)\leq n}|$;
$(iii)$ $\Gamma_s = \Sigma_{\{v_1,v_3\}\cup\{v_6,v_9\cdots,v_{i+6},\cdots,v_n\}_{i=1}^{6+3(i-1)\leq n}}\Sigma_{i=1}^{3}\sigma_i(s)$;
$(iv)$ the SuperHyperSet $\{v_1, v_3\} \cup \{v_6, v_9 \cdots, v_{i+6}, \cdots, v_n\}_{i=1}^{6+3(i-1)\leq n}$ is only a dual maximal SuperHyperDefensive SuperHyperGirth.

**Proposition 2.42.** Let $ESHG : (V, E)$ be an odd SuperHyperComplete. Then

$(i)$ the SuperHyperSet $S = \{v_i\}_{i=1}^{\lfloor \frac{n}{2} \rfloor+1}$ is a dual SuperHyperDefensive SuperHyperGirth;
$(ii)$ $\Gamma = \lfloor \frac{n}{2} \rfloor + 1$;
$(iii)$ $\Gamma_s = \min\{\Sigma_{s\in S}\Sigma_{i=1}^{3}\sigma_i(s)\}_{S=\{v_i\}_{i=1}^{\lfloor \frac{n}{2} \rfloor+1}}$;
$(iv)$ the SuperHyperSet $S = \{v_i\}_{i=1}^{\lfloor \frac{n}{2} \rfloor+1}$ is only a dual SuperHyperDefensive SuperHyperGirth.

**Proposition 2.43.** Let $ESHG : (V, E)$ be an even SuperHyperComplete. Then

$(i)$ the SuperHyperSet $S = \{v_i\}_{i=1}^{\lfloor \frac{n}{2} \rfloor}$ is a dual SuperHyperDefensive SuperHyperGirth;
$(ii)$ $\Gamma = \lfloor \frac{n}{2} \rfloor$;
$(iii)$ $\Gamma_s = \min\{\Sigma_{s\in S}\Sigma_{i=1}^{3}\sigma_i(s)\}_{S=\{v_i\}_{i=1}^{\lfloor \frac{n}{2} \rfloor}}$;
$(iv)$ the SuperHyperSet $S = \{v_i\}_{i=1}^{\lfloor \frac{n}{2} \rfloor}$ is only a dual maximal SuperHyperDefensive SuperHyperGirth.

**Proposition 2.44.** Let $\mathcal{NSHF} : (V, E)$ be a $m$-SuperHyperFamily of neutrosophic SuperHyperStars with common neutrosophic SuperHyperVertex SuperHyperSet. Then

$(i)$ the SuperHyperSet $S = \{c_1, c_2, \cdots, c_m\}$ is a dual SuperHyperDefensive SuperHyperGirth for $\mathcal{NSHF}$;
$(ii)$ $\Gamma = m$ for $\mathcal{NSHF} : (V, E)$;
$(iii)$ $\Gamma_s = \Sigma_{i=1}^{m}\Sigma_{j=1}^{3}\sigma_j(c_i)$ for $\mathcal{NSHF} : (V, E)$;
$(iv)$ the SuperHyperSets $S = \{c_1, c_2, \cdots, c_m\}$ and $S \subset S'$ are only dual SuperHyperGirth for $\mathcal{NSHF} : (V, E)$.

**Proposition 2.45.** Let $\mathcal{NSHF} : (V, E)$ be an $m$-SuperHyperFamily of odd SuperHyperComplete SuperHyperGraphs with common neutrosophic SuperHyperVertex SuperHyperSet. Then

$(i)$ the SuperHyperSet $S = \{v_i\}_{i=1}^{\lfloor \frac{n}{2} \rfloor+1}$ is a dual maximal SuperHyperDefensive SuperHyperGirth for $\mathcal{NSHF}$;
$(ii)$ $\Gamma = \lfloor \frac{n}{2} \rfloor + 1$ for $\mathcal{NSHF} : (V, E)$;
$(iii)$ $\Gamma_s = \min\{\Sigma_{s\in S}\Sigma_{i=1}^{3}\sigma_i(s)\}_{S=\{v_i\}_{i=1}^{\lfloor \frac{n}{2} \rfloor+1}}$ for $\mathcal{NSHF} : (V, E)$;
$(iv)$ the SuperHyperSets $S = \{v_i\}_{i=1}^{\lfloor \frac{n}{2} \rfloor+1}$ are only a dual maximal SuperHyperGirth for $\mathcal{NSHF} : (V, E)$.

**Proposition 2.46.** Let $\mathcal{NSHF} : (V, E)$ be a $m$-SuperHyperFamily of even SuperHyperComplete SuperHyperGraphs with common neutrosophic SuperHyperVertex SuperHyperSet. Then

$(i)$ the SuperHyperSet $S = \{v_i\}_{i=1}^{\lfloor \frac{n}{2} \rfloor}$ is a dual SuperHyperDefensive SuperHyperGirth for $\mathcal{NSHF} : (V, E)$;

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$(ii)$ $\Gamma = \lfloor \frac{n}{2} \rfloor$ for $\mathcal{NSHF} : (V, E)$;
$(iii)$ $\Gamma_s = \min\{\Sigma_{s \in S} \Sigma_{i=1}^{3} \sigma_i(s)\}_{S=\{v_i\}_{i=1}^{\lfloor \frac{n}{2} \rfloor}}$ for $\mathcal{NSHF} : (V, E)$;
$(iv)$ the SuperHyperSets $S = \{v_i\}_{i=1}^{\lfloor \frac{n}{2} \rfloor}$ are only dual maximal SuperHyperGirth for $\mathcal{NSHF} : (V, E)$.

**Proposition 2.47.** Let $ESHG : (V, E)$ be a strong neutrosophic SuperHyperGraph. Then following statements hold;

$(i)$ if $s \geq t$ and a SuperHyperSet $S$ of SuperHyperVertices is an t-SuperHyperDefensive SuperHyperGirth, then $S$ is an s-SuperHyperDefensive SuperHyperGirth;
$(ii)$ if $s \leq t$ and a SuperHyperSet $S$ of SuperHyperVertices is a dual t-SuperHyperDefensive SuperHyperGirth, then $S$ is a dual s-SuperHyperDefensive SuperHyperGirth.

**Proposition 2.48.** Let $ESHG : (V, E)$ be a strong neutrosophic SuperHyperGraph. Then following statements hold;

$(i)$ if $s \geq t + 2$ and a SuperHyperSet $S$ of SuperHyperVertices is an t-SuperHyperDefensive SuperHyperGirth, then $S$ is an s-SuperHyperPowerful SuperHyperGirth;
$(ii)$ if $s \leq t$ and a SuperHyperSet $S$ of SuperHyperVertices is a dual t-SuperHyperDefensive SuperHyperGirth, then $S$ is a dual s-SuperHyperPowerful SuperHyperGirth.

**Proposition 2.49.** Let $ESHG : (V, E)$ be a[an] [r-]SuperHyperUniform-strong-neutrosophic SuperHyperGraph. Then following statements hold;

$(i)$ if $\forall a \in S$, $|N_s(a) \cap S| < \lfloor \frac{r}{2} \rfloor + 1$, then $ESHG : (V, E)$ is an 2-SuperHyperDefensive SuperHyperGirth;
$(ii)$ if $\forall a \in V \setminus S$, $|N_s(a) \cap S| > \lfloor \frac{r}{2} \rfloor + 1$, then $ESHG : (V, E)$ is a dual 2-SuperHyperDefensive SuperHyperGirth;
$(iii)$ if $\forall a \in S$, $|N_s(a) \cap V \setminus S| = 0$, then $ESHG : (V, E)$ is an r-SuperHyperDefensive SuperHyperGirth;
$(iv)$ if $\forall a \in V \setminus S$, $|N_s(a) \cap V \setminus S| = 0$, then $ESHG : (V, E)$ is a dual r-SuperHyperDefensive SuperHyperGirth.

**Proposition 2.50.** Let $ESHG : (V, E)$ is a[an] [r-]SuperHyperUniform-strong-neutrosophic SuperHyperGraph. Then following statements hold;

$(i)$ $\forall a \in S$, $|N_s(a) \cap S| < \lfloor \frac{r}{2} \rfloor + 1$ if $ESHG : (V, E)$ is an 2-SuperHyperDefensive SuperHyperGirth;
$(ii)$ $\forall a \in V \setminus S$, $|N_s(a) \cap S| > \lfloor \frac{r}{2} \rfloor + 1$ if $ESHG : (V, E)$ is a dual 2-SuperHyperDefensive SuperHyperGirth;
$(iii)$ $\forall a \in S$, $|N_s(a) \cap V \setminus S| = 0$ if $ESHG : (V, E)$ is an r-SuperHyperDefensive SuperHyperGirth;
$(iv)$ $\forall a \in V \setminus S$, $|N_s(a) \cap V \setminus S| = 0$ if $ESHG : (V, E)$ is a dual r-SuperHyperDefensive SuperHyperGirth.

**Proposition 2.51.** Let $ESHG : (V, E)$ is a[an] [r-]SuperHyperUniform-strong-neutrosophic SuperHyperGraph which is a SuperHyperComplete. Then following statements hold;

$(i)$ $\forall a \in S$, $|N_s(a) \cap S| < \lfloor \frac{\mathcal{O}-1}{2} \rfloor + 1$ if $ESHG : (V, E)$ is an 2-SuperHyperDefensive SuperHyperGirth;
$(ii)$ $\forall a \in V \setminus S$, $|N_s(a) \cap S| > \lfloor \frac{\mathcal{O}-1}{2} \rfloor + 1$ if $ESHG : (V, E)$ is a dual 2-SuperHyperDefensive SuperHyperGirth;
$(iii)$ $\forall a \in S$, $|N_s(a) \cap V \setminus S| = 0$ if $ESHG : (V, E)$ is an $(\mathcal{O} - 1)$-SuperHyperDefensive SuperHyperGirth;
$(iv)$ $\forall a \in V \setminus S$, $|N_s(a) \cap V \setminus S| = 0$ if $ESHG : (V, E)$ is a dual $(\mathcal{O} - 1)$-SuperHyperDefensive SuperHyperGirth.

**Proposition 2.52.** Let $ESHG : (V, E)$ is a[an] [r-]SuperHyperUniform-strong-neutrosophic SuperHyperGraph which is a SuperHyperComplete. Then following statements hold;

(i) if $\forall a \in S$, $|N_s(a) \cap S| < \lfloor \frac{\mathcal{O}-1}{2} \rfloor + 1$, then $ESHG : (V, E)$ is an 2-SuperHyperDefensive SuperHyperGirth;
(ii) if $\forall a \in V \setminus S$, $|N_s(a) \cap S| > \lfloor \frac{\mathcal{O}-1}{2} \rfloor + 1$, then $ESHG : (V, E)$ is a dual 2-SuperHyperDefensive SuperHyperGirth;
(iii) if $\forall a \in S$, $|N_s(a) \cap V \setminus S| = 0$, then $ESHG : (V, E)$ is $(\mathcal{O} - 1)$-SuperHyperDefensive SuperHyperGirth;
(iv) if $\forall a \in V \setminus S$, $|N_s(a) \cap V \setminus S| = 0$, then $ESHG : (V, E)$ is a dual $(\mathcal{O} - 1)$-SuperHyperDefensive SuperHyperGirth.

**Proposition 2.53.** Let $ESHG : (V, E)$ is a[an] [r-]SuperHyperUniform-strong-neutrosophic SuperHyperGraph which is SuperHyperCycle. Then following statements hold;

(i) $\forall a \in S$, $|N_s(a) \cap S| < 2$ if $ESHG : (V, E))$ is an 2-SuperHyperDefensive SuperHyperGirth;
(ii) $\forall a \in V \setminus S$, $|N_s(a) \cap S| > 2$ if $ESHG : (V, E)$ is a dual 2-SuperHyperDefensive SuperHyperGirth;
(iii) $\forall a \in S$, $|N_s(a) \cap V \setminus S| = 0$ if $ESHG : (V, E)$ is an 2-SuperHyperDefensive SuperHyperGirth;
(iv) $\forall a \in V \setminus S$, $|N_s(a) \cap V \setminus S| = 0$ if $ESHG : (V, E)$ is a dual 2-SuperHyperDefensive SuperHyperGirth.

**Proposition 2.54.** Let $ESHG : (V, E)$ is a[an] [r-]SuperHyperUniform-strong-neutrosophic SuperHyperGraph which is SuperHyperCycle. Then following statements hold;

(i) if $\forall a \in S$, $|N_s(a) \cap S| < 2$, then $ESHG : (V, E)$ is an 2-SuperHyperDefensive SuperHyperGirth;
(ii) if $\forall a \in V \setminus S$, $|N_s(a) \cap S| > 2$, then $ESHG : (V, E)$ is a dual 2-SuperHyperDefensive SuperHyperGirth;
(iii) if $\forall a \in S$, $|N_s(a) \cap V \setminus S| = 0$, then $ESHG : (V, E)$ is an 2-SuperHyperDefensive SuperHyperGirth;
(iv) if $\forall a \in V \setminus S$, $|N_s(a) \cap V \setminus S| = 0$, then $ESHG : (V, E)$ is a dual 2-SuperHyperDefensive SuperHyperGirth.

## 3. Motivation and Contributions

In this research, there are some ideas in the featured frameworks of motivations. I try to bring the motivations in the narrative ways.

**Question 3.1.** How to define the SuperHyperNotions and to do research on them to find the " amount of SuperHyperGirth" of either individual of cells or the groups of cells based on the fixed cell or the fixed group of cells, extensively, the "amount of SuperHyperGirth" based on the fixed groups of cells or the fixed groups of group of cells?

**Question 3.2.** What are the best descriptions for the "Cancer's Recognition" in terms of these messy and dense SuperHyperModels where embedded notions are illustrated?

It's motivation to find notions to use in this dense model is titled "SuperHyperGraphs". Thus it motivates us to define different types of " SuperHyperGirth" and "neutrosophic SuperHyperGirth" on "SuperHyperGraph" and "neutrosophic SuperHyperGraph". Then the research has taken more motivations to define SuperHyperClasses and to find some connections amid this SuperHyperNotion with other SuperHyperNotions. It motivates us to get some instances and examples to make clarifications about the framework of this research. The general results and some results about some connections are some avenues to make key point of this research, "Cancer's Recognition", more understandable and more clear.

**Definition 3.3.** ((neutrosophic) SuperHyperGirth).
Assume a SuperHyperGraph. Then

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(*i*) an **neutrosophic SuperHyperGirth** $\mathcal{C}(NSHG)$ for an neutrosophic SuperHyperGraph $NSHG : (V, E)$ is the maximum neutrosophic cardinality of an neutrosophic SuperHyperSet $S$ of high neutrosophic cardinality of the neutrosophic SuperHyperEdges in the consecutive neutrosophic sequence of neutrosophic SuperHyperEdges and neutrosophic SuperHyperVertices such that they form the neutrosophic SuperHyperCycle;

(*ii*) a **neutrosophic SuperHyperGirth** $\mathcal{C}(NSHG)$ for a neutrosophic SuperHyperGraph $NSHG : (V, E)$ is the maximum neutrosophic cardinality of the neutrosophic SuperHyperEdges of a neutrosophic SuperHyperSet $S$ of high neutrosophic cardinality consecutive neutrosophic SuperHyperEdges and neutrosophic SuperHyperVertices such that they form the neutrosophic SuperHyperCycle;

(*iii*) an **neutrosophic SuperHyperGirth SuperHyperPolynomial** $\mathcal{C}(NSHG)$ for an neutrosophic SuperHyperGraph $NSHG : (V, E)$ is the neutrosophic SuperHyperPolynomial contains the neutrosophic coefficients defined as the neutrosophic number of the maximum neutrosophic cardinality of the neutrosophic SuperHyperEdges of an neutrosophic SuperHyperSet $S$ of high neutrosophic cardinality consecutive neutrosophic SuperHyperEdges and neutrosophic SuperHyperVertices such that they form the neutrosophic SuperHyperCycle and the neutrosophic power is corresponded to its neutrosophic coefficient;

(*iv*) a **neutrosophic SuperHyperGirth SuperHyperPolynomial** $\mathcal{C}(NSHG)$ for an neutrosophic SuperHyperGraph $NSHG : (V, E)$ is the neutrosophic SuperHyperPolynomial contains the neutrosophic coefficients defined as the neutrosophic number of the maximum neutrosophic cardinality of the neutrosophic SuperHyperEdges of a neutrosophic SuperHyperSet $S$ of high neutrosophic cardinality consecutive neutrosophic SuperHyperEdges and neutrosophic SuperHyperVertices such that they form the neutrosophic SuperHyperCycle and the neutrosophic power is corresponded to its neutrosophic coefficient;

(*v*) an **neutrosophic R-SuperHyperGirth** $\mathcal{C}(NSHG)$ for an neutrosophic SuperHyperGraph $NSHG : (V, E)$ is the maximum neutrosophic cardinality of an neutrosophic SuperHyperSet $S$ of high neutrosophic cardinality of the neutrosophic SuperHyperVertices in the consecutive neutrosophic sequence of neutrosophic SuperHyperEdges and neutrosophic SuperHyperVertices such that they form the neutrosophic SuperHyperCycle;

(*vi*) a **neutrosophic R-SuperHyperGirth** $\mathcal{C}(NSHG)$ for a neutrosophic SuperHyperGraph $NSHG : (V, E)$ is the maximum neutrosophic cardinality of the neutrosophic SuperHyperVertices of a neutrosophic SuperHyperSet $S$ of high neutrosophic cardinality consecutive neutrosophic SuperHyperEdges and neutrosophic SuperHyperVertices such that they form the neutrosophic SuperHyperCycle;

(*vii*) an **neutrosophic R-SuperHyperGirth SuperHyperPolynomial** $\mathcal{C}(NSHG)$ for an neutrosophic SuperHyperGraph $NSHG : (V, E)$ is the neutrosophic SuperHyperPolynomial contains the neutrosophic coefficients defined as the neutrosophic number of the maximum neutrosophic cardinality of the neutrosophic SuperHyperVertices of an neutrosophic SuperHyperSet $S$ of high neutrosophic cardinality consecutive neutrosophic SuperHyperEdges and neutrosophic SuperHyperVertices such that they form the neutrosophic SuperHyperCycle and the neutrosophic power is corresponded to its neutrosophic coefficient;

(*viii*) a **neutrosophic SuperHyperGirth SuperHyperPolynomial** $\mathcal{C}(NSHG)$ for an neutrosophic SuperHyperGraph $NSHG : (V, E)$ is the neutrosophic SuperHyperPolynomial contains the neutrosophic coefficients defined as the neutrosophic number of the maximum neutrosophic cardinality of the neutrosophic SuperHyperVertices of a neutrosophic SuperHyperSet $S$ of high neutrosophic cardinality consecutive neutrosophic SuperHyperEdges and neutrosophic SuperHyperVertices such that they form the neutrosophic SuperHyperCycle and the neutrosophic power is corresponded to its neutrosophic coefficient.

**Definition 3.4.** ((neutrosophic/neutrosophic)$\delta-$SuperHyperGirth).
Assume a SuperHyperGraph. Then

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(*i*) an $\delta-$**SuperHyperGirth** is an neutrosophic kind of neutrosophic SuperHyperGirth such that either of the following expressions hold for the neutrosophic cardinalities of SuperHyperNeighbors of $s \in S$ :

$$|S \cap N(s)| > |S \cap (V \setminus N(s))| + \delta;$$
$$|S \cap N(s)| < |S \cap (V \setminus N(s))| + \delta.$$

The Expression (1), holds if $S$ is an $\delta-$**SuperHyperOffensive**. And the Expression (1), holds if $S$ is an $\delta-$**SuperHyperDefensive**;

(*ii*) an **neutrosophic** $\delta-$**SuperHyperGirth** is a neutrosophic kind of neutrosophic SuperHyperGirth such that either of the following neutrosophic expressions hold for the neutrosophic cardinalities of SuperHyperNeighbors of $s \in S$ :

$$|S \cap N(s)|_{neutrosophic} > |S \cap (V \setminus N(s))|_{neutrosophic} + \delta;$$
$$|S \cap N(s)|_{neutrosophic} < |S \cap (V \setminus N(s))|_{neutrosophic} + \delta.$$

The Expression (1), holds if $S$ is an **neutrosophic** $\delta-$**SuperHyperOffensive**. And the Expression (1), holds if $S$ is an **neutrosophic** $\delta-$**SuperHyperDefensive**.

For the sake of having an neutrosophic SuperHyperGirth, there's a need to "**redefine**" the notion of "neutrosophic SuperHyperGraph". The SuperHyperVertices and the SuperHyperEdges are assigned by the labels from the letters of the alphabets. In this procedure, there's the usage of the position of labels to assign to the values.

**Definition 3.5.** Assume an neutrosophic SuperHyperGraph. It's redefined **neutrosophic SuperHyperGraph** if the Table (1) holds.

**Table 1.** The Values of Vertices, SuperVertices, Edges, HyperEdges, and SuperHyperEdges Belong to The neutrosophic SuperHyperGraph Mentioned in the Definition (3.7)

| The Values of The Vertices | The Number of Position in Alphabet |
|---|---|
| The Values of The SuperVertices | The maximum Values of Its Vertices |
| The Values of The Edges | The maximum Values of Its Vertices |
| The Values of The HyperEdges | The maximum Values of Its Vertices |
| The Values of The SuperHyperEdges | The maximum Values of Its Endpoints |

It's useful to define a "neutrosophic" version of SuperHyperClasses. Since there's more ways to get neutrosophic type-results to make a neutrosophic more understandable.

**Definition 3.6.** Assume an neutrosophic SuperHyperGraph. There are some **neutrosophic SuperHyperClasses** if the Table (2) holds. Thus neutrosophic SuperHyperPath , SuperHyperCycle, SuperHyperStar, SuperHyperBipartite, SuperHyperMultiPartite, and SuperHyperWheel, are **neutrosophic SuperHyperPath** , **neutrosophic SuperHyperCycle**, **neutrosophic SuperHyperStar**, **neutrosophic SuperHyperBipartite**, **neutrosophic SuperHyperMultiPartite**, and **neutrosophic SuperHyperWheel** if the Table (2) holds.

**Table 2.** The Values of Vertices, SuperVertices, Edges, HyperEdges, and SuperHyperEdges Belong to The neutrosophic SuperHyperGraph, Mentioned in the Definition (3.6)

| The Values of The Vertices | The Number of Position in Alphabet |
|---|---|
| The Values of The SuperVertices | The maximum Values of Its Vertices |
| The Values of The Edges | The maximum Values of Its Vertices |
| The Values of The HyperEdges | The maximum Values of Its Vertices |
| The Values of The SuperHyperEdges | The maximum Values of Its Endpoints |

It's useful to define a "neutrosophic" version of a neutrosophic SuperHyperGirth. Since there's more ways to get type-results to make a neutrosophic SuperHyperGirth more neutrosophicly understandable.
For the sake of having a neutrosophic SuperHyperGirth, there's a need to "**redefine**" the neutrosophic notion of "neutrosophic SuperHyperGirth". The SuperHyperVertices and the SuperHyperEdges are assigned by the labels from the letters of the alphabets. In this procedure, there's the usage of the position of labels to assign to the values.

**Definition 3.7.** Assume a SuperHyperGirth. It's redefined an **neutrosophic SuperHyperGirth** if the Table (3) holds.

**Table 3.** The Values of Vertices, SuperVertices, Edges, HyperEdges, and SuperHyperEdges Belong to The neutrosophic SuperHyperGraph Mentioned in the Definition (3.7)

| | |
|---|---|
| The Values of The Vertices | The Number of Position in Alphabet |
| The Values of The SuperVertices | The maximum Values of Its Vertices |
| The Values of The Edges | The maximum Values of Its Vertices |
| The Values of The HyperEdges | The maximum Values of Its Vertices |
| The Values of The SuperHyperEdges | The maximum Values of Its Endpoints |

## 4. Results on Neutrosophic SuperHyperClasses

The previous neutrosophic approaches apply on the upcoming neutrosophic results on neutrosophic SuperHyperClasses.

**Proposition 4.1.** Assume a connected neutrosophic SuperHyperPath $ESHP : (V, E)$. Then an neutrosophic quasi-R-SuperHyperGirth-style with the maximum neutrosophic SuperHyperCardinality is an neutrosophic SuperHyperSet of the interior neutrosophic SuperHyperVertices.

**Proposition 4.2.** Assume a connected neutrosophic SuperHyperPath $ESHP : (V, E)$. Then an neutrosophic quasi-R-SuperHyperGirth is an neutrosophic SuperHyperSet of the interior neutrosophic SuperHyperVertices with only no neutrosophic exceptions in the form of interior neutrosophic SuperHyperVertices from the unique neutrosophic SuperHyperEdges not excluding only any interior neutrosophic SuperHyperVertices from the neutrosophic unique SuperHyperEdges. an neutrosophic quasi-R-SuperHyperGirth has the neutrosophic number of all the interior neutrosophic SuperHyperVertices. Also,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth}$$
$$= \{E_{2i-1}\}_{i=1}^{\lfloor \frac{|E_{ESHG:(V,E)}|_{\text{neutrosophic Cardinality}}}{2} \rfloor}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial}$$
$$= 2z^{\lfloor \frac{|E_{ESHG:(V,E)}|_{\text{neutrosophic Cardinality}}}{2} \rfloor}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{V_i\}_{i=1}^{s}, \{V_j\}_{j=1}^{t}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = az^s + bz^t.$$

**Example 4.3.** In the Figure (2), the connected neutrosophic SuperHyperPath $ESHP : (V, E)$, is highlighted and featured. The neutrosophic SuperHyperSet, in the neutrosophic SuperHyperModel (2), is the SuperHyperGirth.

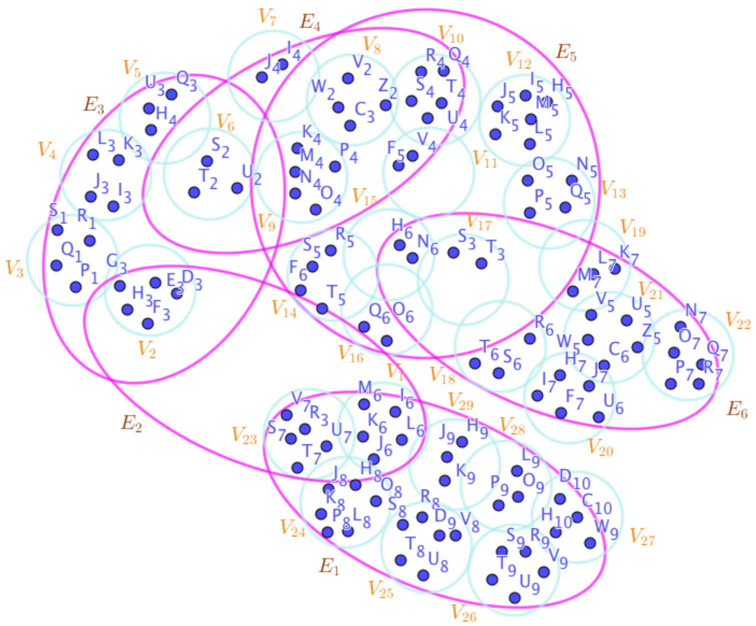


**Figure 1.** an neutrosophic SuperHyperPath Associated to the Notions of neutrosophic SuperHyperGirth in the Example (4.5)

**Proposition 4.4.** Assume a connected neutrosophic SuperHyperCycle $ESHC : (V, E)$. Then an neutrosophic quasi-R-SuperHyperGirth is an neutrosophic SuperHyperSet of the interior neutrosophic SuperHyperVertices with only no neutrosophic exceptions on the form of interior neutrosophic SuperHyperVertices from the same neutrosophic SuperHyperNeighborhoods not excluding any neutrosophic SuperHyperVertex. an neutrosophic quasi-R-SuperHyperGirth has the neutrosophic half number of all the neutrosophic SuperHyperEdges in the terms of the maximum neutrosophic cardinality. Also,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth}$$
$$= \{E_{2i-1}\}_{i=1}^{\lfloor \frac{|E_{ESHG:(V,E)}|_{\text{neutrosophic Cardinality}}}{2} \rfloor}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial}$$
$$= 2z^{\lfloor \frac{|E_{ESHG:(V,E)}|_{\text{neutrosophic Cardinality}}}{2} \rfloor}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{V_i\}_{i=1}^{s}, \{V_j\}_{j=1}^{t}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = az^s + bz^t.$$

**Example 4.5.** In the Figure (2), the connected neutrosophic SuperHyperPath $ESHP : (V, E)$, is highlighted and featured. The neutrosophic SuperHyperSet, in the neutrosophic SuperHyperModel (2), is the SuperHyperGirth.

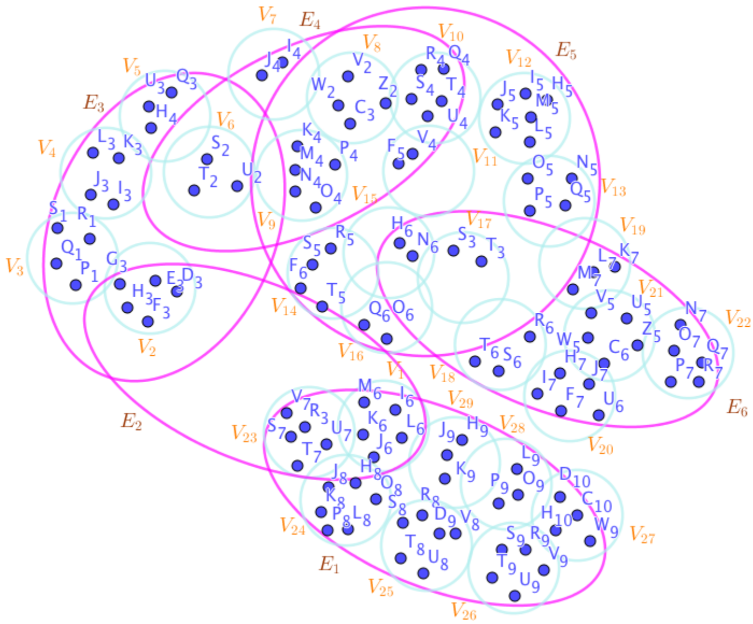


**Figure 2.** an neutrosophic SuperHyperPath Associated to the Notions of neutrosophic SuperHyperGirth in the Example (4.5)

**Proposition 4.6.** Assume a connected neutrosophic SuperHyperCycle $ESHC : (V, E)$. Then an neutrosophic quasi-R-SuperHyperGirth is an neutrosophic SuperHyperSet of the interior neutrosophic SuperHyperVertices with only no neutrosophic exceptions on the form of interior neutrosophic SuperHyperVertices from the same neutrosophic SuperHyperNeighborhoods not excluding any neutrosophic SuperHyperVertex. an neutrosophic quasi-R-SuperHyperGirth has the neutrosophic half number of all the neutrosophic SuperHyperEdges in the terms of the maximum neutrosophic cardinality. Also,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth}$$
$$= \{E_{2i-1}\}_{i=1}^{\lfloor \frac{|E_{ESHG:(V,E)}|_{\text{neutrosophic Cardinality}}}{2} \rfloor}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial}$$
$$= 2z^{\lfloor \frac{|E_{ESHG:(V,E)}|_{\text{neutrosophic Cardinality}}}{2} \rfloor}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{V_i\}_{i=1}^{s}, \{V_j\}_{j=1}^{t}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = az^s + bz^t.$$

**Example 4.7.** In the Figure (3), the connected neutrosophic SuperHyperCycle $NSHC : (V, E)$, is highlighted and featured. The obtained neutrosophic SuperHyperSet, in the neutrosophic SuperHyperModel (3), is the neutrosophic SuperHyperGirth.

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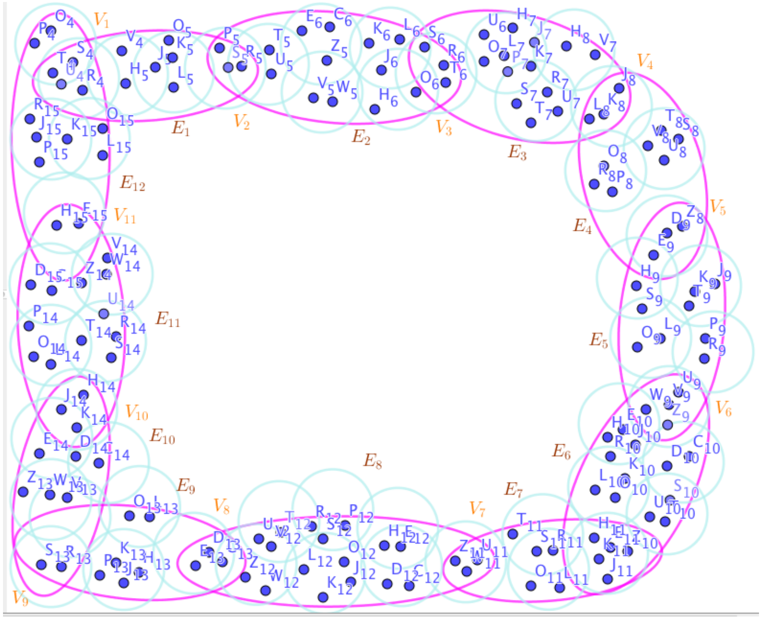


**Figure 3.** an neutrosophic SuperHyperCycle Associated to the neutrosophic Notions of neutrosophic SuperHyperGirth in the neutrosophic Example (4.7)

**Proposition 4.8.** Assume a connected neutrosophic SuperHyperStar $ESHS : (V, E)$. Then an neutrosophic quasi-R-SuperHyperGirth is an neutrosophic SuperHyperSet of the interior neutrosophic SuperHyperVertices, corresponded to an neutrosophic SuperHyperEdge. an neutrosophic quasi-R-SuperHyperGirth has the neutrosophic number of the neutrosophic cardinality of the one neutrosophic SuperHyperEdge. Also,

$$
\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} \\
&= \{E \in E_{ESHG:(V,E)}\}. \\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} \\
&= \sum_{|E_{ESHG:(V,E)}|_{\text{neutrosophic Cardinality}}} z^{|E|_{\text{neutrosophic Cardinality}}} \mid E{:}\in E_{ESHG:(V,E)}. \\
&\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{V_i\}_{i=1}^{s}, \{V_j\}_{j=1}^{t}, \ldots. \\
&\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = z^s + z^t +, \ldots.
\end{aligned}
$$

**Example 4.9.** In the Figure (5), the connected neutrosophic SuperHyperStar $ESHS : (V, E)$, is highlighted and featured. The obtained neutrosophic SuperHyperSet, by the Algorithm in previous neutrosophic result, of the neutrosophic SuperHyperVertices of the connected neutrosophic SuperHyperStar $ESHS : (V, E)$, in the neutrosophic SuperHyperModel (5), is the neutrosophic SuperHyperGirth.

 doi:10.20944/preprints202301.0395.v1



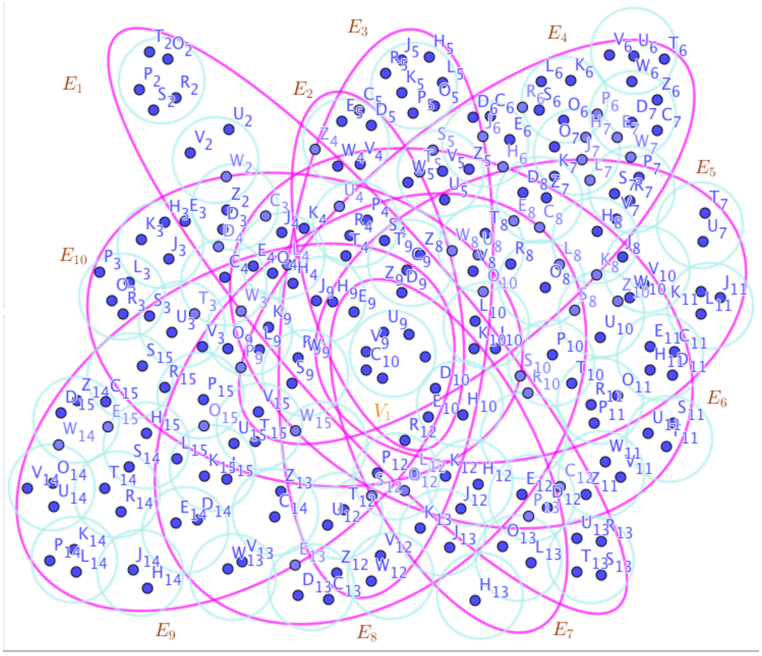


**Figure 4.** an neutrosophic SuperHyperStar Associated to the neutrosophic Notions of neutrosophic SuperHyperGirth in the neutrosophic Example (4.11)

**Proposition 4.10.** Assume a connected neutrosophic SuperHyperBipartite $ESHB : (V, E)$. Then an neutrosophic R-SuperHyperGirth is an neutrosophic SuperHyperSet of the interior neutrosophic SuperHyperVertices with no neutrosophic exceptions in the form of interior neutrosophic SuperHyperVertices titled neutrosophic SuperHyperNeighbors. an neutrosophic R-SuperHyperGirth has the neutrosophic maximum number of on neutrosophic cardinality of the minimum SuperHyperPart minus those have common neutrosophic SuperHyperNeighbors and not unique neutrosophic SuperHyperNeighbors. Also,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth}$$
$$= \{E_{2i-1}\}_{i=1}^{\min|P_{ESHG:(V,E)}|_{\text{neutrosophic Cardinality}}}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial}$$
$$= z^{\min|P_{ESHG:(V,E)}|_{\text{neutrosophic Cardinality}}}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{V_i\}_{i=1}^{s}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = az^{s}.$$

**Example 4.11.** In the Figure (5), the connected neutrosophic SuperHyperStar $ESHS : (V, E)$, is highlighted and featured. The obtained neutrosophic SuperHyperSet, by the Algorithm in previous neutrosophic result, of the neutrosophic SuperHyperVertices of the connected neutrosophic SuperHyperStar $ESHS : (V, E)$, in the neutrosophic SuperHyperModel (5), is the neutrosophic SuperHyperGirth.

 doi:10.20944/preprints202301.0395.v1



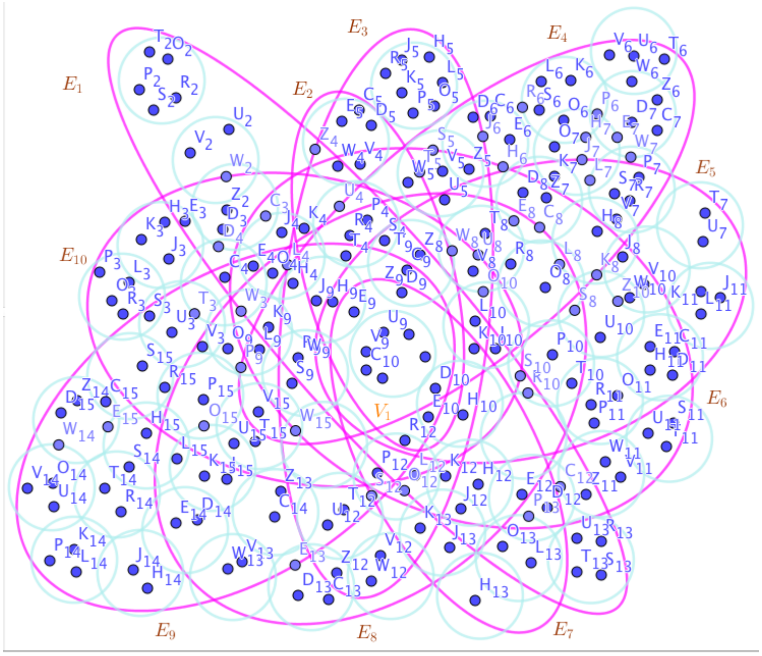


**Figure 5.** an neutrosophic SuperHyperStar Associated to the neutrosophic Notions of neutrosophic SuperHyperGirth in the neutrosophic Example (4.11)

**Proposition 4.12.** Assume a connected neutrosophic SuperHyperBipartite $ESHB : (V, E)$. Then an neutrosophic R-SuperHyperGirth is an neutrosophic SuperHyperSet of the interior neutrosophic SuperHyperVertices with no neutrosophic exceptions in the form of interior neutrosophic SuperHyperVertices titled neutrosophic SuperHyperNeighbors. an neutrosophic R-SuperHyperGirth has the neutrosophic maximum number of on neutrosophic cardinality of the minimum SuperHyperPart minus those have common neutrosophic SuperHyperNeighbors and not unique neutrosophic SuperHyperNeighbors. Also,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth}$$
$$= \{E_{2i-1}\}_{i=1}^{\min |P_{ESHG:(V,E)}|_{\text{neutrosophic Cardinality}}}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial}$$
$$= z^{\min |P_{ESHG:(V,E)}|_{\text{neutrosophic Cardinality}}}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{V_i\}_{i=1}^{s}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = az^{s}.$$

**Example 4.13.** In the neutrosophic Figure (6), the connected neutrosophic SuperHyperBipartite $ESHB : (V, E)$, is neutrosophic highlighted and neutrosophic featured. The obtained neutrosophic SuperHyperSet, by the neutrosophic Algorithm in previous neutrosophic result, of the neutrosophic SuperHyperVertices of the connected neutrosophic SuperHyperBipartite $ESHB : (V, E)$, in the neutrosophic SuperHyperModel (6), is the neutrosophic SuperHyperGirth.

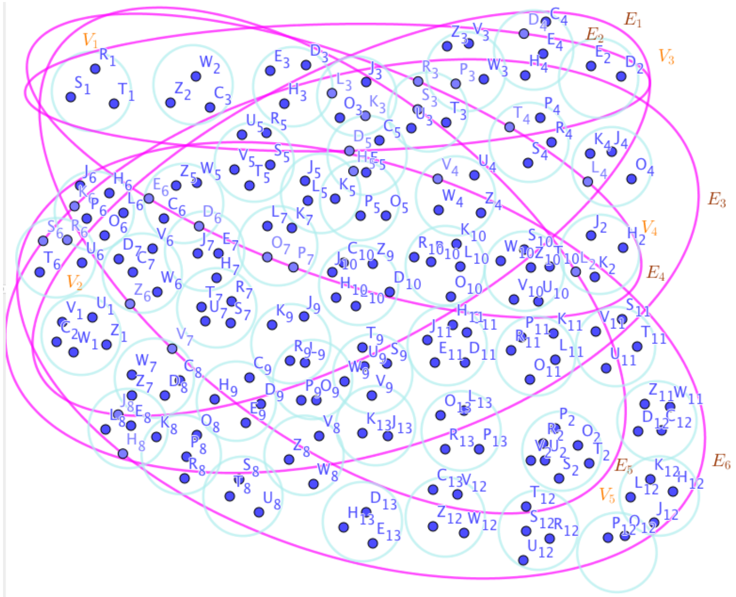


**Figure 6.** an neutrosophic SuperHyperBipartite neutrosophic Associated to the neutrosophic Notions of neutrosophic SuperHyperGirth in the Example (4.13)

**Proposition 4.14.** Assume a connected neutrosophic SuperHyperMultipartite $ESHM : (V, E)$. Then an neutrosophic R-SuperHyperGirth is an neutrosophic SuperHyperSet of the interior neutrosophic SuperHyperVertices with only no neutrosophic exception in the neutrosophic form of interior neutrosophic SuperHyperVertices from an neutrosophic SuperHyperPart and only no exception in the form of interior SuperHyperVertices from another SuperHyperPart titled "SuperHyperNeighbors" with neglecting and ignoring more than some of them aren't SuperHyperNeighbors to all. an neutrosophic R-SuperHyperGirth has the neutrosophic maximum number on all the neutrosophic summation on the neutrosophic cardinality of the all neutrosophic SuperHyperParts form some SuperHyperEdges minus those make neutrosophic SuperHypeNeighbors to some not all or not unique. Also,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth}$$
$$= \{E_{2i-1}\}_{i=1}^{\min |P_{ESHG:(V,E)}|_{\text{neutrosophic Cardinality}}}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial}$$
$$= z^{\min |P_{ESHG:(V,E)}|_{\text{neutrosophic Cardinality}}}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{V_i\}_{i=1}^{s}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = az^{s}.$$

**Example 4.15.** In the Figure (7), the connected neutrosophic SuperHyperMultipartite $ESHM : (V, E)$, is highlighted and neutrosophic featured. The obtained neutrosophic SuperHyperSet, by the Algorithm in previous neutrosophic result, of the neutrosophic SuperHyperVertices of the connected neutrosophic SuperHyperMultipartite $ESHM : (V, E)$, in the neutrosophic SuperHyperModel (7), is the neutrosophic SuperHyperGirth.

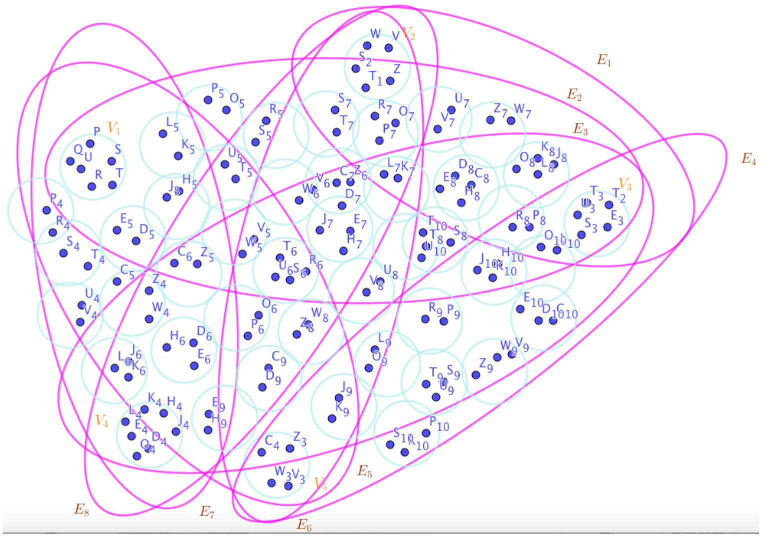


**Figure 7.** an neutrosophic SuperHyperMultipartite Associated to the Notions of neutrosophic SuperHyperGirth in the Example (4.15)

**Proposition 4.16.** Assume a connected neutrosophic SuperHyperWheel $ESHW : (V, E)$. Then an neutrosophic R-SuperHyperGirth is an neutrosophic SuperHyperSet of the interior neutrosophic SuperHyperVertices, excluding the neutrosophic SuperHyperCenter, with only no exception in the form of interior neutrosophic SuperHyperVertices from same neutrosophic SuperHyperEdge with the exclusion on neutrosophic SuperHypeNeighbors to some of them and not all. an neutrosophic R-SuperHyperGirth has the neutrosophic maximum number on all the neutrosophic number of all the neutrosophic SuperHyperEdges don't have common neutrosophic SuperHyperNeighbors. Also,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth}$$
$$= \{E_{2i-1}\}_{i=1}^{\lfloor \frac{|E_{ESHG:(V,E)}|_{\text{neutrosophic Cardinality}}}{2} \rfloor}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial}$$
$$= 2z^{\lfloor \frac{|E_{ESHG:(V,E)}|_{\text{neutrosophic Cardinality}}}{2} \rfloor}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{V_i\}_{i=1}^{s}, \{V_j\}_{j=1}^{t}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = az^s + bz^t.$$

**Example 4.17.** In the neutrosophic Figure (8), the connected neutrosophic SuperHyperWheel $NSHW : (V, E)$, is neutrosophic highlighted and featured. The obtained neutrosophic SuperHyperSet, by the Algorithm in previous result, of the neutrosophic SuperHyperVertices of the connected neutrosophic SuperHyperWheel $ESHW : (V, E)$, in the neutrosophic SuperHyperModel (8), is the neutrosophic SuperHyperGirth.

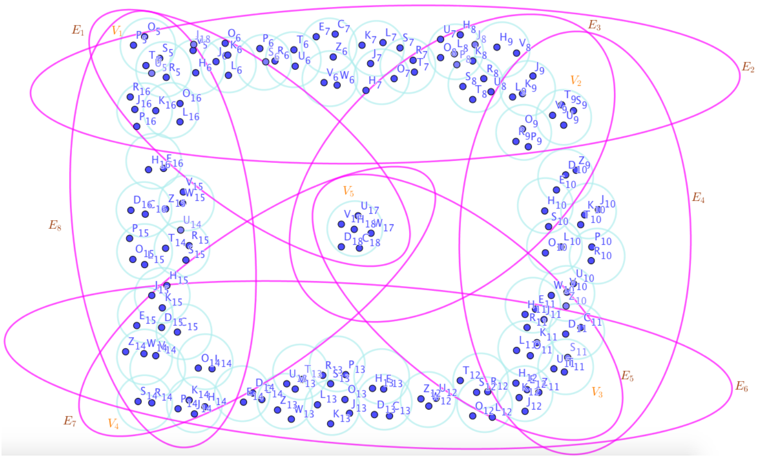

**Figure 8.** an neutrosophic SuperHyperWheel neutrosophic Associated to the neutrosophic Notions of neutrosophic SuperHyperGirth in the neutrosophic Example (4.17)

## 5. neutrosophic SuperHyperGirth

The neutrosophic SuperHyperNotion, namely, neutrosophic SuperHyperGirth, is up. Thus the non-obvious neutrosophic SuperHyperGirth, $S$ is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, not: $S$ is an neutrosophic SuperHyperSet, not: $S$ does includes only less than four neutrosophic SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only non-obvious simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only $S$ in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ with a illustrated SuperHyperModeling. But all only non-obvious simple neutrosophic type-SuperHyperSets of the neutrosophic SuperHyperGirth amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets, are $S$. A connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ as a linearly-over-packed SuperHyperModel is featured on the Figures.

**Example 5.1.** Assume the SuperHyperGraphs in the Figures (9), (10), (11), (12), (13), (14), (15), (16), (17), (18), (19), (20), (21), (22), (23), (24), (25), (26), (27), and (28).

- On the Figure (9), the neutrosophic SuperHyperNotion, namely, neutrosophic SuperHyperGirth, is up. $E_1$ and $E_3$ are some empty neutrosophic SuperHyperEdges but $E_2$ is a loop neutrosophic SuperHyperEdge and $E_4$ is an neutrosophic SuperHyperEdge. Thus in the terms of neutrosophic SuperHyperNeighbor, there's only one neutrosophic SuperHyperEdge, namely, $E_4$. The neutrosophic SuperHyperVertex, $V_3$ is neutrosophic isolated means that there's no neutrosophic SuperHyperEdge has it as an neutrosophic endpoint. Thus the neutrosophic SuperHyperVertex, $V_3$, **is** excluded in every given neutrosophic SuperHyperGirth.

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of

the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Doesn't have less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **isn't** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

**Isn't** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Thus the obvious neutrosophic SuperHyperGirth,

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is:

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is the neutrosophic SuperHyperSet, is:

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

- On the Figure (10), the SuperHyperNotion, namely, SuperHyperGirth, is up. $E_1, E_2$ and $E_3$ are some empty SuperHyperEdges but $E_2$ isn't a loop SuperHyperEdge and $E_4$ is a SuperHyperEdge. Thus in the terms of SuperHyperNeighbor, there's only one SuperHyperEdge, namely, $E_4$. The SuperHyperVertex, $V_3$ is isolated means that there's no SuperHyperEdge has it as an endpoint. Thus the neutrosophic SuperHyperVertex, $V_3$, **is** excluded in every given neutrosophic SuperHyperGirth.

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = 3z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Doesn't have less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **isn't** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

**Isn't** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Thus the obvious neutrosophic SuperHyperGirth,

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is:

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is the neutrosophic SuperHyperSet, is:

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

- On the Figure (11), the SuperHyperNotion, namely, SuperHyperGirth, is up. $E_1, E_2$ and $E_3$ are some empty SuperHyperEdges but $E_4$ is a SuperHyperEdge. Thus in the terms of SuperHyperNeighbor, there's only one SuperHyperEdge, namely, $E_4$.

$\mathcal{C}(NSHG) = \{E_4\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1, V_2, V_4\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z^3$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of

the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Doesn't have less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **isn't** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

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**Isn't** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it'**s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Thus the obvious neutrosophic SuperHyperGirth,

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is:

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is the neutrosophic SuperHyperSet, is:

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

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Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$\mathcal{C}(NSHG) = \{E_2\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_1\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = z$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

- On the Figure (12), the SuperHyperNotion, namely, a SuperHyperGirth, is up. There's no empty SuperHyperEdge but $E_3$ are a loop SuperHyperEdge on $\{F\}$, and there are some SuperHyperEdges, namely, $E_1$ on $\{H, V_1, V_3\}$, alongside $E_2$ on $\{O, H, V_4, V_3\}$ and $E_4, E_5$ on $\{N, V_1, V_2, V_3, F\}$.

$\mathcal{C}(NSHG) = \{F, E_3, V_2, E_4, F\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = 4z^2$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_2, F\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = 4z^2$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{F, E_3, V_2, E_4, F\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = 4z^2$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_2, F\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = 4z^2$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{F, E_3, V_2, E_4, F\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = 4z^2$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_2, F\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = 4z^2$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle.

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There are <u>not</u> only **<u>four</u>** neutrosophic SuperHyperVertices **<u>inside</u>** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **<u>includes</u>** only less than **<u>four</u>** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{F, E_3, V_2, E_4, F\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = 4z^2$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_2, F\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = 4z^2$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Doesn't have less than four SuperHyperVertices **<u>inside</u>** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **<u>isn't</u>** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{F, E_3, V_2, E_4, F\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = 4z^2$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_2, F\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = 4z^2$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

**<u>Isn't</u>** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$\mathcal{C}(NSHG) = \{F, E_3, V_2, E_4, F\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = 4z^2$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_2, F\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = 4z^2$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **<u>and</u>** it's an neutrosophic **<u>SuperHyperGirth</u>**. Since it**<u>'s the maximum neutrosophic cardinality</u>** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are only less than four neutrosophic SuperHyperVertices **<u>inside</u>** the intended neutrosophic SuperHyperSet,

$\mathcal{C}(NSHG) = \{F, E_3, V_2, E_4, F\}$ is an neutrosophic SuperHyperGirth.
$\mathcal{C}(NSHG) = 4z^2$ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.
$\mathcal{C}(NSHG) = \{V_2, F\}$ is an neutrosophic R-SuperHyperGirth.
$\mathcal{C}(NSHG) = 4z^2$ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.

Thus the obvious neutrosophic SuperHyperGirth,

$$\mathcal{C}(NSHG) = \{F, E_3, V_2, E_4, F\} \text{ is an neutrosophic SuperHyperGirth.}$$
$$\mathcal{C}(NSHG) = 4z^2 \text{ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.}$$
$$\mathcal{C}(NSHG) = \{V_2, F\} \text{ is an neutrosophic R-SuperHyperGirth.}$$
$$\mathcal{C}(NSHG) = 4z^2 \text{ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.}$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is:

$$\mathcal{C}(NSHG) = \{F, E_3, V_2, E_4, F\} \text{ is an neutrosophic SuperHyperGirth.}$$
$$\mathcal{C}(NSHG) = 4z^2 \text{ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.}$$
$$\mathcal{C}(NSHG) = \{V_2, F\} \text{ is an neutrosophic R-SuperHyperGirth.}$$
$$\mathcal{C}(NSHG) = 4z^2 \text{ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.}$$

Is the neutrosophic SuperHyperSet, is:

$$\mathcal{C}(NSHG) = \{F, E_3, V_2, E_4, F\} \text{ is an neutrosophic SuperHyperGirth.}$$
$$\mathcal{C}(NSHG) = 4z^2 \text{ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.}$$
$$\mathcal{C}(NSHG) = \{V_2, F\} \text{ is an neutrosophic R-SuperHyperGirth.}$$
$$\mathcal{C}(NSHG) = 4z^2 \text{ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.}$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$$\mathcal{C}(NSHG) = \{F, E_3, V_2, E_4, F\} \text{ is an neutrosophic SuperHyperGirth.}$$
$$\mathcal{C}(NSHG) = 4z^2 \text{ is an neutrosophic SuperHyperGirth SuperHyperPolynomial.}$$
$$\mathcal{C}(NSHG) = \{V_2, F\} \text{ is an neutrosophic R-SuperHyperGirth.}$$
$$\mathcal{C}(NSHG) = 4z^2 \text{ is an neutrosophic R-SuperHyperGirth SuperHyperPolynomial.}$$

- On the Figure (13), the SuperHyperNotion, namely, SuperHyperGirth, is up. There's neither empty SuperHyperEdge nor loop SuperHyperEdge. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth.

$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth SuperHyperPolynomial}} = 0.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth SuperHyperPolynomial}} = 0.$$

The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of

the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth SuperHyperPolynomial}} = 0.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth SuperHyperPolynomial}} = 0.$$

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth SuperHyperPolynomial}} = 0.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth SuperHyperPolynomial}} = 0.$$

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth SuperHyperPolynomial}} = 0.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth SuperHyperPolynomial}} = 0.$$

Doesn't have less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **isn't** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth SuperHyperPolynomial}} = 0.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth SuperHyperPolynomial}} = 0.$$

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**Isn't** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth SuperHyperPolynomial}} = 0.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth SuperHyperPolynomial}} = 0.$$

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it'**s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth SuperHyperPolynomial}} = 0.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth SuperHyperPolynomial}} = 0.$$

Thus the obvious neutrosophic SuperHyperGirth,

$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth SuperHyperPolynomial}} = 0.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth SuperHyperPolynomial}} = 0.$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is:

$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth SuperHyperPolynomial}} = 0.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth SuperHyperPolynomial}} = 0.$$

Is the neutrosophic SuperHyperSet, is:

$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth SuperHyperPolynomial}} = 0.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth SuperHyperPolynomial}} = 0.$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-SuperHyperGirth SuperHyperPolynomial}} = 0.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth}} = \{\}.$$
$$\mathcal{C}(NSHG)_{\text{neutrosophic Quasi-R-SuperHyperGirth SuperHyperPolynomial}} = 0.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ is mentioned as the SuperHyperModel $ESHG : (V, E)$ in the Figure (13).

- On the Figure (14), the SuperHyperNotion, namely, SuperHyperGirth, is up. There's neither empty SuperHyperEdge nor loop SuperHyperEdge.

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}\}_{i=2}^{5} \cup \{V_i, E_{i+12}, E_{12}, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i, V_6, V_{16}\}_{i=2}^{5} \cup \{V_i, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$

The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}\}_{i=2}^{5} \cup \{V_i, E_{i+12}, E_{12}, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i, V_6, V_{16}\}_{i=2}^{5} \cup \{V_i, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}\}_{i=2}^{5} \cup \{V_i, E_{i+12}, E_{12}, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i, V_6, V_{16}\}_{i=2}^{5} \cup \{V_i, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of

an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}\}_{i=2}^{5} \cup \{V_i, E_{i+12}, E_{12}, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i, V_6, V_{16}\}_{i=2}^{5} \cup \{V_i, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$

Doesn't have less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **is** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}\}_{i=2}^{5} \cup \{V_i, E_{i+12}, E_{12}, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i, V_6, V_{16}\}_{i=2}^{5} \cup \{V_i, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}\}_{i=2}^{5} \cup \{V_i, E_{i+12}, E_{12}, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i, V_6, V_{16}\}_{i=2}^{5} \cup \{V_i, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges

form only one neutrosophic SuperHyperCycle. There are not only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}\}_{i=2}^{5} \cup \{V_i, E_{i+12}, E_{12}, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i, V_6, V_{16}\}_{i=2}^{5} \cup \{V_i, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$

Thus the non-obvious neutrosophic SuperHyperGirth,

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}\}_{i=2}^{5} \cup \{V_i, E_{i+12}, E_{12}, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i, V_6, V_{16}\}_{i=2}^{5} \cup \{V_i, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is not:

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}\}_{i=2}^{5} \cup \{V_i, E_{i+12}, E_{12}, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i, V_6, V_{16}\}_{i=2}^{5} \cup \{V_i, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$

Is the neutrosophic SuperHyperSet, is not:

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}\}_{i=2}^{5} \cup \{V_i, E_{i+12}, E_{12}, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i, V_6, V_{16}\}_{i=2}^{5} \cup \{V_i, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}\}_{i=2}^{5} \cup \{V_i, E_{i+12}, E_{12}, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i, V_6, V_{16}\}_{i=2}^{5} \cup \{V_i, V_1\}_{i=11}^{15}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 22z^{12}.$$

- On the Figure (15), the SuperHyperNotion, namely, SuperHyperGirth, is up. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_8, E_{17}, V_{14}, E_{12}, V_{12}, E_{15}, V_3, E_3, V_4, E_{16}, V_7, E_7, V_8\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 6z^6.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_8, V_{14}, V_{12}, V_3, V_4, V_7, V_8\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 6z^7.$$

The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_8, E_{17}, V_{14}, E_{12}, V_{12}, E_{15}, V_3, E_3, V_4, E_{16}, V_7, E_7, V_8\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 6z^6.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_8, V_{14}, V_{12}, V_3, V_4, V_7, V_8\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 6z^7.$$

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_8, E_{17}, V_{14}, E_{12}, V_{12}, E_{15}, V_3, E_3, V_4, E_{16}, V_7, E_7, V_8\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 6z^6.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_8, V_{14}, V_{12}, V_3, V_4, V_7, V_8\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 6z^7.$$

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of

an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_8, E_{17}, V_{14}, E_{12}, V_{12}, E_{15}, V_3, E_3, V_4, E_{16}, V_7, E_7, V_8\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 6z^6.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_8, V_{14}, V_{12}, V_3, V_4, V_7, V_8\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 6z^7.$$

Doesn't have less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **is** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_8, E_{17}, V_{14}, E_{12}, V_{12}, E_{15}, V_3, E_3, V_4, E_{16}, V_7, E_7, V_8\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 6z^6.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_8, V_{14}, V_{12}, V_3, V_4, V_7, V_8\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 6z^7.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_8, E_{17}, V_{14}, E_{12}, V_{12}, E_{15}, V_3, E_3, V_4, E_{16}, V_7, E_7, V_8\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 6z^6.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_8, V_{14}, V_{12}, V_3, V_4, V_7, V_8\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 6z^7.$$

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s** **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \\
&\{V_8, E_{17}, V_{14}, E_{12}, V_{12}, E_{15}, V_3, E_3, V_4, E_{16}, V_7, E_7, V_8\} \\
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 6z^6. \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \\
&\{V_8, V_{14}, V_{12}, V_3, V_4, V_7, V_8\} \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 6z^7.
\end{aligned}$$

Thus the non-obvious neutrosophic SuperHyperGirth,

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \\
&\{V_8, E_{17}, V_{14}, E_{12}, V_{12}, E_{15}, V_3, E_3, V_4, E_{16}, V_7, E_7, V_8\} \\
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 6z^6. \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \\
&\{V_8, V_{14}, V_{12}, V_3, V_4, V_7, V_8\} \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 6z^7.
\end{aligned}$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is not:

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \\
&\{V_8, E_{17}, V_{14}, E_{12}, V_{12}, E_{15}, V_3, E_3, V_4, E_{16}, V_7, E_7, V_8\} \\
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 6z^6. \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \\
&\{V_8, V_{14}, V_{12}, V_3, V_4, V_7, V_8\} \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 6z^7.
\end{aligned}$$

Is the neutrosophic SuperHyperSet, is not:

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \\
&\{V_8, E_{17}, V_{14}, E_{12}, V_{12}, E_{15}, V_3, E_3, V_4, E_{16}, V_7, E_7, V_8\} \\
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 6z^6. \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \\
&\{V_8, V_{14}, V_{12}, V_3, V_4, V_7, V_8\} \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 6z^7.
\end{aligned}$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{V_8, E_{17}, V_{14}, E_{12}, V_{12}, E_{15}, V_3, E_3, V_4, E_{16}, V_7, E_7, V_8\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 6z^6.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_8, V_{14}, V_{12}, V_3, V_4, V_7, V_8\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 6z^7.$$

- On the Figure (16), the SuperHyperNotion, namely, SuperHyperGirth, is up. There's neither empty SuperHyperEdge nor loop SuperHyperEdge. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic

SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Doesn't have less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **isn't** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges

form only one neutrosophic SuperHyperCycle. There are only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Thus the obvious neutrosophic SuperHyperGirth,

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is:

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is the neutrosophic SuperHyperSet, is:

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ of dense SuperHyperModel as the Figure (16).

- On the Figure (17), the SuperHyperNotion, namely, SuperHyperGirth, is up. There's neither empty SuperHyperEdge nor loop SuperHyperEdge. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth.

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}, d_1, V_1\}_{i=2}^{5}\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 11z^8.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_1, V_i, V_{16}, V_1\}_{i=2}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 11z^8.$$

The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}, d_1, V_1\}_{i=2}^{5}\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 11z^8.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_1, V_i, V_{16}, V_1\}_{i=2}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 11z^8.$$

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}, d_1, V_1\}_{i=2}^{5}\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 11z^8.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_1, V_i, V_{16}, V_1\}_{i=2}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 11z^8.$$

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an

neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{V_i, E_i, V_6, E_{17}, V_{16}, d_1, V_1\}_{i=2}^{5} \mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 11z^8.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_1, V_i, V_{16}, V_1\}_{i=2}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 11z^8.$$

Doesn't have less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **is** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{V_i, E_i, V_6, E_{17}, V_{16}, d_1, V_1\}_{i=2}^{5} \mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 11z^8.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_1, V_i, V_{16}, V_1\}_{i=2}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 11z^8.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{V_i, E_i, V_6, E_{17}, V_{16}, d_1, V_1\}_{i=2}^{5} \mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 11z^8.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_1, V_i, V_{16}, V_1\}_{i=2}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 11z^8.$$

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{V_i, E_i, V_6, E_{17}, V_{16}, d_1, V_1\}_{i=2}^{5} \mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 11z^8.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_1, V_i, V_{16}, V_1\}_{i=2}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 11z^8.$$

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Thus the non-obvious neutrosophic SuperHyperGirth,

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}, d_1, V_1\}_{i=2}^{5}\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 11z^8.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_1, V_i, V_{16}, V_1\}_{i=2}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 11z^8.$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is not:

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}, d_1, V_1\}_{i=2}^{5}\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 11z^8.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_1, V_i, V_{16}, V_1\}_{i=2}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 11z^8.$$

Is the neutrosophic SuperHyperSet, is not:

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}, d_1, V_1\}_{i=2}^{5}\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 11z^8.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_1, V_i, V_{16}, V_1\}_{i=2}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 11z^8.$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_i, E_i, V_6, E_{17}, V_{16}, d_1, V_1\}_{i=2}^{5}\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 11z^8.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_1, V_i, V_{16}, V_1\}_{i=2}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 11z^8.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ of highly-embedding-connected SuperHyperModel as the Figure (17).

- On the Figure (18), the SuperHyperNotion, namely, SuperHyperGirth, is up. There's neither empty SuperHyperEdge nor loop SuperHyperEdge. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the simple

neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_{14}, E_4, V_{12}, E_6, V_{13}, E_7, V_{14}\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^3.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_{14}V_{12}, V_{13}, V_{14}\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^4.$$

The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_{14}, E_4, V_{12}, E_6, V_{13}, E_7, V_{14}\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^3.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_{14}V_{12}, V_{13}, V_{14}\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^4.$$

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_{14}, E_4, V_{12}, E_6, V_{13}, E_7, V_{14}\}$$
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$$\{V_{14}V_{12}, V_{13}, V_{14}\}$$

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Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an

neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{V_{14}, E_4, V_{12}, E_6, V_{13}, E_7, V_{14}\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^3.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_{14}V_{12}, V_{13}, V_{14}\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^4.$$

Does has less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **isn't** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{V_{14}, E_4, V_{12}, E_6, V_{13}, E_7, V_{14}\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^3.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_{14}V_{12}, V_{13}, V_{14}\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^4.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{V_{14}, E_4, V_{12}, E_6, V_{13}, E_7, V_{14}\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^3.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_{14}V_{12}, V_{13}, V_{14}\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^4.$$

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges

form only one neutrosophic SuperHyperCycle. There are not only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_{14}, E_4, V_{12}, E_6, V_{13}, E_7, V_{14}\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^3.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_{14}V_{12}, V_{13}, V_{14}\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^4.$$

Thus the non-obvious neutrosophic SuperHyperGirth,

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_{14}, E_4, V_{12}, E_6, V_{13}, E_7, V_{14}\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^3.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_{14}V_{12}, V_{13}, V_{14}\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^4.$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is:

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_{14}, E_4, V_{12}, E_6, V_{13}, E_7, V_{14}\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^3.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_{14}V_{12}, V_{13}, V_{14}\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^4.$$

Is the neutrosophic SuperHyperSet, is:

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_{14}, E_4, V_{12}, E_6, V_{13}, E_7, V_{14}\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^3.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_{14}V_{12}, V_{13}, V_{14}\}$$

$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^4.$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

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amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{V_{14}, E_4, V_{12}, E_6, V_{13}, E_7, V_{14}\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^3.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_{14}V_{12}, V_{13}, V_{14}\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^4.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ of dense SuperHyperModel as the Figure (18).

- On the Figure (19), the SuperHyperNotion, namely, SuperHyperGirth, is up. There's neither empty SuperHyperEdge nor loop SuperHyperEdge. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{V_1, E_6, V_5, E_5, V_6, E_4, V_4, E_7, V_2, E_1, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^5.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_1, V_5, V_6, V_4, V_2, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^6.$$

The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{V_1, E_6, V_5, E_5, V_6, E_4, V_4, E_7, V_2, E_1, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^5.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_1, V_5, V_6, V_4, V_2, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^6.$$

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{V_1, E_6, V_5, E_5, V_6, E_4, V_4, E_7, V_2, E_1, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^5.$$
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Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_1, E_6, V_5, E_5, V_6, E_4, V_4, E_7, V_2, E_1, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^5.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_1, V_5, V_6, V_4, V_2, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^6.$$

Does has less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **is** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
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$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^5.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_1, V_5, V_6, V_4, V_2, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^6.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_1, E_6, V_5, E_5, V_6, E_4, V_4, E_7, V_2, E_1, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^5.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_1, V_5, V_6, V_4, V_2, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^6.$$

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic

SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_1, E_6, V_5, E_5, V_6, E_4, V_4, E_7, V_2, E_1, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^5.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_1, V_5, V_6, V_4, V_2, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^6.$$

Thus the non-obvious neutrosophic SuperHyperGirth,

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_1, E_6, V_5, E_5, V_6, E_4, V_4, E_7, V_2, E_1, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^5.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_1, V_5, V_6, V_4, V_2, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^6.$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is not:

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_1, E_6, V_5, E_5, V_6, E_4, V_4, E_7, V_2, E_1, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^5.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_1, V_5, V_6, V_4, V_2, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^6.$$

Is the neutrosophic SuperHyperSet, is not:

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_1, E_6, V_5, E_5, V_6, E_4, V_4, E_7, V_2, E_1, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^5.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} =$$
$$\{V_1, V_5, V_6, V_4, V_2, V_1\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^6.$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \\
&\{V_1, E_6, V_5, E_5, V_6, E_4, V_4, E_7, V_2, E_1, V_1\} \\
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 3z^5. \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \\
&\{V_1, V_5, V_6, V_4, V_2, V_1\} \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 3z^6.
\end{aligned}$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$.

- On the Figure (20), the SuperHyperNotion, namely, SuperHyperGirth, is up. There's neither empty SuperHyperEdge nor loop SuperHyperEdge. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. There's only one neutrosophic SuperHyperEdges between any given neutrosophic amount of neutrosophic SuperHyperVertices. Thus there isn't any neutrosophic SuperHyperGirth at all. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\} \\
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0. \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\} \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.
\end{aligned}$$

The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\} \\
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0. \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\} \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.
\end{aligned}$$

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\} \\
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0. \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\} \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.
\end{aligned}$$

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an

neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Does has less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **is** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Thus the non-obvious neutrosophic SuperHyperGirth,

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}\\
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.\\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}\\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.
\end{aligned}$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is not:

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}\\
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.\\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}\\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.
\end{aligned}$$

Is the neutrosophic SuperHyperSet, is not:

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}\\
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.\\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}\\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.
\end{aligned}$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{\}\\
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = 0.\\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{\}\\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = 0.
\end{aligned}$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$.

- On the Figure (21), the SuperHyperNotion, namely, SuperHyperGirth, is up. There's neither empty SuperHyperEdge nor loop SuperHyperEdge. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the simple

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neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{V_1, E_1, V_2, E_{10}, V_3, E_8, V_6, E_4, V_4, E_2, V_5, E_6, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = z^6.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i\}_{i=1}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = z^6.$$

is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{V_1, E_1, V_2, E_{10}, V_3, E_8, V_6, E_4, V_4, E_2, V_5, E_6, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = z^6.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i\}_{i=1}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = z^6.$$

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{V_1, E_1, V_2, E_{10}, V_3, E_8, V_6, E_4, V_4, E_2, V_5, E_6, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = z^6.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i\}_{i=1}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = z^6.$$

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \{V_1, E_1, V_2, E_{10}, V_3, E_8, V_6, E_4, V_4, E_2, V_5, E_6, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = z^6.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i\}_{i=1}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = z^6.$$

Does has less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic

SuperHyperGirth **is** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_1, E_1, V_2, E_{10}, V_3, E_8, V_6, E_4, V_4, E_2, V_5, E_6, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = z^6.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i\}_{i=1}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = z^6.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_1, E_1, V_2, E_{10}, V_3, E_8, V_6, E_4, V_4, E_2, V_5, E_6, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = z^6.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i\}_{i=1}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = z^6.$$

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_1, E_1, V_2, E_{10}, V_3, E_8, V_6, E_4, V_4, E_2, V_5, E_6, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = z^6.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i\}_{i=1}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = z^6.$$

Thus the non-obvious neutrosophic SuperHyperGirth,

$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} =$$
$$\{V_1, E_1, V_2, E_{10}, V_3, E_8, V_6, E_4, V_4, E_2, V_5, E_6, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = z^6.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i\}_{i=1}^{6}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = z^6.$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is not:

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \\
&\{V_1, E_1, V_2, E_{10}, V_3, E_8, V_6, E_4, V_4, E_2, V_5, E_6, V_1\}. \\
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = z^6. \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i\}_{i=1}^{6}. \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = z^6.
\end{aligned}$$

Is the neutrosophic SuperHyperSet, is not:

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \\
&\{V_1, E_1, V_2, E_{10}, V_3, E_8, V_6, E_4, V_4, E_2, V_5, E_6, V_1\}. \\
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = z^6. \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i\}_{i=1}^{6}. \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = z^6.
\end{aligned}$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirth} = \\
&\{V_1, E_1, V_2, E_{10}, V_3, E_8, V_6, E_4, V_4, E_2, V_5, E_6, V_1\}. \\
&\mathcal{C}(NSHG)_{neutrosophicSuperHyperGirthSuperHyperPolynomial} = z^6. \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirth} = \{V_i\}_{i=1}^{6}. \\
&\mathcal{C}(NSHG)_{neutrosophicR-SuperHyperGirthSuperHyperPolynomial} = z^6.
\end{aligned}$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$.

- On the Figure (22), the SuperHyperNotion, namely, SuperHyperGirth, is up. There's neither empty SuperHyperEdge nor loop SuperHyperEdge. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}. \\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0. \\
&\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}. \\
&\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0
\end{aligned}$$

is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices]

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is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Doesn't have less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **isn't** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Thus the non-obvious neutrosophic SuperHyperGirth,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is:

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is the neutrosophic SuperHyperSet, is:

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's noted that this neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic graph $G : (V, E)$ thus the notions in both settings are coincided.

- On the Figure (23), the SuperHyperNotion, namely, SuperHyperGirth, is up. There's neither empty SuperHyperEdge nor loop SuperHyperEdge. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0$$

is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of

an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Doesn't have less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **isn't** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Thus the non-obvious neutrosophic SuperHyperGirth,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is:

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is the neutrosophic SuperHyperSet, is:

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's noted that this neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic graph $G : (V, E)$ thus the notions in both settings are coincided. In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ as Linearly-Connected SuperHyperModel On the Figure (23).

- On the Figure (24), the SuperHyperNotion, namely, SuperHyperGirth, is up. There's neither empty SuperHyperEdge nor loop SuperHyperEdge. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the simple

neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

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$$\begin{aligned}
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, V_{11}, V_9\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, V_8, V_{10}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, V_9, V_{10}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, V_{11}, V_{10}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, V_8, V_{11}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, V_9, V_{11}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, V_{10}, V_{11}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{15} V_{17}, V_{15}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{17}, V_{15}, V_{17}\}.\\
\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} &= 14z^3.
\end{aligned}$$

is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\begin{aligned}
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, E_3, V_9, E_4, V_8\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, E_3, V_{10}, E_4, V_8\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, E_3, V_{11}, E_4, V_8\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, E_3, V_8, E_4, V_9\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, E_3, V_{10}, E_4, V_9\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, E_3, V_{11}, E_4, V_9\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, E_3, V_8, E_4, V_{10}\}.
\end{aligned}$$

$$\begin{aligned}
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, E_3, V_9, E_4, V_{10}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, E_3, V_8, E_4, V_{11}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, E_3, V_9, E_4, V_{11}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, E_4, V_9, E_3, V_8\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, E_4, V_{10}, E_3, V_8\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, E_4, V_{11}, E_3, V_8\}.
\end{aligned}$$

$$\begin{aligned}
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, E_4, V_8, E_3, V_9\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, E_4, V_{10}, E_3, V_9\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, E_4, V_{11}, E_3, V_9\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, E_4, V_8, E_3, V_{10}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, E_4, V_9, E_3, V_{10}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, E_4, V_8, E_3, V_{11}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, E_4, V_9, E_3, V_{11}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.
\end{aligned}$$

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.
\end{aligned}$$

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.
\end{aligned}$$

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.
\end{aligned}$$

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.
\end{aligned}$$

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.
\end{aligned}$$

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.
\end{aligned}$$

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.
\end{aligned}$$

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an

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neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.
\end{aligned}$$

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.
\end{aligned}$$

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.
\end{aligned}$$

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.
\end{aligned}$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.$$

Does has less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **isn't** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.$$

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges

form only one neutrosophic SuperHyperCycle. There are only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.$$

Thus the non-obvious neutrosophic SuperHyperGirth,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is:

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

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$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.
\end{aligned}$$

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.
\end{aligned}$$

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.\\
&\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.
\end{aligned}$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

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is only and only

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$.

- On the Figure (25), the SuperHyperNotion, namely, SuperHyperGirth, is up. There's neither empty SuperHyperEdge nor loop SuperHyperEdge. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.$$

is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices]

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is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.$$

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.$$

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.$$

Does has less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **isn't** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.$$

Is an neutrosophic SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.$$

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Thus the non-obvious neutrosophic SuperHyperGirth,

$$\begin{aligned}
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, E_3, V_9, E_4, V_8\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, E_3, V_{10}, E_4, V_8\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, E_3, V_{11}, E_4, V_8\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, E_3, V_8, E_4, V_9\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, E_3, V_{10}, E_4, V_9\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, E_3, V_{11}, E_4, V_9\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, E_3, V_8, E_4, V_{10}\}.
\end{aligned}$$

$$\begin{aligned}
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, E_3, V_9, E_4, V_{10}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, E_3, V_8, E_4, V_{11}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, E_3, V_9, E_4, V_{11}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, E_4, V_9, E_3, V_8\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, E_4, V_{10}, E_3, V_8\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, E_4, V_{11}, E_3, V_8\}.
\end{aligned}$$

$$\begin{aligned}
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, E_4, V_8, E_3, V_9\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, E_4, V_{10}, E_3, V_9\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, E_4, V_{11}, E_3, V_9\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, E_4, V_8, E_3, V_{10}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, E_4, V_9, E_3, V_{10}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, E_4, V_8, E_3, V_{11}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, E_4, V_9, E_3, V_{11}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.
\end{aligned}$$

$$\begin{aligned}
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} &= 28z^2.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, V_9, V_8\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, V_{10}, V_8\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, V_{11}, V_8\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, V_8, V_9\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, V_{10}, V_9\}.
\end{aligned}$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is:

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**“neutrosophic SuperHyperGirth”**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 28z^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 14z^3.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$.

- On the Figure (26), the SuperHyperNotion, namely, SuperHyperGirth, is up. There's neither empty SuperHyperEdge nor loop SuperHyperEdge. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_{23}, E_2, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_1, V_2, E_2, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_2, V_{23}, E_1, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_2, V_1, E_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 32^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_{23}, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, V_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 16z^3.$$

is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_{23}, E_2, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_1, V_2, E_2, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_2, V_{23}, E_1, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_2, V_1, E_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 32^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_{23}, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, V_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 16z^3.$$

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_{23}, E_2, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_1, V_2, E_2, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_2, V_{23}, E_1, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_2, V_1, E_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 32^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_{23}, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, V_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 16z^3.$$

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an

neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_{23}, E_2, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_1, V_2, E_2, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_2, V_{23}, E_1, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_2, V_1, E_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 32^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_{23}, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, V_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 16z^3.$$

Does has less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **isn't** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_{23}, E_2, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_1, V_2, E_2, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_2, V_{23}, E_1, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_2, V_1, E_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 32^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_{23}, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, V_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 16z^3.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_{23}, E_2, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_1, V_2, E_2, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_2, V_{23}, E_1, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_2, V_1, E_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 32^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_{23}, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, V_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 16z^3.$$

erHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_{23}, E_2, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_1, V_2, E_2, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_2, V_{23}, E_1, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_2, V_1, E_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 32^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_8, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_{23}, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, V_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 16z^3.$$

Thus the non-obvious neutrosophic SuperHyperGirth,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_{23}, E_2, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_1, V_2, E_2, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_2, V_{23}, E_1, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_2, V_1, E_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 32^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{10}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{10}, V_9\}.$$

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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_{23}, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, V_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 16z^3.$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is:

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$
\begin{aligned}
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_1, E_1, V_{23}, E_2, V_1\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{23}, E_1, V_2, E_2, V_{23}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_1, E_2, V_{23}, E_1, V_1\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{23}, E_2, V_1, E_1, V_{23}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} &= 32^2.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, V_9, V_8\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, V_{10}, V_8\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_8, V_{11}, V_8\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, V_8, V_9\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, V_{10}, V_9\}.
\end{aligned}
$$

$$
\begin{aligned}
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_9, V_{11}, V_9\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, V_8, V_{10}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, V_9, V_{10}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{10}, V_{11}, V_{10}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, V_8, V_{11}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, V_9, V_{11}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{11}, V_{10}, V_{11}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{15} V_{17}, V_{15}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{17}, V_{15}, V_{17}\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_1, V_{23}, V_1\}.\\
\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} &= \{V_{23}, V_1, V_{23}\}.\\
\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} &= 16z^3.
\end{aligned}
$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

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is only and only

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_9, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{10}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_3, V_{11}, E_4, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_8, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{10}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_3, V_{11}, E_4, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_8, E_4, V_{10}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_9, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_3, V_{11}, E_4, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_8, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_9, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_3, V_{10}, E_4, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_9, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{10}, E_3, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, E_4, V_{11}, E_3, V_8\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_8, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{10}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, E_4, V_{11}, E_3, V_9\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_8, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_9, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, E_4, V_{11}, E_3, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_8, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_9, E_3, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, E_4, V_{10}, E_3, V_{11}\}.$$

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_4, V_{17}, E_5, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_4, V_{15}, E_5, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15}, E_5, V_{17}, E_4, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, E_5, V_{15}, E_4, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_{23}, E_2, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_1, V_2, E_2, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_2, V_{23}, E_1, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, E_2, V_1, E_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 32^2.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_9, V_8\}.$$
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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_8, V_{11}, V_8\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_8, V_9\}.$$
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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_9, V_{11}, V_9\}.$$
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$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_9, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{10}, V_{11}, V_{10}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_8, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_9, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{11}, V_{10}, V_{11}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{15} V_{17}, V_{15}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{17}, V_{15}, V_{17}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_{23}, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_{23}, V_1, V_{23}\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 16z^3.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$.

- On the Figure (27), the SuperHyperNotion, namely, SuperHyperGirth, is up. There's neither empty SuperHyperEdge nor loop SuperHyperEdge. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices] is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

is the simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices]

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is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is the neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is an **neutrosophic SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive sequence of the neutrosophic SuperHyperVertices and the neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth isn't up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only less than **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Does has less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth **isn't** up. To sum them up, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Thus the non-obvious neutrosophic SuperHyperGirth,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is:

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = 0.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$.

- On the Figure (28), the SuperHyperNotion, namely, SuperHyperGirth, is up.

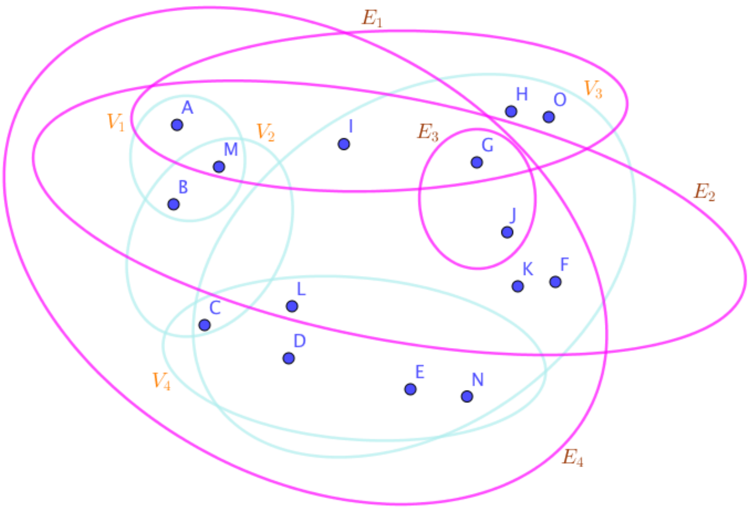


**Figure 9.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

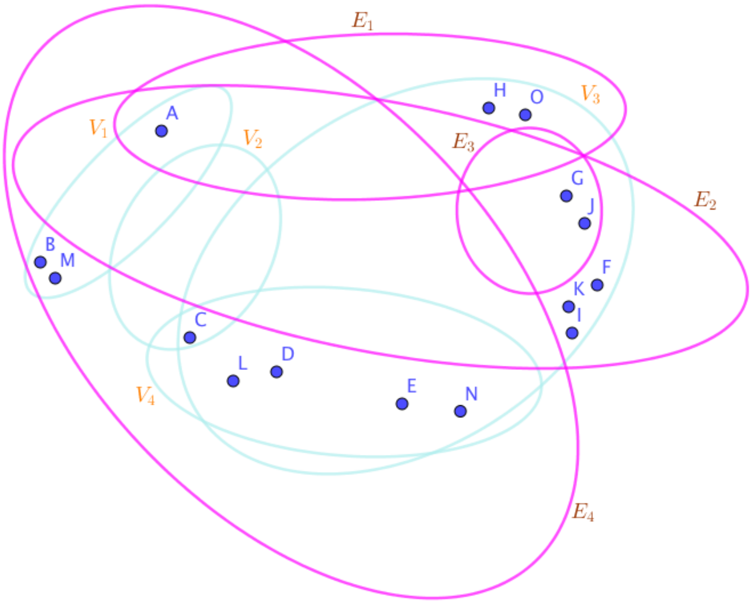


**Figure 10.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

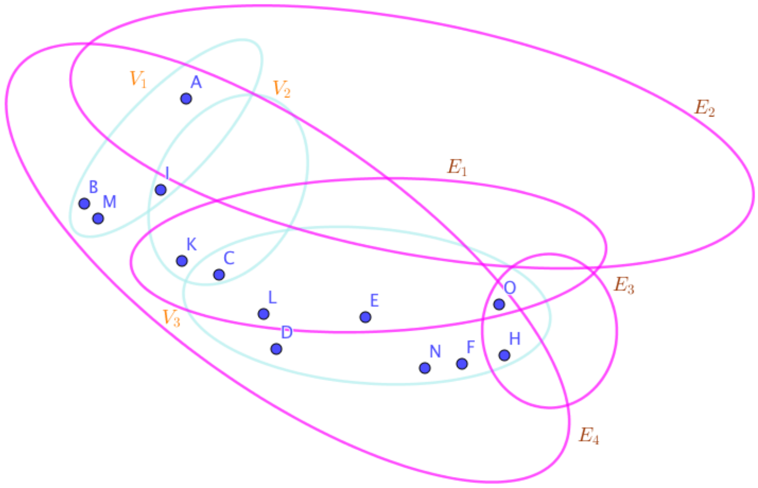


**Figure 11.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

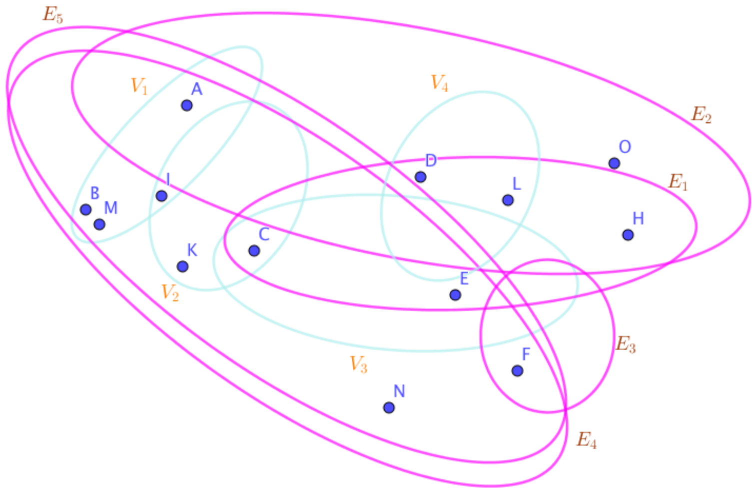


**Figure 12.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

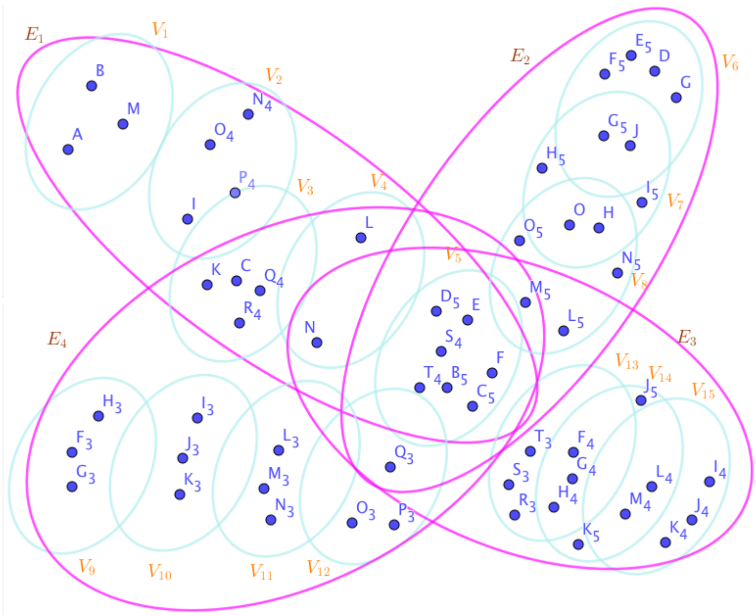

**Figure 13.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

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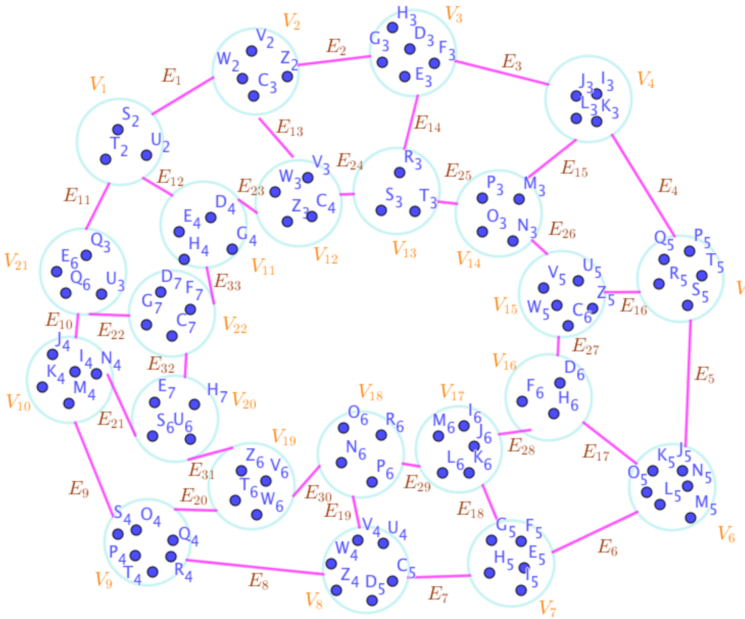

**Figure 14.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

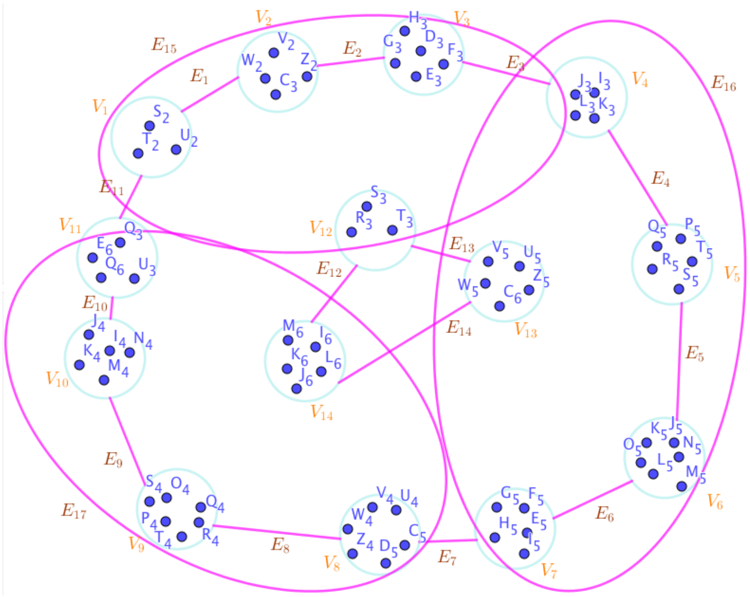

**Figure 15.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

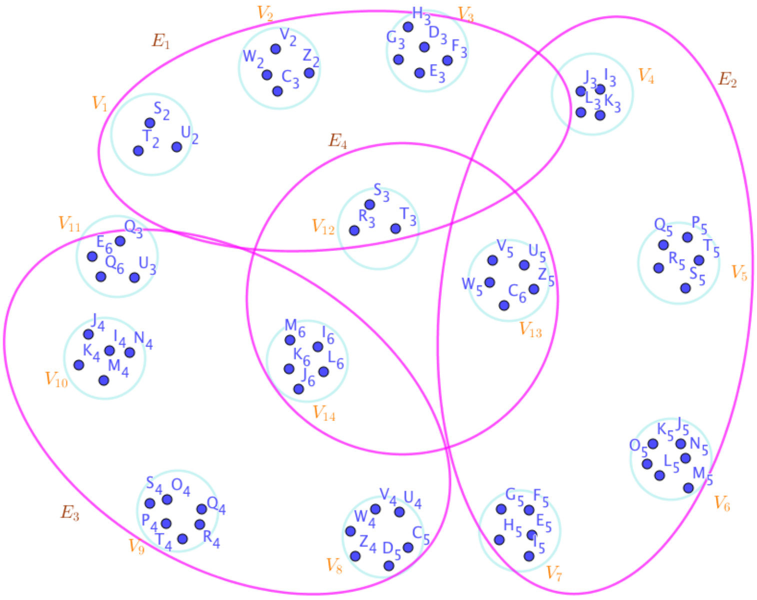


**Figure 16.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

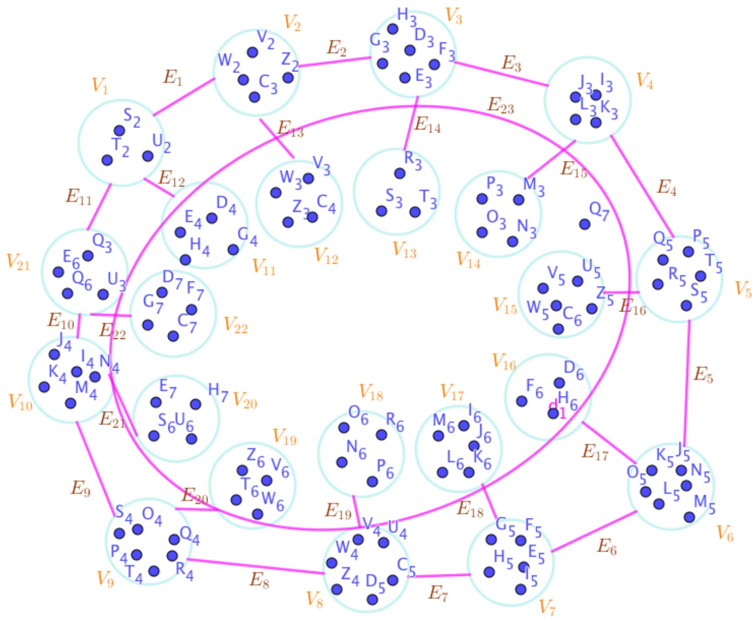


**Figure 17.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

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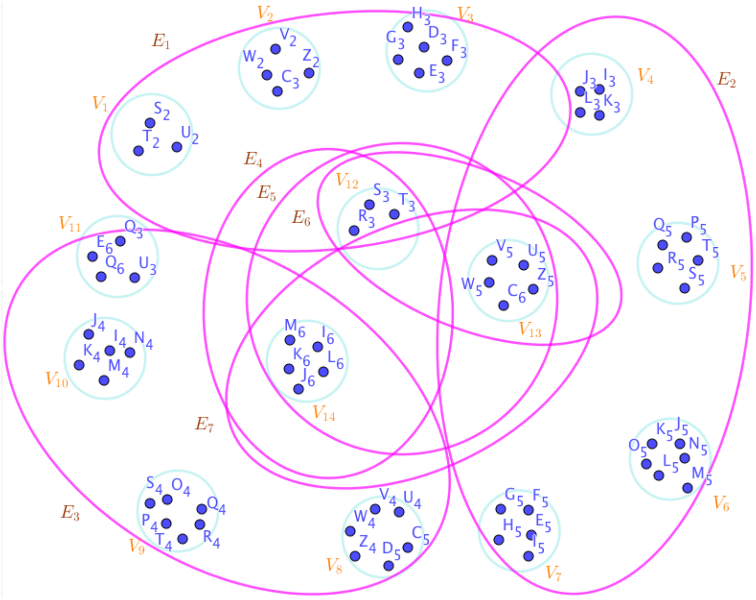

**Figure 18.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

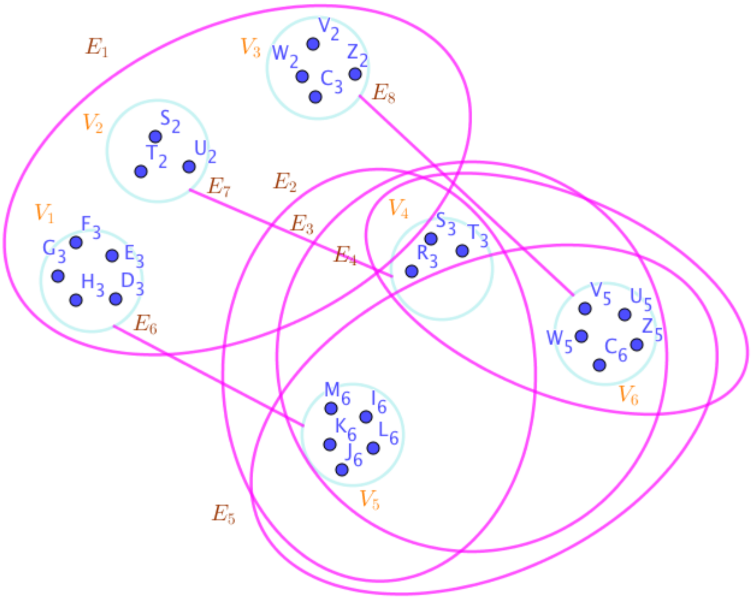

**Figure 19.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

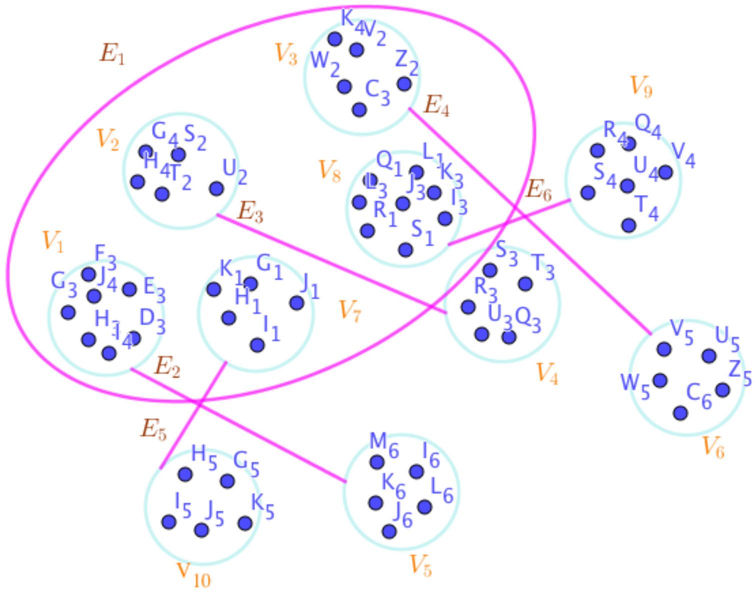


**Figure 20.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

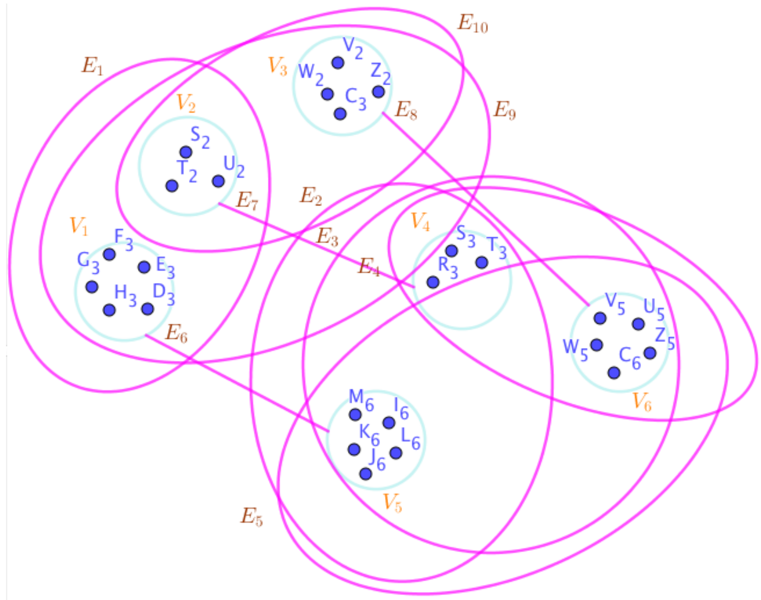


**Figure 21.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

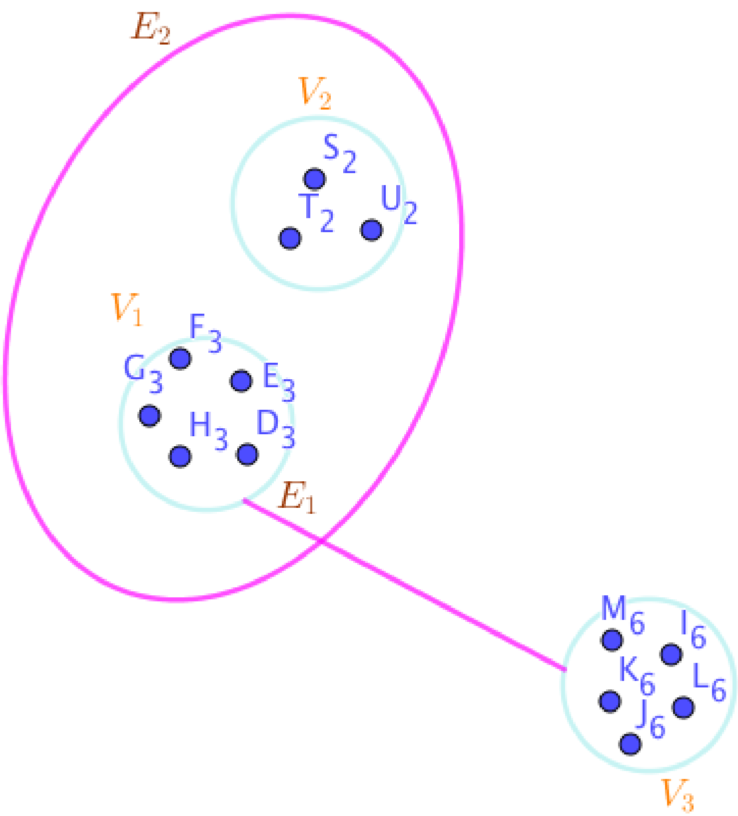


**Figure 22.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

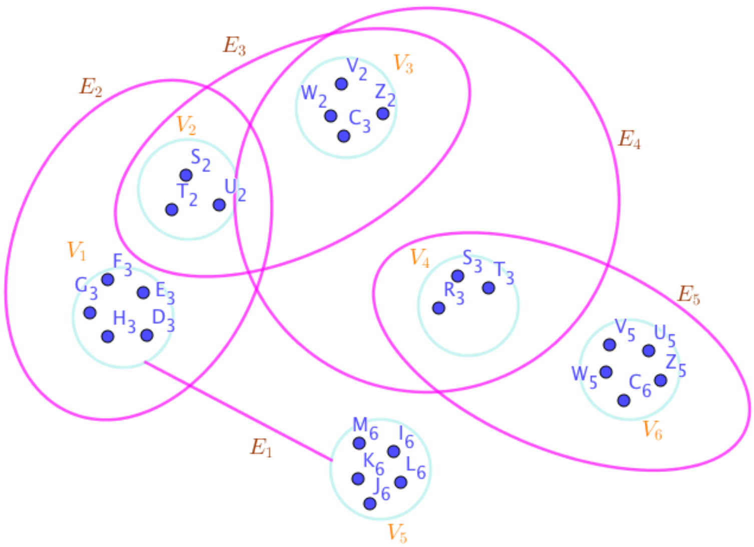


**Figure 23.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

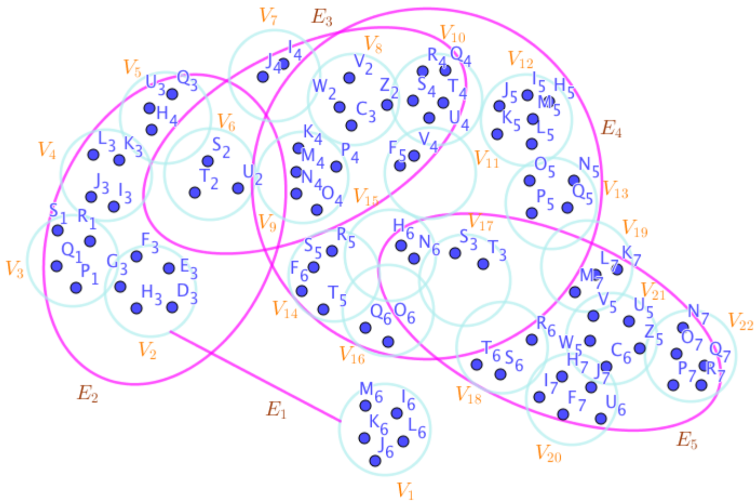

**Figure 24.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

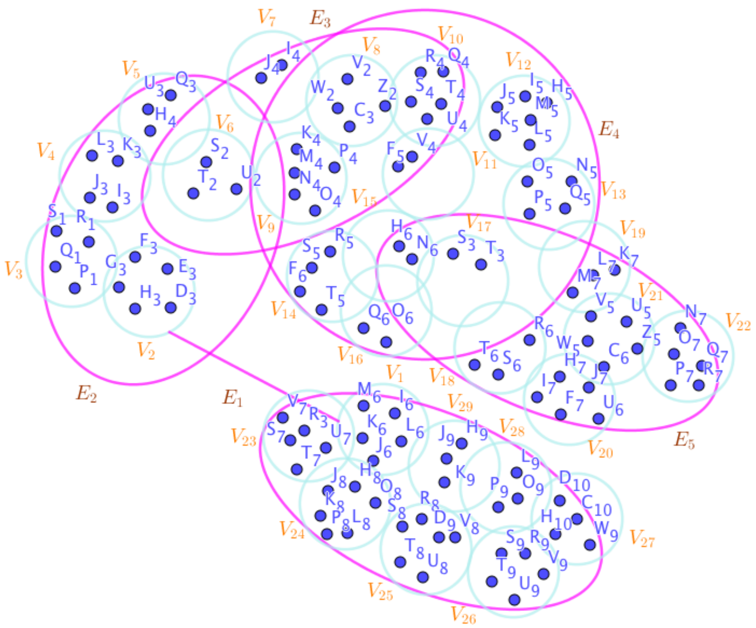

**Figure 25.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

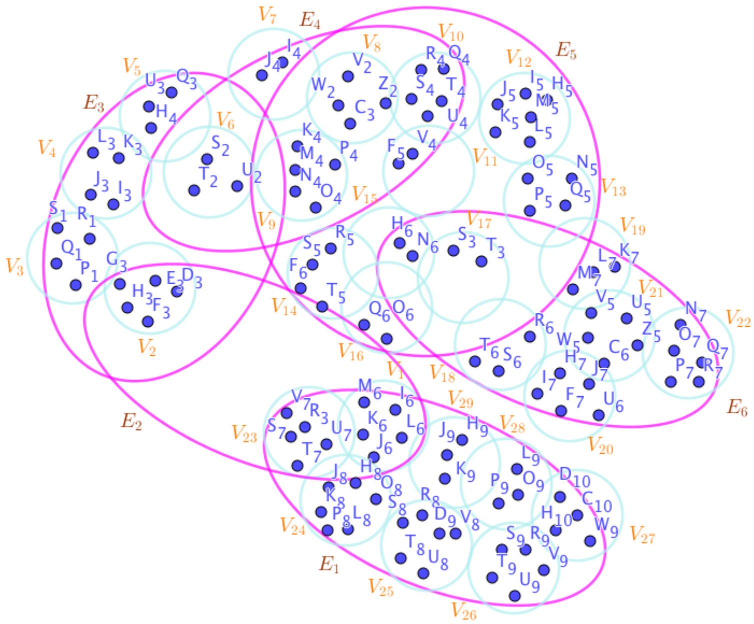


**Figure 26.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

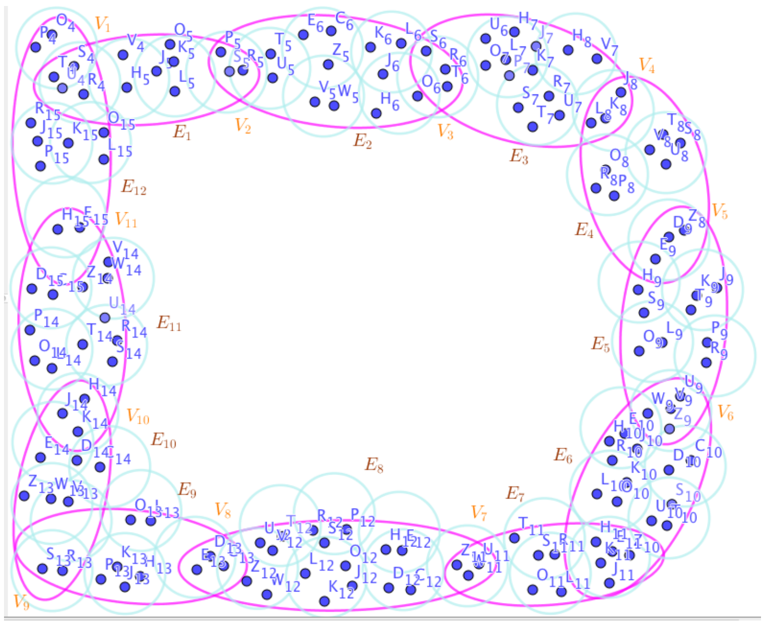


**Figure 27.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

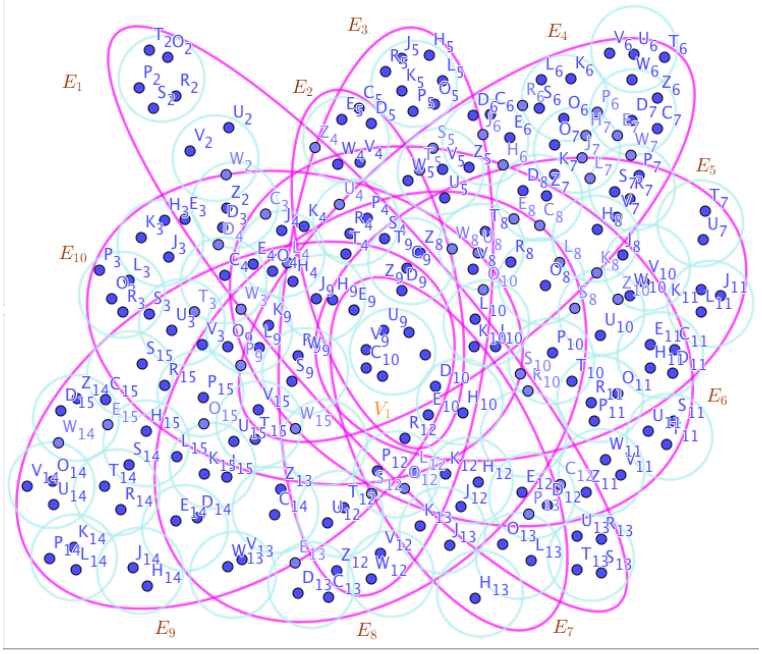


**Figure 28.** The SuperHyperGraphs Associated to the Notions of SuperHyperGirth in the Example (5.1)

**Proposition 5.2.** Assume a connected loopless neutrosophic SuperHyperGraph $ESHG : (V, E)$. Then in the worst case, literally,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_2, E_2, V_3, E_3, V_4, E_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = z^4.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_2, V_3, V_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = z^5.$$

Is an neutrosophic type-result-SuperHyperGirth. In other words, the least cardinality, the lower sharp bound for the cardinality, of an neutrosophic type-result-SuperHyperGirth is the cardinality of

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_2, E_2, V_3, E_3, V_4, E_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = z^4.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_2, V_3, V_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = z^5.$$

**Proof.** Assume a connected loopless neutrosophic SuperHyperGraph $ESHG : (V, E)$. The SuperHyperSet of the SuperHyperVertices $V \setminus V \setminus \{V_1, V_2, V_3, V_4, V_1\}$ isn't an neutrosophic quasi-type-result-SuperHyperGirth since neither neutrosophic amount of neutrosophic SuperHyperEdges nor neutrosophic amount of neutrosophic SuperHyperVertices where neutrosophic amount refers to the neutrosophic number of neutrosophic SuperHyperVertices(-/SuperHyperEdges) more than one to form any neutrosophic kind of neutrosophic consecutive consequence as the neutrosophic icon and neutrosophic generator of the neutrosophic SuperHyperCycle in the terms of the neutrosophic longest form. Let us consider the neutrosophic SuperHyperSet

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_2, E_2, V_3, E_3, V_4, E_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = z^4.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_2, V_3, V_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = z^5.$$

This neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices has the eligibilities to propose property such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth but the maximum neutrosophic cardinality indicates that these neutrosophic type-SuperHyperSets couldn't give us the neutrosophic lower bound in the term of neutrosophic sharpness. In other words, the neutrosophic SuperHyperSet

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_2, E_2, V_3, E_3, V_4, E_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = z^4.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_2, V_3, V_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = z^5.$$

Of the neutrosophic SuperHyperVertices implies at least on-quasi-triangle style is up but sometimes the neutrosophic SuperHyperSet

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_2, E_2, V_3, E_3, V_4, E_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = z^4.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_2, V_3, V_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = z^5.$$

Of the neutrosophic SuperHyperVertices is free-quasi-triangle and it doesn't make a contradiction to the supposition on the connected loopless neutrosophic SuperHyperGraph $ESHG : (V, E)$. Thus the minimum case never happens in the generality of the connected loopless neutrosophic SuperHyperGraphs. Thus if we assume in the worst case, literally,

$$V \setminus V \setminus \{V_1, V_2, V_3, V_4, V_1\}$$

Is an neutrosophic quasi-type-result-SuperHyperGirth. In other words, the least cardinality, the lower sharp bound for the neutrosophic cardinality, of an neutrosophic neutrosophic quasi-type-result-SuperHyperGirth is the cardinality of

$$V \setminus V \setminus \{V_1, V_2, V_3, V_4, V_1\}.$$

Then we've lost some connected loopless neutrosophic SuperHyperClasses of the connected loopless neutrosophic SuperHyperGraphs titled free-triangle, on-triangle, and their quasi-types but the neutrosophic quasi-type-result-SuperHyperGirth is only up in this neutrosophic quasi-type-result-SuperHyperGirth. It's the contradiction to that fact on the neutrosophic generality. There are some counterexamples to deny this statement. One of them comes from the setting of the graph titled path and star as the counterexamples-classes or reversely direction cycle as the examples-classes, are well-known classes in that setting and they could be considered as the examples-classes and counterexamples-classes for the tight bound of

$$V \setminus V \setminus \{V_1, V_2, V_3, V_4, V_1\}.$$

Let $V \setminus V \setminus \{z, z'\}$ in mind. There's no neutrosophic necessity on the neutrosophic SuperHyperEdge since we need at least three neutrosophic SuperHyperVertices to form an neutrosophic SuperHyperEdge. It doesn't withdraw the neutrosophic principles of the main neutrosophic definition since there's no neutrosophic condition to be satisfied but the neutrosophic condition is on the neutrosophic existence of the neutrosophic SuperHyperEdge instead of acting on the neutrosophic

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SuperHyperVertices. In other words, if there are three neutrosophic SuperHyperEdges, then the neutrosophic SuperHyperSet has the necessary condition for the intended neutrosophic definition to be neutrosophicly applied. Thus the $V \setminus V \setminus \{z, z'\}$ is withdrawn not by the neutrosophic conditions of the main neutrosophic definition but by the neutrosophic necessity of the neutrosophic pre-condition on the neutrosophic usage of the main neutrosophic definition.
To make sense with the precise neutrosophic words in the terms of "R-', the follow-up neutrosophic illustrations are neutrosophicly coming up.
The following neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices is the simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth.

$$V \setminus V \setminus \{a_E, b_{E'}, c_{E''}, c_{E'''}\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

The neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_{E'}, c_{E''}, c_{E'''}\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Is the simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_{E'}, c_{E''}, c_{E'''}\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Is an **neutrosophic R-SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth, instead of all given by **neutrosophic SuperHyperGirth** is related to the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_{E'}, c_{E''}, c_{E'''}\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

There are not only **four** neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth is up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only **four** neutrosophic SuperHyperVertices. But the neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_{E'}, c_{E''}, c_{E'''}\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Doesn't have less than four SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet since they've come from at least so far four neutrosophic SuperHyperEdges. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth **isn't** up. To sum them up, the neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_{E'}, c_{E''}, c_{E'''}\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

**Isn't** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperEdges[SuperHyperVertices],

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_2, E_2, V_3, E_3, V_4, E_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = z^4.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_2, V_3, V_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = z^5.$$

SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices[SuperHyperEdges] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s** **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperEdges[SuperHyperVertices] such that there's only one neutrosophic consecutive neutrosophic sequence of neutrosophic SuperHyperVertices and neutrosophic SuperHyperEdges form only one neutrosophic SuperHyperCycle. There are not only less than four neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_2, E_2, V_3, E_3, V_4, E_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = z^4.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_2, V_3, V_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = z^5.$$

Thus the non-obvious neutrosophic SuperHyperGirth,

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_2, E_2, V_3, E_3, V_4, E_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = z^4.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_2, V_3, V_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = z^5.$$

Is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, is not:

$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_2, E_2, V_3, E_3, V_4, E_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = z^4.$$
$$\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_2, V_3, V_4, V_1\}.$$
$$\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = z^5.$$

Does includes only less than four SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. It's interesting to mention that the only simple neutrosophic type-SuperHyperSet called the

**"neutrosophic SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic SuperHyperGirth**,

is only and only

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_2, E_2, V_3, E_3, V_4, E_4, V_1\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = z^4.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_2, V_3, V_4, V_1\}.\\
&\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = z^5.
\end{aligned}$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ with a illustrated SuperHyperModeling. It's also, not only an neutrosophic free-triangle embedded SuperHyperModel and an neutrosophic on-triangle embedded SuperHyperModel but also it's an neutrosophic girth embedded SuperHyperModel. But all only non-obvious simple neutrosophic type-SuperHyperSets of the neutrosophic R-SuperHyperGirth amid those obvious simple neutrosophic type-SuperHyperSets of the neutrosophic SuperHyperGirth, are

$$V \setminus V \setminus \{a_E, b_{E'}, c_{E''}, c_{E'''}\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$.
To sum them up, assume a connected loopless neutrosophic SuperHyperGraph $ESHG : (V, E)$. Then in the worst case, literally,

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_2, E_2, V_3, E_3, V_4, E_4, V_1\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = z^4.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_2, V_3, V_4, V_1\}.\\
&\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = z^5.
\end{aligned}$$

Is an neutrosophic type-result-SuperHyperGirth. In other words, the least cardinality, the lower sharp bound for the cardinality, of an neutrosophic type-result-SuperHyperGirth is the cardinality of

$$\begin{aligned}
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, E_1, V_2, E_2, V_3, E_3, V_4, E_4, V_1\}.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirthSuperHyperPolynomial} = z^4.\\
&\mathcal{C}(NSHG)_{neutrosophicQuasi-SuperHyperGirth} = \{V_1, V_2, V_3, V_4, V_1\}.\\
&\mathcal{C}(NSHG)_{neutrosophicR-Quasi-SuperHyperGirthSuperHyperPolynomial} = z^5.
\end{aligned}$$

□

**Proposition 5.3.** Assume a simple neutrosophic SuperHyperGraph $ESHG : (V, E)$. Then the neutrosophic number of type-result-R-SuperHyperGirth has, the least neutrosophic cardinality, the lower sharp neutrosophic bound for neutrosophic cardinality, is the neutrosophic cardinality of

$$V \setminus V \setminus \{a_E, b_{E'}, c_{E''}, c_{E'''}\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

If there's an neutrosophic type-result-R-SuperHyperGirth with the least neutrosophic cardinality, the lower sharp neutrosophic bound for cardinality.

**Proof.** The neutrosophic structure of the neutrosophic type-result-R-SuperHyperGirth decorates the neutrosophic SuperHyperVertices don't have received any neutrosophic connections so as this neutrosophic style implies different versions of neutrosophic SuperHyperEdges with the maximum neutrosophic cardinality in the terms of neutrosophic SuperHyperVertices are spotlight. The lower neutrosophic bound is to have the maximum neutrosophic groups of neutrosophic SuperHyperVertices have perfect neutrosophic connections inside each of SuperHyperEdges and

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the outside of this neutrosophic SuperHyperSet doesn't matter but regarding the connectedness of the used neutrosophic SuperHyperGraph arising from its neutrosophic properties taken from the fact that it's simple. If there's no more than one neutrosophic SuperHyperVertex in the targeted neutrosophic SuperHyperSet, then there's no neutrosophic connection. Furthermore, the neutrosophic existence of one neutrosophic SuperHyperVertex has no neutrosophic effect to talk about the neutrosophic R-SuperHyperGirth. Since at least two neutrosophic SuperHyperVertices involve to make a title in the neutrosophic background of the neutrosophic SuperHyperGraph. The neutrosophic SuperHyperGraph is obvious if it has no neutrosophic SuperHyperEdge but at least two neutrosophic SuperHyperVertices make the neutrosophic version of neutrosophic SuperHyperEdge. Thus in the neutrosophic setting of non-obvious neutrosophic SuperHyperGraph, there are at least one neutrosophic SuperHyperEdge. It's necessary to mention that the word "Simple" is used as neutrosophic adjective for the initial neutrosophic SuperHyperGraph, induces there's no neutrosophic appearance of the loop neutrosophic version of the neutrosophic SuperHyperEdge and this neutrosophic SuperHyperGraph is said to be loopless. The neutrosophic adjective "loop" on the basic neutrosophic framework engages one neutrosophic SuperHyperVertex but it never happens in this neutrosophic setting. With these neutrosophic bases, on an neutrosophic SuperHyperGraph, there's at least one neutrosophic SuperHyperEdge thus there's at least an neutrosophic R-SuperHyperGirth has the neutrosophic cardinality of an neutrosophic SuperHyperEdge. Thus, an neutrosophic R-SuperHyperGirth has the neutrosophic cardinality at least an neutrosophic SuperHyperEdge. Assume an neutrosophic SuperHyperSet $V \setminus V \setminus \{z\}$. This neutrosophic SuperHyperSet isn't an neutrosophic R-SuperHyperGirth since either the neutrosophic SuperHyperGraph is an obvious neutrosophic SuperHyperModel thus it never happens since there's no neutrosophic usage of this neutrosophic framework and even more there's no neutrosophic connection inside or the neutrosophic SuperHyperGraph isn't obvious and as its consequences, there's an neutrosophic contradiction with the term "neutrosophic R-SuperHyperGirth" since the maximum neutrosophic cardinality never happens for this neutrosophic style of the neutrosophic SuperHyperSet and beyond that there's no neutrosophic connection inside as mentioned in first neutrosophic case in the forms of drawback for this selected neutrosophic SuperHyperSet. Let

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots, a_{E'}, b_{E'}, c_{E'}, \ldots\}_{E,E'=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}$$

Comes up. This neutrosophic case implies having the neutrosophic style of on-quasi-triangle neutrosophic style on the every neutrosophic elements of this neutrosophic SuperHyperSet. Precisely, the neutrosophic R-SuperHyperGirth is the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices such that some neutrosophic amount of the neutrosophic SuperHyperVertices are on-quasi-triangle neutrosophic style. The neutrosophic cardinality of the v SuperHypeSet

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots, a_{E'}, b_{E'}, c_{E'}, \ldots\}_{E,E'=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}$$

Is the maximum in comparison to the neutrosophic SuperHyperSet

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

But the lower neutrosophic bound is up. Thus the minimum neutrosophic cardinality of the maximum neutrosophic cardinality ends up the neutrosophic discussion. The first neutrosophic term refers to the neutrosophic setting of the neutrosophic SuperHyperGraph but this key point is enough since there's an neutrosophic SuperHyperClass of an neutrosophic SuperHyperGraph has no on-quasi-triangle neutrosophic style amid some amount of its neutrosophic SuperHyperVertices. This neutrosophic setting of the neutrosophic SuperHyperModel proposes an neutrosophic SuperHyperSet has only some amount neutrosophic SuperHyperVertices from one neutrosophic SuperHyperEdge such that there's no neutrosophic amount of neutrosophic SuperHyperEdges more than one involving these some

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amount of these neutrosophic SuperHyperVertices. The neutrosophic cardinality of this neutrosophic SuperHyperSet is the maximum and the neutrosophic case is occurred in the minimum neutrosophic situation. To sum them up, the neutrosophic SuperHyperSet

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Has the maximum neutrosophic cardinality such that

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Contains some neutrosophic SuperHyperVertices such that there's distinct-covers-order-amount neutrosophic SuperHyperEdges for amount of neutrosophic SuperHyperVertices taken from the neutrosophic SuperHyperSet

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

It means that the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Is an neutrosophic R-SuperHyperGirth for the neutrosophic SuperHyperGraph as used neutrosophic background in the neutrosophic terms of worst neutrosophic case and the common theme of the lower neutrosophic bound occurred in the specific neutrosophic SuperHyperClasses of the neutrosophic SuperHyperGraphs which are neutrosophic free-quasi-triangle.
To make sense with the precise words in the terms of "R-', the follow-up illustrations are coming up. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices is the simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth.

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

The neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Is the simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Is an **neutrosophic R-SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's no an neutrosophic SuperHyperEdge amid some neutrosophic SuperHyperVertices instead of all given by **neutrosophic SuperHyperGirth** is related to the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

There's not only **one** neutrosophic SuperHyperVertex **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth is up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet

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**includes** only **one** neutrosophic SuperHyperVertex. But the neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

doesn't have less than two SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet since they've come from at least so far an SuperHyperEdge. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth **is** up. To sum them up, the neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$(V \setminus V \setminus \{x, z\}) \cup \{xy\}$$

or

$$(V \setminus V \setminus \{x, z\}) \cup \{zy\}$$

is an neutrosophic R-SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's no an neutrosophic SuperHyperEdge for some neutrosophic SuperHyperVertices instead of all given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it'**s** **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's no an neutrosophic SuperHyperEdge for some amount neutrosophic SuperHyperVertices instead of all given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth. There isn't only less than two neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Thus the non-obvious neutrosophic R-SuperHyperGirth,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

is up. The non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, not:

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Is the neutrosophic SuperHyperSet, not:

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

does includes only less than two SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ but it's impossible in the case, they've corresponded to an SuperHyperEdge. It's interesting to mention that the only non-obvious simple neutrosophic type-SuperHyperSet called the

**"neutrosophic R-SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic R-SuperHyperGirth**,

is only and only

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ with a illustrated SuperHyperModeling. It's also, not only an neutrosophic free-triangle embedded SuperHyperModel and an neutrosophic on-triangle embedded SuperHyperModel but also it's an neutrosophic stable embedded SuperHyperModel. But all only non-obvious simple neutrosophic type-SuperHyperSets of the neutrosophic R-SuperHyperGirth amid those obvious simple neutrosophic type-SuperHyperSets of the neutrosophic SuperHyperGirth, are

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$.
To sum them up, assume a simple neutrosophic SuperHyperGraph $ESHG : (V, E)$. Then the neutrosophic number of R-SuperHyperGirth has, the least cardinality, the lower sharp bound for cardinality, is the neutrosophic cardinality of

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

If there's a R-SuperHyperGirth with the least cardinality, the lower sharp bound for cardinality. □

**Proposition 5.4.** Assume a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. If an neutrosophic SuperHyperEdge $E \in E_{ESHG:(V,E)}$ has $z$ neutrosophic SuperHyperVertices, then the neutrosophic cardinality of the neutrosophic R-SuperHyperGirth is at least

$$V \setminus (V \setminus \{a_E, b_E, c_E, \ldots, z_E\}).$$

It's straightforward that the neutrosophic cardinality of the neutrosophic R-SuperHyperGirth is at least the maximum neutrosophic number of neutrosophic SuperHyperVertices of the neutrosophic SuperHyperEdges with the maximum number of the neutrosophic SuperHyperEdges. In other words, the maximum number of the neutrosophic SuperHyperEdges contains the maximum neutrosophic number of neutrosophic SuperHyperVertices are renamed to neutrosophic SuperHyperGirth in some cases but the maximum number of the neutrosophic SuperHyperEdge with the maximum neutrosophic number of neutrosophic SuperHyperVertices, has the neutrosophic SuperHyperVertices are contained in an neutrosophic R-SuperHyperGirth.

**Proof.** Assume an neutrosophic SuperHyperEdge $E \in E_{ESHG:(V,E)}$ has $z$ neutrosophic number of the neutrosophic SuperHyperVertices. Then every neutrosophic SuperHyperVertex has at least no neutrosophic SuperHyperEdge with others in common. Thus those neutrosophic SuperHyperVertices have the eligibles to be contained in an neutrosophic R-SuperHyperGirth. Those neutrosophic SuperHyperVertices are potentially included in an neutrosophic style-R-SuperHyperGirth. Formally, consider

$$V \setminus (V \setminus \{a_E, b_E, c_E, \ldots, z_E\}).$$

Are the neutrosophic SuperHyperVertices of an neutrosophic SuperHyperEdge $E \in E_{ESHG:(V,E)}$. Thus

$$Z_i \sim Z_j,\ i \neq j,\ i, j = 1, 2, \ldots, z.$$

where the $\sim$ isn't an equivalence relation but only the symmetric relation on the neutrosophic SuperHyperVertices of the neutrosophic SuperHyperGraph. The formal definition is as follows.

$$Z_i \sim Z_j,\ i \neq j,\ i, j = 1, 2, \ldots, z$$

if and only if $Z_i$ and $Z_j$ are the neutrosophic SuperHyperVertices and there's only and only one neutrosophic SuperHyperEdge $E \in E_{ESHG:(V,E)}$ between the neutrosophic SuperHyperVertices $Z_i$ and $Z_j$. The other definition for the neutrosophic SuperHyperEdge $E \in E_{ESHG:(V,E)}$ in the terms of neutrosophic R-SuperHyperGirth is

$$\{a_E, b_E, c_E, \ldots, z_E\}.$$

This definition coincides with the definition of the neutrosophic R-SuperHyperGirth but with slightly differences in the maximum neutrosophic cardinality amid those neutrosophic type-SuperHyperSets of the neutrosophic SuperHyperVertices. Thus the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$\max_z |\{Z_1, Z_2, \ldots, Z_z \mid Z_i \sim Z_j,\ i \neq j,\ i, j = 1, 2, \ldots, z\}|_{\text{neutrosophic cardinality}},$$

and

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E| = \max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

is formalized with mathematical literatures on the neutrosophic R-SuperHyperGirth. Let $Z_i \overset{E}{\sim} Z_j$, be defined as $Z_i$ and $Z_j$ are the neutrosophic SuperHyperVertices belong to the neutrosophic SuperHyperEdge $E \in E_{ESHG:(V,E)}$. Thus,

$$E = \{Z_1, Z_2, \ldots, Z_z \mid Z_i \overset{E}{\sim} Z_j,\ i \neq j,\ i, j = 1, 2, \ldots, z\}.$$

Or

$$\{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E| = \max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

But with the slightly differences,

$$\text{neutrosophic R-SuperHyperGirth} = \{Z_1, Z_2, \ldots, Z_z \mid \forall i \neq j,\ i, j = 1, 2, \ldots, z,\ \exists E_x,\ Z_i \overset{E_x}{\sim} Z_j, \}.$$

$$\text{neutrosophic R-SuperHyperGirth} = V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E| = \max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Thus $E \in E_{ESHG:(V,E)}$ is an neutrosophic quasi-R-SuperHyperGirth where $E \in E_{ESHG:(V,E)}$ is fixed that means $E_x = E \in E_{ESHG:(V,E)}$. for all neutrosophic intended SuperHyperVertices but in an neutrosophic SuperHyperGirth, $E_x = E \in E_{ESHG:(V,E)}$ could be different and it's not unique. To sum them up, in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. If an neutrosophic SuperHyperEdge $E \in E_{ESHG:(V,E)}$ has $z$ neutrosophic SuperHyperVertices, then the neutrosophic cardinality of the neutrosophic R-SuperHyperGirth is at least

$$V \setminus (V \setminus \{a_E, b_E, c_E, \ldots, z_E\}).$$

It's straightforward that the neutrosophic cardinality of the neutrosophic R-SuperHyperGirth is at least the maximum neutrosophic number of neutrosophic SuperHyperVertices of the neutrosophic SuperHyperEdges with the maximum number of the neutrosophic SuperHyperEdges. In other words, the maximum number of the neutrosophic SuperHyperEdges contains the maximum neutrosophic number of neutrosophic SuperHyperVertices are renamed to neutrosophic SuperHyperGirth in some cases but the maximum number of the neutrosophic SuperHyperEdge with the maximum neutrosophic number of neutrosophic SuperHyperVertices, has the neutrosophic SuperHyperVertices are contained in an neutrosophic R-SuperHyperGirth.
To make sense with the precise words in the terms of "R-', the follow-up illustrations are coming up.

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The following neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices is the simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth.

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

The neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Is the simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Is an **neutrosophic R-SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's no an neutrosophic SuperHyperEdge amid some neutrosophic SuperHyperVertices instead of all given by **neutrosophic SuperHyperGirth** is related to the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

There's not only **one** neutrosophic SuperHyperVertex **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth is up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only **one** neutrosophic SuperHyperVertex. But the neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

doesn't have less than two SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet since they've come from at least so far an SuperHyperEdge. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth **is** up. To sum them up, the neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$(V \setminus V \setminus \{x, z\}) \cup \{xy\}$$

or

$$(V \setminus V \setminus \{x, z\}) \cup \{zy\}$$

is an neutrosophic R-SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's no an neutrosophic SuperHyperEdge for some neutrosophic SuperHyperVertices instead of all given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it'**s** **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's no an neutrosophic SuperHyperEdge for some amount neutrosophic SuperHyperVertices instead of all given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth. There isn't only less than two neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Thus the non-obvious neutrosophic R-SuperHyperGirth,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

is up. The non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, not:

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Is the neutrosophic SuperHyperSet, not:

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

does includes only less than two SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ but it's impossible in the case, they've corresponded to an SuperHyperEdge. It's interesting to mention that the only non-obvious simple neutrosophic type-SuperHyperSet called the

**"neutrosophic R-SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic R-SuperHyperGirth**,

is only and only

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ with a illustrated SuperHyperModeling. It's also, not only an neutrosophic free-triangle embedded SuperHyperModel and an neutrosophic on-triangle embedded SuperHyperModel but also it's an neutrosophic stable embedded SuperHyperModel. But all only non-obvious simple neutrosophic type-SuperHyperSets of the neutrosophic R-SuperHyperGirth amid those obvious simple neutrosophic type-SuperHyperSets of the neutrosophic SuperHyperGirth, are

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$.
To sum them up, assume a connected loopless neutrosophic SuperHyperGraph $ESHG : (V, E)$. Then in the worst case, literally,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

is an neutrosophic R-SuperHyperGirth. In other words, the least cardinality, the lower sharp bound for the cardinality, of an neutrosophic R-SuperHyperGirth is the cardinality of

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

To sum them up, in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. If an neutrosophic SuperHyperEdge $E \in E_{ESHG:(V,E)}$ has $z$ neutrosophic SuperHyperVertices, then the neutrosophic cardinality of the neutrosophic R-SuperHyperGirth is at least

$$V \setminus (V \setminus \{a_E, b_E, c_E, \ldots, z_E\}).$$

It's straightforward that the neutrosophic cardinality of the neutrosophic R-SuperHyperGirth is at least the maximum neutrosophic number of neutrosophic SuperHyperVertices of the neutrosophic SuperHyperEdges with the maximum number of the neutrosophic SuperHyperEdges. In other words, the maximum number of the neutrosophic SuperHyperEdges contains the maximum neutrosophic number of neutrosophic SuperHyperVertices are renamed to neutrosophic SuperHyperGirth in some cases but the maximum number of the neutrosophic SuperHyperEdge with the maximum neutrosophic number of neutrosophic SuperHyperVertices, has the neutrosophic SuperHyperVertices are contained in an neutrosophic R-SuperHyperGirth. □

**Proposition 5.5.** Assume a connected non-obvious neutrosophic SuperHyperGraph $ESHG : (V, E)$. There's only one neutrosophic SuperHyperEdge $E \in E_{ESHG:(V,E)}$ has only the maximum possibilities of the distinct interior neutrosophic SuperHyperVertices inside of any given neutrosophic quasi-R-SuperHyperGirth minus all neutrosophic SuperHypeNeighbor to some of them but not all of them. In other words, there's only an unique neutrosophic SuperHyperEdge $E \in E_{ESHG:(V,E)}$ has only two distinct neutrosophic SuperHyperVertices in an neutrosophic quasi-R-SuperHyperGirth, minus all neutrosophic SuperHypeNeighbor to some of them but not all of them.

**Proof.** The obvious SuperHyperGraph has no neutrosophic SuperHyperEdges. But the non-obvious neutrosophic SuperHyperModel is up. The quasi-SuperHyperModel addresses some issues about the neutrosophic optimal SuperHyperObject. It specially delivers some remarks on the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices such that there's distinct amount of neutrosophic SuperHyperEdges for distinct amount of neutrosophic SuperHyperVertices up to all taken from that neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices but this neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices is either has the maximum neutrosophic SuperHyperCardinality or it doesn't have maximum neutrosophic SuperHyperCardinality. In a non-obvious SuperHyperModel, there's at least one neutrosophic SuperHyperEdge containing at least all neutrosophic SuperHyperVertices. Thus it forms an neutrosophic quasi-R-SuperHyperGirth where the neutrosophic completion of the neutrosophic incidence is up in that. Thus it's, literarily, an neutrosophic embedded R-SuperHyperGirth. The SuperHyperNotions of embedded SuperHyperSet and quasi-SuperHyperSet coincide. In the original setting, these types of SuperHyperSets only don't satisfy on the maximum SuperHyperCardinality. Thus the embedded setting is elected such that those SuperHyperSets have the maximum neutrosophic SuperHyperCardinality and they're neutrosophic SuperHyperOptimal. The less than two distinct types of neutrosophic SuperHyperVertices are included in the minimum neutrosophic style of the embedded neutrosophic R-SuperHyperGirth. The interior types of the neutrosophic SuperHyperVertices are deciders. Since the neutrosophic number of SuperHyperNeighbors are only affected by the interior neutrosophic SuperHyperVertices. The common connections, more precise and more formal, the perfect unique connections inside the neutrosophic SuperHyperSet for any distinct types of neutrosophic SuperHyperVertices pose the neutrosophic R-SuperHyperGirth. Thus neutrosophic exterior SuperHyperVertices could be used only in one neutrosophic SuperHyperEdge and in neutrosophic SuperHyperRelation with the interior neutrosophic SuperHyperVertices in that neutrosophic SuperHyperEdge. In the embedded neutrosophic SuperHyperGirth, there's the usage of exterior neutrosophic SuperHyperVertices since they've more connections inside more than outside. Thus the title "exterior" is more relevant than the title "interior". One neutrosophic SuperHyperVertex has no connection, inside. Thus, the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices with one SuperHyperElement has been

ignored in the exploring to lead on the optimal case implying the neutrosophic R-SuperHyperGirth. The neutrosophic R-SuperHyperGirth with the exclusion of the exclusion of all neutrosophic SuperHyperVertices in one neutrosophic SuperHyperEdge and with other terms, the neutrosophic R-SuperHyperGirth with the inclusion of all neutrosophic SuperHyperVertices in one neutrosophic SuperHyperEdge, is an neutrosophic quasi-R-SuperHyperGirth. To sum them up, in a connected non-obvious neutrosophic SuperHyperGraph $ESHG : (V, E)$. There's only one neutrosophic SuperHyperEdge $E \in E_{ESHG:(V,E)}$ has only the maximum possibilities of the distinct interior neutrosophic SuperHyperVertices inside of any given neutrosophic quasi-R-SuperHyperGirth minus all neutrosophic SuperHypeNeighbor to some of them but not all of them. In other words, there's only an unique neutrosophic SuperHyperEdge $E \in E_{ESHG:(V,E)}$ has only two distinct neutrosophic SuperHyperVertices in an neutrosophic quasi-R-SuperHyperGirth, minus all neutrosophic SuperHypeNeighbor to some of them but not all of them.
To make sense with the precise words in the terms of "R-', the follow-up illustrations are coming up. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices is the simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth.

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

The neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Is the simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Is an **neutrosophic R-SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's no an neutrosophic SuperHyperEdge amid some neutrosophic SuperHyperVertices instead of all given by **neutrosophic SuperHyperGirth** is related to the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

There's not only **one** neutrosophic SuperHyperVertex **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth is up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only **one** neutrosophic SuperHyperVertex. But the neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

doesn't have less than two SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet since they've come from at least so far an SuperHyperEdge. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth **is** up. To sum them up, the neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$(V \setminus V \setminus \{x, z\}) \cup \{xy\}$$

or

$$(V \setminus V \setminus \{x, z\}) \cup \{zy\}$$

is an neutrosophic R-SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's no an neutrosophic SuperHyperEdge for some neutrosophic SuperHyperVertices instead of all given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it'**s the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's no an neutrosophic SuperHyperEdge for some amount neutrosophic SuperHyperVertices instead of all given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth. There isn't only less than two neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Thus the non-obvious neutrosophic R-SuperHyperGirth,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

is up. The non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, not:

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Is the neutrosophic SuperHyperSet, not:

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

does includes only less than two SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ but it's impossible in the case, they've corresponded to an SuperHyperEdge. It's interesting to mention that the only non-obvious simple neutrosophic type-SuperHyperSet called the

**"neutrosophic R-SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic R-SuperHyperGirth**,

is only and only

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ with a illustrated SuperHyperModeling. It's also, not only an neutrosophic free-triangle embedded SuperHyperModel and an neutrosophic on-triangle embedded SuperHyperModel but also it's an neutrosophic stable embedded SuperHyperModel. But all only non-obvious simple neutrosophic type-SuperHyperSets of the

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neutrosophic R-SuperHyperGirth amid those obvious simple neutrosophic type-SuperHyperSets of the neutrosophic SuperHyperGirth, are

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$.
To sum them up, assume a connected loopless neutrosophic SuperHyperGraph $ESHG : (V, E)$. Then in the worst case, literally,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

is an neutrosophic R-SuperHyperGirth. In other words, the least cardinality, the lower sharp bound for the cardinality, of an neutrosophic R-SuperHyperGirth is the cardinality of

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

To sum them up, in a connected non-obvious neutrosophic SuperHyperGraph $ESHG : (V, E)$. There's only one neutrosophic SuperHyperEdge $E \in E_{ESHG:(V,E)}$ has only the maximum possibilities of the distinct interior neutrosophic SuperHyperVertices inside of any given neutrosophic quasi-R-SuperHyperGirth minus all neutrosophic SuperHypeNeighbor to some of them but not all of them. In other words, there's only an unique neutrosophic SuperHyperEdge $E \in E_{ESHG:(V,E)}$ has only two distinct neutrosophic SuperHyperVertices in an neutrosophic quasi-R-SuperHyperGirth, minus all neutrosophic SuperHypeNeighbor to some of them but not all of them. □

**Proposition 5.6.** Assume a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. The all interior neutrosophic SuperHyperVertices belong to any neutrosophic quasi-R-SuperHyperGirth if for any of them, and any of other corresponded neutrosophic SuperHyperVertex, some interior neutrosophic SuperHyperVertices are mutually neutrosophic SuperHyperNeighbors with no neutrosophic exception at all minus all neutrosophic SuperHypeNeighbors to any amount of them.

**Proof.** The main definition of the neutrosophic R-SuperHyperGirth has two titles. an neutrosophic quasi-R-SuperHyperGirth and its corresponded quasi-maximum neutrosophic R-SuperHyperCardinality are two titles in the terms of quasi-R-styles. For any neutrosophic number, there's an neutrosophic quasi-R-SuperHyperGirth with that quasi-maximum neutrosophic SuperHyperCardinality in the terms of the embedded neutrosophic SuperHyperGraph. If there's an embedded neutrosophic SuperHyperGraph, then the neutrosophic quasi-SuperHyperNotions lead us to take the collection of all the neutrosophic quasi-R-SuperHyperGirths for all neutrosophic numbers less than its neutrosophic corresponded maximum number. The essence of the neutrosophic SuperHyperGirth ends up but this essence starts up in the terms of the neutrosophic quasi-R-SuperHyperGirth, again and more in the operations of collecting all the neutrosophic quasi-R-SuperHyperGirths acted on the all possible used formations of the neutrosophic SuperHyperGraph to achieve one neutrosophic number. This neutrosophic number is considered as the equivalence class for all corresponded quasi-R-SuperHyperGirths. Let $z_{\text{neutrosophic Number}}$, $S_{\text{neutrosophic SuperHyperSet}}$ and $G_{\text{neutrosophic SuperHyperGirth}}$ be an neutrosophic number, an neutrosophic SuperHyperSet and an neutrosophic SuperHyperGirth. Then

$$\begin{aligned}
&[z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} = \{S_{\text{neutrosophic SuperHyperSet}} \mid \\
&S_{\text{neutrosophic SuperHyperSet}} = G_{\text{neutrosophic SuperHyperGirth}}, \\
&|S_{\text{neutrosophic SuperHyperSet}}|_{\text{neutrosophic Cardinality}} \\
&= z_{\text{neutrosophic Number}}\}.
\end{aligned}$$

As its consequences, the formal definition of the neutrosophic SuperHyperGirth is re-formalized and redefined as follows.

$$G_{\text{neutrosophic SuperHyperGirth}} \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} = \cup_{z_{\text{neutrosophic Number}}} \{S_{\text{neutrosophic SuperHyperSet}} \mid S_{\text{neutrosophic SuperHyperSet}} = G_{\text{neutrosophic SuperHyperGirth}}, |S_{\text{neutrosophic SuperHyperSet}}|_{\text{neutrosophic Cardinality}} = z_{\text{neutrosophic Number}}\}.$$

To get more precise perceptions, the follow-up expressions propose another formal technical definition for the neutrosophic SuperHyperGirth.

$$G_{\text{neutrosophic SuperHyperGirth}} = \{S \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} = \cup_{z_{\text{neutrosophic Number}}} \{S_{\text{neutrosophic SuperHyperSet}} \mid S_{\text{neutrosophic SuperHyperSet}} = G_{\text{neutrosophic SuperHyperGirth}}, |S_{\text{neutrosophic SuperHyperSet}}|_{\text{neutrosophic Cardinality}} = z_{\text{neutrosophic Number}} \mid |S_{\text{neutrosophic SuperHyperSet}}|_{\text{neutrosophic Cardinality}} = \max_{[z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}}} z_{\text{neutrosophic Number}}\}.$$

In more concise and more convenient ways, the modified definition for the neutrosophic SuperHyperGirth poses the upcoming expressions.

$$G_{\text{neutrosophic SuperHyperGirth}} = \{S \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} \mid |S_{\text{neutrosophic SuperHyperSet}}|_{\text{neutrosophic Cardinality}} = \max_{[z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}}} z_{\text{neutrosophic Number}}\}.$$

To translate the statement to this mathematical literature, the formulae will be revised.

$$G_{\text{neutrosophic SuperHyperGirth}} = \{S \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} \mid |S_{\text{neutrosophic SuperHyperSet}}|_{\text{neutrosophic Cardinality}} = \max_{[z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}}} z_{\text{neutrosophic Number}} = \max \left\{ |E| \mid E \in E_{ESHG:(V,E)} \right\}\}.$$

And then,

$$G_{\text{neutrosophic SuperHyperGirth}} = \{S \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} \mid |S_{\text{neutrosophic SuperHyperSet}}|_{\text{neutrosophic Cardinality}} = \max \left\{ |E| \mid E \in E_{ESHG:(V,E)} \right\}\}.$$

To get more visions in the closer look-up, there's an overall overlook.

$$G_{\text{neutrosophic SuperHyperGirth}} \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} = \cup_{z_{\text{neutrosophic Number}}} \{S_{\text{neutrosophic SuperHyperSet}} \mid S_{\text{neutrosophic SuperHyperSet}} = G_{\text{neutrosophic SuperHyperGirth}}, |S_{\text{neutrosophic SuperHyperSet}}|_{\text{neutrosophic Cardinality}} = \max\left\{|E| \mid E \in E_{ESHG:(V,E)}\right\}\}.$$

$$G_{\text{neutrosophic SuperHyperGirth}} = \{S \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} = \cup_{z_{\text{neutrosophic Number}}} \{S_{\text{neutrosophic SuperHyperSet}} \mid S_{\text{neutrosophic SuperHyperSet}} = G_{\text{neutrosophic SuperHyperGirth}}, |S_{\text{neutrosophic SuperHyperSet}}|_{\text{neutrosophic Cardinality}} = z_{\text{neutrosophic Number}} \mid |S_{\text{neutrosophic SuperHyperSet}}|_{\text{neutrosophic Cardinality}} = \max\left\{|E| \mid E \in E_{ESHG:(V,E)}\right\}\}.$$

$$G_{\text{neutrosophic SuperHyperGirth}} = \{S \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} \mid |S_{\text{neutrosophic SuperHyperSet}}|_{\text{neutrosophic Cardinality}} = \max_{[z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}}} z_{\text{neutrosophic Number}} = \max\left\{|E| \mid E \in E_{ESHG:(V,E)}\right\}\}.$$

$$G_{\text{neutrosophic SuperHyperGirth}} = \{S \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} \mid |S_{\text{neutrosophic SuperHyperSet}}|_{\text{neutrosophic Cardinality}} = \max\left\{|E| \mid E \in E_{ESHG:(V,E)}\right\}\}.$$

Now, the extension of these types of approaches is up. Since the new term, "neutrosophic SuperHyperNeighborhood", could be redefined as the collection of the neutrosophic SuperHyperVertices such that any amount of its neutrosophic SuperHyperVertices are incident to an neutrosophic SuperHyperEdge. It's, literarily, another name for "neutrosophic Quasi-SuperHyperGirth" but, precisely, it's the generalization of "neutrosophic Quasi-SuperHyperGirth" since "neutrosophic Quasi-SuperHyperGirth" happens "neutrosophic SuperHyperGirth" in an neutrosophic SuperHyperGraph as initial framework and background but "neutrosophic SuperHyperNeighborhood" may not happens "neutrosophic SuperHyperGirth" in an neutrosophic SuperHyperGraph as initial framework and preliminarily background since there are some ambiguities about the neutrosophic SuperHyperCardinality arise from it. To get orderly keywords, the terms, "neutrosophic SuperHyperNeighborhood", "neutrosophic Quasi-SuperHyperGirth", and "neutrosophic SuperHyperGirth" are up.

Thus, let $z_{\text{neutrosophic Number}}, N_{\text{neutrosophic SuperHyperNeighborhood}}$ and $G_{\text{neutrosophic SuperHyperGirth}}$ be

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an neutrosophic number, an neutrosophic SuperHyperNeighborhood and an neutrosophic SuperHyperGirth and the new terms are up.

$$G_{\text{neutrosophic SuperHyperGirth}} \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} = \cup_{z_{\text{neutrosophic Number}}} \{N_{\text{neutrosophic SuperHyperNeighborhood}} \mid |N_{\text{neutrosophic SuperHyperNeighborhood}}|_{\text{neutrosophic Cardinality}} = \max_{[z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}}} z_{\text{neutrosophic Number}}\}.$$

$$G_{\text{neutrosophic SuperHyperGirth}} = \{N_{\text{neutrosophic SuperHyperNeighborhood}} \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} = \cup_{z_{\text{neutrosophic Number}}} \{N_{\text{neutrosophic SuperHyperNeighborhood}} \mid |N_{\text{neutrosophic SuperHyperSet}}|_{\text{neutrosophic Cardinality}} = z_{\text{neutrosophic Number}} \mid |N_{\text{neutrosophic SuperHyperNeighborhood}}|_{\text{neutrosophic Cardinality}} = \max_{[z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}}} z_{\text{neutrosophic Number}}\}.$$

$$G_{\text{neutrosophic SuperHyperGirth}} = \{N_{\text{neutrosophic SuperHyperNeighborhood}} \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} \mid |N_{\text{neutrosophic SuperHyperNeighborhood}}|_{\text{neutrosophic Cardinality}} = \max_{[z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}}} z_{\text{neutrosophic Number}}\}.$$

$$G_{\text{neutrosophic SuperHyperGirth}} = \{N_{\text{neutrosophic SuperHyperNeighborhood}} \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} \mid |N_{\text{neutrosophic SuperHyperSet}}|_{\text{neutrosophic Cardinality}} = \max_{[z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}}} z_{\text{neutrosophic Number}}\}.$$

And with go back to initial structure,

$$G_{\text{neutrosophic SuperHyperGirth}} \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} = \cup_{z_{\text{neutrosophic Number}}} \{N_{\text{neutrosophic SuperHyperNeighborhood}} \mid |N_{\text{neutrosophic SuperHyperNeighborhood}}|_{\text{neutrosophic Cardinality}} = \max \left\{ |E| \mid E \in E_{ESHG:(V,E)} \right\}\}.$$

$$G_{\text{neutrosophic SuperHyperGirth}} = \{N_{\text{neutrosophic SuperHyperNeighborhood}} \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} = \cup_{z_{\text{neutrosophic Number}}} \{N_{\text{neutrosophic SuperHyperNeighborhood}} \mid |N_{\text{neutrosophic SuperHyperSet}}|_{\text{neutrosophic Cardinality}} = z_{\text{neutrosophic Number}} \mid |N_{\text{neutrosophic SuperHyperNeighborhood}}|_{\text{neutrosophic Cardinality}} = \max \left\{ |E| \mid E \in E_{ESHG:(V,E)} \right\}\}.$$

$$G_{\text{neutrosophic SuperHyperGirth}} = \{N_{\text{neutrosophic SuperHyperNeighborhood}} \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} \mid |N_{\text{neutrosophic SuperHyperNeighborhood}}|_{\text{neutrosophic Cardinality}} = \max_{[z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}}} z_{\text{neutrosophic Number}} = \max\left\{|E| \mid E \in E_{ESHG:(V,E)}\right\}\}.$$

$$G_{\text{neutrosophic SuperHyperGirth}} = \{N_{\text{neutrosophic SuperHyperNeighborhood}} \in \cup_{z_{\text{neutrosophic Number}}} [z_{\text{neutrosophic Number}}]_{\text{neutrosophic Class}} \mid |N_{\text{neutrosophic SuperHyperSet}}|_{\text{neutrosophic Cardinality}} = \max\left\{|E| \mid E \in E_{ESHG:(V,E)}\right\}\}.$$

Thus, in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. The all interior neutrosophic SuperHyperVertices belong to any neutrosophic quasi-R-SuperHyperGirth if for any of them, and any of other corresponded neutrosophic SuperHyperVertex, some interior neutrosophic SuperHyperVertices are mutually neutrosophic SuperHyperNeighbors with no neutrosophic exception at all minus all neutrosophic SuperHypeNeighbors to any amount of them.
To make sense with the precise words in the terms of "R-', the follow-up illustrations are coming up. The following neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices is the simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth.

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\left\{E \in E_{ESHG:(V,E)} \mid |E|=\max\left\{|E| \mid E \in E_{ESHG:(V,E)}\right\}\right\}}.$$

The neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\left\{E \in E_{ESHG:(V,E)} \mid |E|=\max\left\{|E| \mid E \in E_{ESHG:(V,E)}\right\}\right\}}.$$

Is the simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\left\{E \in E_{ESHG:(V,E)} \mid |E|=\max\left\{|E| \mid E \in E_{ESHG:(V,E)}\right\}\right\}}.$$

Is an **neutrosophic R-SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's no an neutrosophic SuperHyperEdge amid some neutrosophic SuperHyperVertices instead of all given by **neutrosophic SuperHyperGirth** is related to the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\left\{E \in E_{ESHG:(V,E)} \mid |E|=\max\left\{|E| \mid E \in E_{ESHG:(V,E)}\right\}\right\}}.$$

There's not only **one** neutrosophic SuperHyperVertex **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth is up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only **one** neutrosophic SuperHyperVertex. But the neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\left\{E \in E_{ESHG:(V,E)} \mid |E|=\max\left\{|E| \mid E \in E_{ESHG:(V,E)}\right\}\right\}}.$$

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doesn't have less than two SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet since they've come from at least so far an SuperHyperEdge. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth **is** up. To sum them up, the neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$(V \setminus V \setminus \{x, z\}) \cup \{xy\}$$

or

$$(V \setminus V \setminus \{x, z\}) \cup \{zy\}$$

is an neutrosophic R-SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's no an neutrosophic SuperHyperEdge for some neutrosophic SuperHyperVertices instead of all given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s** **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's no an neutrosophic SuperHyperEdge for some amount neutrosophic SuperHyperVertices instead of all given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth. There isn't only less than two neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Thus the non-obvious neutrosophic R-SuperHyperGirth,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

is up. The non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, not:

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Is the neutrosophic SuperHyperSet, not:

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

does includes only less than two SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ but it's impossible in the case, they've corresponded to an SuperHyperEdge. It's interesting to mention that the only non-obvious simple neutrosophic type-SuperHyperSet called the

**"neutrosophic R-SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic R-SuperHyperGirth**,

is only and only

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ with a illustrated SuperHyperModeling. It's also, not only an neutrosophic free-triangle embedded SuperHyperModel and an neutrosophic on-triangle embedded SuperHyperModel but also it's an neutrosophic stable embedded SuperHyperModel. But all only non-obvious simple neutrosophic type-SuperHyperSets of the neutrosophic R-SuperHyperGirth amid those obvious simple neutrosophic type-SuperHyperSets of the neutrosophic SuperHyperGirth, are

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

In a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$.
To sum them up, assume a connected loopless neutrosophic SuperHyperGraph $ESHG : (V, E)$. Then in the worst case, literally,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

is an neutrosophic R-SuperHyperGirth. In other words, the least cardinality, the lower sharp bound for the cardinality, of an neutrosophic R-SuperHyperGirth is the cardinality of

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

To sum them up, in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. The all interior neutrosophic SuperHyperVertices belong to any neutrosophic quasi-R-SuperHyperGirth if for any of them, and any of other corresponded neutrosophic SuperHyperVertex, some interior neutrosophic SuperHyperVertices are mutually neutrosophic SuperHyperNeighbors with no neutrosophic exception at all minus all neutrosophic SuperHypeNeighbors to any amount of them. □

**Proposition 5.7.** Assume a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. Any neutrosophic R-SuperHyperGirth only contains all interior neutrosophic SuperHyperVertices and all exterior neutrosophic SuperHyperVertices from the unique neutrosophic SuperHyperEdge where there's any of them has all possible neutrosophic SuperHyperNeighbors in and there's all neutrosophic SuperHyperNeighborhoods in with no exception minus all neutrosophic SuperHypeNeighbors to some of them not all of them but everything is possible about neutrosophic SuperHyperNeighborhoods and neutrosophic SuperHyperNeighbors out.

**Proof.** Assume a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. Let an neutrosophic SuperHyperEdge $ESHE : E \in E_{ESHG:(V,E)}$ has some neutrosophic SuperHyperVertices $r$. Consider all neutrosophic numbers of those neutrosophic SuperHyperVertices from that neutrosophic SuperHyperEdge excluding excluding more than $r$ distinct neutrosophic SuperHyperVertices, exclude to any given neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices. Consider there's an neutrosophic R-SuperHyperGirth with the least cardinality, the lower sharp neutrosophic bound for neutrosophic cardinality. Assume a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices $V_{ESHE} \setminus \{z\}$ is an neutrosophic SuperHyperSet $S$ of the neutrosophic SuperHyperVertices such that there's an neutrosophic SuperHyperEdge to have some neutrosophic SuperHyperVertices uniquely but it isn't an neutrosophic R-SuperHyperGirth. Since it doesn't have **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's an neutrosophic SuperHyperEdge to have some SuperHyperVertices uniquely. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices $V_{ESHE} \cup \{z\}$ is the maximum neutrosophic cardinality of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices but it isn't an neutrosophic R-SuperHyperGirth. Since it **doesn't do** the neutrosophic procedure such that such that there's an neutrosophic SuperHyperEdge to have some neutrosophic SuperHyperVertices uniquely

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[there are at least one neutrosophic SuperHyperVertex outside implying there's, sometimes in the connected neutrosophic SuperHyperGraph $ESHG : (V, E)$, an neutrosophic SuperHyperVertex, titled its neutrosophic SuperHyperNeighbor, to that neutrosophic SuperHyperVertex in the neutrosophic SuperHyperSet $S$ so as $S$ doesn't do "the neutrosophic procedure".]. There's only **one** neutrosophic SuperHyperVertex **outside** the intended neutrosophic SuperHyperSet, $V_{ESHE} \cup \{z\}$, in the terms of neutrosophic SuperHyperNeighborhood. Thus the obvious neutrosophic R-SuperHyperGirth, $V_{ESHE}$ is up. The obvious simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth, $V_{ESHE}$, **is** an neutrosophic SuperHyperSet, $V_{ESHE}$, **includes** only **all** neutrosophic SuperHyperVertices does forms any kind of neutrosophic pairs are titled neutrosophic SuperHyperNeighbors in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices $V_{ESHE}$, is the **maximum neutrosophic SuperHyperCardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices **such that** there's an neutrosophic SuperHyperEdge to have some neutrosophic SuperHyperVertices uniquely. Thus, in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$. Any neutrosophic R-SuperHyperGirth only contains all interior neutrosophic SuperHyperVertices and all exterior neutrosophic SuperHyperVertices from the unique neutrosophic SuperHyperEdge where there's any of them has all possible neutrosophic SuperHyperNeighbors in and there's all neutrosophic SuperHyperNeighborhoods in with no exception minus all neutrosophic SuperHypeNeighbors to some of them not all of them but everything is possible about neutrosophic SuperHyperNeighborhoods and neutrosophic SuperHyperNeighbors out.
To make sense with the precise words in the terms of "R-', the follow-up illustrations are coming up.
The following neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices is the simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth.

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

The neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Is the simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth. The neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Is an **neutrosophic R-SuperHyperGirth** $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is an neutrosophic type-SuperHyperSet with **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's no an neutrosophic SuperHyperEdge amid some neutrosophic SuperHyperVertices instead of all given by **neutrosophic SuperHyperGirth** is related to the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

There's not only **one** neutrosophic SuperHyperVertex **inside** the intended neutrosophic SuperHyperSet. Thus the non-obvious neutrosophic SuperHyperGirth is up. The obvious simple neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth is an neutrosophic SuperHyperSet **includes** only **one** neutrosophic SuperHyperVertex. But the neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

doesn't have less than two SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet since they've come from at least so far an SuperHyperEdge. Thus the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth **is** up. To sum them up, the neutrosophic SuperHyperSet of neutrosophic SuperHyperVertices,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

**Is** the non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic R-SuperHyperGirth. Since the neutrosophic SuperHyperSet of the neutrosophic SuperHyperVertices,

$$(V \setminus V \setminus \{x, z\}) \cup \{xy\}$$

or

$$(V \setminus V \setminus \{x, z\}) \cup \{zy\}$$

is an neutrosophic R-SuperHyperGirth $\mathcal{C}(ESHG)$ for an neutrosophic SuperHyperGraph $ESHG : (V, E)$ is the neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's no an neutrosophic SuperHyperEdge for some neutrosophic SuperHyperVertices instead of all given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth **and** it's an neutrosophic **SuperHyperGirth**. Since it**'s** **the maximum neutrosophic cardinality** of an neutrosophic SuperHyperSet $S$ of neutrosophic SuperHyperVertices such that there's no an neutrosophic SuperHyperEdge for some amount neutrosophic SuperHyperVertices instead of all given by that neutrosophic type-SuperHyperSet called the neutrosophic SuperHyperGirth. There isn't only less than two neutrosophic SuperHyperVertices **inside** the intended neutrosophic SuperHyperSet,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Thus the non-obvious neutrosophic R-SuperHyperGirth,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

is up. The non-obvious simple neutrosophic type-SuperHyperSet of the neutrosophic SuperHyperGirth, not:

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

Is the neutrosophic SuperHyperSet, not:

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

does includes only less than two SuperHyperVertices in a connected neutrosophic SuperHyperGraph $ESHG : (V, E)$ but it's impossible in the case, they've corresponded to an SuperHyperEdge. It's interesting to mention that the only non-obvious simple neutrosophic type-SuperHyperSet called the

**"neutrosophic R-SuperHyperGirth"**

amid those obvious[non-obvious] simple neutrosophic type-SuperHyperSets called the

**neutrosophic R-SuperHyperGirth**,

is only and only

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

In a connected neutrosophic SuperHyperGraph $ESHG:(V,E)$ with a illustrated SuperHyperModeling. It's also, not only an neutrosophic free-triangle embedded SuperHyperModel and an neutrosophic on-triangle embedded SuperHyperModel but also it's an neutrosophic stable embedded SuperHyperModel. But all only non-obvious simple neutrosophic type-SuperHyperSets of the neutrosophic R-SuperHyperGirth amid those obvious simple neutrosophic type-SuperHyperSets of the neutrosophic SuperHyperGirth, are

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

In a connected neutrosophic SuperHyperGraph $ESHG:(V,E)$.
To sum them up, assume a connected loopless neutrosophic SuperHyperGraph $ESHG:(V,E)$. Then in the worst case, literally,

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

is an neutrosophic R-SuperHyperGirth. In other words, the least cardinality, the lower sharp bound for the cardinality, of an neutrosophic R-SuperHyperGirth is the cardinality of

$$V \setminus V \setminus \{a_E, b_E, c_E, \ldots\}_{E=\{E \in E_{ESHG:(V,E)} \mid |E|=\max\{|E| \mid E \in E_{ESHG:(V,E)}\}\}}.$$

To sum them up, assume a connected neutrosophic SuperHyperGraph $ESHG:(V,E)$. Any neutrosophic R-SuperHyperGirth only contains all interior neutrosophic SuperHyperVertices and all exterior neutrosophic SuperHyperVertices from the unique neutrosophic SuperHyperEdge where there's any of them has all possible neutrosophic SuperHyperNeighbors in and there's all neutrosophic SuperHyperNeighborhoods in with no exception minus all neutrosophic SuperHypeNeighbors to some of them not all of them but everything is possible about neutrosophic SuperHyperNeighborhoods and neutrosophic SuperHyperNeighbors out. □

**Remark 5.8.** The words " neutrosophic SuperHyperGirth" and "neutrosophic SuperHyperDominating" both refer to the maximum neutrosophic type-style. In other words, they refer to the maximum neutrosophic SuperHyperNumber and the neutrosophic SuperHyperSet with the maximum neutrosophic SuperHyperCardinality.

**Proposition 5.9.** Assume a connected neutrosophic SuperHyperGraph $ESHG:(V,E)$. Consider an neutrosophic SuperHyperDominating. Then an neutrosophic SuperHyperGirth has the members poses only one neutrosophic representative in an neutrosophic quasi-SuperHyperDominating.

**Proof.** Assume a connected neutrosophic SuperHyperGraph $ESHG:(V,E)$. Consider an neutrosophic SuperHyperDominating. By applying the Proposition (5.7), the neutrosophic results are up. Thus on a connected neutrosophic SuperHyperGraph $ESHG:(V,E)$. Consider an neutrosophic SuperHyperDominating. Then an neutrosophic SuperHyperGirth has the members poses only one neutrosophic representative in an neutrosophic quasi-SuperHyperDominating. □

## References


1. Henry Garrett, "*Properties of SuperHyperGraph and Neutrosophic SuperHyperGraph*", Neutrosophic Sets and Systems 49 (2022) 531-561 (doi: 10.5281/zenodo.6456413). (http://fs.unm.edu/NSS/NeutrosophicSuperHyperGraph34.pdf). (https://digitalrepository.unm.edu/nss_journal/vol49/iss1/34).
2. Henry Garrett, "*Neutrosophic Co-degree and Neutrosophic Degree alongside Chromatic Numbers in the Setting of Some Classes Related to Neutrosophic Hypergraphs*", J Curr Trends Comp Sci Res 1(1) (2022) 06-14.

3. Henry Garrett, "*Super Hyper Dominating and Super Hyper Resolving on Neutrosophic Super Hyper Graphs and Their Directions in Game Theory and Neutrosophic Super Hyper Classes*", J Math Techniques Comput Math 1(3) (2022) 242-263.
4. Garrett, Henry. "*0039 | Closing Numbers and Super-Closing Numbers as (Dual)Resolving and (Dual)Coloring alongside (Dual)Dominating in (Neutrosophic)n-SuperHyperGraph.*" CERN European Organization for Nuclear Research - Zenodo, Nov. 2022. CERN European Organization for Nuclear Research, https://doi.org/10.5281/zenodo.6319942. https://oa.mg/work/10.5281/zenodo.6319942
5. Garrett, Henry. "*0049 | (Failed)1-Zero-Forcing Number in Neutrosophic Graphs.*" CERN European Organization for Nuclear Research - Zenodo, Feb. 2022. CERN European Organization for Nuclear Research, https://doi.org/10.13140/rg.2.2.35241.26724. https://oa.mg/work/10.13140/rg.2.2.35241.26724
6. Henry Garrett, "*Extreme SuperHyperClique as the Firm Scheme of Confrontation under Cancer's Recognition as the Model in The Setting of (Neutrosophic) SuperHyperGraphs*", Preprints 2023, 2023010308 (doi: 10.20944/preprints202301.0308.v1).
7. Henry Garrett, "*Uncertainty On The Act And Effect Of Cancer Alongside The Foggy Positions Of Cells Toward Neutrosophic Failed SuperHyperClique inside Neutrosophic SuperHyperGraphs Titled Cancer's Recognition*", Preprints 2023, 2023010282 (doi: 10.20944/preprints202301.0282.v1).
8. Henry Garrett, "*Neutrosophic Version Of Separates Groups Of Cells In Cancer's Recognition On Neutrosophic SuperHyperGraphs*", Preprints 2023, 2023010267 (doi: 10.20944/preprints202301.0267.v1).
9. Henry Garrett, "*The Shift Paradigm To Classify Separately The Cells and Affected Cells Toward The Totality Under Cancer's Recognition By New Multiple Definitions On the Sets Polynomials Alongside Numbers In The (Neutrosophic) SuperHyperMatching Theory Based on SuperHyperGraph and Neutrosophic SuperHyperGraph*", Preprints 2023, 2023010265 (doi: 10.20944/preprints202301.0265.v1).
10. Henry Garrett, "*Breaking the Continuity and Uniformity of Cancer In The Worst Case of Full Connections With Extreme Failed SuperHyperClique In Cancer's Recognition Applied in (Neutrosophic) SuperHyperGraphs*", Preprints 2023, 2023010262,(doi: 10.20944/preprints202301.0262.v1).
11. Henry Garrett, "*Neutrosophic Failed SuperHyperStable as the Survivors on the Cancer's Neutrosophic Recognition Based on Uncertainty to All Modes in Neutrosophic SuperHyperGraphs*", Preprints 2023, 2023010240 (doi: 10.20944/preprints202301.0240.v1).
12. Henry Garrett, "*Extremism of the Attacked Body Under the Cancer's Circumstances Where Cancer's Recognition Titled (Neutrosophic) SuperHyperGraphs*", Preprints 2023, 2023010224, (doi: 10.20944/preprints202301.0224.v1).
13. Henry Garrett, "*(Neutrosophic) 1-Failed SuperHyperForcing in Cancer's Recognitions And (Neutrosophic) SuperHyperGraphs*", Preprints 2023, 2023010105 (doi: 10.20944/preprints202301.0105.v1).
14. Henry Garrett, "*Neutrosophic Messy-Style SuperHyperGraphs To Form Neutrosophic SuperHyperStable To Act on Cancer's Neutrosophic Recognitions In Special ViewPoints*", Preprints 2023, 2023010088 (doi: 10.20944/preprints202301.0088.v1).
15. Henry Garrett, "*Neutrosophic 1-Failed SuperHyperForcing in the SuperHyperFunction To Use Neutrosophic SuperHyperGraphs on Cancer's Neutrosophic Recognition And Beyond*", Preprints 2023, 2023010044
16. Henry Garrett, "*(Neutrosophic) SuperHyperStable on Cancer's Recognition by Well- SuperHyperModelled (Neutrosophic) SuperHyperGraphs*", Preprints 2023, 2023010043 (doi: 10.20944/preprints202301.0043.v1).
17. Henry Garrett, "*Basic Notions on (Neutrosophic) SuperHyperForcing And (Neutrosophic) SuperHyperModeling in Cancer's Recognitions And (Neutrosophic) SuperHyperGraphs*", Preprints 2023, 2023010105 (doi: 10.20944/preprints202301.0105.v1).
18. Henry Garrett, "*Neutrosophic Messy-Style SuperHyperGraphs To Form Neutrosophic SuperHyperStable To Act on Cancer's Neutrosophic Recognitions In Special ViewPoints*", Preprints 2023, 2023010088 (doi: 10.20944/preprints202301.0088.v1).
19. Henry Garrett, "*(Neutrosophic) SuperHyperModeling of Cancer's Recognitions Featuring (Neutrosophic) SuperHyperDefensive SuperHyperAlliances*", Preprints 2022, 2022120549 (doi: 10.20944/preprints202212.0549.v1).
20. Henry Garrett, "*(Neutrosophic) SuperHyperAlliances With SuperHyperDefensive and SuperHyperOffensive Type-SuperHyperSet On (Neutrosophic) SuperHyperGraph With (Neutrosophic) SuperHyperModeling of Cancer's Recognitions And Related (Neutrosophic) SuperHyperClasses*", Preprints 2022, 2022120540 (doi: 10.20944/preprints202212.0540.v1).

21. Henry Garrett, *"SuperHyperGirth on SuperHyperGraph and Neutrosophic SuperHyperGraph With SuperHyperModeling of Cancer's Recognitions"*, Preprints 2022, 2022120500 (doi: 10.20944/preprints202212.0500.v1).
22. Henry Garrett, *"Some SuperHyperDegrees and Co-SuperHyperDegrees on Neutrosophic SuperHyperGraphs and SuperHyperGraphs Alongside Applications in Cancer's Treatments"*, Preprints 2022, 2022120324 (doi: 10.20944/preprints202212.0324.v1).
23. Henry Garrett, *"SuperHyperDominating and SuperHyperResolving on Neutrosophic SuperHyperGraphs And Their Directions in Game Theory and Neutrosophic SuperHyperClasses"*, Preprints 2022, 2022110576 (doi: 10.20944/preprints202211.0576.v1).
24. Henry Garrett,*"SuperHyperMatching By (R-)Definitions And Polynomials To Monitor Cancer's Recognition In Neutrosophic SuperHyperGraphs"*, ResearchGate 2023,(doi: 10.13140/RG.2.2.35061.65767).
25. Henry Garrett,*"The Focus on The Partitions Obtained By Parallel Moves In The Cancer's Extreme Recognition With Different Types of Extreme SuperHyperMatching Set and Polynomial on (Neutrosophic) SuperHyperGraphs"*, ResearchGate 2023, (doi: 10.13140/RG.2.2.18494.15680).
26. Henry Garrett,*"Extreme Failed SuperHyperClique Decides the Failures on the Cancer's Recognition in the Perfect Connections of Cancer's Attacks By SuperHyperModels Named (Neutrosophic) SuperHyperGraphs"*, ResearchGate 2023, (doi: 10.13140/RG.2.2.32530.73922).
27. Henry Garrett,*"Indeterminacy On The All Possible Connections of Cells In Front of Cancer's Attacks In The Terms of Neutrosophic Failed SuperHyperClique on Cancer's Recognition called Neutrosophic SuperHyperGraphs"*, ResearchGate 2023, (doi: 10.13140/RG.2.2.15897.70243).
28. Henry Garrett,*"Perfect Directions Toward Idealism in Cancer's Neutrosophic Recognition Forwarding Neutrosophic SuperHyperClique on Neutrosophic SuperHyperGraphs"*, ResearchGate 2023, (doi: 10.13140/RG.2.2.30092.80004).
29. Henry Garrett,*"Demonstrating Complete Connections in Every Embedded Regions and Sub-Regions in the Terms of Cancer's Recognition and (Neutrosophic) SuperHyperGraphs With (Neutrosophic) SuperHyperClique"*, ResearchGate 2023, (doi: 10.13140/RG.2.2.23172.19849).
30. Henry Garrett,*"Different Neutrosophic Types of Neutrosophic Regions titled neutrosophic Failed SuperHyperStable in Cancer's Neutrosophic Recognition modeled in the Form of Neutrosophic SuperHyperGraphs"*, ResearchGate 2023, (doi: 10.13140/RG.2.2.17385.36968).
31. Henry Garrett, *"Using the Tool As (Neutrosophic) Failed SuperHyperStable To SuperHyperModel Cancer's Recognition Titled (Neutrosophic) SuperHyperGraphs"*, ResearchGate 2023, (doi: 10.13140/RG.2.2.28945.92007).
32. Henry Garrett, *"Neutrosophic Messy-Style SuperHyperGraphs To Form Neutrosophic SuperHyperStable To Act on Cancer's Neutrosophic Recognitions In Special ViewPoints"*, ResearchGate 2023, (doi: 10.13140/RG.2.2.11447.80803).
33. Henry Garrett, *"(Neutrosophic) SuperHyperStable on Cancer's Recognition by Well-SuperHyperModelled (Neutrosophic) SuperHyperGraphs"*, ResearchGate 2023, (doi: 10.13140/RG.2.2.35774.77123).
34. Henry Garrett, *"Neutrosophic 1-Failed SuperHyperForcing in the SuperHyperFunction To Use Neutrosophic SuperHyperGraphs on Cancer's Neutrosophic Recognition And Beyond"*, ResearchGate 2022, (doi: 10.13140/RG.2.2.36141.77287).
35. Henry Garrett, *"(Neutrosophic) 1-Failed SuperHyperForcing in Cancer's Recognitions And (Neutrosophic) SuperHyperGraphs"*, ResearchGate 2022, (doi: 10.13140/RG.2.2.29430.88642).
36. Henry Garrett, *"Basic Notions on (Neutrosophic) SuperHyperForcing And (Neutrosophic) SuperHyperModeling in Cancer's Recognitions And (Neutrosophic) SuperHyperGraphs"*, ResearchGate 2022, (doi: 10.13140/RG.2.2.11369.16487).
37. Henry Garrett, *"Basic Neutrosophic Notions Concerning SuperHyperDominating and Neutrosophic SuperHyperResolving in SuperHyperGraph"*, ResearchGate 2022 (doi: 10.13140/RG.2.2.29173.86244).
38. Henry Garrett, *"Initial Material of Neutrosophic Preliminaries to Study Some Neutrosophic Notions Based on Neutrosophic SuperHyperEdge (NSHE) in Neutrosophic SuperHyperGraph (NSHG)"*, ResearchGate 2022 (doi: 10.13140/RG.2.2.25385.88160).
39. Henry Garrett, (2022). *"Beyond Neutrosophic Graphs"*, Ohio: E-publishing: Educational Publisher 1091 West 1st Ave Grandview Heights, Ohio 43212 United States. ISBN: 979-1-59973-725-6 (http://fs.unm.edu/BeyondNeutrosophicGraphs.pdf).

40. Henry Garrett, (2022). "*Neutrosophic Duality*", Florida: GLOBAL KNOWLEDGE - Publishing House 848 Brickell Ave Ste 950 Miami, Florida 33131 United States. ISBN: 978-1-59973-743-0 (http://fs.unm.edu/NeutrosophicDuality.pdf).
41. F. Smarandache, "*Extension of HyperGraph to n-SuperHyperGraph and to Plithogenic n-SuperHyperGraph, and Extension of HyperAlgebra to n-ary (Classical-/Neutro-/Anti-) HyperAlgebra*", Neutrosophic Sets and Systems 33 (2020) 290-296. (doi: 10.5281/zenodo.3783103).
42. M. Akram et al., "*Single-valued neutrosophic Hypergraphs*", TWMS J. App. Eng. Math. 8 (1) (2018) 122-135.
43. S. Broumi et al., "*Single-valued neutrosophic graphs*", Journal of New Theory 10 (2016) 86-101.
44. H. Wang et al., "*Single-valued neutrosophic sets*", Multispace and Multistructure 4 (2010) 410-413.
45. H.T. Nguyen and E.A. Walker, "*A First course in fuzzy logic*", CRC Press, 2006.
46. M. Akram, and G. Shahzadi, "*Operations on Single-Valued Neutrosophic Graphs*", Journal of uncertain systems 11 (1) (2017) 1-26.
47. G. Argiroffo et al., "*Polyhedra associated with locating-dominating, open locating-dominating and locating total-dominating sets in graphs*", Discrete Applied Mathematics (2022). (https://doi.org/10.1016/j.dam.2022.06.025.)
48. L. Aronshtam, and H. Ilani, "*Bounds on the average and minimum attendance in preference-based activity scheduling*", Discrete Applied Mathematics 306 (2022) 114-119. (https://doi.org/10.1016/j.dam.2021.09.024.)
49. J. Asplund et al., "*A Vizing-type result for semi-total domination*", Discrete Applied Mathematics 258 (2019) 8-12. (https://doi.org/10.1016/j.dam.2018.11.023.)
50. K. Atanassov, "*Intuitionistic fuzzy sets*", Fuzzy Sets Syst. 20 (1986) 87-96.
51. R.A. Beeler et al., "*Total domination cover rubbling*", Discrete Applied Mathematics 283 (2020) 133-141. (https://doi.org/10.1016/j.dam.2019.12.020.)
52. S. Bermudo et al., "*On the global total k-domination number of graphs*", Discrete Applied Mathematics 263 (2019) 42-50. (https://doi.org/10.1016/j.dam.2018.05.025.)
53. M. Bold, and M. Goerigk, "*Investigating the recoverable robust single machine scheduling problem under interval uncertainty*", Discrete Applied Mathematics 313 (2022) 99-114. (https://doi.org/10.1016/j.dam.2022.02.005.)
54. S. Broumi et al., "*Single-valued neutrosophic graphs*", Journal of New Theory 10 (2016) 86-101.
55. V. Gledel et al., "*Maker–Breaker total domination game*", Discrete Applied Mathematics 282 (2020) 96-107. (https://doi.org/10.1016/j.dam.2019.11.004.)
56. M.A. Henning, and A. Yeo, "*A new upper bound on the total domination number in graphs with minimum degree six*", Discrete Applied Mathematics 302 (2021) 1-7. (https://doi.org/10.1016/j.dam.2021.05.033.)
57. V. Irsic, "*Effect of predomination and vertex removal on the game total domination number of a graph*", Discrete Applied Mathematics 257 (2019) 216-225. (https://doi.org/10.1016/j.dam.2018.09.011.)
58. B.S. Panda, and P. Goyal, "*Hardness results of global total k-domination problem in graphs*", Discrete Applied Mathematics (2021). (https://doi.org/10.1016/j.dam.2021.02.018.)
59. N. Shah, and A. Hussain, "*Neutrosophic soft graphs*", Neutrosophic Set and Systems 11 (2016) 31-44.
60. A. Shannon and K.T. Atanassov, "*A first step to a theory of the intuitionistic fuzzy graphs*", Proceeding of FUBEST (Lakov, D., Ed.) Sofia (1994) 59-61.
61. F. Smarandache, "*A Unifying field in logics neutrosophy: Neutrosophic probability, set and logic, Rehoboth:* " American Research Press (1998).
62. H. Wang et al., "*Single-valued neutrosophic sets*", Multispace and Multistructure 4 (2010) 410-413.
63. L. A. Zadeh, "*Fuzzy sets*", Information and Control 8 (1965) 338-354.