

## SUPPLEMENT

### The system of adjacent structures with six elements – $\mathbb{G}^{|V|=6}$

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Known are the samplings of non-isomorphic graphs (i.e. structures) with  $n$  vertices. In these systems exists the *adjacent relations (called morphisms)* between the structure and its greatest substructures and also its smallest superstructures. Unfortunately, these relationships between structures has remained unnoticeable. This is due to the fact that the graphs that are obtained with edge-operations on the framework of the same binary orbit (i.e. position) are isomorphic, i.e. these constitute the same structure. This fact was for transitive graphs (i.e. for graphs with one binary position) proved already by A. Titov in 1975, but has been neglected. Principally it must be provable also for common case. Already then, some analysts as J. Mayer and other felt that the graph theory evolves too one-sidedly.

The theoretical foundations of formation of the adjacent structures are presented in the beginning of chapter “Structural Transformations” (4.1 and 4.2). As it is deal with a really existing and working phenomenon it is possible to “prove” its properties as the results of the corresponding algorithm. In a semi-manually mode were the systems for structures with 4-, 5- and 6 elements formed (with the corresponding numbers of structures and morphisms: (11, 14), (34, 72), and (156, 572)). The number of structures with 7 element number is 1044 and it was unfinished.

#### 1. The systems of adjacent structures $\mathbb{G}^{|V|}$ are necessary:

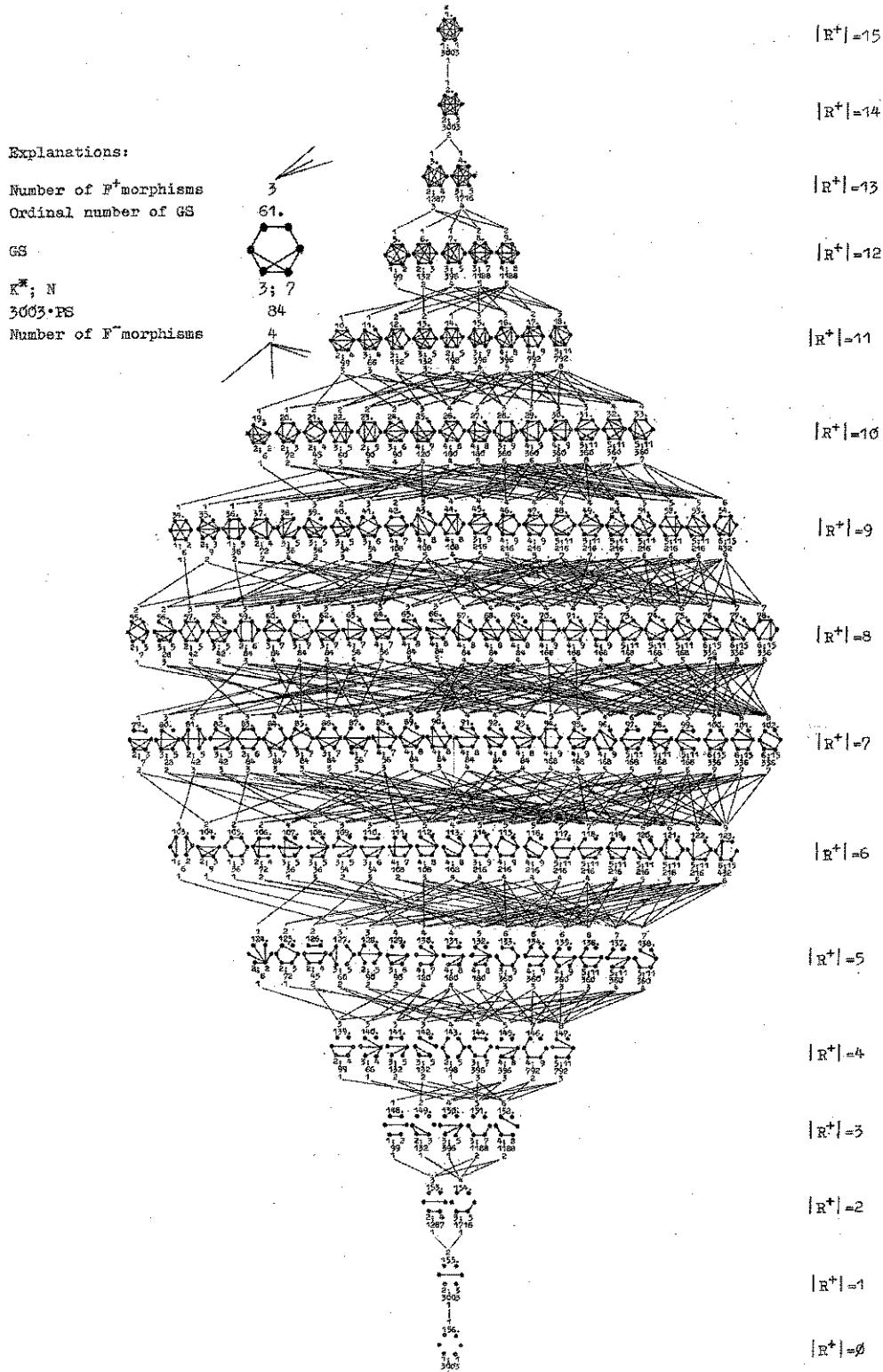
- a) For explanation of the meaning of structure and its adjacent structures;
- b) For an another viewpoint to the Ulam Conjecture;
- c) For arousing (receiving) of actual systemic parameters of structures, such as probabilities of morphisms and existence, measures of symmetry etc.:
- d) For checking the results of “semi-manually” obtained systems for structures with 4-, 5- and 6-elements;
- e) For forming the systems of structures or its fragments with more elements;
- f) For forming the assemblages of successions between structures with greater number of elements etc.

An essential core of this algorithm is the computer program of recognition the structure, that already be realized. It must be used so, that each output of this program give initial data for the next step. The complete realization of computer program of the forming the systems of adjacent structures is needed.

#### 2. The common principles of formation of the systems:

- a) The initial structures  $GS^{init}$  are presented in the form of list of adjacencies  $L^{init}$ .
- b) Begins with a given structure  $GS^{init}$ , which is located on the structure level  $RGS^{init}$  (ie, with a structure with predetermined number  $q$  of connections (edges).
- c) In the initial level  $RGS^{init}$  begins of the first structure  $GS_m$ ,  $m=1,2,\dots,M$ .
- d) For each structure  $GS_m$  form its semiotic model  $SM_m$ .
- e) In each model  $SM_m$  fix the binary positions  $OR_n$  and element's positions  $OV_k$ .
- f) For each binary position  $OR_n$  form the corresponding adjacent structure  $GS^{adj}_n$  and fix its morphism probability  $PF^{adj}_n$ .
- g) Every new adjacent structure  $GS^{adj}_n$  fix to a structure  $GS_m$  of the adjacent level  $RGS^{adj}$ .
- h) If all the structures  $GS_m$  of initial level  $RGS^{init}$  have been processed, then fix their existence probabilities  $PS_m$  and corresponding adjacent level  $RGS^{adj}$  to a new initial level  $RGS^{init}$  and begin from p c.
- i) The latest level  $RGS^{adj}$  is predetermined or consists of one complete or empty structure.

### 3. The lattice of the system of adjacent structures with six elements:



**Explanations:**

- $|R^+|$  denote the *structural level*, i.e. the number of connections (i.e. "edges") in the structures.
- Each graph presents there its *isomorphism class* or *structure GS*.
- Each structure in this lattice is an *adjacent structure* of some other structures, where the edges represent the morphisms  $F_n$ .
- The *complements* of represented structures placed symmetrically in the upper and lower half of lattice.

#### 4. The presentation of structures in the system $\mathbb{G}^{|V|=6}$ :

Entries are presented in pairs, for structure  $GS$  and its complement  $\overline{GS}$ . Graph-structures arranged by common order. To complement are in brackets an identifier  $(|V|, |E|, r)$ , where  $|V|$  – number of vertices;  $|E|$  – number of edges;  $r$  – ordering number in structural level.

Graph-structures  $GS.14$  (6.11.5) and  $GS.143$  (6.4.5) (by Graph Atlas G199 and G70).

Entry of common characteristics and measures of  $GS$  and its complement  $\overline{GS}$ :

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	2	5	$2^1 4^1$	0.645	$1^1 2^1 4^3$	2.174	$0.444$	8	196

Where,  $K$  – number of vertex positions (orbits);  $N$  – number of binary positions (orbits);  $SVV$  – vector of vertex positions,  $SV$  – vertex symmetry,  $SRV$  – vector of binary positions,  $HR$  – info capacity by binary positions;  $SR$  – symmetry by binary positions;  $aut$  – number of automorphisms and  $3003PS$  – existence probability, enlarged 3003 times.

Figure of graph-structure  $GS.14$  and its semiotic model SM:

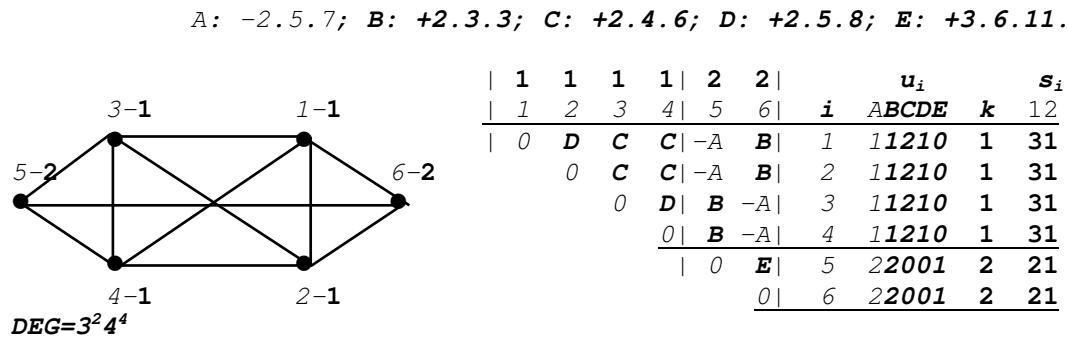
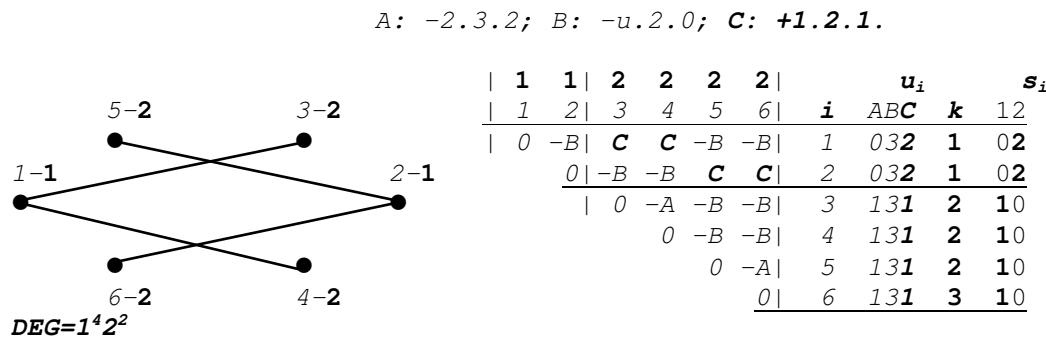


Figure of graph-structure  $GS.143$  (complement of  $GS.14$ ) and its semiotic model SM:



For each position of a graph.structure  $GS$  corresponds a position of its complement  $\overline{GS}$ . Correspondence of vertex positions (orbits):

$$\begin{array}{lll} GS.27 & 1 & 2 \\ GS.132 & 2 & 1 \end{array}$$

Entry of distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
<b>GS.14</b>	11	4	1	5	4	4	2	$1^1 2^1 4^2$	0.473	0.909	0	2.573	<b>h</b>
<b>GS.143</b>	4	1	4	3	2	0	2	$4^1$	1.000	0	1.000	2.500	<b>bfp</b>

Where,  $N^+$  – number of binary(+)orbits;  $N^-$  – number of binary(–)orbits;  $P$  – number of binary signs;  $CL$  – greatest clique;  $G$  – girth (minimal cycle);  $DM$  – diameter;  $SEV$  – vector of edge positions;  $SE$  – edge symmetry;  $TRA$  – triangularity;  $BRA$  – branching;  $HE$  – topological entropy;  $b$  – bipartite;  $e$  – Eulerian;  $f$  – forest;  $h$  – Hamiltonian;  $p$  – planar;  $u$  – uniquely colorable.

Entry of identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

$GS$	$Adj_n$	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
<b>GS . 14</b>	$Supp_n$	<b>9</b>			
	$k \cdot k' (p)$	1.2 (-A)	–	–	–
	$PF_n$	4/4			
	$Sub_n$	<b>22</b>	<b>23</b>	<b>28</b>	<b>33</b>
	$k \cdot k' (p)$	1.1 (D)	2.2 (E)	1.1 (C)	1.2 (B)
	$PF_n$	2/11	1/11	4/11	4/11
<b>GS . 143</b>	$Supp_n$	<b>127</b>	<b>128</b>	<b>133</b>	<b>138</b>
	$k \cdot k' (p)$	2.2 (-A)	1.1 (-B)	2.2 (-B)	1.2 (-B)
	$PF_n$	2/11	1/11	4/11	4/11
	$Sub_n$	<b>152</b>	–	–	–
	$k \cdot k' (p)$	1.2 (C)			
	$PF_n$	4/4			

Where,  $Supp_n$  and  $Sub_n$  – range number of adjacent superstructure and adjacent substructure correspondingly;  $k, k'$  – index of partial model  $SM_{k,k'}$  that contain binary position, where  $(p)$  concretize this in therein, if it is need. There exists three partial models – 1.1, 1.2 and 2.2.  $PF_n$  – probability of morphism.

## 5. Fixing the adjacent structures.

### 5.1. Fixing of the *adjacent substructures* $GS^{sub}_n$ :

For obtaining the adjacent substructure  $GS^{sub}_{n=1}$  remove, for example, from binary position  $C$  in partial model 1.1 of structure  $GS.14$  an arbitrary connection, for example 1-3, i.e. remove from the list of adjacencies  $L^{init}$  the connection 1-3. Obtained the list of adjacencies  $L^{adj}_n$  of adjacent substructure  $GS^{sub}_{n=1}$ :

```

6
1 -> 2, 4, 6;
2 -> 1, 3, 4, 6;
3 -> 2, 4, 5;
4 -> 1, 2, 3, 5;
5 -> 3, 4, 6;
6 -> 1, 2, 5;

```

### 5.2. For obtaining the *structure model* $SM^{adj}_n$ processes it list $L^{adj}_n$ accordingly to prescripts and fixing as a new adjacent substructure $GS^{sub}_n$ of this structure.

### 5.3. For preventing of recurrences in the forming of level the adjacent structures $RGS^{adj}$ check in case of each obtained structure model $SM^{adj}_n$ the coincidence of following attributes with existing:

- a) Coincidence of sequences of binary signs  $\{\pm d.n.q_{ij}\}_A$  and  $\{\pm d.n.q_{ij}\}_B$ ;
- b) Coincidence of frequency vectors  $\{u_i\}_A$  and  $\{u_i\}_B$ ;
- c) Coincidence of position vectors  $\{s_i\}_A$  and  $\{s_i\}_B$ .

Only in case of *lacking the coincidences* a, b, and c fix the obtained model  $SM^{adj}$  as a new structure of structure level  $RGS^{adj}$ .

## 6. The specific presentation of the system of adjacent structures with 6 elements:

All the 156 structures (i.e. non-isomorphic graphs), the 572 relationships (morphisms) between their and other characteristics.

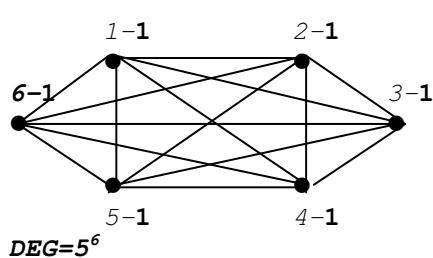
**Graph-structures GS.1 (6.15.1) and GS.156 (6.0.1)** (by Graph Atlas G208 and G53).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Complete	1	1	6 <sup>1</sup>	1.000	15 <sup>1</sup>	0	1.000	720	3003

**GS.1**, its binary signs and semiotic model SM:

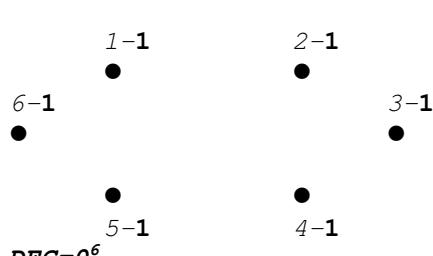
B: +2.6.15.



1	1	1	1	1	1	k		
1	2	3	4	5	6	i	B	1
	0	B	B	B	B	1	5	1
0	B	B	B	B	B	2	5	1
0	B	B	B	B	B	3	5	1
0	B	B	B	B	B	4	5	1
0	B	B	B	B	B	5	5	1
0	B	B	B	B	B	6	5	1

**GS.156** (complement of **GS.1**), its binary signs and semiotic model SM:

A: -u.2.0.



1	1	1	1	1	1	k		
1	2	3	4	5	6	i	A	1
	0	-A	-A	-A	-A	1	5	1
0	-A	-A	-A	-A	-A	2	5	1
0	-A	-A	-A	-A	-A	3	5	1
0	-A	-A	-A	-A	-A	4	5	1
0	-A	-A	-A	-A	-A	5	5	1
0	-A	-A	-A	-A	-A	6	5	1

Correspondence of vertex positions (orbits):

GS.1	1
GS.156	1

Distinguishing invariants and measures:

GS	E	N <sup>+</sup>	N <sup>-</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.1	15	1	0	1	6	3	1	15 <sup>1</sup>	1.000	1.000	0	2.585	bfpn
GS.156	0	0	1	1	1	0	0	0 <sup>1</sup>	1.000	0	0	0	hu

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1
GS.1	Supp <sub>n</sub>	
	k.k'	—
	PF <sub>n</sub>	
GS.156	Sub <sub>n</sub>	2
	k.k' (p)	1.1 (B)
	PF <sub>n</sub>	15/15
GS.156	Supp <sub>n</sub>	155
	k.k' (p)	1.1 (-A)
	PF <sub>n</sub>	15/15
GS.156	Sub <sub>n</sub>	—
	k.k'	
	PF <sub>n</sub>	

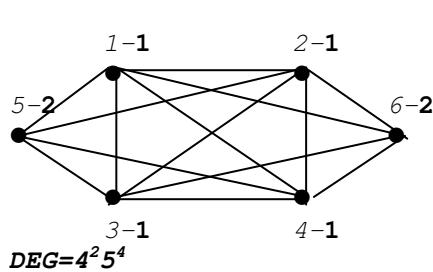
### Graph-structures GS.2 (6.14.1) and GS.155 (6.1.1) (by Graph Atlas G207 and G54).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	2	3	$2^1 4^1$	0.645	$1^1 6^1 8^1$	1.276	0.674	48	3003

GS.2, its binary signs and semiotic model SM:

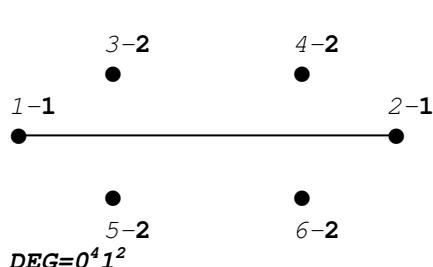
$$A: -2.6.14; \quad B: +2.5.10; \quad C: +2.6.14.$$



	1	1	1	1	2	2		k
	1	2	3	4	5	6	i	
	0	C	C	C	B	B	1	023 1 32
0	C	C	C	B	B	B	2	023 1 32
0	C	B	B	B	B	B	3	023 1 32
0	B	B	B	B	B	B	4	023 1 32
	0	-A	-A	-A	-A	-A	5	140 2 40
0	1	2	3	4	5	6	140	2 40

GS.155 (complement of GS.2), its binary signs and semiotic model SM:

$$A: -u.2.0; \quad B: +1.2.1.$$



	1	1	2	2	2	2		k
	.1	2	3	4	5	6	i	
	0	B	-A	-A	-A	-A	1	41 1 10
0	-A	-A	-A	-A	-A	-A	2	41 1 10
	0	-A	-A	-A	-A	-A	3	50 2 00
0	-A	-A	-A	-A	-A	-A	4	50 2 00
0	-A	-A	-A	-A	-A	-A	5	50 2 00
0	1	2	3	4	5	6	50	2 00

Correspondence of vertex positions (orbits):

$$\begin{array}{lll} GS.2 & 1 & 2 \\ GS.155 & 2 & 1 \end{array}$$

Distinguishing invariants and measures:

GS	E	N <sup>+</sup>	N <sup>-</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.2	14	2	1	3	5	3	2	$6^1 8^1$	0.741	1.000	0	2.577	hu
GS.155	1	1	2	2	2	0	1	$1^1$	1.000	0	1.000	1.000	bfp

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2
GS.2	$Supp_n$	<b>1</b>	
	$k.k'(p)$	2.2 (-A)	-
	$PF_n$	1/1	
GS.155	$Sub_n$	<b>3</b>	<b>4</b>
	$k.k'(p)$	1.1 ( <b>C</b> )	1.2 ( <b>B</b> )
	$PF_n$	6/14	8/14
	$Supp_n$	<b>153</b>	<b>154</b>
	$k.k'(p)$	2.2 (-A)	1.2 (-A)
	$PF_n$	6/14	8/14
	$Sub_n$	<b>156</b>	-
	$k.k'(p)$	1.1 ( <b>B</b> )	
	$PF_n$	1/1	

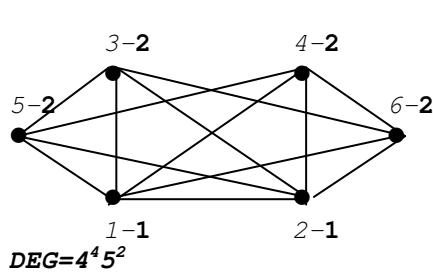
### Graph-structures GS.3 (6.13.1) and GS.153 (6.2.1) (by Graph Atlas G206 and G55).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	2	4	$2^1 4^1$	0.645	$1^1 2^1 4^1 8^1$	1.640	0.580	16	1287

GS.3, its binary signs and semiotic model SM:

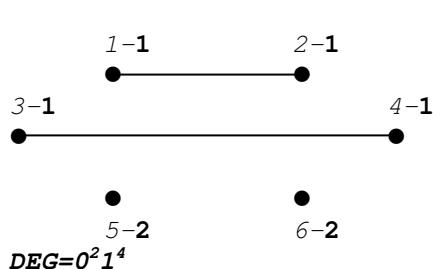
$$A: -2.6.13; \quad B: +2.4.6; \quad C: +2.5.9; \quad D: +2.6.13.$$



	1	1	2	2	2	2	i	A B C D	k	
	1	2	3	4	5	6			12	
0	D	C	C	C	C		1	0041	1	14
0	C	C	C	C		2	0041	1	14	
0	-A	B	B		3	1220	2	22		
0	B	B		4	1220	2	22			
0	-A		5	1220	2	22				
0	6	1220	2	22						

GS.153 (complement of GS.3), its binary signs and semiotic model SM:

$$A: -u.2.0; \quad B: +1.2.1.$$



	1	1	1	1	2	2	i	A B	k	
	1	2	3	4	5	6			12	
0	B	-A	-A	-A	-A		1	41	1	10
0	-A	-A	-A	-A	-A		2	41	1	10
0	B	-A	-A	-A		3	41	1	10	
0	-A	-A		4	41	1	10			
0	-A		5	50	2	00				
0	6	50	2	00						

Correspondence of vertex positions (orbits):

$$\begin{array}{ccc} GS.3 & 1 & 2 \\ GS.153 & 2 & 1 \end{array}$$

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.3	13	3	1	4	4	3	2	$1^1 4^1 8^1$	0.665	1.000	0	2.576	hu
GS.153	2	1	3	2	2	0	1	$2^1$	1.000	0	1.000	2.000	bfp

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	$Adj_n$	1	2	3
GS.3	$Supp_n$	2		
	$k.k'(\mathbf{p})$	2.2 (-A)	-	-
	$PF_n$	2/2		
GS.153	$Sub_n$	5	8	9
	$k.k'(\mathbf{p})$	1.1 (D)	2.2 (B)	1.2 (C)
	$PF_n$	1/13	4/13	8/13
GS.153	$Supp_n$	148	151	152
	$k.k'(\mathbf{p})$	2.2 (-A)	1.1 (-A)	1.2 (-A)
	$PF_n$	1/13	4/13	8/13
GS.153	$Sub_n$	155	-	-
	$k.k'(\mathbf{p})$	1.1 (B)	-	-
	$PF_n$	2/2		

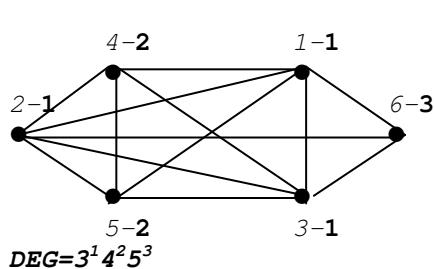
### Graph-structures GS.4 (6.13.2) and GS.154 (6.2.2) (by Graph Atlas G205 and G56).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	5	$1^1 2^1 3^1$	0.645	$1^1 2^1 3^2 6^1$	2.106	0.461	12	1716

GS.4, its binary signs and semiotic model SM:

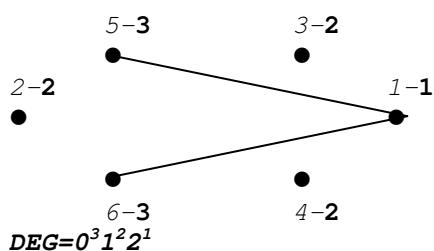
$$A: -2.5.9; \quad B: +2.4.6; \quad C: +2.5.10; \quad D: +2.6.13.$$



1	1	1	2	2	3	i	A B C D	k
	1	2	3	4	5	6		123
	0	D	D	C	C	B	1	0122 1 221
0		D	C	C	B		2	0122 1 221
		0	C	C	B		3	0122 1 221
			0	C	-A	4	1040 2 310	
				0	-A	5	1040 2 310	
					6		2300 3 300	

GS.154 (complement of GS.4), its binary signs and semiotic model SM:

$$A: -2.3.2; \quad B: -u.2.0; \quad C: +1.2.1.$$



1	2	2	2	3	3	i	A B C	k
	1	2	3	4	5	6		123
	0	-B	-B	-B	C	C	1	032 1 002
0		-B	-B	-B	-B		2	050 2 000
		0	-B	-B	-B		3	050 2 000
			0	-B	-B	4	050 2 000	
				0	-A	5	131 3 100	
				0	6		131 3 100	

Correspondence of vertex positions (orbits):

$$\begin{array}{cccc} GS.4 & 1 & 2 & 3 \\ GS.154 & 2 & 3 & 1 \end{array}$$

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N <sup>r</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.4	13	4	1	4	5	3	2	$1^1 3^2 6^1$	0.520	1.000	0	2.563	<b>h</b>
GS.154	2	1	4	3	2	0	2	$2^1$	1.000	0	1.000	1.500	<b>bfp</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4
GS.4	$Supp_n$	<b>2</b>			
	$k \cdot k' (p)$	2.3 (-A)	-	-	-
	$PF_n$	2/2			
GS.154	$Sub_n$	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>
	$k \cdot k' (p)$	2.2 (C)	1.3 (B)	1.2 (C)	1.1 (D)
	$PF_n$	1/13	3/13	6/13	3/13
GS.154	$Supp_n$	<b>149</b>	<b>150</b>	<b>151</b>	<b>152</b>
	$k \cdot k' (p)$	3.3 (-A)	1.2 (-B)	2.3 (-B)	2.2 (-B)
	$PF_n$	1/13	3/13	6/13	3/13
GS.154	$Sub_n$	<b>155</b>	-	-	-
	$k \cdot k' (p)$	1.3 (C)			
	$PF_n$	2/2			

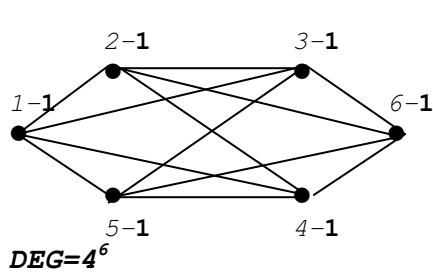
**Graph-structures GS.5 (6.12.1) and GS.148 (6.3.1) (by Graph Atlas G204 and G61).**

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Bisymmetry	1	2	6 <sup>1</sup>	1.000	3 <sup>1</sup> 12 <sup>1</sup>	0.722	0.815	48	99

GS.5, its binary signs and semiotic model SM:

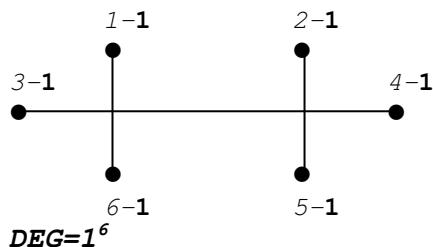
$$A: -2.6.12; \quad B: +2.4.5.$$



1	1	1	1	1	1	k		
1	2	3	4	5	6	i	AB	12
1	<b>B</b>	<b>B</b>	<b>B</b>	<b>B</b>	-A	1	<b>14</b>	1 04
0	<b>B</b>	<b>B</b>	-A	<b>B</b>		2	<b>14</b>	1 04
0	-A	<b>B</b>	<b>B</b>			3	<b>14</b>	1 04
0	<b>B</b>	<b>B</b>				4	<b>14</b>	1 04
0	<b>B</b>					5	<b>14</b>	1 04
0						6	<b>14</b>	1 04

GS.148 (complement of GS.5), its binary signs and semiotic model SM:

$$A: -u.2.0; \quad B: +1.2.1.$$



1	1	1	1	1	1	k		
1	2	3	4	5	6	i	AB	12
1	0	-A	-A	-A	-A	<b>B</b>	1	<b>41</b> 1 01
0	-A	-A	<b>B</b>	-A			2	<b>41</b> 1 01
0	<b>B</b>	-A	-A			3	<b>41</b> 1 01	
0	-A	-A				4	<b>41</b> 1 01	
0	-A					5	<b>41</b> 1 01	
0						6	<b>41</b> 1 01	

Correspondence of vertex positions (orbits):

$$\begin{array}{ll} GS.5 & 1 \\ GS.148 & 1 \end{array}$$

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.5	12	1	1	2	3	3	2	12 <sup>1</sup>	1.000	1.000	0	2.585	ehpu
GS.148	3	1	1	2	2	0	1	3 <sup>1</sup>	1.000	0	1.000	2.585	bfp

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1
GS.5	Supp <sub>n</sub>	<b>3</b>
	$k.k'(p)$	1.1 (-A)
	PF <sub>n</sub>	3/3
	Sub <sub>n</sub>	<b>15</b>
GS.148	Supp <sub>n</sub>	<b>144</b>
	$k.k'(p)$	1.1 (-A)
	PF <sub>n</sub>	12/12
	Sub <sub>n</sub>	<b>153</b>
$k.k'(p)$		1.1 ( <b>B</b> )
PF <sub>n</sub>		3/3

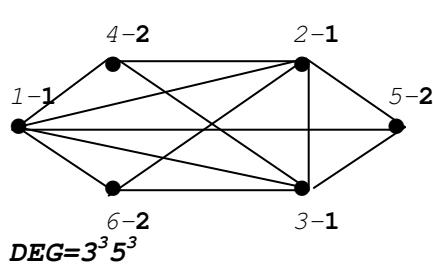
**Graph-structures GS.6 (6.12.2) and GS.149 (6.3.2) (by Graph Atlas G201 and G57).**

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	2	3	$3^2$	1.000	$3^1 9^1$	1.371	0.649	36	132

GS.6, its binary signs and semiotic model SM:

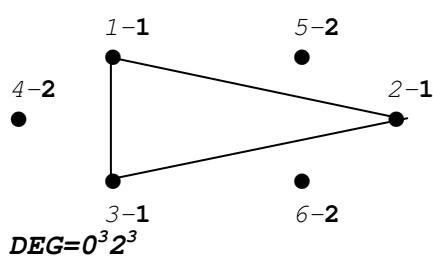
$$A: -2.5.9; \quad B: +2.4.6. \quad C: +2.6.12.$$



1	1	1	2	2	2	i	A <sub>B</sub> C	k
1	2	3	4	5	6	1	032	1 23
0	C	C	B	B	B	2	032	1 23
0	C	B	B	B	B	3	032	1 23
0	B	B	B	B	B	4	230	2 30
0	-A	-A	-A	-A	-A	5	230	2 30
0	-A	-A	-A	-A	-A	6	230	2 30
0								

GS.149 (complement of GS.6), its binary signs and semiotic model SM:

$$A: -u.2.0; \quad B: +2.3.3.$$



1	1	1	2	2	2	i	A <sub>B</sub>	k
1	2	3	4	5	6	1	32	1 20
0	B	B	-A	-A	-A	2	32	1 20
0	B	-A	-A	-A	-A	3	32	1 20
0	-A	-A	-A	-A	-A	4	50	2 00
0	-A	-A	-A	-A	-A	5	50	2 00
0	-A	-A	-A	-A	-A	6	50	2 00
0								

Correspondence of vertex positions (orbits):

$$\begin{array}{ccc} GS.6 & 1 & 2 \\ GS.149 & 2 & 1 \end{array}$$

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N <sup>r</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.6	12	2	1	3	4	3	2	$3^1 9^1$	0.774	1.000	0	2.539	hu
GS.149	3	1	2	2	3	3	1	$3^1$	1.000	1.000	0	1.585	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2
GS.6	$Supp_n$	<b>4</b>	
	$k.k' (p)$	2.2 (-A)	-
	$PF_n$	3/3	
	$Sub_n$	<b>13</b>	<b>16</b>
GS.149	$k.k' (p)$	1.1 (C)	1.2 (B)
	$PF_n$	3/12	9/12
	$Supp_n$	<b>142</b>	<b>145</b>
	$k.k' (p)$	2.2 (-A)	1.2 (-A)
$PF_n$		3/12	9/12
	$Sub_n$	<b>154</b>	-
$k.k' (p)$		1.1 (B)	
	$PF_n$	3/3	

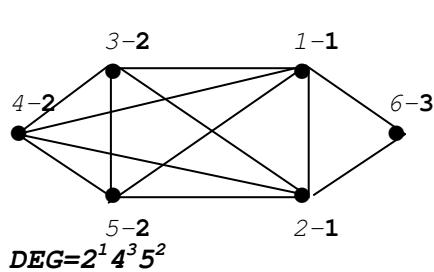
**Graph-structures GS.7 (6.12.3) and GS.150 (6.3.3) (by Graph Atlas G200 and G58).**

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	5	$1^1 2^1 3^1$	0.478	$1^1 2^1 3^2 6^1$	2.106	0.435	12	396

GS.7, its binary signs and semiotic model SM:

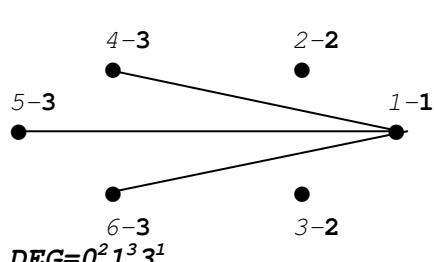
$$A: -2.4.5; \quad B: +2.3.3; \quad C: +2.5.10; \quad D: +2.6.12.$$



	1	1	2	2	2	3		k
	1	2	3	4	5	6	i	$ABCD$
	0	D	C	C	C	B	1	0131 1 131
	0	C	C	C	C	B	2	0131 1 131
	0	C	C	-A	-A	-A	3	1040 2 220
	0	C	-A	-A	-A	-A	4	1040 2 220
	0	-A	-A	-A	-A	-A	5	1040 2 220
	0						6	3200 3 200

GS.150 (complement of GS.7), its binary signs and semiotic model SM:

$$A: -2.3.2; \quad B: -u.2.0; \quad C: +1.2.1.$$



	1	2	2	3	3	3		k
	1	2	3	4	5	6	i	$ABC$
	0	-B	-B	C	C	C	1	023 1 003
	0	-B	-B	-B	-B	-B	2	050 2 000
	0	-B	-B	-B	-B	-B	3	050 2 000
	0	-A	-A	-A	-A	-A	4	221 3 100
	0	-A	-A	-A	-A	-A	5	221 3 100
	0						6	221 3 100

Correspondence of vertex positions (orbits):

$$\begin{array}{cccc} GS.7 & 1 & 2 & 3 \\ GS.150 & 2 & 3 & 1 \end{array}$$

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.7	12	4	1	4	5	3	2	$1^1 2^1 3^1 6^1$	0.518	1.000	0	2.534	h
GS.150	3	1	4	3	2	0	2	$3^1$	1.000	0	1.000	1.793	bfp

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	$Adj_n$	1	2	3	4
GS.7	$Supp_n$	<b>4</b>			
	$k.k'(p)$	2.3 (-A)	-	-	-
	$PF_n$	3/3			
GS.7	$Sub_n$	<b>11</b>	<b>12</b>	<b>16</b>	<b>18</b>
	$k.k'(p)$	1.3 (B)	1.1 (D)	2.2 (C)	1.2 (C)
	$PF_n$	2/12	1/12	3/12	6/12
GS.150	$Supp_n$	<b>140</b>	<b>141</b>	<b>145</b>	<b>147</b>
	$k.k'(p)$	1.2 (-B)	2.2 (-B)	3.3 (-A)	2.3 (-B)
	$PF_n$	2/12	1/12	3/12	6/12
GS.150	$Sub_n$	<b>154</b>	-	-	-
	$k.k'(p)$	1.3 (C)	-	-	-
	$PF_n$	3/3			

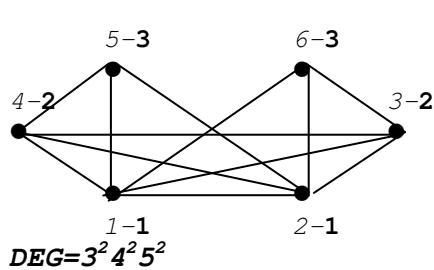
### Graph-structures GS.8 (6.12.4) and GS.151 (6.3.4) (by Graph Atlas G202 and G59).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	7	$2^3$	0.523	$1^3 2^2 4^2$	2.574	0.341	4	1188

GS.8, its binary signs and semiotic model SM:

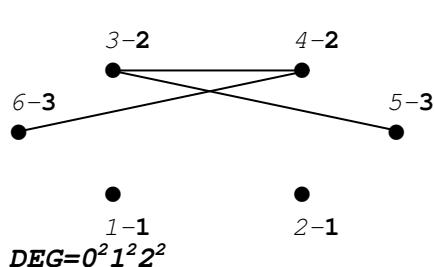
$$A: -2.5.9; B: -2.4.5; C: +2.4.6; D: +2.5.9; E: +2.6.12.$$



1	1	2	2	3	3	i	ABCDE	k
	1	2	3	4	5	6		1234
	0	<b>E</b>	<b>D</b>	<b>D</b>	<b>C</b>	<b>C</b>	1	00221 <b>1</b> 1122
	0	<b>D</b>	<b>D</b>	<b>C</b>	<b>C</b>		2	00221 <b>1</b> 1122
		0	<b>C</b>	-A	<b>C</b>	3	10220 <b>2</b> 2211	
	0	<b>C</b>	-A	4	<b>10220</b>	<b>2</b>	2211	
		0	-B	5	11300 <b>3</b> 3210			
	0	6	11300 <b>3</b> 3210					

GS.151 (complement of GS.8), its binary signs and semiotic model SM:

$$A: -3.4.3; B: -2.3.2; C: -u.2.0; D: +1.2.1.$$



1	1	2	2	3	3	i	ABCD	k
	1	2	3	4	5	6		123
	0	-C	-C	-C	-C	-C	1	0050 <b>1</b> 000
	0	-C	-C	-C	-C	-C	2	0050 <b>1</b> 000
		0	<b>D</b>	<b>D</b>	-B	3	0122 <b>2</b> 011	
	0	-B	<b>D</b>	4	<b>0122</b> <b>2</b> 011			
		0	-A	5	1121 <b>3</b> 010			
	0	6	1121 <b>3</b> 010					

Correspondence of vertex positions (orbits):

GS.8	1	2	3
GS.151	1	3	2

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N <sup>r</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.8	12	5	2	5	4	3	2	$1^2 2^1 4^2$	0.418	1.000	0	2.555	hpu
GS.151	3	2	5	4	2	0	3	$1^1 2^1$	0.421	0	1.000	1.918	bfp

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5
GS.8	<i>Supp<sub>n</sub></i>	<b>3</b>	<b>4</b>			
	<i>k.k'(P)</i>	3.3 (-B)	2.3 (-A)	-	-	-
	<i>PF<sub>n</sub></i>	1/3	2/3			
	<i>Sub<sub>n</sub></i>	<b>10</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>18</b>
GS.151	<i>Supp<sub>n</sub></i>	<b>139</b>	<b>144</b>	<b>145</b>	<b>146</b>	<b>147</b>
	<i>k.k'(P)</i>	3.3 (-A)	1.1 (-C)	2.3 (-B)	1.3 (-C)	1.2 (-C)
	<i>PF<sub>n</sub></i>	1/12	1/12	2/12	4/12	4/12
	<i>Sub<sub>n</sub></i>	<b>153</b>	<b>154</b>	-	-	-
	<i>k.k'(P)</i>	2.2 (D)	2.3 (D)			
	<i>PF<sub>n</sub></i>	1/3	2/3			

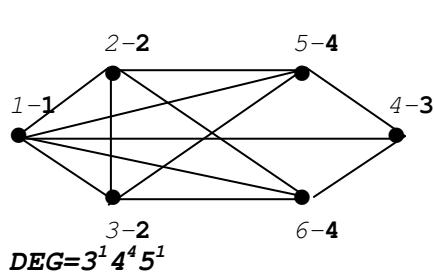
### Graph-structures GS.9 (6.12.5) and GS.152 (6.3.5) (by Graph Atlas G203 and G60).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	8	$1^2 2^2$	0.266	$1^3 2^4 4^1$	2.840	0.273	4	1188

GS.9, its binary signs and semiotic model SM:

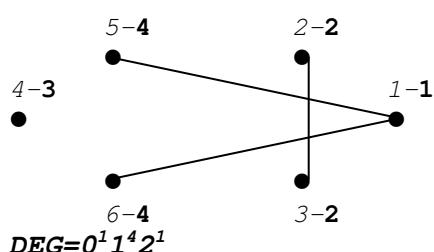
$$A: -2.6.12; B: -2.5.8; C: +2.3.3; D: +2.4.5; E: +2.4.6; F: +2.5.8; G: +2.5.9.$$



1	2	2	3	4	4	i	ABCDEF	k
1	2	3	4	5	6	i	ABCDEF	1234
0	G	G	D	F	F	1	0001022	1 0212
0	G	-B	E	E		2	0100202	2 1102
0	-B	E	E			3	0100202	2 1102
0	C	C			4	0221000	3 1002	
0	-A			5	1010210	4	1210	
0				6	1010210	4	1210	

GS.152 (complement of GS.9), its binary signs and semiotic model SM:

$$A: -2.3.2; B: -u.2.0; C: +1.2.1.$$



1	2	2	3	4	4	i	ABC	k
1	2	3	4	5	6	i	ABC	1234
0	-B	-B	-B	C	C	1	032	1 0002
0	C	-B	-B	-B		2	041	2 0100
0	-B	-B	-B			3	041	2 0100
0	-B	-B			4	050	3 0000	
0	-A			5	131	4	1000	
0				6	131	4	1000	

Correspondence of vertex positions (orbits):

GS.9	1	2	3	4
GS.152	3	4	1	2

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.9	12	6	2	7	4	3	2	$1^2 2^3 4^1$	0.326	1.000	0	2.570	h
GS.152	3	2	6	3	2	0	2	$1^1 2^1$	0.421	0	1.000	2.252	bfp

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	$Adj_n$	1	2	3	4	5	6
GS.9	$Supp_n$	3	4				
	$k \cdot k' (p)$	2.3-B)	4.4 (-A)	-	-	-	-
	$PF_n$	2/3	1/3				
GS.9	$Sub_n$	12	13	14	15	17	18
	$k \cdot k' (p)$	1.3 (D)	2.2 (G)	1.4 (F)	1.2 (G)	2.4 (E)	3.4 (C)
	$PF_n$	1/12	1/12	2/12	2/12	4/12	2/12
GS.152	$Supp_n$	141	142	143	144	146	147
	$k \cdot k' (p)$	1.3 (-B)	4.4 (-A)	2.3 (-B)	3.4 (-B)	2.4 (-B)	1.2 (-B)
	$PF_n$	1/12	1/12	2/12	2/12	4/12	2/12
GS.152	$Sub_n$	153	154	-	-	-	-
	$k \cdot k' (p)$	1.4 (C)	2.2 (C)				
	$PF_n$	2/3	1/3				

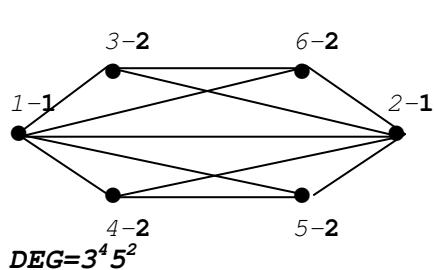
### Graph-structures GS.10 (6.11.1) and GS.139 (6.4.1) (by Graph Atlas G195 and G63).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	2	4	$2^1 4^1$	0.645	$1^3 2^4 4^1$	1.640	0.580	16	99

GS.10, its binary signs and semiotic model SM:

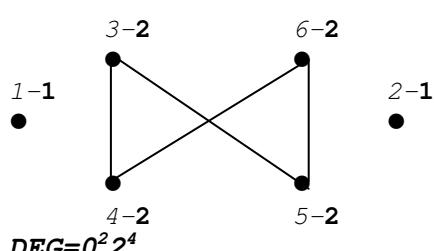
$$A: -2.4.5; \quad B: +2.4.6; \quad C: +2.6.11.$$



1	1	2	2	2	2	i	ABC	k
1	2	3	4	5	6			12
	0	C	B	B	B	1	041	1 14
0	1	B	B	B	B	2	041	1 14
	0	-A	-A	B		3	230	2 21
0	B	-A			4	230	2 21	
0	-A			5	230	2 21		
0	6	230	2	21				

GS.139 (complement of GS.10), its binary signs and semiotic model SM:

$$A: -2.4.4; \quad B: -u.2.0; \quad C: +3.4.4.$$



1	1	2	2	2	2	i	ABC	k
1	2	3	4	5	6			12
	0	-B	-B	-B	-B	1	050	1 00
0	1	-B	-B	-B	-B	2	050	1 00
	0	C	C	-A		3	122	2 02
0	-A	C			4	122	2 02	
0	C			5	122	2 02		
0	6	122	2	02				

Correspondence of vertex positions (orbits):

$$\begin{array}{lll} GS.10 & 1 & 2 \\ GS.139 & 1 & 2 \end{array}$$

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.10	11	3	1	3	4	3	$1^1 2^1 8^1$	0.683	1.000	0	2.540	hp
GS.139	4	1	3	3	2	4	$4^1$	1.000	0	0	2.000	bp

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3
GS.10	$Supp_n$	8		
	$k.k' (p)$	2.2 (-A)		
	$PF_n$	4/4		
	$Sub_n$	21	24	31
GS.139	$k.k' (p)$	1.1 (C)	2.2 (B)	1.2 (B)
	$PF_n$	1/11	2/11	8/11
	$Supp_n$	126	129	136
	$k.k' (p)$	1.1 (-B)	2.2 (-A)	1.2 (-B)
	$PF_n$	1/11	2/11	8/11
	$Sub_n$	151		
	$k.k' (p)$	2.2 (C)		
	$PF_n$	4/4		

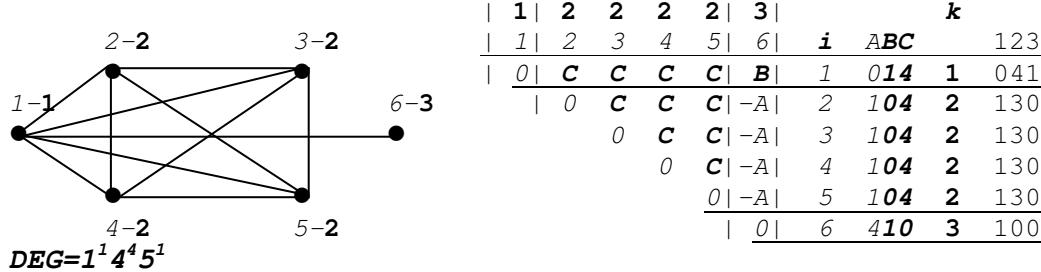
### Graph-structures GS.11 (6.11.2) and GS.140 (6.4.2) (by Graph Atlas G191 and G64).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	4	$1^2 4^1$	0.542	$1^1 4^2 6^1$	1.802	0.537	24	66

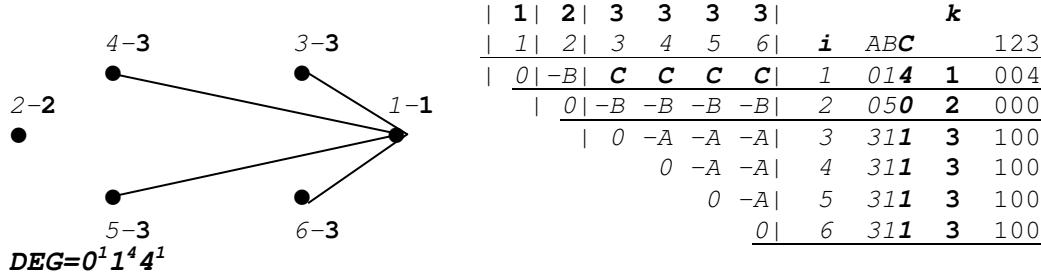
GS.11, its binary signs and semiotic model SM:

$$A: -2.3.2; \quad B: +1.2.1; \quad C: +2.5.10.$$



GS.140 (complement of GS.11), its binary signs and semiotic model SM:

$$A: -2.3.2; \quad B: -u.2.0; \quad C: +1.2.1.$$



Correspondence of vertex positions (orbits):

GS.11	1	2	3
GS.140	2	3	1

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.11	11	3	1	3	5	3	2	$1^1 4^1 6^1$	0.618	0.909	0.091	2.477	-
GS.140	4	1	3	3	2	0	2	$4^1$	1.000	0	1.000	2.000	bfp

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	$Adj_n$	1	2	3
GS.11	$Supp_n$	7		
	$k.k' (p)$	2.3 (-A)		
	$PF_n$	4/4		
GS.11	$Sub_n$	<b>19</b>	<b>25</b>	<b>27</b>
	$k.k' (p)$	1.3 (B)	1.2 (C)	2.2 (C)
	$PF_n$	1/11	4/11	6/11
GS.140	$Supp_n$	<b>124</b>	<b>130</b>	<b>132</b>
	$k.k' (p)$	1.2 (-B)	2.3 (-B)	3.3 (-A)
	$PF_n$	1/11	4/11	6/11
GS.140	$Sub_n$	<b>150</b>		
	$k.k' (p)$	1.3 (C)		
	$PF_n$	4/4		

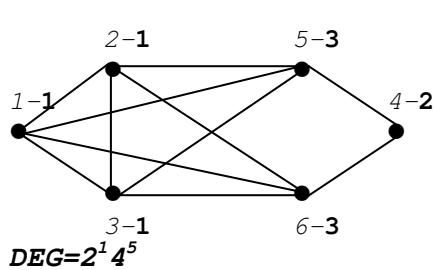
**Graph-structures GS.12 (6.11.3) and GS.141 (6.4.3) (by Graph Atlas G194 and G68).**

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	5	$1^1 2^1 3^1$	0.478	$1^1 2^1 3^2 6^1$	2.106	<b>0.461</b>	12	132

**GS.12**, its binary signs and semiotic model SM:

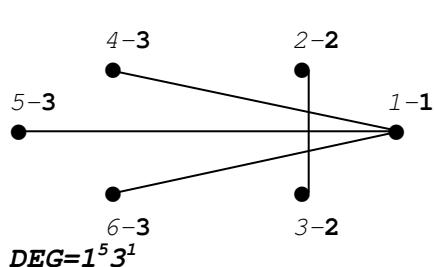
$$A: -2.6.11; B: -2.4.4; C: +2.4.6; D: +2.5.9; E: +3.6.11.$$



	1	1	1	2	3	3	i	ABCDE	k
	1	2	3	4	5	6	i	ABCDE	123
	0	D	D	-B	C	C	1	01220	1
0	D	D	-B	C	C	C	2	01220	1
0		-B	C	C	C	C	3	01220	1
	0	E	E	E	E	E	4	03002	2
	0	-A	-A	-A	-A	-A	5	10301	3
							6	10301	3
									310

**GS.141** (complement of **GS.12**), its binary signs and semiotic model SM:

$$A: -2.3.2; B: -u.2.0; C: +1.2.1.$$



	1	2	2	3	3	3	i	ABC	k
	1	2	3	4	5	6	i	ABC	123
	0	-B	-B	C	C	C	1	023	1
0	C	-B	-B	-B	-B	-B	2	041	2
0		-B	-B	-B	-B	-B	3	041	2
	0	-A	-A	-A	-A	-A	4	221	3
	0	-A	-A	-A	-A	-A	5	221	3
0	-A	-A	-A	-A	-A	-A	6	221	3
	0	6							100

Correspondence of vertex positions (orbits):

GS.12	1	2	3
GS.141	3	1	2

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
<b>GS.12</b>	11	3	2	5	4	4	2	$2^1 3^1 6^1$	0.585	0.818	0	2.550	<b>eh</b>
<b>GS.141</b>	4	2	3	3	2	0	2	$1^1 3^1$	0.594	0	1.000	2.406	<b>bfp</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	$Adj_n$	1	2	3
<b>GS.12</b>	$Supp_n$	7	9	-
	$k \cdot k' (p)$	3.3 (-A) 1/4	1.2 (-B) 3/4	-
	$PF_n$			
	$Sub_n$	25	26	33
<b>GS.141</b>	$Supp_n$	25	26	33
	$k \cdot k' (p)$	2.3 (E) 2/11	1.1 (D) 3/11	1.3 (C) 6/11
	$PF_n$			
	$Sub_n$	130	131	138
	$Supp_n$	1.2 (-B) 2/11	3.3 (-A) 3/11	2.3 (-B) 6/11
	$k \cdot k' (p)$			
	$PF_n$			
	$Sub_n$	150	152	-
	$Supp_n$	2.2 (C) 1/4	1.3 (C) 3/4	-
	$k \cdot k' (p)$			
	$PF_n$			
	$Sub_n$			

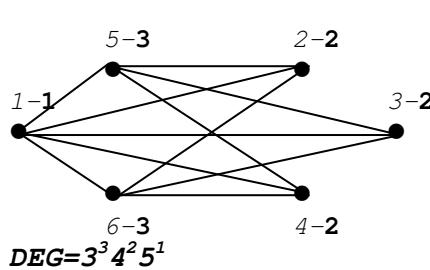
### Graph-structures GS.13 (6.11.4) and GS.142 (6.4.4) (by Graph Atlas G197 and G67).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	5	$1^1 2^1 3^1$	0.478	$1^1 2^1 3^2 6^1$	2.106	<b>0.461</b>	12	132

**GS.13**, its binary signs and semiotic model SM:

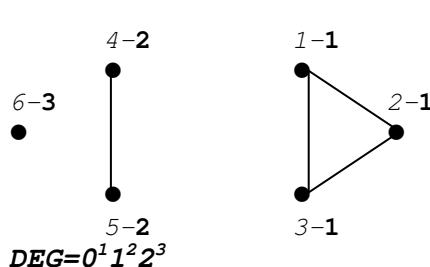
$$A: -2.6.11; \quad B: -2.5.8; \quad C: +2.3.3; \quad D: +2.4.5; \quad E: +2.5.7.$$



1	2	2	2	3	3	k
1	2	3	4	5	6	i ABCDE
0	D	D	D	E	E	1 00032 1 032
0	-B	-B	C	C	2	02210 2 102
0	-B	C	C	3	02210 2 102	
0	C	C	4	02210 2 102		
0	-A	5	10301 3 130			
0	6	10301 3 130				

**GS.142** (complement of **GS.13**), its binary signs and semiotic model SM:

$$A: -u.2.0; \quad B: +1.2.1; \quad C: +2.3.3.$$



1	1	1	2	2	3	k
1	2	3	4	5	6	i ABC
0	C	C	-A	-A	1	302 1 200
0	C	-A	-A	-A	2	302 1 200
0	-A	-A	-A	-A	3	302 1 200
0	B	-A			4	410 2 010
0	-A				5	410 2 010
0					6	221 3 100

Correspondence of vertex positions (orbits):

GS.13	1	2	3
GS.142	3	1	2

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.13	11	3	2	5	3	3	2	$2^1 3^1 6^1$	0.585	1.000	0	2.550	hu
GS.142	4	2	3	3	3	3	1	$1^1 3^1$	0.594	0.750	0.250	2.250	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3
GS.13	$Supp_n$	6	9	
	$k.k' (p)$	3.3 (-A) 1/4	2.2 (-B) 3/4	-
	$PF_n$			
	$Sub_n$	22	26	32
GS.142	$Supp_n$	1.3 (E) 2/11	1.2 (D) 3/11	2.3 (C) 6/11
	$k.k' (p)$			
	$PF_n$			
	$Sub_n$	127	131	137
	$Supp_n$	2.3 (-A) 2/11	1.3 (-A) 3/11	1.2 (-A) 6/11
	$k.k' (p)$			
	$PF_n$			
	$Sub_n$	149	152	-
	$k.k' (p)$	2.2 (B) 1/4	1.1 (C) 3/4	
	$PF_n$			

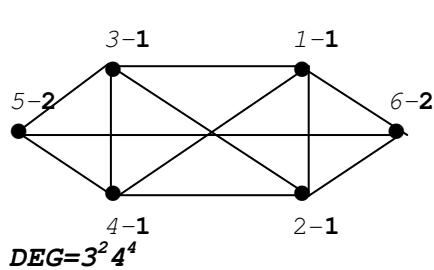
**Graph-structures GS.14 (6.11.5) and GS.143 (6.4.5) (by Graph Atlas G199 and G70).**

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	2	5	$2^1 4^1$	0.645	$1^1 2^1 4^3$	2.174	0.444	8	193

**GS.14**, its binary signs and semiotic model SM:

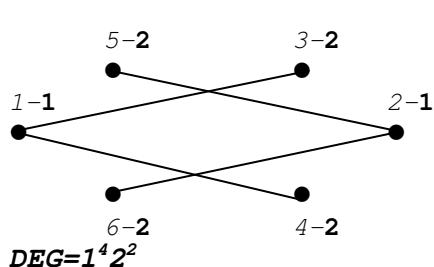
$$A: -2.5.7; \quad B: +2.3.3; \quad C: +2.4.6; \quad D: +2.5.8; \quad E: +3.6.11.$$



1	1	1	1	2	2	k		
1	2	3	4	5	6	i	ABCDE	12
0	D	C	C	-A	B	1	11210	1 31
0	C	C	-A	B		2	11210	1 31
0	D	B	-A		3	11210	1 31	
0	B	-A		4	11210	1 31		
0	E		5	22001	2	21		
0		6	22001	2	21			

**GS.143** (complement of **GS.14**), its binary signs and semiotic model SM:

$$A: -2.3.2; \quad B: -u.2.0; \quad C: +1.2.1.$$



1	1	2	2	2	2	k		
1	2	3	4	5	6	i	ABC	12
0	-B	C	C	-B	-B	1	032	1 02
0	-B	-B	C	C		2	032	1 02
0	-A	-B	-B		3	131	2 10	
0	-B	-B		4	131	2	10	
0	-A		5	131	2	10		
0		6	131	3	10			

Correspondence of vertex positions (orbits):

GS.14	1	2
GS.143	2	1

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.14	11	4	1	5	4	4	2	$1^1 2^1 4^2$	0.473	0.909	0	2.573	h
GS.143	4	1	4	3	2	0	2	$4^1$	1.000	0	1.000	2.500	bfp

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4
GS.14	$Supp_n$	9			
	$k.k' (p)$	1.2 (-A)	-	-	-
	$PF_n$	4/4			
GS.14	$Sub_n$	22	23	28	33
	$k.k' (p)$	1.1 (D)	2.2 (E)	1.1 (C)	1.2 (B)
	$PF_n$	2/11	1/11	4/11	4/11
GS.143	$Supp_n$	127	128	133	138
	$k.k' (p)$	2.2 (-A)	1.1 (-B)	2.2 (-B)	1.2 (-B)
	$PF_n$	2/11	1/11	4/11	4/11
GS.143	$Sub_n$	152	-	-	-
	$k.k' (p)$	1.2 (C)	-	-	-
	$PF_n$	4/4			

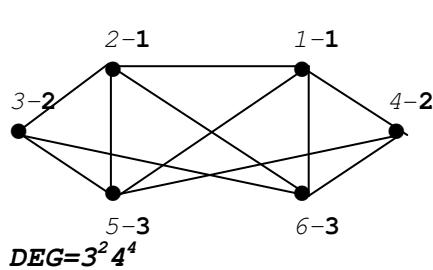
### Graph-structures GS.15 (6.11.6) and GS.144 (6.4.6) (by Graph Atlas G198 and G69).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	7	$2^3$	0.523	$1^3 2^2 4^2$	2.574	0.341	4	396

GS.15, its binary signs and semiotic model SM:

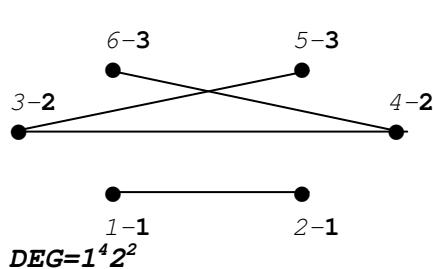
$$A: -2.6.11; B: -2.5.8; C: -2.4.4; D: +2.3.3; E: +2.4.5.$$



1	1	2	2	3	3	i	ABCDE	k
1	2	3	4	5	6			
0	<b>E</b>	-B	<b>E</b>	<b>E</b>	<b>E</b>	1	01004	<b>1</b>
0	<b>E</b>	-B	<b>E</b>	<b>E</b>	<b>E</b>	2	01004	<b>1</b>
0	-C	<b>D</b>	<b>D</b>	3	01121	<b>2</b>	102	
0	<b>D</b>	<b>D</b>	4	01121	<b>2</b>	102		
0	-A		5	10022	<b>3</b>	220		
0		6	10022	<b>3</b>	220			

GS.144 (complement of GS.15), its binary signs and semiotic model SM:

$$A: -3.4.3; B: -2.3.2; C: -u.2.0; D: +1.2.1.$$



1	1	2	2	3	3	i	ABCD	k
1	2	3	4	5	6			
0	<b>D</b>	-C	-C	-C	-C	1	0041	<b>1</b>
0	-C	-C	-C	-C	<b>C</b>	2	0041	<b>1</b>
0	<b>D</b>	<b>D</b>	-B	3	0122	<b>2</b>	011	
0	-B	<b>D</b>	4	0122	<b>2</b>	011		
0	-A		5	1121	<b>3</b>	010		
0		6	1121	<b>3</b>	010			

Correspondence of vertex positions (orbits):

$$\begin{array}{lll} \text{GS.27} & 1 & 2 & 3 \\ \text{GS.132} & 3 & 2 & 1 \end{array}$$

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
<b>GS.15</b>	11	4	3	5	3	3	2	$1^1 2^1 4^2$	0.473	1.000	0	2.573	<b>hpu</b>
<b>GS.144</b>	4	3	4	4	2	0	3	$1^2 2^1$	0.250	0	1.000	2.500	<b>bfp</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4
<b>GS.15</b>	<b>Supp<sub>n</sub></b>	<b>5</b>	<b>8</b>	<b>9</b>	-
	<b>k.k' (p)</b>	2.2 (-C)	3.3 (-A)	1.2 (-B)	
	<b>PF<sub>n</sub></b>	1/4	1/4	2/4	
<b>GS.144</b>	<b>Sub<sub>n</sub></b>	<b>21</b>	<b>26</b>	<b>28</b>	<b>29</b>
	<b>k.k' (p)</b>	1.1 ( <b>E</b> )	1.2 ( <b>E</b> )	1.3 ( <b>E</b> )	2.3 ( <b>D</b> )
	<b>PF<sub>n</sub></b>	1/11	2/11	4/11	4/11
	<b>Supp<sub>n</sub></b>	<b>126</b>	<b>131</b>	<b>133</b>	<b>134</b>
	<b>k.k' (p)</b>	3.3 (-A)	2.3 (-B)	1.3 (-C)	1.2 (-C)
	<b>PF<sub>n</sub></b>	1/11	2/11	4/11	4/11
	<b>Sub<sub>n</sub></b>	<b>148</b>	<b>151</b>	<b>152</b>	-
	<b>k.k' (p)</b>	2.2 ( <b>D</b> )	1.1 ( <b>D</b> )	2.3 ( <b>D</b> )	
	<b>PF<sub>n</sub></b>	1/4	1/4	2/4	

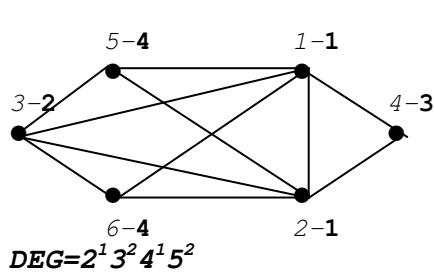
**Graph-structures GS.16 (6.11.7) and GS.145 (6.4.7) (by Graph Atlas G192 and G62).**

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	8	$1^2 2^2$	0.523	$1^3 2^4 4^1$	2.840	0.273	4	396

**GS.16**, its binary signs and semiotic model SM:

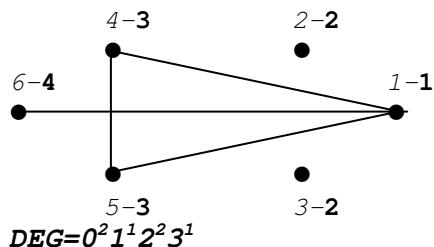
$$A:-2.5.9; \quad B:-2.4.5; \quad C:+2.3.3; \quad D:+2.4.6; \quad E:+2.5.9; \quad F:+2.6.11.$$



1	1	2	3	4	4	i	ABCDEF	k
1	2	3	4	5	6			1234
0	F	E	C	D	D	1	001211	1
0	E	C	D	D	D	2	001211	1
	0	-B	D	D	D	3	010220	2
	0	-B	-B	-B	-B	4	032000	3
	0	-A				5	110300	4
	0					6	110300	4

**GS.145** (complement of **GS.16**), its binary signs and semiotic model SM:

$$A:-2.3.2; \quad B:-u.2.0; \quad C:+1.2.1; \quad D:+2.3.3.$$



1	2	2	3	3	4	i	ABCD	k
1	2	3	4	5	6			1234
0	-B	-B	D	D	C	1	0212	1
0	-B	-B	-B	-B	-B	2	0500	2
0	-B	-B	-B	-B	-B	3	0500	2
0	D	-A				4	1202	3
0	-A					5	1202	3
0						6	2210	4

Correspondence of vertex positions (orbits):

GS.16	1	2	3	4
GS.145	2	4	1	3

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.16	11	5	3	6	4	3	2	$1^1 2^3 4^1$	0.368	1.000	0	2.517	hp
GS.145	4	3	5	4	3	3	2	$1^2 2^1$	0.250	0.750	0.250	1.906	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5
GS.16	$Supp_n$	6	7	8	-	-
	$k.k'(p)$	2.3 -B) 1/4	4.4 (-A) 1/4	3.4 (-B) 2/4	-	-
	$PF_n$					
GS.16	$Sub_n$	24	26	27	30	32
	$k.k'(p)$	2.4 (D) 2/11	1.1 (F) 1/11	1.3 (C) 2/11	1.4 (D) 4/11	1.2 (F) 2/11
	$PF_n$					
GS.145	$Supp_n$	129	131	132	135	137
	$k.k'(p)$	3.4 (-A) 2/11	2.2 (-B) 1/11	1.2 (-B) 2/11	2.3 (-B) 4/11	2.4 (-B) 2/11
	$PF_n$					
GS.145	$Sub_n$	149	150	151	-	-
	$k.k'(p)$	1.4 (C) 1/4	3.3 (D) 1/4	1.3 (D) 2/4	-	-
	$PF_n$					

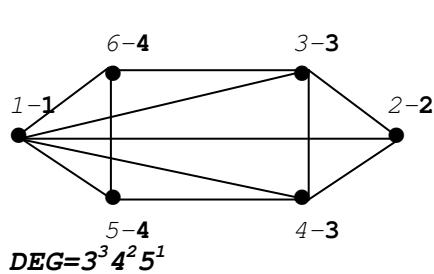
### Graph-structures GS.17 (6.11.8) and GS.146 (6.4.8) (by Graph Atlas G196 and G66).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	9	$1^2 2^2$	0.266	$1^3 2^6$	3.106	0.205	2	792

GS.17, its binary signs and semiotic model SM:

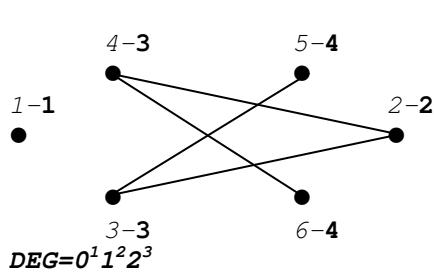
$$A:-2.5.8; B:-2.4.5; C:+2.3.3; D:+2.4.5; E:+2.4.6; F:+2.5.8.$$



1	2	3	3	4	4	i	ABCDEF	k
1	2	3	4	5	6	1	000212	1 0122
0	E	F	F	D	D	2	020030	2 1020
0	E	E	-B	-B		3	101021	3 1111
0	E	-A	C		4	101021	3 1111	
0	C	-A		4		4	112100	4 1011
0	C		5			5	112100	4 1011
0			6			6	112100	4 1011

GS.146 (complement of GS.17), its binary signs and semiotic model SM:

$$A:-4.5.4; B:-3.4.3; C: -2.3.2; D:-u.2.0; E:+1.2.1.$$



1	2	3	3	4	4	i	ABCDE	k
1	2	3	4	5	6	1	00050	1 0000
0	-D	-D	-D	-D	-D	2	00212	2 0020
0	E	E	-C	-C		3	01112	3 0101
0	-C	E	-B		4	01112	3 0101	
0	-B	E		5		4	11111	4 0010
0			6			6	11111	4 0010

Correspondence of vertex positions (orbits):

GS.17	1	2	3	4
GS.146	1	2	4	3

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.17	11	7	2	6	4	3	2	$1^3 2^4$	0.210	1.000	0	2.556	hp
GS.146	4	2	7	5	2	0	4	$2^2$	0.500	0	1.000	2.250	bfp

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5	6	7
GS.17	<i>Supp<sub>n</sub></i>	<b>8</b>	<b>9</b>					
	<i>k.k' (p)</i>	3.4 (-A) 2/4	2.4 (-B) 2/4	-	-	-	-	-
	<i>PF<sub>n</sub></i>							
	<i>Sub<sub>n</sub></i>	<b>20</b>	<b>28</b>	<b>29</b>	<b>30</b>	<b>31</b>	<b>32</b>	<b>33</b>
GS.146	<i>Sub<sub>n</sub></i>	3.3 (E) 1/11	1.3 (F) 2/11	1.2 (F) 1/11	4.4 (C) 1/11	3.4 (C) 2/11	2.3 (E) 2/11	1.4 (D) 2/11
	<i>k.k' (p)</i>							
	<i>PF<sub>n</sub></i>							
	<i>Supp<sub>n</sub></i>	<b>125</b>	<b>133</b>	<b>134</b>	<b>135</b>	<b>136</b>	<b>137</b>	<b>138</b>
<i>(p)</i>	<i>k.k'</i>	4.4 (-A) 1/11	1.4 (-D) 2/11	1.2 (-D) 1/11	3.3 (-C) 1/11	3.4 (-B) 2/11	2.4 (-C) 2/11	1.3 (-D) 2/11
	<i>PF<sub>n</sub></i>							
<i>Sub<sub>n</sub></i>	<b>151</b>	<b>152</b>						
	<i>k.k' (p)</i>	3.4 (E) 2/4	2.3 (E) 2/4	-	-	-	-	-
	<i>PF<sub>n</sub></i>							

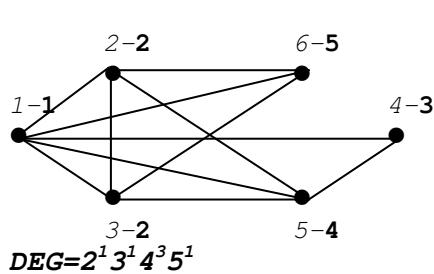
### Graph-structures GS.18 (6.11.9) and GS.147 (6.4.9) (by Graph Atlas G193 and G65).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	5	11	$1^4 2^1$	0.129	$1^7 2^4$	3.374	0.137	2	792

GS.18, its binary signs and semiotic model SM:

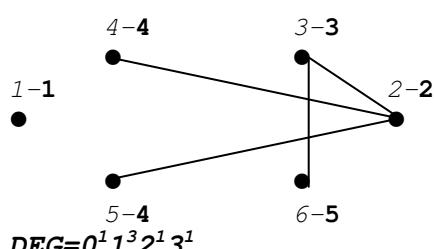
$$A: -2.5.9; B: -2.4.5; C: -2.3.2; D: +2.3.3; E: +2.4.6; F: +2.5.8; G: +2.5.9.$$



1	2	2	3	4	5	i	ABCDEF	k
1	2	3	4	5	6	1	0001112	1 02111
0	G	G	D	F	E	2	0100202	2 11011
0	G	-B	E	E		3	0100202	2 11011
0	-B	E	E			4	0212000	3 10010
0	D	-C				5	1001210	4 12100
0	-A					6	1010300	5 12000

GS.147 (complement of GS.18), its binary signs and semiotic model SM:

$$A: -3.4.3; B: -2.3.2; C: -u.2.0; D: +1.2.1.$$



1	2	3	4	4	5	i	ABCD	k
1	2	3	4	5	6	1	0050	1 00000
0	-C	-C	-C	-C	-C	2	0113	2 00120
0	D	D	D	-B		3	0212	3 01001
0	-B	-B	D			4	1211	4 01000
0	-B	-A				5	1211	4 01000
0	-A					6	2111	5 00100

Correspondence of vertex positions (orbits):

GS.18	1	2	3	4	5
GS.147	1	4	2	5	3

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.18	11	8	3	7	4	3	$1^5 2^3$	0.158	1.000	0	2.534	hp
GS.147	4	3	8	4	2	0	$1^2 2^1$	0.250	0	1.000	2.156	bfp

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

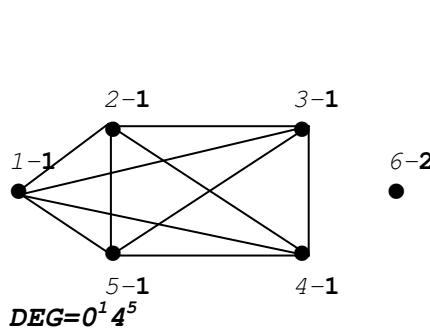
GS	Adj <sub>n</sub>	1	2	3	4	5	6	7	8
GS.18	Supp <sub>n</sub>	7	8	9					
	$k \cdot k'$	4.5	2.3	3.5	-	-	-	-	-
	(P)	(-A)	(-B)	(-C)					
	PF <sub>n</sub>	1/4	2/4	1/4					
GS.147	Sub <sub>n</sub>	23	25	27	29	30	31	32	33
	$k \cdot k' (P)$	1.5 (E)	1.3 (D)	3.4 (D)	1.2 (G)	2.5 (E)	2.4 (E)	2.2 (G)	1.4 (F)
	PF <sub>n</sub>	1/11	1/11	1/11	2/11	2/11	2/11	1/11	1/11
	Supp <sub>n</sub>	128	130	132	134	135	136	137	138
GS.147	$k \cdot k'$	1.3	1.2	2.5	1.4	3.4	4.5	4.4	1.5
	(P)	(-C)	(-C)	(-B)	(-C)	(-B)	(-A)	(-B)	(-C)
	PF <sub>n</sub>	1/11	1/11	1/11	2/11	2/11	2/11	1/11	1/11
	Sub <sub>n</sub>	150	151	152	-	-	-	-	-
	$k \cdot k' (P)$	3.5 (D)	2.4 (D)	2.3 (D)	1/4				
	PF <sub>n</sub>	1/4	2/4	1/4					

**Graph-structures GS.19 (6.10.1) and GS.124 (6.5.1) (by Graph Atlas G176 and G77).**

Common invariants and measures of the structure and its complement:

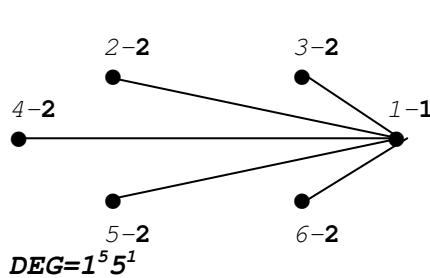
Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	2	2	$1^1 5^1$	0.749	$5^1 10^1$	0.918	0.765	120	6

**GS.19**, its binary signs and semiotic model SM:



1	1	1	1	1	2	k
1	2	3	4	5	6	i AB
1	0	B	B	B	B   -A	1 14 1 40
0	B	B	B	B   -A	2 14 1 40	
0	B	B	B   -A	3 14 1 40		
0	B	B   -A	4 14 1 40			
0	-A	5 14 1 40				
1	0	6 50 2 00				

**GS.124** (complement of **GS.19**), its binary signs and semiotic model SM:



1	2	2	2	2	2	k
1	2	3	4	5	6	i AB
1	0	B	B	B	B	1 05 1 05
1	0	-A	-A	-A	-A	2 41 2 10
0	-A	-A	-A	-A	3 41 2 10	
0	-A	-A	-A	4 41 2 10		
0	-A	5 41 2 10				
0	6 41 2 10					

Correspondence of vertex positions (orbits):

$$\begin{array}{lll} \text{GS.19} & 1 & 2 \\ \text{GS.124} & 2 & 1 \end{array}$$

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.19	10	1	1	2	5	3	1	$10^1$	1.000	1.000	0	2.323
GS.124	5	1	1	2	2	0	2	$5^1$	1.000	0	1.000	2.161 bptu

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1
GS.19	Supp <sub>n</sub>	<b>11</b>
	$k.k' (p)$	1.2 (-A)
	PF <sub>n</sub>	5/5
	Sub <sub>n</sub>	<b>39</b>
GS.124	Supp <sub>n</sub>	1.1 (B)
	$k.k' (p)$	10/10
	PF <sub>n</sub>	<b>108</b>
	Sub <sub>n</sub>	2.2 (-A)
GS.124	$k.k' (p)$	10/10
	PF <sub>n</sub>	<b>140</b>
GS.124	Supp <sub>n</sub>	1.2 (B)
	PF <sub>n</sub>	5/5

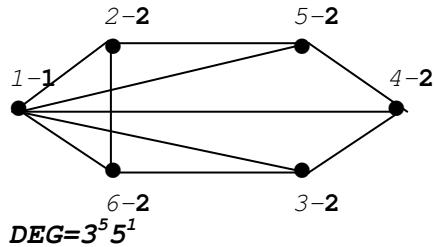
**Graph-structures GS.20 (6.10.2) and GS.125 (6.5.2) (by Graph Atlas G187 and G76).**

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	2	3	$1^1 5^1$	0.749	5 <sup>3</sup>	1.585	0.594	10	72

**GS.20**, its binary signs and semiotic model SM:

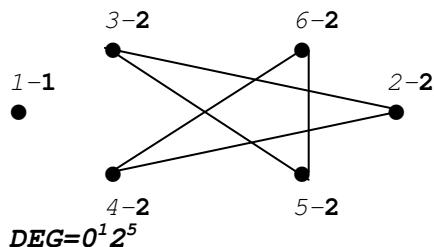
$$A: -2.4.5; \quad B: +2.3.3; \quad C: +2.4.5.$$



1	2	2	2	2	2	k					
1	2	3	4	5	6	i	A	B	C	1	05
0	C	C	C	C	C	1	005	1	05		
0	-A	-A	B	B		2	221	2	12		
0	B	-A	B			3	221	2	12		
0	B	-A				4	221	2	12		
0	-A					5	221	2	12		
0						6	221	2	12		

**GS.125** (complement of GS.20), its binary signs and semiotic model SM:

$$A: -2.3.2; \quad B: -u.2.0; \quad C: +4.5.5.$$



1	2	2	2	2	2	k					
1	2	3	4	5	6	i	A	B	C	1	00
0	-B	-B	-B	-B	-B	1	050	1	00		
0	-A	C	C	-A		2	212	2	02		
0	-A	C	C			3	212	2	02		
0	-A	C				4	212	2	02		
0	-A					5	212	2	02		
0						6	212	2	02		

Correspondence of vertex positions (orbits):

$$\begin{array}{ll} GS.20 & 1 \quad 2 \\ GS.125 & 1 \quad 2 \end{array}$$

Distinguishing invariants and measures:

GS	E	N <sup>+</sup>	N <sup>-</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.20	10	2	1	3	3	3	2	5 <sup>2</sup>	0.699	1.000	0	2.553	hp
GS.125	5	1	2	3	2	5	2	5 <sup>1</sup>	1.000	0	0	2.322	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2
GS.20	$Supp_n$	<b>17</b>	
	$k.k' (p)$	2.2 (-A)	-
	$PF_n$	5/5	
	$Sub_n$	<b>46</b>	<b>47</b>
GS.125	$k.k' (p)$	1.2 (C)	2.2 (B)
	$PF_n$	5/10	5/10
	$Supp_n$	<b>115</b>	<b>116</b>
	$k.k' (p)$	1.2 (-B)	2.2 (-A)
	$PF_n$	5/10	5/10
	$Sub_n$	<b>146</b>	-
	$k.k' (p)$	2.2 (C)	
	$PF_n$	5/5	

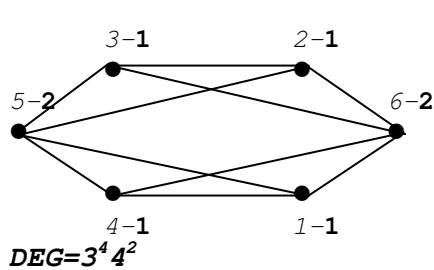
### Graph-structures GS.21 (6.10.3) and GS.126 (6.5.3) (by Graph Atlas G190 and G85).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	2	4	$2^1 4^1$	0.645	$1^1 2^1 4^1 8^1$	1.640	0.580	16	45

GS.21, its binary signs and semiotic model SM:

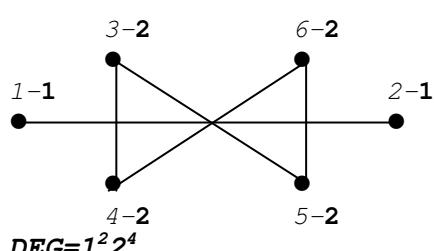
$$A: -2.6.10; \quad B: -2.4.4; \quad C: +2.3.3; \quad D: +2.4.5.$$



1	1	1	1	2	2	i	ABCD	k
	1	2	3	4	5	6		
	0	-B	-B	D	C	C	1 0221	1 12
	0	D	-B	C	C		2 0221	1 12
	0	-B	C	C		3	0221	1 12
	0	C	C		4		0221	1 12
	1	0	-A		5		1040	2 12
	0	1	6		1040		2	12

GS.126 (complement of GS.21), its binary signs and semiotic model SM:

$$A: -2.4.4; \quad B: -u.2.0; \quad C: +1.2.1; \quad D: +3.4.4.$$



1	1	2	2	2	2	i	ABCD	k
	1	2	3	4	5	6		
	0	C	-B	-B	-B	1	0410	1 10
	0	-B	-B	-B	-B	2	0410	1 10
	1	0	D	D	-A	3	1202	2 02
	0	-A	D		4		1202	2 02
	0	D		5		1202	2 02	
	0	1	6		1202		2	02

Correspondence of vertex positions (orbits):

GS.21	1	2
GS.126	2	1

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.21	10	2	2	4	3	3	$2^1 8^1$	0.783	1.000	0	2.571	hp
GS.126	5	2	2	4	2	4	$1^1 4^1$	0.689	0	0.200	2.522	bp

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2
GS.21	$Supp_n$	<b>10</b>	<b>15</b>
	$k \cdot k' (p)$	2.2 (-A)	1.1 (-B)
	$PF_n$	1/5	4/5
GS.126	$Sub_n$	<b>41</b>	<b>48</b>
	$k \cdot k' (p)$	1.1 (D)	1.2 (C)
	$PF_n$	2/10	8/10
	$Supp_n$	<b>110</b>	<b>117</b>
	$k \cdot k' (p)$	2.2 (-A)	1.2 (-B)
	$PF_n$	2/10	8/10
	$Sub_n$	<b>139</b>	<b>144</b>
	$k \cdot k' (p)$	1.1 (C)	2.2 (D)
	$PF_n$	1/5	4/5

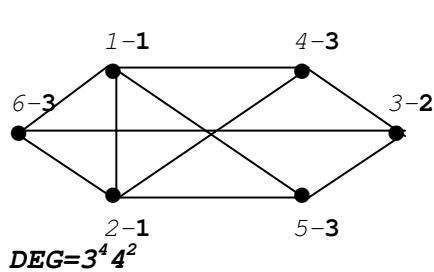
### Graph-structures GS.22 (6.10.4) and GS.127 (6.5.4) (by Graph Atlas G189 and G84).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	5	$1^1 2^1 3^1$	0.478	$1^1 2^1 3^2 6^1$	2.106	<b>0.461</b>	12	60

GS.22, its binary signs and semiotic model SM:

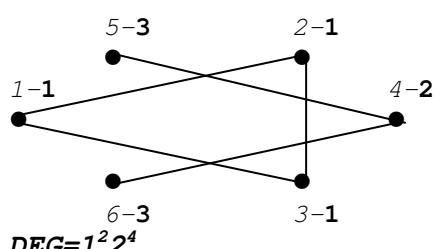
$$A:-2.5.7; \ B:-2.5.6; \ C:+2.3.3; \ D:+2.5.7; \ E:+3.6.10.$$



1	1	2	3	3	3	i	ABCDE	k
1	2   3   4	5	6					123
0	D   -B   C	C	C	1	01310	1	103	
	0   -B   C	C	C	2	01310	1	103	
	0   E	E	E	3	02003	2	003	
					0   -A	-A	4	20201 3 210
						0   -A	5	20201 3 210
							0   6	20201 3 210

GS.127 (complement of GS.22), its binary signs and semiotic model SM:

$$A:-2.3.2; \ B:-u.2.0; \ C:+1.2.1; \ D:+2.3.3.$$



1	1	1	2	3	3	i	ABCD	k
1	2   3   4	5	6					123
0	D   -B   -B	-B	1	0302	1	200		
	D   -B   -B	-B	2	0302	1	200		
	0   -B   -B	-B	3	0302	1	200		
	0   C	C	4	0320	2	002		
				0   -A	-A	5	1310 3 010	
					0   6	1310 3 010		

Correspondence of vertex positions (orbits):

GS.22	1	2	3
GS.127	3	2	1

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
<b>GS.22</b>	10	3	2	5	3	4	2	$1^1 3^1 6^1$	0.610	0.700	0	2.571	<b>h</b>
<b>GS.127</b>	5	2	3	4	3	3	2	$2^1 3^1$	0.582	0.600	0.400	2.522	<b>p</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3
<b>GS.22</b>	<i>Supp<sub>n</sub></i>	<b>13</b>	<b>14</b>	
	<i>k.k' (p)</i>	1.2 (-B)	3.3 (-A)	-
	<i>PF<sub>n</sub></i>	2/5	3/5	
	<i>Sub<sub>n</sub></i>	<b>34</b>	<b>44</b>	<b>52</b>
<b>GS.127</b>	<i>Supp<sub>n</sub></i>	<b>103</b>	<b>113</b>	<b>121</b>
	<i>k.k' (p)</i>	3.3 (-A)	1.2 (-B)	1.3 (-B)
	<i>PF<sub>n</sub></i>	1/10	3/10	6/10
	<i>Sub<sub>n</sub></i>	<b>142</b>	<b>143</b>	-
<b>GS.127</b>	<i>Supp<sub>n</sub></i>	2.3 (C)	1.1 (D)	
	<i>PF<sub>n</sub></i>	2/5	3/5	

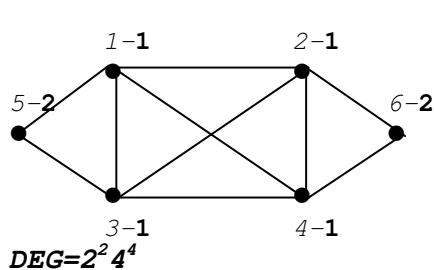
[Graph-structures GS.23 \(6.10.5\) and GS.128 \(6.5.5\)](#) (by Graph Atlas G181 and G79).

Common invariants and measures of the structure and its complement:

<i>Symmetry</i>	<i>K</i>	<i>N</i>	<i>SVV</i>	<i>SV</i>	<i>SRV</i>	<i>HR</i>	<i>SR</i>	<i>aut</i>	<i>3003PS</i>
Partial	2	5	$2^1 4^1$	0.645	$1^1 2^1 4^3$	2.174	0.444	8	90

**GS.23**, its binary signs and semiotic model SM:

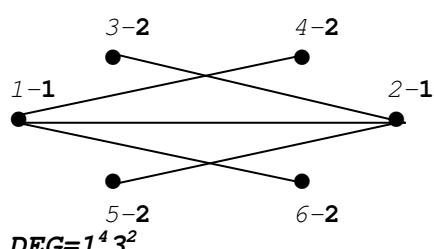
*A*: -3.6.10; *B*: -2.4.5; *C*: +2.3.3; *D*: +2.4.6; *E*: +2.5.8.



	1	1	1	1	2	2		<b>k</b>
	1	2	3	4	5	6	<i>i</i>	<b>ABCDE</b>
	0	<b>D</b>	<b>E</b>	<b>D</b>	<b>C</b>	-B	1	01 <b>121</b> 1 31
		0	<b>D</b>	<b>E</b>	-B	<b>C</b>	2	01 <b>121</b> 1 31
			0	<b>D</b>	<b>C</b>	-B	3	01 <b>121</b> 1 31
				0	-B	<b>C</b>	4	01 <b>121</b> 1 31
						0	-A	5 12 <b>200</b> 2 20
						0	6	12 <b>200</b> 2 20

**GS.128** (complement of GS.23), its binary signs and semiotic model SM:

$$A:-3.4.3; \ B:-2.3.2; \ C:+1.2.1.$$



	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>		<b>k</b>
	1	2	3	4	5	6	<i>i</i>	<i>ABC</i>
	0	<b>C</b>	-B	<b>C</b>	-B	<b>C</b>	1	<b>023</b>
	0	<b>C</b>	-B	<b>C</b>	-B		2	<b>023</b>
		0	-A	-B	-A		3	<b>221</b>
		0	-A	-B		4	<b>221</b>	
			0	-A		5	<b>221</b>	
				0		6	<b>221</b>	

Correspondence of vertex positions (orbits):

*GS.23* 1 2  
*GS.128* 2 1

### Distinguishing invariants and measures:

Distinguishing invariants and measures.														
<i>GS</i>	<i> E </i>	<i>N<sup>+</sup></i>	<i>N<sup>-</sup></i>	<i>P</i>	<i>CL</i>	<i>G</i>	<i>DM</i>	<i>SEV</i>	<i>SE</i>	<i>TRA</i>	<i>BRA</i>	<i>HE</i>	<i>type</i>	
<i>GS .23</i>	10	3	2	5	4	3	3	$2^1 4^2$	0.542	1.000	0	2.522	<i>ehp</i>	
<i>GS .128</i>	5	2	3	3	2	0	3	$1^1 4^1$	0.689	0	1.000	2.371	<i>bptu</i>	

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

<b>GS</b>	<b>Adj<sub>n</sub></b>	<b>1</b>	<b>2</b>	<b>3</b>
<b>GS . 23</b>	<b>Supp<sub>n</sub></b>	<b>14</b>	<b>18</b>	-
	<b>k . k' (p)</b>	2 . 2 (-A)	1 . 2 (-B)	-
	<b>PF<sub>n</sub></b>	1/5	4/5	-
<b>GS . 128</b>	<b>Sub<sub>n</sub></b>	<b>44</b>	<b>45</b>	<b>53</b>
	<b>k . k' (p)</b>	1 . 1 (E)	1 . 1 (D)	1 . 2 (C)
	<b>PF<sub>n</sub></b>	2/10	4/10	4/10
<b>GS . 128</b>	<b>Supp<sub>n</sub></b>	<b>113</b>	<b>114</b>	<b>122</b>
	<b>k . k' (p)</b>	2 . 2 (-B)	2 . 2 (-A)	1 . 2 (-B)
	<b>PF<sub>n</sub></b>	2/10	4/10	4/10
<b>GS . 128</b>	<b>Sub<sub>n</sub></b>	<b>143</b>	<b>147</b>	-
	<b>k . k' (p)</b>	1 . 1 (C)	1 . 2 (C)	-
	<b>PF<sub>n</sub></b>	1/5	4/5	-

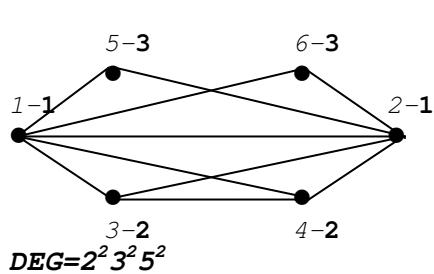
### Graph-structures GS.24 (6.10.6) and GS.129 (6.5.6) (by Graph Atlas G179 and G71).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	6	$2^3$	0.523	$1^3 4^3$	2.307	0.410	8	90

GS.24, its binary signs and semiotic model SM:

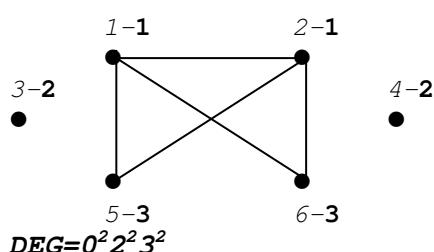
$$A: -2.4.5; \quad B: +2.3.3; \quad C: +2.4.6; \quad D: +2.6.10.$$



<b>k</b>	<b>i</b>	<b>ABCD</b>	
123	1	0221	1 122
	2	0221	1 122
	3	2030	2 210
	4	2030	2 210
	5	3200	3 200
	6	3200	3 200

GS.129 (complement of GS.24), its binary signs and semiotic model SM:

$$A: -2.4.5; \quad B: -u.2.0; \quad C: +2.3.3; \quad D: +2.4.5.$$



<b>k</b>	<b>i</b>	<b>ABCD</b>	
123	1	0221	1 102
	2	0221	1 102
	3	0500	2 000
	4	0500	2 000
	5	1220	3 200
	6	1220	3 200

Correspondence of vertex positions (orbits):

<b>GS.24</b>	1	2	3
<b>GS.129</b>	2	3	1

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N <sup>r</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
<b>GS.24</b>	10	4	2	4	4	3	2	$1^2 4^2$	0.482	1.000	0	2.486	<b>p</b>
<b>GS.129</b>	5	2	4	4	3	3	2	$1^1 4^1$	0.689	1.000	0	1.971	<b>p</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4
<b>GS.24</b>	<i>Supp<sub>n</sub></i>	<b>10</b>	<b>16</b>		
	<i>k.k' (p)</i>	3.3 (-A) 1/5	2.3 (-A) 4/5	-	-
	<i>PF<sub>n</sub></i>				
<b>GS.129</b>	<i>Sub<sub>n</sub></i>	<b>35</b>	<b>41</b>	<b>49</b>	<b>50</b>
	<i>k.k' (p)</i>	2.2 (C) 1/10	1.1 (D) 1/10	1.2 (C) 4/10	1.3 (B) 4/10
	<i>PF<sub>n</sub></i>				
	<i>Supp<sub>n</sub></i>	<b>104</b>	<b>110</b>	<b>118</b>	<b>119</b>
	<i>k.k' (p)</i>	3.3 (-A) 1/10	2.2 (-B) 1/10	2.3 (-B) 4/10	1.2 (-B) 4/10
	<i>PF<sub>n</sub></i>				
	<i>Sub<sub>n</sub></i>	<b>139</b>	<b>145</b>	-	-
	<i>k.k' (p)</i>	1.1 (D) 1/5	1.3 (C) 4/5		
	<i>PF<sub>n</sub></i>				

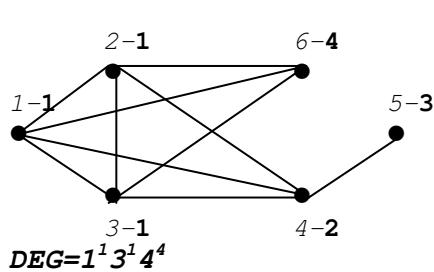
Graph-structures GS.25 (6.10.7) and GS.130 (6.5.7) (by Graph Atlas G178 and G78).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	7	$1^3 3^1$	0.186	$1^3 3^4$	2.639	0.325	6	120

GS.25, its binary signs and semiotic model SM:

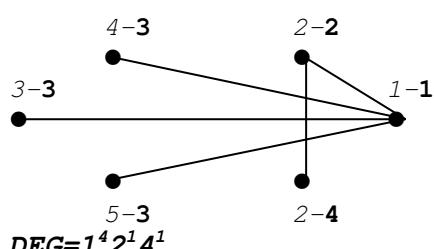
$$A: -3.6.10; \quad B: -2.5.9; \quad C: -2.3.2; \quad D: +1.2.1; \quad E: +2.4.6; \quad F: +2.5.9.$$



						k		
1	1	1	2	3	4	i	ABCDEF	1234
1   2   3   4   5   6						1	001022	1
0   <b>F</b>   <b>F</b>   <b>E</b>   -C   <b>E</b>						2	001022	1
0   <b>F</b>   <b>E</b>   -C   <b>E</b>						3	001022	1
0   <b>E</b>   -C   <b>E</b>						4	010130	2
0   <b>D</b>   -B						5	103100	3
0   -A						6	110030	4
								3000

GS.130 (complement of GS.25), its binary signs and semiotic model SM:

$$A: -3.4.3; \quad B: -2.3.2; \quad C: +1.2.1.$$



						k		
1	2	3	3	3	4	i	ABC	1234
1   2   3   4   5   6						1	014	1
0   <b>C</b>   <b>C</b>   <b>C</b>   <b>C</b>   -B						2	032	2
0   <b>C</b>   <b>C</b>   <b>C</b>   <b>C</b>   -B						3	131	3
0   -B   -B   -B   <b>C</b>						4	131	3
0   -B   -B   -A						5	131	3
0   -B   -A						6	311	4
								0100

Correspondence of vertex positions (orbits):

GS.25	1	2	3	4
GS.130	3	4	1	2

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.25	10	4	3	6	4	3	3	$1^1 3^3$	0.429	0.900	0.100	2.484 <b>p</b>
GS.130	5	3	4	3	2	0	3	$1^2 3^1$	0.410	0	1.000	2.322 <b>bptu</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4
GS.25	$Supp_n$	<b>11</b>	<b>12</b>	<b>18</b>	-
	$k.k' (p)$	2.4 (-B)	3.4 (-A)	1.3 (-C)	
	$PF_n$	1/5	1/5	3/5	
GS.130	$Sub_n$	<b>39</b>	<b>43</b>	<b>51</b>	<b>53</b>
	$k.k' (p)$	2.3 (D)	1.2 (E)	1.1 (E)	1.4 (E)
	$PF_n$	1/10	3/10	3/10	3/10
GS.130	$Supp_n$	<b>108</b>	<b>112</b>	<b>120</b>	<b>122</b>
	$k.k' (p)$	1.4 (-B)	3.4 (-A)	3.3 (-B)	2.3 (-B)
	$PF_n$	1/10	3/10	3/10	3/10
GS.130	$Sub_n$	<b>140</b>	<b>141</b>	<b>147</b>	-
	$k.k' (p)$	2.4 (C)	1.2 (C)	1.3 (C)	
	$PF_n$	1/5	1/5	3/5	

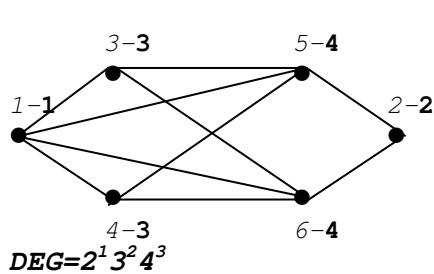
### Graph-structures GS.26 (6.10.8) and GS.131 (6.5.8) (by Graph Atlas G186 and G82).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	8	$1^2 2^2$	0.266	$1^3 2^4 4^1$	2.840	0.273	4	180

GS.26, its binary signs and semiotic model SM:

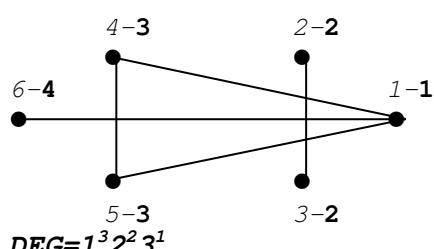
$$A: -2.6.10; \quad B: -2.5.8; \quad C: -2.4.4; \quad D: +2.3.3; \quad E: +2.4.5; \quad F: +3.6.10.$$



						k		
1	2	3	3	4	4	i	ABCDEF	1234
1	2	3	4	5	6	1	001040	1 0022
0	-C	E	E	E	E	2	003002	2 0002
0	-C	-C	F	F		3	011210	3 1002
0	-B	D	D		4	011210	3 1002	
0	D	D		5	100211	4	1120	
0	-A			6	100211	4	1120	

GS.131 (complement of GS.26), its binary signs and semiotic model SM:

$$A: -2.3.3; \quad B: -u.2.0; \quad C: +1.2.1; \quad D: +2.3.3.$$



						k		
1	2	2	3	3	4	i	ABCD	1234
1	2	3	4	5	6	1	0212	1 0021
0	-B	-B	D	D	C	2	0410	2 0100
0	-B	-B	-B	-B		3	0410	2 0100
0	D	-A			4	1202	3 1010	
0	-A			5	1202	3 1010		
0				6	2210	4 1000		

Correspondence of vertex positions (orbits):

GS.26	1	2	3	4
GS.131	4	1	3	2

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.26	10	4	4	6	3	4	$2^3 4^1$	0.421	0.800	0	2.546	hp
GS.131	5	4	4	4	3	3	$1^3 2^1$	0.172	0.600	0.400	2.446	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4
	Supp <sub>n</sub>	12	13	15	16
GS.26	$k \cdot k' (p)$	3.3 (-B)	1.2 (-C)	2.3 (-C)	4.4 (-A)
	PF <sub>n</sub>	1/5	1/5	2/5	1/5
	Sub <sub>n</sub>	41	51	52	54
	$k \cdot k' (p)$	1.3 (E)	2.4 (F)	1.4 (E)	3.4 (D)
	PF <sub>n</sub>	2/10	2/10	2/10	4/10
	Supp <sub>n</sub>	110	120	121	123
GS.131	$k \cdot k' (p)$	3.4 (-A)	1.2 (-B)	2.4 (-B)	2.3 (-B)
	PF <sub>n</sub>	2/10	2/10	2/10	4/10
	Sub <sub>n</sub>	141	142	144	145
	$k \cdot k' (p)$	3.3 (D)	1.4 (D)	1.3 (D)	2.2 (C)
	PF <sub>n</sub>	1/5	1/5	2/5	1/5

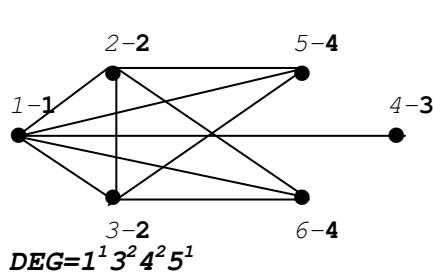
**Graph-structures GS.27 (6.10.9) and GS.132 (6.5.9)** (by Graph Atlas G177 and G72).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	Aut	3003PS
Partial	4	8	$1^2 2^2$	0.266	$1^3 2^4 4^1$	2.840	0.273	4	180

GS.27, its binary signs and semiotic model SM:

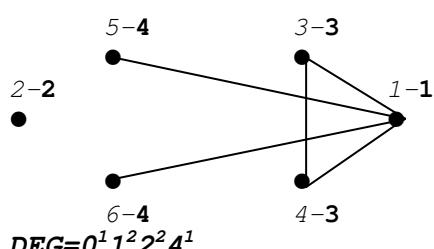
$$A: -2.5.9; \quad B: -2.3.2; \quad C: +1.2.1; \quad D: +2.4.6; \quad E: +2.5.9.$$



1	2	2	3	4	4	i	ABCDE	k
1	2	3	4	5	6	i	ABCDE	1234
0	E	E	C	D	D	1	00122	1
0	E	-B	D	D	D	2	01022	2
0	-B	D	D	D	D	3	01022	2
0	-B	-B	4	4	4	4	04100	3
0	-A	-B	4	4	4	5	11030	4
0	A	-A	5	5	5	5	11030	4
0	B	-B	5	5	5	6	11030	4

GS.132 (complement of GS.27), its binary signs and semiotic model SM:

$$A: -2.3.2; \quad B: -u.2.0; \quad C: +1.2.1; \quad D: +2.3.3.$$



1	2	3	3	4	4	i	ABCD	k
1	2	3	4	5	6	i	ABCD	1234
0	-B	D	D	C	C	1	0122	1
0	-B	-B	-B	-B	-B	2	0500	2
0	D	-A	-A	-A	-A	3	2102	3
0	-A	-A	-A	-A	-A	4	2102	3
0	-A	-A	5	5	5	5	3110	4
0	A	-A	5	5	5	6	3110	4

Correspondence of vertex positions (orbits):

GS.27	1	2	3	4
GS.132	2	4	1	3

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.27	10	5	3	5	4	3	2	$1^2 2^2 4^1$	0.361	0.900	0.100	2.466	p
GS.132	5	3	5	4	3	3	2	$1^1 2^2$	0.345	0.600	0.400	2.122	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5
	<i>Supp<sub>n</sub></i>	<b>11</b>	<b>16</b>	<b>18</b>		
GS.27	<i>k.k' (p)</i>	4.4 (-A)	2.3 (-B)	3.4 (-B)	-	-
	<i>PF<sub>n</sub></i>	1/5	2/5	2/5		
	<i>Sub<sub>n</sub></i>	<b>39</b>	<b>40</b>	<b>50</b>	<b>51</b>	<b>55</b>
	<i>k.k' (p)</i>	1.3 (C)	2.2 (E)	2.4 (D)	1.2 (E)	1.4 (D)
	<i>PF<sub>n</sub></i>	1/10	1/10	4/10	2/10	2/10
	<i>Supp<sub>n</sub></i>	<b>108</b>	<b>109</b>	<b>119</b>	<b>120</b>	<b>122</b>
GS.132	<i>k.k' (p)</i>	1.2 (-B)	4.4 (-A)	3.4 (-A)	2.4 (-B)	2.3 (-B)
	<i>PF<sub>n</sub></i>	1/10	1/10	4/10	2/10	2/10
	<i>Sub<sub>n</sub></i>	<b>140</b>	<b>145</b>	<b>147</b>		
	<i>k.k' (p)</i>	3.3 (D)	1.4 (C)	1.3 (D)	-	-
	<i>PF<sub>n</sub></i>	1/5	2/5	2/5		

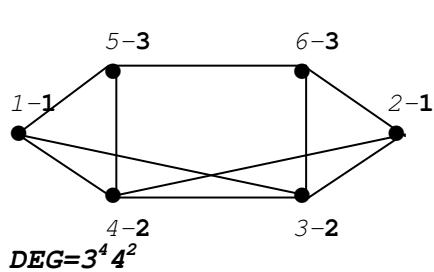
### Graph-structures GS.28 (6.10.10) and GS.133 (6.5.10) (by Graph Atlas G188 and G83).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	9	$2^3$	0.523	$1^3 2^6$	3.107	0.205	2	360

GS.28, its binary signs and semiotic model SM:

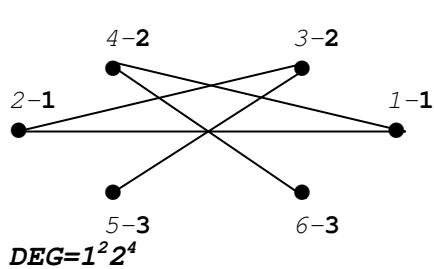
$$A:-2.5.7; \quad B:-2.4.5; \quad C:-2.4.4; \quad D:+2.3.3; \quad E:+2.4.5; \quad F:+3.6.10.$$



						k		
1	1	2	2	3	3	i	ABCDEF	123
1	2	3	4	5	6	1	011210	1 021
0	-B	D	E	D	-C	2	011210	1 021
0	E	D	-C	D		3	100220	2 211
0	E	-A	D		4	100220	2 211	
0	D	-A			5	101201	3 111	
0	F				6	101201	3 111	
0								

GS.133 (complement of GS.28), its binary signs and semiotic model SM:

$$A:-5.6.5; \quad B:-4.5.4; \quad C:-3.4.3; \quad D:-2.3.2; \quad E:+1.2.1.$$



						k		
1	1	2	2	3	3	i	ABCDE	123
1	2	3	4	5	6	1	00122	1 110
0	E	-D	E	-C	-D	2	00122	1 110
0	E	-D	-D	-C		3	01112	2 101
0	-C	E	-B			4	01112	2 101
0	-B	E				5	11111	3 010
0	-A					6	11111	3 010
0								

Correspondence of vertex positions (orbits):

GS.28	1	2	3
GS.133	1	3	2

Distinguishing invariants and measures:

GS	$ E $	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.28	10	6	3	6	3	4	2	$1^2 2^4$	0.241	0.900	0	2.571	hpu
GS.133	5	3	6	5	2	0	5	$1^1 2^2$	0.345	0	1.000	2.522	bptu

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	$Adj_n$	1	2	3	4	5	6
	$Supp_n$	<b>14</b>	<b>15</b>	<b>17</b>			
GS.28	$k.k' (p)$	1.1 (-B)	1.3 (-C)	2.3 (-A)	-	-	-
	$PF_n$	1/5	2/5	2/5			
	$Sub_n$	<b>36</b>	<b>45</b>	<b>46</b>	<b>48</b>	<b>52</b>	<b>54</b>
	$k.k' (p)$	2.2 ( <b>E</b> )	3.3 ( <b>F</b> )	2.3 ( <b>D</b> )	1.2 ( <b>D</b> )	1.2 ( <b>E</b> )	1.3 ( <b>D</b> )
	$PF_n$	1/10	1/10	2/10	2/10	2/10	2/10
	$Supp_n$	<b>105</b>	<b>114</b>	<b>115</b>	<b>117</b>	<b>121</b>	<b>123</b>
GS.133	$k.k' (p)$	3.3 (-A)	2.2 (-C)	2.3 (-B)	1.3 (-C)	1.3 (-D)	1.2 (-D)
	$PF_n$	1/10	1/10	2/10	2/10	2/10	2/10
	$Sub_n$	<b>143</b>	<b>144</b>	<b>146</b>			
	$k.k' (p)$	1.1 ( <b>E</b> )	1.2 ( <b>E</b> )	2.3 ( <b>E</b> )	-	-	-
	$PF_n$	1/5	2/5	2/5			

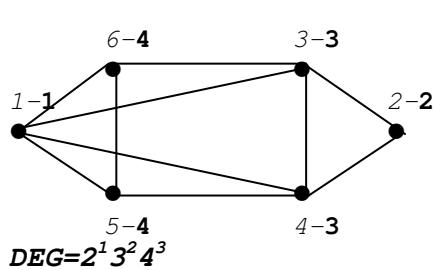
**Graph-structures GS.29 (6.10.11) and GS.134 (6.5.11) (by Graph Atlas G184 and G80).**

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	9	$1^2 2^2$	0.266	$1^3 2^6$	3.107	0.205	2	360

**GS.29**, its binary signs and semiotic model SM:

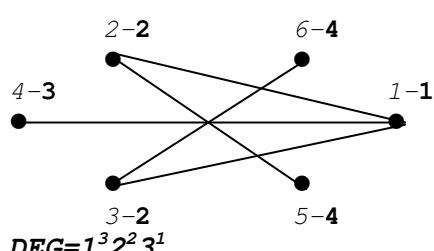
$$A:-2.5.8; \quad B:-2.4.5; \quad C:-2.3.2; \quad D:+2.3.3; \quad E:+2.4.5.$$



	1	2	3	3	4	4	k
	1	2	3	4	5	6	i ABCDE
	0	-B	E	E	E	E	1 01004 1 0022
	0	D	D	-C	-C		2 01220 2 0020
	0	E	-A	D			3 10022 3 1111
	0	D	-A	A			3 10022 3 1111
	0	D			5		4 10121 4 1011
	0				6		4 10121 4 1011

**GS.134** (complement of GS.29), its binary signs and semiotic model SM:

$$A:-4.5.4; \quad B:-3.4.3; \quad C:-2.3.2; \quad D:+1.2.1.$$



	1	2	2	3	4	4	k
	1	2	3	4	5	6	i ABCD
	0	D	D	D	-C	-C	1 0023 1 0210
	0	-C	-C	D	-B		2 0122 2 1001
	0	-C	-B	D			2 0122 2 1001
	0	-B	-B		4		3 0221 3 1000
	0	-A			5		4 1211 4 0100
	0				6		4 1211 4 0100

Correspondence of vertex positions (orbits):

GS.29	1	2	3	4
GS.134	3	1	4	2

Distinguishing invariants and measures:

GS	$ E $	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.29	10	6	3	5	3	3	2	$1^2 2^4$	0.241	1.000	0	2.546	hpu
GS.134	5	3	6	4	2	0	4	$1^1 2^2$	0.345	0	1.000	2.446	bptu

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	$Adj_n$	1	2	3	4	5	6
	$Supp_n$	15	17	18			
GS.29	$k.k'(\mathbf{p})$	2.4 (-C)	1.2 (-B)	3.4 (-A)	-	-	-
	$PF_n$	2/5	1/5	2/5			
	$Sub_n$	37	45	46	48	51	54
	$k.k'(\mathbf{p})$	4.4 (D)	3.4 (D)	3.3 (E)	1.3 (E)	2.3 (D)	1.4 (E)
	$PF_n$	1/10	2/10	1/10	2/10	2/10	2/10
	$Supp_n$	106	114	115	117	120	123
GS.134	$k.k'(\mathbf{p})$	2.2 (-C)	2.4 (-B)	4.4 (-A)	3.4 (-B)	1.4 (-C)	2.3 (-C)
	$PF_n$	1/10	2/10	1/10	2/10	2/10	2/10
	$Sub_n$	144	146	147			
	$k.k'(\mathbf{p})$	1.2 (D)	1.3 (D)	2.4 (D)	-	-	-
	$PF_n$	2/5	1/5	2/5			

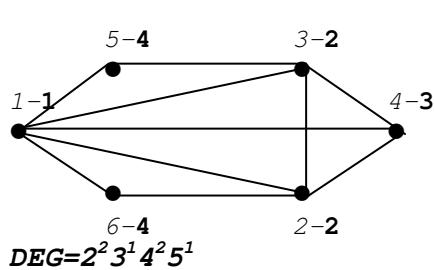
**Graph-structures GS.30 (6.10.12) and GS.135 (6.5.12) (by Graph Atlas G180 and G73).**

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	9	$1^2 2^2$	0.266	$1^3 2^6$	3.107	0.205	2	360

GS.30, its binary signs and semiotic model SM:

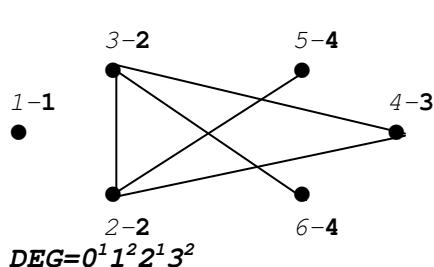
$$A:-2.4.5; B:-2.3.2; C:+2.3.3; D:+2.4.6; E:+2.5.8.$$



1	2	2	3	4	4	i	ABCDE	k
1	2	3	4	5	6	i	ABCDE	1234
0	E	E	D	C	C	1	00212	1
0	D	D	-A	C		2	10121	2
0	D	C	-A			3	10121	2
0	-A	-A			4		20030	3
0	-B				5		21200	4
0					6		21200	4

GS.135 (complement of GS.30), its binary signs and semiotic model SM:

$$A:-3.4.3; B:-2.3.2; C:-u.2.0; D:+1.2.1; E:+2.3.3.$$



1	2	2	3	4	4	i	ABCDE	k
1	2	3	4	5	6	i	ABCDE	1234
0	-C	-C	-C	-C	-C	1	00500	1
0	E	E	D	-B		2	01112	2
0	E	-B	D			3	01112	2
0	-B	-B			4		02102	3
0	-A				5		12110	4
0					6		12110	4

Correspondence of vertex positions (orbits):

GS.30	1	2	3	4
GS.135	1	4	3	2

Distinguishing invariants and measures:

GS	E	N <sup>+</sup>	N <sup>-</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.30	10	6	3	5	4	3	2	$1^2 2^4$	0.202	1.000	0	2.504	hp
GS.135	5	3	6	5	3	3	3	$1^1 2^2$	0.345	0.600	0.400	2.171	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5	6
	Supp <sub>n</sub>	16	17	18			
GS.30	$k \cdot k' (p)$	2.4 (-A)	4.4 (-B)	3.4 (-A)	-	-	-
	PF <sub>n</sub>	2/5	1/5	2/5			
	Sub <sub>n</sub>	37	47	49	50	53	54
	$k \cdot k' (p)$	1.3 (D)	2.2 (D)	2.3 (D)	2.4 (C)	1.4 (C)	1.2 (E)
	PF <sub>n</sub>	1/10	1/10	2/10	2/10	2/10	2/10
	Supp <sub>n</sub>	106	116	118	119	122	123
GS.135	$k \cdot k' (p)$	1.3 (-C)	4.4 (-A)	3.4 (-B)	2.4 (-B)	1.2 (-C)	1.4 (-C)
	PF <sub>n</sub>	1/10	1/10	2/10	2/10	2/10	2/10
	Sub <sub>n</sub>	145	146	147			
	$k \cdot k' (p)$	2.4 (D)	2.2 (E)	2.3 (E)	-	-	-
	PF <sub>n</sub>	2/5	1/5	2/5			

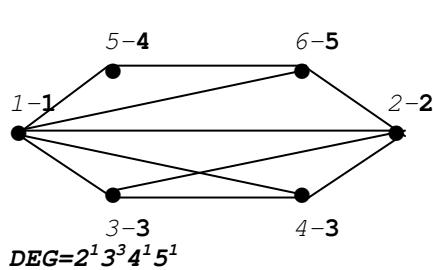
### Graph-structures GS.31 (6.10.13) and GS.136 (6.5.13) (by Graph Atlas G183 and G75).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	5	11	$1^4 2^1$	0.129	$1^7 2^4$	3.374	0.137	2	360

GS.31, its binary signs and semiotic model SM:

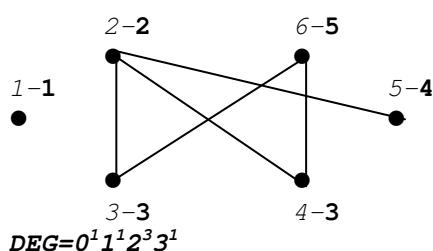
$$A:-2.4.5; B:-2.3.2; C:+2.3.3; D:+2.4.5; E:+2.4.6; F:+2.5.8.$$



1	2	3	3	4	5	i	ABCDEF	k
1	2	3	4	5	6	1	001121	12345
0	F	E	E	C	D	1	001121	01211
0	E	E	-A	C		2	011210	10201
0	E	-B	-A			3	110030	11100
0	-B	-A				4	110030	11100
0	C			5		4	122000	10001
0				6		5	202100	11010

GS.136 (complement of GS.31), its binary signs and semiotic model SM:

$$A:-3.5.5; B:-2.4.4; C:-2.3.2; D:-u.2.0; E:+1.2.1; F:+3.4.4.$$



1	2	3	3	4	5	i	ABCDEF	k
1	2	3	4	5	6	1	000500	12345
0	-D	-D	-D	-D	-D	1	000500	00000
0	F	F	E	-B		2	010112	00210
0	-B	-C	F			3	011102	01001
0	-C	F				4	011102	01001
0	-A			5		4	102110	01000
0				6		5	110102	00200

Correspondence of vertex positions (orbits):

GS.31	1	2	3	4	5
GS.136	1	4	3	2	5

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.31	10	8	3	6	4	3	2	$1^6 2^2$	0.120	1.000	0	2.527	hp
GS.136	5	3	8	6	2	4	3	$1^1 2^2$	0.345	0	0.200	2.246	bp

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5	6	7	8
GS.31	$Supp_n$	<b>10</b>	<b>17</b>	<b>18</b>					
	$k \cdot k'$	2.4	3.4	3.5	-	-	-	-	-
	(p)	(-A)	(-B)	(-A)					
	$PF_n$	1/5	2/5	2/5					
	$Sub_n$	<b>38</b>	<b>42</b>	<b>43</b>	<b>45</b>	<b>47</b>	<b>48</b>	<b>49</b>	<b>50</b>
	$k \cdot k' (p)$	2.5 (C)	1.5 (D)	1.4 (C)	1.3 (E)	2.3 (E)	1.2 (F)	3.3 (E)	4.5 (C)
GS.136	$PF_n$	1/10	1/10	1/10	2/10	2/10	1/10	1/10	1/10
	$Supp_n$	<b>107</b>	<b>111</b>	<b>112</b>	<b>114</b>	<b>116</b>	<b>117</b>	<b>118</b>	<b>119</b>
	$k \cdot k'$	4.5	1.5	1.2	1.3	3.4	1.4	3.3	2.5
	(p)	(-A)	(-D)	(-D)	(-D)	(-C)	(-D)	(-B)	(-B)
	$PF_n$	1/10	1/10	1/10	2/10	2/10	1/10	1/10	1/10
	$Sub_n$	<b>139</b>	<b>146</b>	<b>147</b>					
	$k \cdot k' (p)$	2.4 (E)	3.5 (F)	2.3 (F)	-	-	-	-	-
	$PF_n$	1/5	2/5	2/5					

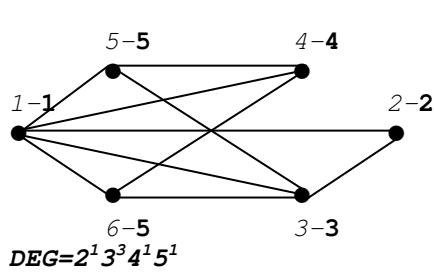
**Graph-structures GS.32 (6.10.14) and GS.137 (6.5.14)** (by Graph Atlas G182 and G74).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	5	11	$1^4 2^1$	0.129	$1^7 2^4$	3.374	0.137	2	360

GS.32, its binary signs and semiotic model SM:

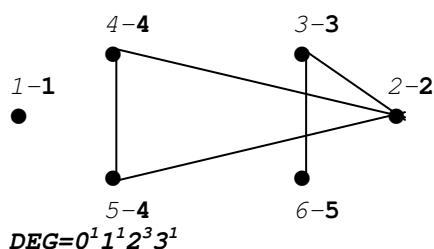
$$A:-2.5.8; B:-2.4.5; C:-2.3.2; D:+2.3.3; E:+2.4.5; F:+2.5.7.$$



	1	2	3	4	5	6	i	ABCDEF	k
	1	2	3	4	5	6			12345
	0	D	F	E	E	E		000131	1
	0	D	-C	-B	-B		2	021200	10100
	0	-A	D	D		3	100301	3	
	0	D	D		4	101210	4	10002	
	0	-A		5	110210	5	10110		
	0		6	110210	5	10110			

GS.137 (complement of GS.32), its binary signs and semiotic model SM:

$$A:-3.4.3; B:-2.3.2; C:-u.2.0; D:+1.2.1; E:+2.3.3.$$



	1	2	3	4	4	5	i	ABCDE	k
	1	2	3	4	5	6			12345
	0	-C	-C	-C	-C	-C		00500	1
	0	D	E	E	-B		2	01112	00120
	0	-B	-B	D		3	02120	3	
	0	E	-A		4	11102	4	01010	
	0	-A		5	11102	4	01010		
	0		6	21110	5	00100			

Correspondence of vertex positions (orbits):

$$\begin{array}{ccccccc} \text{GS.32} & 1 & 2 & 3 & 4 & 5 \\ \text{GS.137} & 1 & 2 & 5 & 3 & 4 \end{array}$$

Distinguishing invariants and measures:

GS	$ E $	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.32	10	7	4	6	3	3	2	$1^4 2^3$	0.181	1.000	0	2.528	hpu
GS.137	5	4	7	5	3	3	3	$1^3 2^1$	0.172	0.600	0.400	2.246	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	$Adj_n$	1	2	3	4	5	6	7
GS.32	$Supp_n$	13	16	17	18			
	$k.k'$	2.4	3.4	2.5	5.5	-	-	-
	(P)	(-C)	(-A)	(-B)	(-A)			
	$PF_n$	1/5	1/5	2/5	1/5			
GS.137	$Sub_n$	40	44	47	49	51	52	54
	$k.k' (P)$	2.3 (D)	1.4 (E)	3.5 (D)	4.5 (D)	1.2 (D)	1.3 (F)	1.5 (E)
	$PF_n$	1/10	1/10	2/10	2/10	1/10	1/10	2/10
	$Supp_n$	109	113	116	118	120	121	123
	$k.k'$	2.5	1.3	4.5	3.4	1.2	1.5	1.4
	(P)	(-B)	(-C)	(-A)	(-B)	(-C)	(-C)	(-C)
	$PF_n$	1/10	1/10	2/10	2/10	1/10	1/10	2/10
	$Sub_n$	142	145	146	147			
	$k.k' (P)$	2.3 (D)	3.5 (D)	2.4 (E)	4.4 (E)	-	-	-
	$PF_n$	1/5	1/5	2/5	1/5			

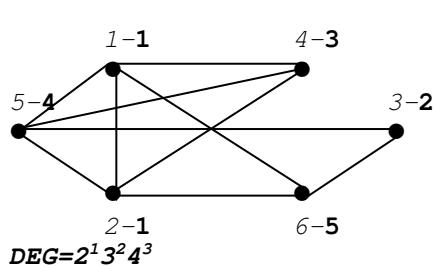
### Graph-structures GS.33 (6.10.15) and GS.138 (6.5.15) (by Graph Atlas G185 and G81).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	5	11	$1^4 2^1$	0.129	$1^7 2^4$	3.374	0.137	2	360

GS.33, its binary signs and semiotic model SM:

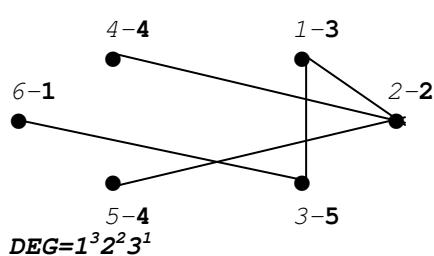
$$A: -2.5.7; \quad B: -2.4.5; \quad C: -2.4.4; \quad D: -2.3.2; \\ E: +2.3.3; \quad F: +2.4.6; \quad G: +2.5.7; \quad H: +3.5.7.$$



1	1	2	3	4	5	k
1	2	3	4	5	6	i ABCDEFGH 12345
0	G   -C	F	F	E	1	00101210 1 10111
0   -C	F	F	E	2	00101210 1 10111	
0   -D	H	H	3	00210002 2 00011		
0   F   -B	4	01010300 3 20010				
0   -A	5	10000301 4 21100				
0	6	11002001 5 21000				

GS.138 (complement of GS.33), its binary signs and semiotic model SM:

$$A: -4.5.4; \quad B: -3.4.3; \quad C: -2.3.2; \quad D: +1.2.1.$$



1	2	3	4	4	5	k
1	2	3	4	5	6	i ABCD 12345
0	D	D   -C   -C   -C	1	0032 1 01100		
0   -C	D	D   -B	2	0113 2 10020		
0   -B	-B	D	3	0212 3 10001		
0   -C   -A	4	1121 4 01000				
0   -A	5	1121 4 01000				
0	6	2111 5 00100				

Correspondence of vertex positions (orbits):

GS.33	1	2	3	4	5
GS.138	4	2	3	1	5

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.33	10	7	4	8	4	4	2	$1^4 2^3$	0.181	0.800	0	2.546	hp
GS.138	5	4	7	4	2	0	4	$1^3 2^1$	0.172	0	1.000	2.446	bptu

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5	6	7
GS.33	$Supp_n$	<b>12</b>	<b>14</b>	<b>17</b>	<b>18</b>			
	$k.k'$	3.5	2.3	1.2	4.5	-	-	-
	(p)	(-B)	(-D)	(-C)	(-A)			
	$PF_n$	1/5	1/5	2/5	1/5			
	$Sub_n$	<b>42</b>	<b>43</b>	<b>44</b>	<b>46</b>	<b>52</b>	<b>53</b>	<b>54</b>
GS.138	$k.k' (p)$	1.5 (E)	2.4 (H)	3.4 (F)	1.4 (F)	1.1 (G)	2.5 (H)	1.3 (F)
	$PF_n$	2/10	1/10	1/10	2/10	1/10	1/10	2/10
	$Supp_n$	<b>111</b>	<b>112</b>	<b>113</b>	<b>115</b>	<b>121</b>	<b>122</b>	<b>123</b>
	$k.k'$	4.5	1.2	2.3	1.4	4.4	2.5	3.4
	(p)	(-A)	(-C)	(-C)	(-C)	(-C)	(-B)	(-B)
	$PF_n$	2/10	1/10	1/10	2/10	1/10	1/10	2/10
	$Sub_n$	<b>141</b>	<b>143</b>	<b>146</b>	<b>147</b>			
	$k.k' (p)$	3.5 (D)	1.3 (D)	2.4 (D)	1.2 (D)	-	-	-
	$PF_n$	1/5	1/5	2/5	1/5			

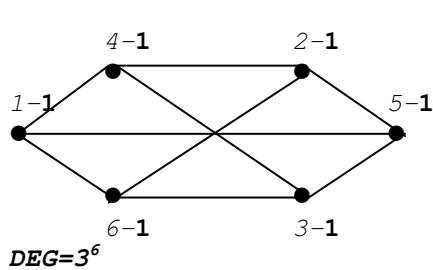
### Graph-structures GS.34 (6.9.1) and GS.103 (6.6.1) (by Graph Atlas G175 and G106).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Bisymmetry	1	2	$6^1$	1.000	$6^1 9^1$	0.971	0.751	72	6

GS.34, its binary signs and semiotic model SM:

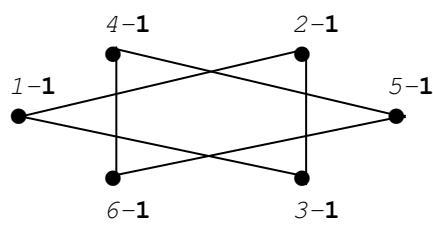
$$A: -2.5.6; \quad B: +3.6.9.$$



1	1	1	1	1	1	k		
1	2	3	4	5	6	i	AB	1
1	0	-A	-A	<b>B</b>	<b>B</b>	<b>B</b>	1	23 1 3
0	-A	<b>B</b>	<b>B</b>	<b>B</b>			2	23 1 3
0	<b>B</b>	<b>B</b>	<b>B</b>				3	23 1 3
0	-A	-A					4	23 1 3
0	-A						5	23 1 3
0							6	23 1 3

GS.103 (complement of GS.34), its binary signs and semiotic model SM:

$$A: -u.2.0; \quad B: +2.3.3.$$



1	1	1	1	1	1	k		
1	2	3	4	5	6	i	AB	1
1	0	<b>B</b>	<b>B</b>	-A	-A	-A	1	32 1 1
0	<b>B</b>	-A	-A	-A			2	32 1 1
0	-A	-A	-A				3	32 1 1
0	<b>B</b>	<b>B</b>					4	32 1 1
0	<b>B</b>						5	32 1 1
0							6	32 1 1

Correspondence of vertex positions (orbits):

GS. 34	1
GS. 103	1

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 34	9	1	1	2	2	4	2	$9^1$	1.000	0	0	2.585	bhu
GS. 103	6	1	1	2	3	3	1	$6^1$	1.000	1.000	0	2.585	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

<i>GS</i>	<i>Adj<sub>n</sub></i>	1
	<i>Supp<sub>n</sub></i>	22
<i>GS. 34</i>	<i>k.k' (p)</i>	1.1 (-A)
	<i>PF<sub>n</sub></i>	6/6
<i>GS. 103</i>	<i>Sub<sub>n</sub></i>	57
	<i>k.k' (p)</i>	1.1 ( <b>B</b> )
<i>GS. 103</i>	<i>PF<sub>n</sub></i>	9/9
	<i>Supp<sub>n</sub></i>	81
<i>GS. 103</i>	<i>k.k' (p)</i>	1.1 (-A)
	<i>PF<sub>n</sub></i>	9/9
<i>GS. 103</i>	<i>Sub<sub>n</sub></i>	127
	<i>k.k' (p)</i>	1.1 ( <b>B</b> )
	<i>PF<sub>n</sub></i>	6/6

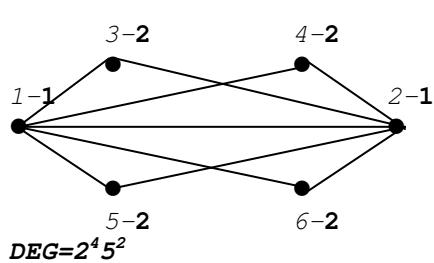
### Graph-structures GS.35 (6.9.2) and GS.104 (6.6.2) (by Graph Atlas G161 and G86).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	2	3	$2^1 4^1$	0.645	$1^1 6^1 8^1$	1.273	0.674	48	9

GS.35, its binary signs and semiotic model SM:

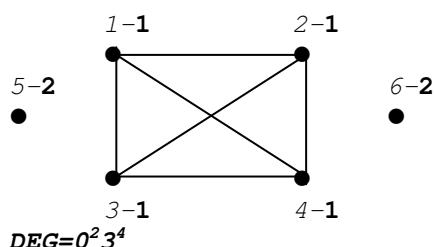
$$A:-2.4.5; \quad B:+2.3.3; \quad C:+2.6.9.$$



1	1	2	2	2	2	i	A <sub>B</sub> C	k
1	2	3	4	5	6	1	041	1 14
0	C	B	B	B	B	2	041	1 14
0	B	B	B	B	B	3	320	2 20
0	-A	-A	-A	-A	-A	4	320	2 20
0	-A	-A	-A	-A	-A	5	320	2 20
0	-A	-A	-A	-A	-A	6	320	2 20

GS.104 (complement of GS.35), its binary signs and semiotic model SM:

$$A:-1.2.0; \quad B:+2.4.6.$$



1	1	1	1	2	2	i	A <sub>B</sub>	k
1	2	3	4	5	6	1	23	1 30
0	B	B	B	-A	-A	2	23	1 30
0	B	B	B	-A	-A	3	23	1 30
0	B	-A	-A	-A	-A	4	23	1 30
0	-A	-A	-A	-A	-A	5	50	2 00
0	-A	-A	-A	-A	-A	6	50	2 00

Correspondence of vertex positions (orbits):

GS .35	1	2
GS .104	2	1

Distinguishing invariants and measures:

GS	E	N <sup>+</sup>	N <sup>-</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS .35	9	2	1	3	3	3	2	$1^1 8^1$	0.841	1.000	0	2.436	pu
GS .104	6	1	2	2	4	3	1	$6^1$	1.000	1.000	0	2.000	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2
	Supp <sub>n</sub>	24	
GS .35	$k \cdot k' (p)$	2.2 (-A)	-
	PF <sub>n</sub>	6/6	
	Sub <sub>n</sub>	55	63
	$k \cdot k' (p)$	1.1 (C)	1.2 (B)
	PF <sub>n</sub>	1/9	8/9
	Supp <sub>n</sub>	79	87
GS .104	$k \cdot k' (p)$	2.2 (-A)	1.2 (-A)
	PF <sub>n</sub>	1/9	8/9
	Sub <sub>n</sub>	129	
	$k \cdot k' (p)$	1.1 (B)	-
	PF <sub>n</sub>	6/6	

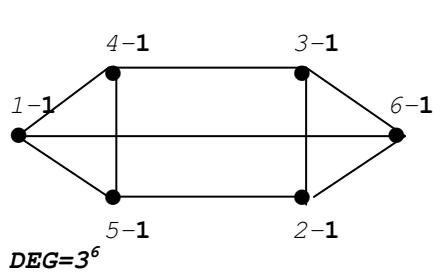
### Graph-structures GS.36 (6.9.3) and GS.105 (6.6.3) (by Graph Atlas G174 and G105).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
(-) / (+) symmetry	1	3	$6^1$	1.000	$3^1 6^2$	1.522	0.610	12	36

GS.36, its binary signs and semiotic model SM:

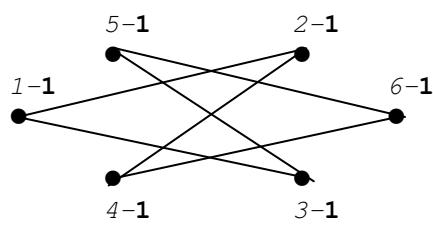
$$A: -2.4.4; \quad B: +2.3.3; \quad C: +3.6.9.$$



<b>k</b>	<b>i</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>1</b>	<b>2</b>	<b>3</b>
1	1	221	1	3	1	221	1
	2	221	1	3	2	221	1
	3	221	1	3	3	221	1
	4	221	1	3	4	221	1
	5	221	1	3	5	221	1
	6	221	1	3	6	221	1

GS.105 (complement of GS.36), its binary signs and semiotic model SM:

$$A: -3.6.6; \quad B: -2.3.2; \quad C: +5.6.6.$$



<b>k</b>	<b>i</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>1</b>	<b>2</b>
1	1	122	1	2	1	2
	2	122	1	2	2	122
	3	122	1	2	3	122
	4	122	1	2	4	122
	5	122	1	2	5	122
	6	122	1	2	6	122

Correspondence of vertex positions (orbits):

GS. 36	1
GS. 105	1

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 36	9	2	1	3	3	4	$3^1 6^1$	0.710	0.667	0	2.585	hp
GS. 105	6	1	2	3	2	6	3	$6^1$	1.000	0	0	2.585 behpu

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2
GS. 36	$Supp_n$	28	-
	$k \cdot k' (p)$	1.1 (-A)	-
	$PF_n$	6/6	
	$Sub_n$	59	70
	$k \cdot k' (p)$	1.1 (C)	1.1 (B)
	$PF_n$	3/9	6/9
GS. 105	$Supp_n$	83	94
	$k \cdot k' (p)$	1.1 (-A)	1.1 (-B)
	$PF_n$	3/9	6/9
	$Sub_n$	133	-
	$k \cdot k' (p)$	1.1 (C)	-
	$PF_n$	6/6	

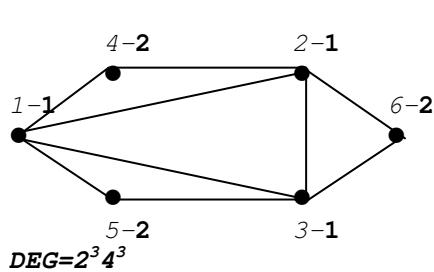
### Graph-structures GS.37 (6.9.4) and GS.106 (6.6.4) (by Graph Atlas G163 and G94).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	2	4	$3^2$	0.613	$3^3 6^1$	1.640	0.508	6	72

GS.37, its binary signs and semiotic model SM:

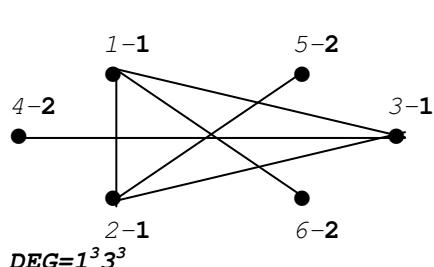
$$A: -2 \cdot 4 \cdot 5; \quad B: -2 \cdot 3 \cdot 2; \quad C: +2 \cdot 3 \cdot 3; \quad D: +2 \cdot 4 \cdot 5.$$



<b>k</b>
1   1 1 1   2 2 2   <i>i</i> ABCD 12
1   1 2 3   4 5 6   1 1022 1 22
0   <b>D</b> <b>D</b>   <b>C</b> <b>C</b> -A   2 1022 1 22
0   <b>D</b>   <b>C</b> -A   <b>C</b>   3 1022 1 22
0   -A <b>C</b> <b>C</b>   4 1220 2 20
0   -B -B   5 1220 2 20
0   6 1220 2 20

GS.106 (complement of GS.37), its binary signs and semiotic model SM:

$$A: -3 \cdot 4 \cdot 3; \quad B: -2 \cdot 3 \cdot 2; \quad C: +1 \cdot 2 \cdot 1; \quad D: +2 \cdot 3 \cdot 3.$$



<b>k</b>
1   1 1 1   2 2 2   <i>i</i> ABCD 12
1   1 2 3   4 5 6   1 0212 1 21
0   <b>D</b> <b>D</b>   -B -B   <b>C</b>   2 0212 1 21
0   <b>D</b>   -B   <b>C</b> -B   3 0212 1 21
0   -C -B -B   4 2210 2 10
0   -A -A   5 2210 2 10
0   6 2210 2 10

Correspondence of vertex positions (orbits):

<b>GS .37</b>	1	2
<b>GS .106</b>	2	1

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
<b>GS .37</b>	9	2	2	4	3	3	$3^1 6^1$	0.710	1.000	0	2.505	<b>ehpu</b>
<b>GS .106</b>	6	2	2	4	3	3	$3^2$	0.614	0.500	0.500	2.386	<b>p</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	<b>Adj<sub>n</sub></b>	1	
		2	3
<b>GS .37</b>	<b>Supp<sub>n</sub></b>	<b>29</b>	<b>30</b>
	<b>k . k' (p)</b>	2 . 2 (-B)	1 . 2 (-A)
	<b>PF<sub>n</sub></b>	3/6	3/6
	<b>Sub<sub>n</sub></b>	<b>72</b>	<b>76</b>
<b>GS .106</b>	<b>Supp<sub>n</sub></b>	<b>96</b>	<b>100</b>
	<b>k . k' (p)</b>	2 . 2 (-A)	1 . 2 (-B)
	<b>PF<sub>n</sub></b>	3/9	6/9
	<b>Sub<sub>n</sub></b>	<b>134</b>	<b>135</b>
		<b>k . k' (p)</b>	1 . 1 (D)
		<b>PF<sub>n</sub></b>	3/6
		<b>1 . 2 (C)</b>	3/6

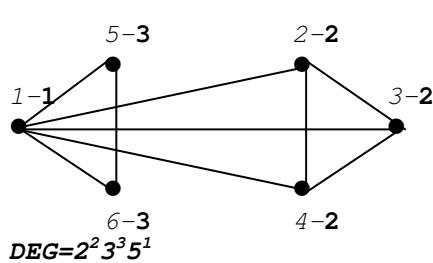
### Graph-structures GS.38 (6.9.5) and GS.107 (6.6.5) (by Graph Atlas G165 and G91).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	5	$1^1 2^1 3^1$	0.478	$1^1 2^1 3^2 6^1$	2.106	<b>0.461</b>	12	36

GS.38, its binary signs and semiotic model SM:

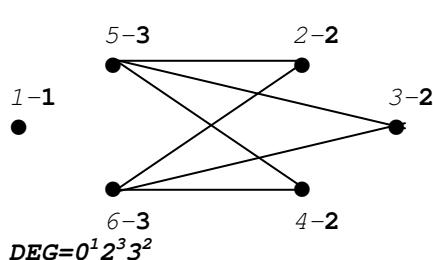
$$A: -2.3.2; \quad B: +2.3.3; \quad C: +2.4.6.$$



1	2	2	2	3	3	i	ABC	k
1	2	3	4	5	6			123
0	C	C	C	B	B	1	023	1 032
0	C	C	-A	-A		2	203	2 120
0	C	-A	-A			3	203	2 120
0	-A	-A			4		203	2 120
0	B			5			320	3 101
0				6			320	3 101

GS.107 (complement of GS.38), its binary signs and semiotic model SM:

$$A: -2.5.6; \quad B: -2.4.4; \quad C: -1.2.0; \quad D: +3.5.6.$$



1	2	2	2	3	3	i	ABCD	k
1	2	3	4	5	6			123
0	-C	-C	-C	-C	-C	1	0050	1 000
0	-B	-B	D	D		2	0212	2 002
0	-B	D	D			3	0212	2 002
0	D	D			4		0212	2 002
0	-A			5			1013	3 030
0				6			1013	3 030

Correspondence of vertex positions (orbits):

GS.38	1	2	3
GS.107	1	2	3

Distinguishing invariants and measures:

GS	E	N <sup>+</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
<b>GS.38</b>	9	4	1	3	4	3	$1^1 2^1 3^2$	0.406	1.000	0	2.510	<b>p</b>
<b>GS.107</b>	6	1	4	4	2	4	$6^1$	1.000	0	0	2.293	<b>bp</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4
	<i>Supp<sub>n</sub></i>	<b>31</b>			
<i>GS.38</i>	<i>k.k' (p)</i>	2.3 (-A)	-	-	-
	<i>PF<sub>n</sub></i>	$6/6$			
	<i>Sub<sub>n</sub></i>	<b>56</b>	<b>64</b>	<b>65</b>	<b>66</b>
	<i>k.k' (p)</i>	3.3 (B)	1.3 (B)	2.2 (C)	1.2 (C)
	<i>PF<sub>n</sub></i>	$1/9$	$2/9$	$3/9$	$3/9$
	<i>Supp<sub>n</sub></i>	<b>80</b>	<b>88</b>	<b>89</b>	<b>90</b>
<i>GS.107</i>	<i>k.k' (p)</i>	3.3 (-A)	1.3 (-C)	2.2 (-B)	1.2 (-C)
	<i>PF<sub>n</sub></i>	$1/9$	$2/9$	$3/9$	$3/9$
	<i>Sub<sub>n</sub></i>	<b>136</b>			
	<i>k.k' (p)</i>	2.3 (D)	-	-	-
	<i>PF<sub>n</sub></i>	$6/6$			

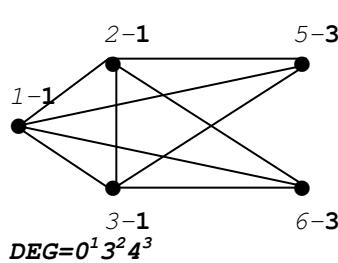
Graph-structures GS.39 (6.9.6) and GS.108 (6.6.6) (by Graph Atlas G155 and G92).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	5	$1^1 2^1 3^1$	0.478	$1^1 2^1 3^2 6^1$	2.106	<b>0.461</b>	12	36

GS.39, its binary signs and semiotic model SM:

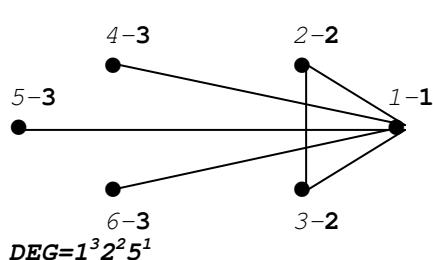
$$A: -2.5.9; \quad B: -1.2.0; \quad C: +2.4.6; \quad D: +2.5.9.$$



	1	1	1	2	3	3	i	ABCD	k
	1	2	3	4	5	6			123
	0	D	D	-B	C	C	1	0122	1
		0	D	-B	C	C	2	0122	1
			0	-B	C	C	3	0122	1
				0	-B	-B	4	0500	2
					0	A	5	1130	3
							0	1130	3
							6	1130	3
									300

GS.108 (complement of GS.39), its binary signs and semiotic model SM:

$$A: -2.3.2; \quad B: +1.2.1; \quad C: +2.3.3.$$



	1	2	2	3	3	3	i	ABC	k
	1	2	3	4	5	6			123
	0	C	C	B	B	B	1	032	1
		0	C	-A	-A	-A	2	302	2
			0	-A	-A	-A	3	302	2
				0	-A	-A	4	410	3
					0	A	5	410	3
							0	410	3
							6	410	3
									100

Correspondence of vertex positions (orbits):

GS.39	1	2	3
GS.108	3	1	2

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N <sup>r</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.39	9	2	3	4	4	3	2	$3^1 6^1$	0.710	1.000	0	2.308	<b>P</b>
GS.108	6	3	2	3	3	3	2	$1^1 2^1 3^1$	0.436	0.500	0.500	2.284	<b>P</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3
	<i>Supp<sub>n</sub></i>	<b>19</b>	<b>25</b>	<b>27</b>
GS.39	<i>k.k' (P)</i>	3.3 (-A)	2.3 (-B)	1.2 (-B)
	<i>PF<sub>n</sub></i>	1/6	2/6	3/6
	<i>Sub<sub>n</sub></i>	<b>58</b>	<b>69</b>	
	<i>k.k' (P)</i>	1.1 (D)	1.3 (C)	-
	<i>PF<sub>n</sub></i>	3/9	6/9	
	<i>Supp<sub>n</sub></i>	<b>82</b>	<b>93</b>	
GS.108	<i>k.k' (P)</i>	3.3 (-A)	2.3 (-A)	-
	<i>PF<sub>n</sub></i>	3/9	6/9	
	<i>Sub<sub>n</sub></i>	<b>124</b>	<b>130</b>	<b>132</b>
	<i>k.k' (P)</i>	2.2 (C)	1.2 (C)	1.3 (B)
	<i>PF<sub>n</sub></i>	1/6	2/6	3/6

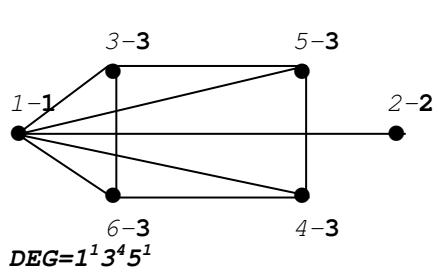
### Graph-structures GS.40 (6.9.7) and GS.109 (6.6.7) (by Graph Atlas G158 and G89).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	5	$1^2 4^1$	0.516	$1^1 2^1 4^3$	2.174	0.444	8	54

GS.40, its binary signs and semiotic model SM:

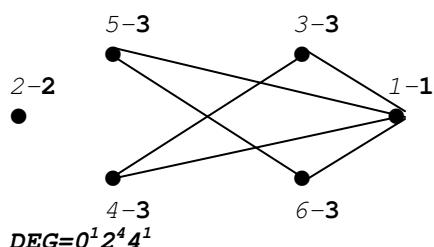
$$A: -2.5.8; \quad B: -2.3.2; \quad C: +1.2.1; \quad D: +2.3.3; \quad E: +2.4.5.$$



1	2	3	3	3	3	i	ABCDE	k
1	2	3	4	5	6	1	00104	1 014
0	C	E	E	E	E	1	04100	2 100
0	-B	-B	-B	-B	-B	2	11021	3 102
0	A	D	D	D	D	3	11021	3 102
0	D	D	D	D	D	4	11021	3 102
0	-A	5	5	5	5	5	11021	3 102
0	6	6	6	6	6	6	11021	3 102

GS.109 (complement of GS.40), its binary signs and semiotic model SM:

$$A: -2.3.2; \quad B: -1.2.0; \quad C: +2.3.3.$$



1	2	3	3	3	3	i	ABC	k
1	2	3	4	5	6	1	014	1 004
0	-B	C	C	C	C	1	050	2 000
0	B	-B	-B	-B	-B	2	212	3 101
0	C	-A	-A	-A	-A	3	212	3 101
0	-A	A	A	A	A	4	212	3 101
0	C	5	5	5	5	5	212	3 101
0	6	6	6	6	6	6	212	3 101

Correspondence of vertex positions (orbits):

GS.40	1	2	3
GS.109	2	1	3

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.40	9	3	2	5	3	3	$1^1 4^2$	0.561	0.889	0.111	2.436	p
GS.109	6	2	3	3	3	2	$2^1 4^1$	0.647	1.000	0	2.252	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3
	<i>Supp<sub>n</sub></i>	<b>27</b>	<b>32</b>	
GS.40	<i>k.k' (p)</i>	3.3 (-A)	2.3 (-B)	-
	<i>PF<sub>n</sub></i>	2/6	4/6	
	<i>Sub<sub>n</sub></i>	<b>58</b>	<b>71</b>	<b>75</b>
	<i>k.k' (p)</i>	1.2 (C)	3.3 (D)	1.3 (E)
	<i>PF<sub>n</sub></i>	1/9	4/9	4/9
	<i>Supp<sub>n</sub></i>	<b>82</b>	<b>95</b>	<b>99</b>
GS.109	<i>k.k' (p)</i>	1.2 (-B)	3.3 (-A)	2.3 (-B)
	<i>PF<sub>n</sub></i>	3/9	4/9	4/9
	<i>Sub<sub>n</sub></i>	<b>132</b>	<b>137</b>	
	<i>k.k' (p)</i>	3.3 (C)	1.3 (C)	-
	<i>PF<sub>n</sub></i>	2/6	4/6	

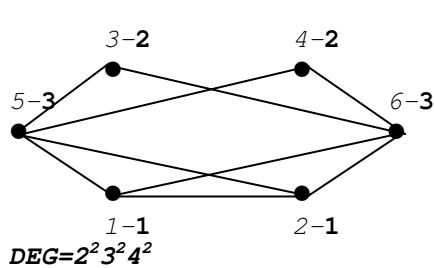
### Graph-structures GS.41 (6.9.8) and GS.110 (6.6.8) (by Graph Atlas G170 and G101).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	6	$2^3$	0.523	$1^3 4^3$	2.307	0.410	8	54

**GS.41**, its binary signs and semiotic model SM:

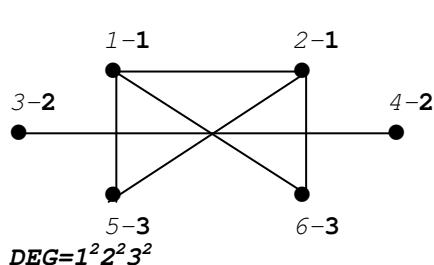
$$A: -2.6.9; \quad B: -2.4.4; \quad C: +2.3.3; \quad D: +2.4.5; \quad E: +3.6.9.$$



<b>k</b>
<b>i</b>
<b>ABCDE</b>
123
100 02210 1 102
010 02210 1 102
100 03002 2 002
010 03002 2 002
100 10202 3 220
010 10202 3 220

**GS.110** (complement of **GS.41**), its binary signs and semiotic model SM:

$$A: -2.4.4; \quad B: -u.2.0; \quad C: +1.2.1; \quad D: +2.3.3; \quad E: +2.4.5.$$



<b>k</b>
<b>i</b>
<b>ABCDE</b>
123
100 02021 1 102
010 02021 1 102
100 04100 2 010
010 04100 2 010
100 12020 3 200
010 12020 3 200

Correspondence of vertex positions (orbits):

<b>GS.41</b>	1	2	3
<b>GS.110</b>	3	1	2

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
<b>GS.41</b>	9	3	3	5	3	4	2	$1^1 4^2$	0.561	0.556	0	2.531 <b>p</b>
<b>GS.110</b>	6	3	3	5	3	3	2	$1^2 4^1$	0.516	0.667	0.167	2.459 <b>p</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3
<b>GS.41</b>	<i>Supp<sub>n</sub></i>	<b>21</b>	<b>24</b>	<b>26</b>
	<i>k.k' (p)</i>	2.2 (-B)	3.3 (-A)	1.2 (-B)
	<i>PF<sub>n</sub></i>	1/6	1/6	4/6
	<i>Sub<sub>n</sub></i>	<b>55</b>	<b>73</b>	<b>74</b>
	<i>k.k' (p)</i>	1.1 (D)	1.3 (C)	2.3 (E)
	<i>PF<sub>n</sub></i>	1/9	4/9	4/9
<b>GS.110</b>	<i>Supp<sub>n</sub></i>	<b>79</b>	<b>97</b>	<b>98</b>
	<i>k.k' (p)</i>	3.3 (-A)	2.3 (-B)	1.2 (-B)
	<i>PF<sub>n</sub></i>	1/9	4/9	4/9
	<i>Sub<sub>n</sub></i>	<b>126</b>	<b>129</b>	<b>131</b>
	<i>k.k' (p)</i>	1.1 (E)	2.2 (C)	1.3 (D)
	<i>PF<sub>n</sub></i>	1/6	1/6	4/6

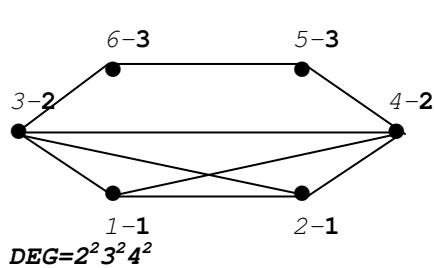
### Graph-structures GS.42 (6.9.9) and GS.111 (6.6.9) (by Graph Atlas G169 and G99).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	7	$2^3$	0.523	$1^3 2^2 4^2$	2.576	0.340	4	108

GS.42, its binary signs and semiotic model SM:

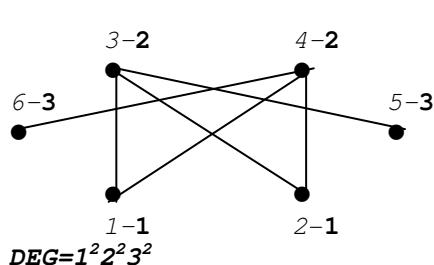
$$A: -2.4.4; \quad B: -2.3.2; \quad C: +2.4.6; \quad D: +3.4.4.$$



<b>k</b>	<b>i</b>	<b>ABCD</b>	<b>123</b>
1   1   2   3   4   5   6			
0   <b>C</b>   <b>C</b>   <b>C</b>   -B   -B   1   0230   <b>1</b>   120			
0   <b>C</b>   <b>C</b>   -B   -B   2   0230   <b>1</b>   102			
0   <b>C</b>   -A   <b>D</b>   3   1031   <b>2</b>   211			
0   <b>D</b>   -A   4   1031   <b>2</b>   211			
0   <b>D</b>   5   1202   <b>3</b>   011			
0   6   1202   <b>3</b>   011			

GS.111 (complement of GS.42), its binary signs and semiotic model SM:

$$A: -4.6.6; \quad B: -3.5.5; \quad C: -2.4.4; \quad D: -2.3.2; \quad E: +1.2.1; \quad F: +3.4.4.$$



<b>k</b>	<b>i</b>	<b>ABCDEF</b>	<b>123</b>
1   1   2   3   4   5   6			
0   -C   <b>F</b>   <b>F</b>   -D   -D   1   001202   <b>1</b>   020			
0   <b>F</b>   <b>F</b>   -D   -D   2   001202   <b>1</b>   020			
0   -C   <b>E</b>   -B   3   011012   <b>2</b>   201			
0   -B   <b>E</b>   4   011012   <b>2</b>   201			
0   -A   5   110210   <b>3</b>   200			
0   6   110210   <b>3</b>   200			

Correspondence of vertex positions (orbits):

GS.42	1	2	3
GS.111	1	3	2

Distinguishing invariants and measures:

GS	$ E $	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
<b>GS.42</b>	9	5	2	4	4	4	2	$1^3 2^1 4^1$	0.350	0.667	0	2.531	<b>hp</b>
<b>GS.111</b>	6	2	5	6	2	4	4	$2^1 4^1$	0.645	0	0.333	2.459	<b>bpu</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	$\text{Adj}_n$	1	2	3	4	5
	$\text{Supp}_n$	<b>31</b>	<b>33</b>			
<b>GS.42</b>	$k \cdot k' (p)$	2.3 (-A)	1.3 (-B)	-	-	-
	$\text{PF}_n$	2/6	4/6			
	$\text{Sub}_n$	<b>60</b>	<b>61</b>	<b>62</b>	<b>64</b>	<b>78</b>
	$k \cdot k' (p)$	1.1 ( <b>C</b> )	2.2 ( <b>C</b> )	3.3 ( <b>D</b> )	2.3 ( <b>D</b> )	1.2 ( <b>C</b> )
	$\text{PF}_n$	1/9	1/9	1/9	2/9	4/9
	$\text{Supp}_n$	<b>84</b>	<b>85</b>	<b>86</b>	<b>88</b>	<b>102</b>
<b>GS.111</b>	$k \cdot k' (p)$	1.1 (-C)	3.3 (-A)	2.2 (-C)	2.3 (-B)	1.3 (-D)
	$\text{PF}_n$	1/9	1/9	1/9	2/9	4/9
	$\text{Sub}_n$	<b>136</b>	<b>138</b>			
	$k \cdot k' (p)$	2.3 ( <b>E</b> )	1.2 ( <b>F</b> )	-	-	-
	$\text{PF}_n$	2/6	4/6			

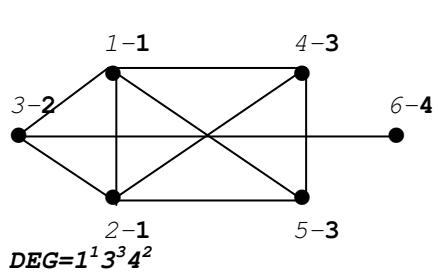
### Graph-structures GS.43 (6.9.10) and GS.112 (6.6.10) (by Graph Atlas G160 and G96).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	8	$1^2 2^2$	0.266	$1^3 2^4 4^1$	2.840	0.273	4	108

GS.43, its binary signs and semiotic model SM:

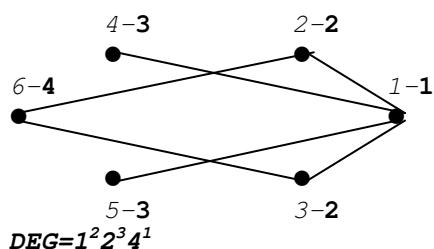
$$A: -3.5.6; B: -2.4.5; C: -2.3.2; D: +1.2.1; E: +2.3.3; F: +2.4.6; G: +2.5.8.$$



i	1	1	2	3	3	4	k
1	1	2	3	4	5	6	1234
2	0	<b>G</b>	<b>E</b>	<b>F</b>	<b>F</b>	$-C$	1 1120
3	0	<b>E</b>	<b>F</b>	<b>F</b>	$-C$		1 1120
4	0	$-B$	$-B$	<b>D</b>		3	2001
5	0	<b>F</b>	$-A$		4	1100030	3 2010
6	0	$-A$			5	1100030	3 2010
	0				6	2021000	4 0100

GS.112 (complement of GS.43), its binary signs and semiotic model SM:

$$A: -3.5.5; B: -2.4.4; C: -2.3.2; D: +1.2.1; E: +3.4.4.$$



i	1	2	2	3	3	4	k
1	1	2	3	4	5	6	1234
2	0	<b>E</b>	<b>E</b>	<b>D</b>	<b>D</b>	$-B$	1 0220
3	0	$-B$	$-C$	$-C$	<b>E</b>		2 1001
4	0	$-C$	$-C$	<b>E</b>		3	1001
5	0	$-C$	$-A$		4	10310	3 1000
6	0	$-A$			5	10310	3 1000
	0				6	21002	4 0200

Correspondence of vertex positions (orbits):

GS. 43	1	2	3	4
GS. 112	3	4	2	1

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N <sup>r</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 43	9	5	3	7	4	3	3	$1^3 2^1 4^1$	0.351	0.889	0.111	2.485	<b>P</b>
GS. 112	6	3	5	5	2	4	3	$2^3$	0.387	0	0.333	2.418	<b>bpu</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5
	<i>Supp<sub>n</sub></i>	<b>25</b>	<b>31</b>	<b>33</b>		
GS. 43	<i>k.k' (p)</i>	2.3 (-B)	1.4 (-C)	3.4 (-A)	-	-
	<i>PF<sub>n</sub></i>	2/6	2/6	2/6		
	<i>Sub<sub>n</sub></i>	<b>64</b>	<b>67</b>	<b>68</b>	<b>69</b>	<b>77</b>
	<i>k.k' (p)</i>	1.2 ( <b>E</b> )	1.1 ( <b>G</b> )	3.3 ( <b>F</b> )	2.4 ( <b>D</b> )	1.3 ( <b>F</b> )
	<i>PF<sub>n</sub></i>	2/9	1/9	1/9	1/9	4/9
	<i>Supp<sub>n</sub></i>	<b>88</b>	<b>91</b>	<b>92</b>	<b>93</b>	<b>102</b>
GS. 112	<i>k.k' (p)</i>	3.4 (-A)	3.3 (-C)	2.2 (-B)	1.4 (-B)	2.3 (-C)
	<i>PF<sub>n</sub></i>	2/9	1/9	1/9	2/9	4/9
	<i>Sub<sub>n</sub></i>	<b>130</b>	<b>136</b>	<b>138</b>		
	<i>k.k' (p)</i>	2.4 ( <b>E</b> )	1.3 ( <b>D</b> )	1.2 ( <b>E</b> )	-	-
	<i>PF<sub>n</sub></i>	2/6	2/6	2/6		

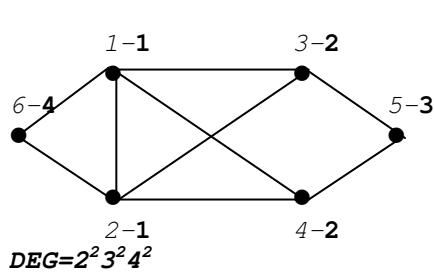
**Graph-structures GS.44 (6.9.11) and GS.113 (6.6.11)** (by Graph Atlas G168 and G100).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	8	$1^2 2^2$	0.266	$1^3 2^4 4^1$	2.840	0.273	4	108

**GS.44**, its binary signs and semiotic model SM:

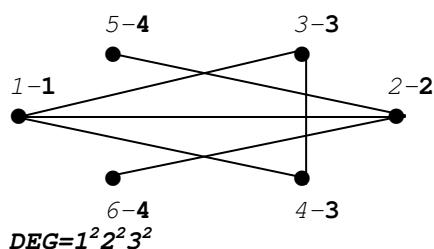
$$A: -3.6.9; \quad B: -2.5.7; \quad C: -2.4.5; \quad D: -2.4.4; \quad E: +2.3.3; \quad F: +2.5.7; \quad G: +3.5.7.$$



	1	1	2	2	3	4		k
	1	2	3	4	5	6	i	ABCDE <b>EFG</b>
	0	<b>F</b>	<b>E</b>	<b>E</b>	-D	<b>E</b>	1	0001 <b>310</b> 1 1201
	0	<b>E</b>	<b>E</b>	-D	<b>E</b>		2	0001 <b>310</b> 1 1201
	0	-B	<b>G</b>	-C		3	0110 <b>201</b> 2 2010	
	0	<b>G</b>	-C		4	0110 <b>201</b> 2 2010		
	0	-A		5	1002 <b>002</b> 3 0200			
	0	6	1020 <b>200</b> 4 2000					

**GS.113** (complement of GS.44), its binary signs and semiotic model SM:

$$A: -3.4.3; \quad B: -2.3.2; \quad C: +1.2.1; \quad D: +2.3.3.$$



	1	2	3	3	4	4		k
	1	2	3	4	5	6	i	ABCD
	0	<b>C</b>	<b>D</b>	<b>D</b>	-B	-B	1	02 <b>12</b> 1 0120
	0	-B	-B	<b>C</b>	<b>C</b>		2	02 <b>30</b> 2 1002
	0	<b>D</b>	-A	-A		3	21 <b>02</b> 3 1010	
	0	-A	-A		4	21 <b>02</b> 3 1010		
	0	-B		5	22 <b>10</b> 4 0100			
	0	6	22 <b>10</b> 4 0100					

Correspondence of vertex positions (orbits):

GS. 44	1	2	3	4
GS. 113	4	3	2	1

Distinguishing invariants and measures:

GS	$ E $	$N^t$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
<b>GS. 44</b>	9	4	4	7	3	4	3	$1^1 2^2 4^1$	0.421	0.778	0	2.558	<b>hp</b>
<b>GS. 113</b>	6	4	4	4	3	3	3	$1^2 2^2$	0.258	0.500	0.500	2.459	<b>p</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	$Adj_n$	1	2	3	4
	$Supp_n$	<b>22</b>	<b>23</b>	<b>32</b>	<b>33</b>
<b>GS. 44</b>	$k \cdot k' (p)$	3.4 (-A)	2.2 (-B)	1.3 (-D)	2.4 (-C)
	$PF_n$	1/6	1/6	2/6	2/6
	$Sub_n$	<b>57</b>	<b>68</b>	<b>75</b>	<b>78</b>
	$k \cdot k' (p)$	1.1 ( <b>F</b> )	2.3 ( <b>G</b> )	1.4 ( <b>E</b> )	1.2 ( <b>E</b> )
	$PF_n$	1/9	2/9	2/9	4/9
	$Supp_n$	<b>81</b>	<b>92</b>	<b>99</b>	<b>102</b>
<b>GS. 113</b>	$k \cdot k' (p)$	4.4 (-B)	2.3 (-B)	1.4 (-B)	3.4 (-A)
	$PF_n$	1/9	2/9	2/9	4/9
	$Sub_n$	<b>127</b>	<b>128</b>	<b>137</b>	<b>138</b>
	$k \cdot k' (p)$	1.2 ( <b>C</b> )	3.3 ( <b>D</b> )	2.4 ( <b>C</b> )	1.3 ( <b>D</b> )
	$PF_n$	1/6	1/6	2/6	2/6

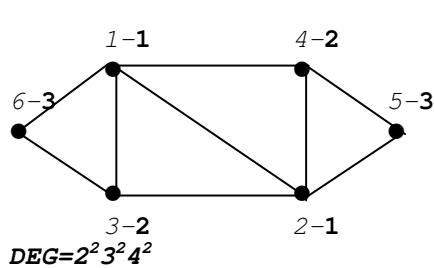
### Graph-structures GS.45 (6.9.12) and GS.114 (6.6.12) (by Graph Atlas G167 and G98).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	9	$2^3$	0.523	$1^3 2^6$	3.107	0.236	2	216

GS.45, its binary signs and semiotic model SM:

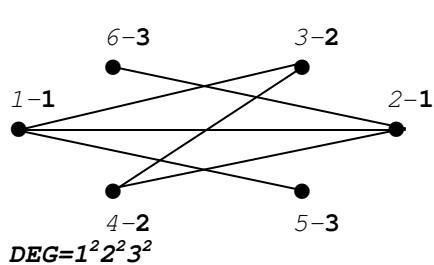
$$A:-3.6.9; B:-2.4.5; C:-2.3.2; D:+2.3.3; E:+2.4.5.$$



i	1	1	2	2	3	3	k
1	1	2	3	4	5	6	123
2	0	E	E	D	-B	D	1 121
3	0	D	E	E	D	-B	1 121
4	0	-B	-C	D	3	01121	2 201
5	0	D	-C	-D	4	01121	2 201
6	0	-A			5	11120	3 110
	0				6	11120	3 110

GS.114 (complement of GS.45), its binary signs and semiotic model SM:

$$A:-3.5.5; B:-3.4.3; C:-2.4.4; D:-2.3.2; E:+1.2.1; F:+3.4.4.$$



i	1	1	2	2	3	3	k
1	1	2	3	4	5	6	123
2	0	E	F	-C	E	-D	1 111
3	0	-C	F	-D	E		1 111
4	0	F	-D	-A	3	101102	2 110
5	0	-A	-D	4	101102	2 110	
6	0	-B		5	110210	3 100	
	0			6	110210	3 100	

Correspondence of vertex positions (orbits):

GS . 45	1	2	3
GS . 114	3	2	1

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS . 45	9	5	4	5	3	3	$1^1 2^4$	0.280	1.000	0	2.531	hpu
GS . 114	6	4	5	6	2	4	$1^2 2^2$	0.258	0	0.333	2.459	bpu

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5
	Supp <sub>n</sub>	23	28	29	31	
GS . 45	k . k' (p)	2 . 2 (-B)	3 . 3 (-A)	2 . 3 (-C)	1 . 3 (-B)	-
	PF <sub>n</sub>	1/6	1/6	2/6	2/6	
	Sub <sub>n</sub>	59	66	76	77	78
	k . k' (p)	1 . 1 (E)	1 . 2 (D)	2 . 3 (D)	1 . 3 (D)	1 . 2 (E)
	PF <sub>n</sub>	1/9	2/9	2/9	2/9	2/9
	Supp <sub>n</sub>	83	90	100	101	102
GS . 114	k . k' (p)	3 . 3 (-B)	2 . 3 (-A)	1 . 2 (-C)	1 . 3 (-D)	2 . 3 (-D)
	PF <sub>n</sub>	1/9	2/9	2/9	2/9	2/9
	Sub <sub>n</sub>	128	133	134	136	
	k . k' (p)	2 . 2 (F)	1 . 1 (E)	1 . 2 (F)	1 . 3 (E)	-
	PF <sub>n</sub>	1/6	1/6	2/6	2/6	

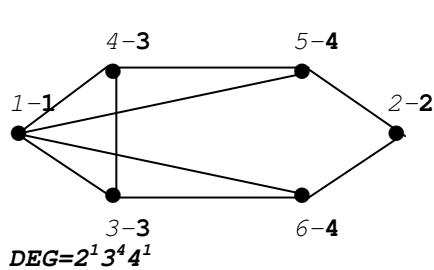
### Graph-structures GS.46 (6.9.13) and GS.115 (6.6.13) (by Graph Atlas G171 and G104).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	9	$1^2 2^2$	0.266	$1^3 2^6$	3.107	0.205	2	216

GS.46, its binary signs and semiotic model SM:

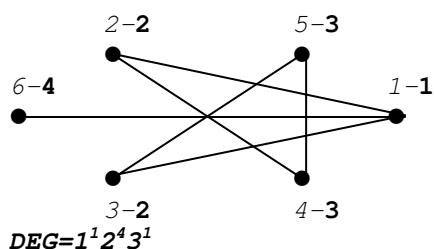
$$A: -2.4.5; \quad B: -2.4.4; \quad C: -2.3.2; \quad D: +2.3.3; \quad E: +2.4.5; \quad F: +3.4.4.$$



1	2	3	3	4	4	i	ABCDEF	k
1	2	3	4	5	6	1	010220	1 0022
0	-B	E	E	D	D	2	012002	2 0002
0	-C	-C	F	F		3	101210	3 1011
D	-A	D	D		4	101210	3 1011	
D	-A			5	110201	4 1110		
A				6	110201	4 1110		

GS.115 (complement of GS.46), its binary signs and semiotic model SM:

$$A: -3.4.3; \quad B: -2.3.2; \quad C: +1.2.1; \quad D: +4.5.5.$$



1	2	2	3	3	4	i	ABCD	k
1	2	3	4	5	6	1	0212	1 0201
0	D	D	-B	-B	C	2	0302	2 1010
0	-B	D	-B	-B		3	0302	2 1010
D	-A			4	1202	3 0110		
-A				5	1202	3 0110		
O				6	2210	4 1000		

Correspondence of vertex positions (orbits):

GS. 46	1	2	3	4
GS. 115	4	1	2	3

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 46	9	5	4	6	3	4	$1^1 2^4$	0.280	0.778	0	2.558	hpu
GS. 115	6	4	5	4	2	5	$1^2 2^2$	0.258	0	0.167	2.522	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5
	Supp <sub>n</sub>	20	28	29	33	
GS. 46	$k \cdot k' (p)$	1.2 (-B)	2.3 (-C)	4.4 (-A)	3.4 (-A)	-
	PF <sub>n</sub>	1/6	2/6	1/6	2/6	
	Sub <sub>n</sub>	61	70	72	77	78
	$k \cdot k' (p)$	1.4 (D)	1.3 (E)	3.3 (D)	2.4 (F)	3.4 (D)
	PF <sub>n</sub>	2/9	2/9	1/9	2/9	2/9
	Supp <sub>n</sub>	85	94	96	101	102
GS. 115	$k \cdot k' (p)$	3.4 (-A)	2.4 (-B)	2.2 (-B)	1.3 (-B)	2.3 (-B)
	PF <sub>n</sub>	2/9	2/9	1/9	2/9	2/9
	Sub <sub>n</sub>	125	133	134	138	
	$k \cdot k' (p)$	1.4 (C)	1.2 (D)	3.3 (D)	2.3 (D)	-
	PF <sub>n</sub>	1/6	2/6	1/6	2/6	

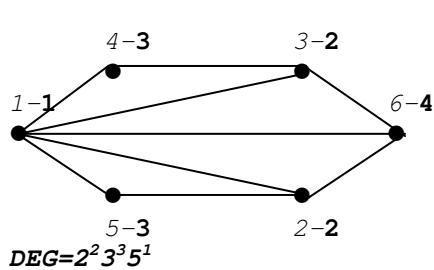
### Graph-structures GS.47 (6.9.14) and GS.116 (6.6.14) (by Graph Atlas G164 and G90).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	9	$1^2 2^2$	0.266	$1^3 2^6$	3.107	0.205	2	216

GS.47, its binary signs and semiotic model SM:

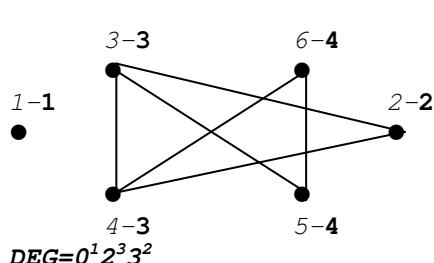
$$A:-2.4.5; \quad B:-2.3.2; \quad C:+2.3.3; \quad D:+2.4.5.$$



1	2	2	3	3	4	i	ABCD	k
1	2	3	4	5	6			1234
0	D	D	C	C	D	1	0023	1
0	-A	-B	C	C		2	1121	2
0	C	-B	C	C		3	1121	2
0	-B	-A			4	1220	3	1100
0	-A			5	1220	3	1100	
0				6	2021	4	1200	

GS.116 (complement of GS.47), its binary signs and semiotic model SM:

$$A:-2.4.4; \quad B:-2.3.2; \quad C:-u.2.0; \quad D:+2.3.3; \quad E:+3.4.4.$$



1	2	3	3	4	4	i	ABCDE	k
1	2	3	4	5	6			1234
0	-C	-C	-C	-C	-C	1	00500	1
0	D	D	-B	-B		2	02120	2
0	D	E	-A			3	10121	3
0	-A	E		4	10121	3	0111	
0	E		5	11102	4	0011		
0		6	11102	4	0011			

Correspondence of vertex positions (orbits):

GS. 47	1	2	3	4
GS. 116	1	4	3	2

Distinguishing invariants and measures:

GS	E	N <sup>r</sup>	N	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 47	9	5	4	4	3	3	2	$1^1 2^4$	0.280	1.000	0	2.510	hpu
GS. 116	6	4	5	5	3	4	2	$1^2 2^2$	0.258	0.500	0	2.293	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5
	Supp <sub>n</sub>	20	30	31	32	
GS. 47	$k \cdot k' (p)$	3.3 (-B)	2.2 (-A)	3.4 (-A)	2.3 (-B)	-
	PF <sub>n</sub>	1/6	1/6	2/6	2/6	
	Sub <sub>n</sub>	65	71	72	77	78
	$k \cdot k' (p)$	2.4 (C)	2.3 (C)	1.4 (D)	1.3 (C)	1.2 (D)
	PF <sub>n</sub>	2/9	2/9	1/9	2/9	2/9
	Supp <sub>n</sub>	89	95	96	101	102
GS. 116	$k \cdot k' (p)$	2.4 (-B)	3.4 (-A)	1.2 (-C)	1.3 (-C)	1.4 (-C)
	PF <sub>n</sub>	2/9	2/9	1/9	2/9	2/9
	Sub <sub>n</sub>	125	135	136	137	
	$k \cdot k' (p)$	3.3 (D)	4.4 (E)	2.3 (D)	3.4 (E)	-
	PF <sub>n</sub>	1/6	1/6	2/6	2/6	

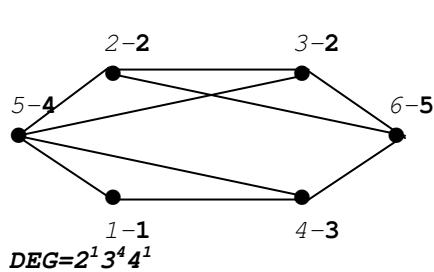
### Graph-structures GS.48 (6.9.15) and GS.117 (6.6.15) (by Graph Atlas G172 and G103).

Common invariants of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	5	11	$1^4 2^1$	0.129	$1^7 2^4$	3.373	0.137	2	216

GS.48, its binary signs and semiotic model SM:

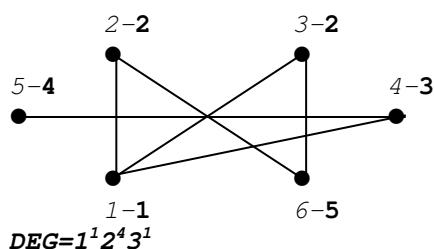
$$A:-2.5.7; B:-2.4.4; C:-2.3.2; D:+2.3.3; E:+2.4.5; F:+3.5.7.$$



1	2	2	3	4	5	i	ABCDEF	k
1	2	3	4	5	6	1	003200	1 00110
0	-C	-C	D	D	-C	1	003200	1 00110
0	E	-B	D	D	D	2	011210	2 01011
0	-B	D	D	D	D	3	011210	2 01011
0	D	F				4	020201	3 10011
0	-A					5	100400	4 12100
0						6	101201	5 02100

GS.117 (complement of GS.48), its binary signs and semiotic model SM:

$$A:-4.6.6; B:-3.5.5; C:-3.4.3; D:-2.4.4; E:-2.3.2; F:+1.2.1; G:+3.4.4.$$



1	2	2	3	4	5	i	ABCDEFG	k
1	2	3	4	5	6	1	0001112	1 02100
0	G	G	F	-E	-D	1	0001112	1 02100
0	-D	-E	-C	G		2	0011102	2 10001
0	-E	-C	G			3	0011102	2 10001
0	F	-B				4	0100220	3 10010
0	-A					5	1020110	4 00100
0						6	1101002	5 02000

Correspondence of vertex positions (orbits):

GS.48	1	2	3	4	5
GS.117	1	2	5	4	3

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.48	9	7	4	6	3	4	2	$1^5 2^2$	0.140	0.899	0	2.558	hp
GS.117	6	4	7	7	2	4	4	$1^2 2^2$	0.258	0	0.333	2.522	bpu

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5	6	7
GS.48	$Supp_n$	<b>21</b>	<b>28</b>	<b>29</b>	<b>31</b>			
	$k \cdot k'$	1.5	1.2	2.3	4.5	-	-	-
	(p)	(-C)	(-C)	(-B)	(-A)			
	$PF_n$	1/6	2/6	2/6	1/6			
	$Sub_n$	<b>59</b>	<b>61</b>	<b>66</b>	<b>67</b>	<b>72</b>	<b>73</b>	<b>74</b>
	$k \cdot k' (p)$	2.4 (D)	3.4 (D)	3.5 (F)	1.4 (D)	2.5 (D)	2.2 (E)	1.3 (D)
GS.117	$PF_n$	2/9	1/9	1/9	1/9	2/9	1/9	1/9
	$Supp_n$	<b>83</b>	<b>85</b>	<b>90</b>	<b>91</b>	<b>96</b>	<b>97</b>	<b>98</b>
	$k \cdot k'$	2.4	4.5	3.5	1.4	2.3	2.2	1.5
	(p)	(-C)	(-A)	(-B)	(-E)	(-E)	(-D)	(-D)
	$PF_n$	2/9	1/9	1/9	1/9	2/9	1/9	1/9
	$Sub_n$	<b>126</b>	<b>133</b>	<b>134</b>	<b>136</b>			
	$k \cdot k' (p)$	1.3 (F)	1.2 (G)	2.5 (G)	3.4 (F)	-	-	-
	$PF_n$	1/6	2/6	2/6	1/6			

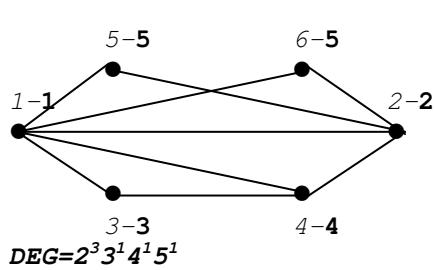
### Graph-structures GS.49 (6.9.16) and GS.118 (6.6.16) (by Graph Atlas G162 and G88).

Common invariants of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	5	11	$1^4 2^1$	0.129	$1^7 2^4$	3.373	0.137	2	216

GS.49, its binary signs and semiotic model SM:

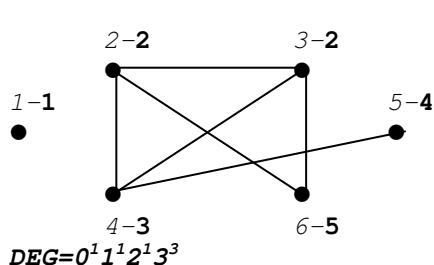
$$A: -2.4.5; \quad B: -2.3.2; \quad C: +2.3.3; \quad D: +2.4.5; \quad E: +2.5.7.$$



i	ABCDEF	k
1	00311	1
2	10301	2
3	12200	3
4	20210	4
5	21200	5
6	21200	5

GS.118 (complement of GS.49), its binary signs and semiotic model SM:

$$A: -3.5.6; \quad B: -2.4.5; \quad C: -2.3.2; \quad D: -u.2.0; \quad E: +1.2.1; \quad F: +2.3.3; \quad G: +2.4.5.$$



i	ABCDEF	k
1	0005000	1
2	0011021	2
3	0011021	2
4	0101120	3
5	1021100	4
6	1101020	5

Correspondence of vertex positions (orbits):

GS.49	1	2	3	4	5
GS.118	1	4	3	5	2

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.49	9	7	4	5	3	3	$1^5 2^2$	0.140	1.000	0	2.483	pu
GS.118	6	4	7	7	3	3	$1^2 2^2$	0.258	0.833	0.167	2.230	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5	6	7
GS.49	$Supp_n$	<b>24</b>	<b>30</b>	<b>31</b>	<b>32</b>			
	$k.k'$	2.3	4.5	5.5	3.5	-	-	-
	(p)	(-A)	(-A)	(-A)	(-B)			
	$PF_n$	1/6	2/6	1/6	2/6			
	$Sub_n$	<b>60</b>	<b>63</b>	<b>65</b>	<b>68</b>	<b>71</b>	<b>73</b>	<b>76</b>
GS.118	$k.k' (p)$	1.4 (D)	3.4 (C)	2.4 (C)	1.3 (C)	2.5 (C)	1.2 (E)	1.5 (C)
	$PF_n$	1/9	1/9	1/9	1/9	2/9	1/9	2/9
	$Supp_n$	<b>84</b>	<b>87</b>	<b>89</b>	<b>92</b>	<b>95</b>	<b>97</b>	<b>100</b>
	$k.k'$	1.5	3.5	4.5	1.3	2.4	1.4	1.2
	(p)	(-D)	(-B)	(-A)	(-D)	(-C)	(-D)	(-D)
	$PF_n$	1/9	1/9	1/9	1/9	2/9	1/9	2/9
	$Sub_n$	<b>129</b>	<b>135</b>	<b>136</b>	<b>137</b>			
	$k.k' (p)$	3.4 (E)	2.5 (F)	2.2 (G)	2.3 (F)	-	-	-
	$PF_n$	1/6	2/6	1/6	2/6			

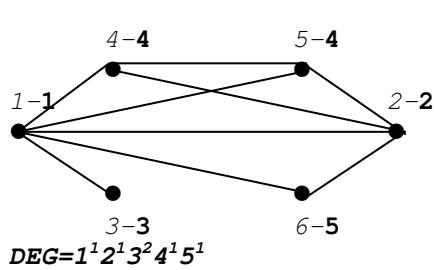
### Graph-structures GS.50 (6.9.17) and GS.119 (6.6.17) (by Graph Atlas G156 and G87).

Common invariants of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	5	11	$1^4 2^1$	0.129	$1^7 2^4$	3.374	0.137	2	216

GS.50, its binary signs and semiotic model SM:

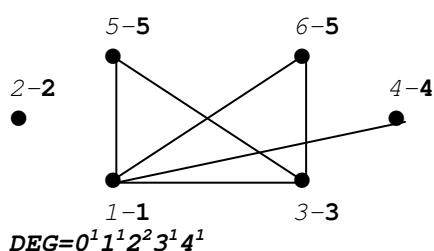
$$A: -2.4.5; \quad B: -2.3.2; \quad C: +1.2.1; \quad D: +2.3.3; \quad E: +2.4.6; \quad F: +2.5.7.$$



i	ABCDEF	k
1	001121	1 01121
2	010121	2 10021
3	041000	3 10000
4	110030	4 11010
5	110030	4 11010
6	210200	5 11000

GS.119 (complement of GS.50), its binary signs and semiotic model SM:

$$A: -2.4.5; \quad B: -2.3.2; \quad C: -u.2.0; \quad D: +1.2.1; \quad E: +2.3.3; \quad F: +2.4.5.$$



i	ABCDEF	k
1	001121	1 00112
2	005000	2 00000
3	011021	3 10002
4	031100	4 10000
5	111020	5 10100
6	111020	5 10100

Correspondence of vertex positions (orbits):

GS.50	1	2	3	4	5
GS.119	2	4	1	5	3

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.50	9	7	4	6	4	3	2	$1^5 2^2$	0.140	0.889	0.111	2.441
GS.119	6	4	7	6	3	3	2	$1^2 2^2$	0.258	0.833	0.167	2.189

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5	6	7
GS.50	$Supp_n$	<b>24</b>	<b>27</b>	<b>30</b>	<b>31</b>			
	$k.k'$	2.3	4.5	3.4	3.5	-	-	-
	(p)	(-B)	(-A)	(-B)	(-B)			
	$PF_n$	1/6	2/6	2/6	1/6			
	$Sub_n$	<b>56</b>	<b>62</b>	<b>63</b>	<b>69</b>	<b>71</b>	<b>74</b>	<b>76</b>
GS.119	$k.k' (p)$	2.5 (D)	1.5 (D)	4.4 (E)	1.3 (C)	2.4 (E)	1.2 (F)	1.4 (E)
	$PF_n$	1/9	1/9	1/9	1/9	2/9	1/9	2/9
	$Supp_n$	<b>80</b>	<b>86</b>	<b>87</b>	<b>93</b>	<b>95</b>	<b>98</b>	<b>100</b>
	$k.k'$	3.4	2.3	5.5	1.2	4.5	2.4	2.5
	(p)	(-B)	(-C)	(-A)	(-C)	(-B)	(-C)	(-C)
	$PF_n$	1/9	1/9	1/9	1/9	2/9	1/9	2/9
	$Sub_n$	<b>129</b>	<b>132</b>	<b>135</b>	<b>136</b>			
	$k.k' (p)$	1.4 (D)	3.5 (E)	1.5 (E)	1.3 (F)	-	-	-
	$PF_n$	1/6	2/6	2/6	1/6			

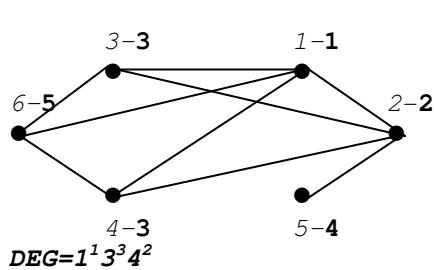
### Graph-structures GS.51 (6.9.18) and GS.120 (6.6.18) (by Graph Atlas G159 and G95).

Common invariants of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	5	11	$1^4 2^1$	0.129	$1^7 2^4$	3.373	0.137	2	216

**GS.51**, its binary signs and semiotic model SM:

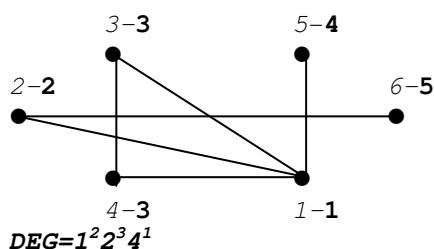
$$A: -3.6.9; \quad B: -2.5.8; \quad C: -2.3.2; \quad D: +1.2.1; \quad E: +2.3.3; \quad F: +2.4.5.$$



1	2	3	3	4	5	i	ABCDEF	k
1	2	3	4	5	6	1	001004	1 01201
0	F	F	F	-C	F	2	010121	2 10210
0	E	E	D	-B		3	011021	3 11001
0	-B	-C	E		4	011021	3 11001	
0	-C	E			5	103100	4 01000	
0	-A				6	110021	5 10200	

**GS.120** (complement of GS.51), its binary signs and semiotic model SM:

$$A: -3.4.3; \quad B: -2.3.2; \quad C: +1.2.1; \quad D: +2.3.3.$$



1	2	3	3	4	5	i	ABCD	k
1	2	3	4	5	6	1	0122	1 01210
0	C	D	D	C	-B	2	0320	2 10001
0	-B	-B	-B	C		3	1202	3 10100
0	-B	-A			4	1202	3 10100	
0	-A				5	1310	4 10000	
0					6	3110	5 01000	

Correspondence of vertex positions (orbits):

GS.51	1	2	3	4	5
GS.120	4	5	3	1	2

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
<b>GS.51</b>	9	6	5	6	3	3	$1^3 2^3$	0.210	0.889	0.111	2.485	<b>p</b>
<b>GS.120</b>	6	5	6	4	3	3	$1^4 2^1$	0.129	0.500	0.500	2.418	<b>p</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5	6
	<i>Supp<sub>n</sub></i>	<b>25</b>	<b>26</b>	<b>27</b>	<b>29</b>	<b>32</b>	
<b>GS.51</b>	<i>k.k' (p)</i>	3.3 (-B)	4.5 (-A)	2.5 (-B)	3.4 (-C)	1.4 (-C)	-
	<i>PF<sub>n</sub></i>	1/6	1/6	1/6	2/6	1/6	
	<i>Sub<sub>n</sub></i>	<b>58</b>	<b>67</b>	<b>74</b>	<b>75</b>	<b>76</b>	<b>77</b>
	<i>k.k' (p)</i>	2.4 (D)	1.2 (F)	1.3 (F)	1.5 (F)	3.5 (E)	2.3 (E)
	<i>PF<sub>n</sub></i>	1/9	1/9	2/9	1/9	2/9	2/9
	<i>Supp<sub>n</sub></i>	<b>82</b>	<b>91</b>	<b>98</b>	<b>99</b>	<b>100</b>	<b>101</b>
<b>GS.120</b>	<i>k.k' (p)</i>	1.5 (-B)	4.5 (-A)	3.4 (-B)	2.4 (-B)	2.3 (-B)	3.5 (-A)
	<i>PF<sub>n</sub></i>	1/9	1/9	2/9	1/9	2/9	2/9
	<i>Sub<sub>n</sub></i>	<b>130</b>	<b>131</b>	<b>132</b>	<b>134</b>	<b>137</b>	
	<i>k.k' (p)</i>	3.3 (D)	1.2 (C)	2.5 (C)	1.3 (D)	1.4 (C)	-
	<i>PF<sub>n</sub></i>	1/6	1/6	1/6	2/6	1/6	

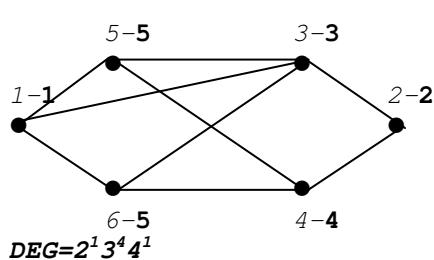
### Graph-structures GS.52 (6.9.19) and GS.121 (6.6.19) (by Graph Atlas G173 and G102).

Common invariants of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	5	11	$1^4 2^1$	0.129	$1^7 2^4$	3.374	0.137	2	216

GS.52, its binary signs and semiotic model SM:

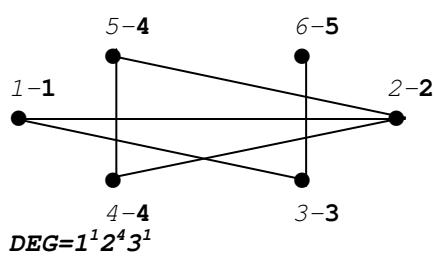
$$A:-2.5.7; B:-2.5.6; C:-2.4.4; D:-2.3.2; \\ E:+2.3.3; F:+2.4.5; G:+3.5.6; H:+3.6.9.$$



1	2	3	4	5	5	i	ABCDEF GH	k
1	2	3	4	5	6	i	ABCDEF GH	12345
0   -D   <b>F</b>   -C   <b>E</b>   <b>E</b>   1 0011 <b>2100</b> 1 00102								
0   <b>G</b>   <b>G</b>   -C   -C   2 0021 <b>0020</b> 2 00110								
0   -B   <b>E</b>   <b>E</b>   3 0100 <b>2110</b> 3 11002								
0   <b>H</b>   <b>H</b>   4 0110 <b>0012</b> 4 01002								
0   -A   5 1010 <b>2001</b> 5 10110								
0   6 1010 <b>2001</b> 5 10110								

GS.121 (complement of GS.52), its binary signs and semiotic model SM:

$$A:-4.5.4; B:-3.4.3; C:-2.3.2; D:+1.2.1; E:+2.3.3.$$



1	2	3	4	4	5	i	ABCDE	k
1   2   3   4   5   6   i ABCDE   12345								
0   <b>D</b>   <b>D</b>   -C   -C   -C   1 003 <b>20</b> 1 01100								
0   -C   <b>E</b>   <b>E</b>   -B   2 011 <b>12</b> 2 10020								
0   -B   -B   <b>D</b>   3 021 <b>20</b> 3 10001								
0   <b>E</b>   -A   4 111 <b>02</b> 4 01010								
0   -A   5 111 <b>02</b> 4 01010								
0   6 211 <b>10</b> 5 00100								

Correspondence of vertex positions (orbits):

GS.52	1	2	3	4	5
GS.121	1	2	5	3	4

Distinguishing invariants and measures:

GS	E	N <sup>+</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.52	9	6	5	8	3	4	2	1 <sup>3</sup> 2 <sup>3</sup>	0.210	0.556	0	2.558
GS.121	6	5	6	5	3	3	4	1 <sup>4</sup> 2 <sup>1</sup>	0.129	0.500	0.500	2.522

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5	6
	<i>Supp<sub>n</sub></i>	<b>22</b>	<b>26</b>	<b>28</b>	<b>32</b>	<b>33</b>	
GS.52	<i>k.k' (p)</i>	1.2 (-D)	1.4 (-C)	2.5 (-C)	3.4 (-B)	5.5 (-A)	-
	<i>PF<sub>n</sub></i>	1/6	1/6	2/6	1/6	1/6	
	<i>Sub<sub>n</sub></i>	<b>57</b>	<b>67</b>	<b>70</b>	<b>73</b>	<b>75</b>	<b>78</b>
	<i>k.k' (p)</i>	1.3 ( <b>F</b> )	2.3 ( <b>G</b> )	3.5 ( <b>E</b> )	1.5 ( <b>E</b> )	2.4 ( <b>G</b> )	4.5 ( <b>H</b> )
	<i>PF<sub>n</sub></i>	1/9	1/9	2/9	2/9	1/9	2/9
	<i>Supp<sub>n</sub></i>	<b>81</b>	<b>91</b>	<b>94</b>	<b>97</b>	<b>99</b>	<b>102</b>
GS.121	<i>k.k' (p)</i>	1.5 (-C)	2.5 (-B)	4.5 (-A)	1.4 (-C)	2.3 (-C)	3.4 (-B)
	<i>PF<sub>n</sub></i>	1/9	1/9	2/9	2/9	1/9	2/9
	<i>Sub<sub>n</sub></i>	<b>127</b>	<b>131</b>	<b>133</b>	<b>137</b>	<b>138</b>	
	<i>k.k' (p)</i>	1.2 ( <b>D</b> )	1.3 ( <b>D</b> )	2.4 ( <b>E</b> )	3.5 ( <b>D</b> )	4.4 ( <b>E</b> )	-
	<i>PF<sub>n</sub></i>	1/6	1/6	2/6	1/6	1/6	

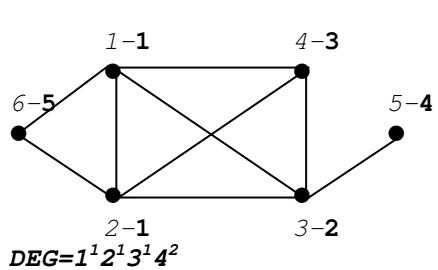
### Graph-structures GS.53 (6.9.20) and GS.122 (6.6.20) (by Graph Atlas G157 and G93).

Common invariants of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	5	11	$1^4 2^1$	0.129	$1^7 2^4$	3.374	0.137	2	216

GS.53, its binary signs and semiotic model SM:

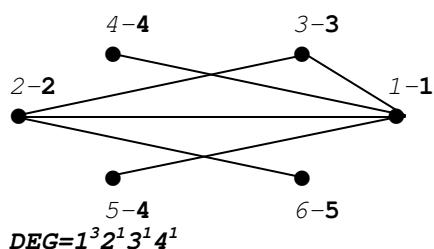
$$A: -3.5.6; \quad B: -2.4.5; \quad C: -2.3.2; \quad D: +1.2.1; \quad E: +2.3.3; \quad F: +2.4.6; \quad G: +2.5.8.$$



	1	1	2	3	4	5	i	ABCDEF	k
	1	2	3	4	5	6			12345
0	G	F	F	-C	E		1	0010121	1 11101
0	F	F	-C	E			2	0010121	1 11101
0	F	D	-B		3	0101030	2	20110	
0 -C -B				4	0110030	3	21000		
0 -C -B				5	1031000	4	01000		
0 -A					6	1200200	5	20000	

GS.122 (complement of GS.53), its binary signs and semiotic model SM:

$$A: -3.4.3; \quad B: -2.3.2; \quad C: +1.2.1; \quad D: +2.3.3.$$



	1	2	3	4	4	5	i	ABCD	k
	1	2	3	4	5	6			12345
0	D	D	C	C	-B		1	0122	1 01120
0	D	-B	-B	C			2	0212	2 10101
0 -B -B -B				3	0302	3	11000		
0 -B -A				4	1310	4	10000		
0 -A				5	1310	4	10000		
0					6	2210	5	01000	

Correspondence of vertex positions (orbits):

GS.53	1	2	3	4	5
GS.122	4	5	3	1	2

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.53	9	6	5	7	4	3	3	$1^3 2^3$	0.210	0.889	0.111	2.461
GS.122	6	5	6	4	3	3	$1^4 2^1$	0.129	0.500	0.500	2.355	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5	6
	Supp <sub>n</sub>	23	25	27	30	33	
GS.53	k.k' (p)	3.4 (-C)	3.5 (-B)	2.5 (-B)	1.4 (-C)	4.5 (-A)	-
	PF <sub>n</sub>	1/6	1/6	1/6	2/6	1/6	
	Sub <sub>n</sub>	62	68	69	75	76	77
	k.k' (p)	1.5 (E)	2.3 (F)	2.4 (D)	1.1 (G)	1.3 (F)	1.2 (F)
	PF <sub>n</sub>	2/9	1/9	1/9	1/9	2/9	2/9
	Supp <sub>n</sub>	86	92	93	99	100	101
GS.122	k.k' (p)	2.4 (-B)	3.5 (-B)	1.5 (-B)	4.4 (-B)	3.4 (-B)	4.5 (-A)
	PF <sub>n</sub>	2/9	1/9	1/9	1/9	2/9	2/9
	Sub <sub>n</sub>	128	130	132	135	138	
	k.k' (p)	1.3 (D)	2.3 (D)	2.5 (D)	1.4 (C)	1.2 (D)	-
	PF <sub>n</sub>	1/6	1/6	1/6	2/6	1/6	

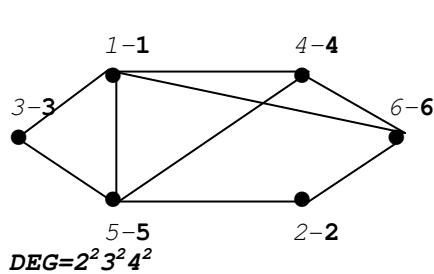
**Graph-structures GS.54 (6.9.21) and GS.123 (6.6.21)** (by Graph Atlas G164 and G90).

Common invariants of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
0-symmetry	6	15	$1^6$	0	$1^{15}$	3.907	0	1	432

**GS.54**, its binary signs and semiotic model SM:

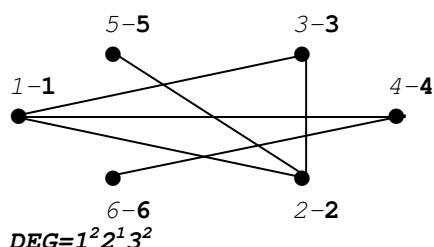
$$A:-2.5.7; B:-2.4.5; C:-2.4.4; D:-2.3.2; E:+2.3.3; F:+2.4.5; G:+3.5.7.$$



i	ABCDEF	k
1	0010220	1 001111
2	0021002	2 000011
3	0102200	3 100010
4	0110210	4 100011
5	1000211	5 111100
6	1001201	6 110100

**GS.123** (complement of GS.54), its binary signs and semiotic model SM:

$$A:-4.5.4; B:-3.4.3; C:-2.3.2; D:+1.2.1; E:+2.3.3.$$



i	ABCDE	k
1	00212	1 011100
2	01112	2 101010
3	01202	3 110000
4	01220	4 100001
5	11210	5 010000
6	12110	6 000100

Correspondence of vertex positions (orbits):

GS.54	1	2	3	4	5	6
GS.123	5	2	1	3	6	4

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
<b>GS.54</b>	9	9	6	7	3	4	2	$1^9$	0	0.778	0	2.531	<b>hpu</b>
<b>GS.123</b>	6	6	9	5	3	3	4	$1^6$	0	0.500	0.500	2.459	<b>p</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5	6	7	8	9
<b>GS.54</b>	$Supp_n$	<b>26</b>	<b>28</b>	<b>29</b>	<b>30</b>	<b>32</b>	<b>33</b>			
	$k.k'$	3.4	2.3	3.6	5.6	1.2	2.4	-	-	-
	$PF_n$	1/6	1/6	1/6	1/6	1/6	1/6			
	$Sub_n$	<b>60</b>	<b>70</b>	<b>72</b>	<b>73</b>	<b>74</b>	<b>75</b>	<b>76</b>	<b>77</b>	<b>78</b>
	$k.k'$	4.6	1.5	4.5	1.4	1.3	3.5	2.6	2.5	1.6
<b>GS.123</b>	$PF_n$	1/9	1/9	1/9	1/9	1/9	1/9	1/9	1/9	1/9
	$Supp_n$	<b>84</b>	<b>94</b>	<b>96</b>	<b>97</b>	<b>98</b>	<b>99</b>	<b>100</b>	<b>101</b>	<b>102</b>
	$k.k'$	3.4	5.6	3.6	3.5	1.5	1.6	2.4	2.6	4.5
	$PF_n$	1/9	1/9	1/9	1/9	1/9	1/9	1/9	1/9	1/9
	$Sub_n$	<b>131</b>	<b>133</b>	<b>134</b>	<b>135</b>	<b>137</b>	<b>138</b>			
	$k.k'$	1.4	1.2	2.3	4.6	2.5	1.3	-	-	-
	$PF_n$	1/6	1/6	1/6	1/6	1/6	1/6			

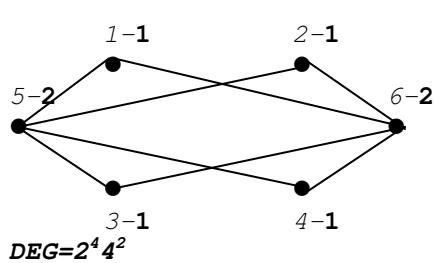
Graph-structures GS.55 (6.8.1) and GS.79 (6.7.1) (by Graph Atlas G146 and G116).

Common invariants of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	2	3	$2^1 4^1$	0.645	$1^1 6^1 8^1$	1.273	0.674	48	7

GS.55, its binary signs and semiotic model SM:

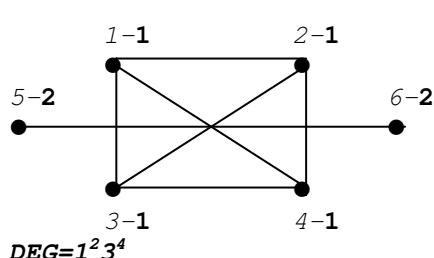
$$A: -2.6.8; \quad B: -2.4.4; \quad C: +3.6.8.$$



1	1	1	1	2	2	k			
1	2	3	4	5	6	i	ABC	12	
	0	-B	-B	-B	C	C	1	032	1 02
0	-B	-B	-B	C	C	2	032	1 02	
0	-B	C	C	C	C	3	032	1 02	
0	C	C	C	C	C	4	032	1 02	
	0	-A	-A	-A	-A	5	104	2 40	
0	1	6	104	104	104	6	2	40	

GS.79 (complement of GS.55), its binary signs and semiotic model SM:

$$A: -1.2.0; \quad B: +1.2.1; \quad C: +2.4.6.$$



1	1	1	1	2	2	k		
1	2	3	4	5	6	i	ABC	12
	0	C	C	C	C	1	203	1 30
0	C	C	C	C	C	2	203	1 30
0	C	C	C	C	C	3	203	1 30
0	-A	-A	-A	-A	-A	4	203	1 30
	0	B	B	B	B	5	410	2 01
0	1	6	410	410	410	6	2	01

Correspondence of vertex positions (orbits):

GS . 55	1	2
GS . 79	1	2

Distinguishing invariants and measures:

GS	E	N <sup>+</sup>	N <sup>-</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS . 55	8	1	2	3	2	4	2	8 <sup>1</sup>	1.000	0	0	2.500	bepu
GS . 79	7	2	1	3	4	3	1	1 <sup>1</sup> 6 <sup>1</sup>	0.789	0.857	0.143	2.449	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2
	Supp <sub>n</sub>	35	41
GS . 55	$k \cdot k' (p)$	2.2 (-A)	1.1 (-B)
	PF <sub>n</sub>	1/7	6/7
	Sub <sub>n</sub>	88	
	$k \cdot k' (p)$	1.2 (C)	-
	PF <sub>n</sub>	8/8	
	Supp <sub>n</sub>	64	
GS . 79	$k \cdot k' (p)$	1.2 (-A)	-
	PF <sub>n</sub>	8/8	
	Sub <sub>n</sub>	104	110
	$k \cdot k' (p)$	2.2 (B)	1.1 (C)
	PF <sub>n</sub>	1/7	6/7

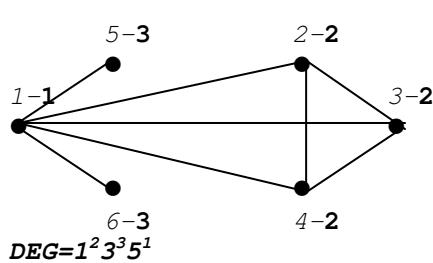
## Graph-structures GS.56 (6.8.2) and GS.80 (6.7.2) (by Graph Atlas G133 and G108).

Common invariants of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	5	$1^2 2^1 3^1$	0.478	$1^1 2^1 3^2 6^1$	2.106	<b>0.461</b>	12	28

GS.56, its binary signs and semiotic model SM:

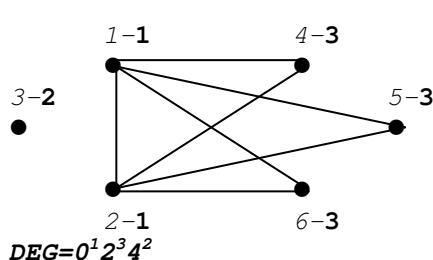
$$A: -2.3.2; \quad B: +1.2.1; \quad C: +2.4.6.$$



	1	2	2	2	3	3	<b>k</b>
	1	2	3	4	5	6	<i>i</i>
	0	<b>C</b>	<b>C</b>	<b>C</b>	<b>B</b>	<b>B</b>	<b>1</b>
	0	<b>C</b>	<b>C</b>	<b>C</b>	-A	-A	2
0	<b>C</b>	<b>C</b>	<b>C</b>	-A	-A	-A	3
0	-A	-A	-A	-A	-A	-A	4
	0	-A	-A	-A	-A	-A	5
	6	4 <b>10</b>	<b>3</b>	100	100	100	100
		<b>4<b>10</b></b>	<b>3</b>				

GS.80 (complement of GS.56), its binary signs and semiotic model SM:

$$A: -2.4.5; \quad B: -u.2.0; \quad C: +2.3.3; \quad D: +2.5.7.$$



	1	1	2	3	3	3	<b>k</b>
	1	2	3	4	5	6	<i>i</i>
	0	<b>D</b>	-B	<b>C</b>	<b>C</b>	<b>C</b>	<b>1</b>
0	-B	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>C</b>	<b>1</b>
	0	-B	-B	-B	-B	-B	3
	0	-A	-A	-A	-A	-A	4
0	-A	-A	-A	-A	-A	-A	5
0	6	<b>2120</b>	<b>3</b>	200	200	200	200
		<b>2120</b>	<b>3</b>				

Correspondence of vertex positions (orbits):

GS.56	1	2	3
GS.80	2	3	1

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
<b>GS.56</b>	8	3	2	3	4	3	2	$2^1 3^2$	0.480	0.750	0.250	2.383	<b>p</b>
<b>GS.80</b>	7	2	3	4	3	3	2	$1^1 6^1$	0.789	1.000	0	2.236	<b>p</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	$Adj_n$	1	2	3
	$Supp_n$	<b>38</b>	<b>50</b>	
<b>GS.56</b>	$k.k' (p)$	3.3 (-A)	2.3 (-A)	-
	$PF_n$	1/7	6/7	
	$Sub_n$	<b>87</b>	<b>92</b>	<b>93</b>
	$k.k' (p)$	1.3 (B)	1.2 (C)	2.2 (C)
	$PF_n$	2/8	3/8	3/8
	$Supp_n$	<b>63</b>	<b>68</b>	<b>69</b>
<b>GS.80</b>	$k.k' (p)$	1.2 (-B)	2.3 (-B)	3.3 (-A)
	$PF_n$	2/8	3/8	3/8
	$Sub_n$	<b>107</b>	<b>119</b>	
	$k.k' (p)$	1.1 (D)	1.3 (C)	-
	$PF_n$	1/7	6/7	

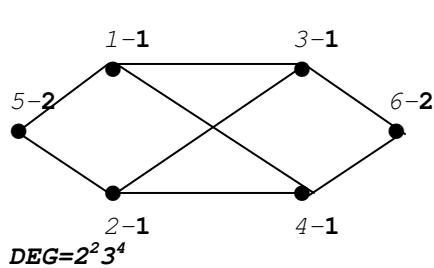
Graph-structures GS.57 (6.8.3) and GS.81 (6.7.3) (by Graph Atlas G154 and G130).

Common invariants of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	2	5	$2^1 4^1$	0.645	$1^1 2^1 4^3$	2.174	0.444	8	42

GS.57, its binary signs and semiotic model SM:

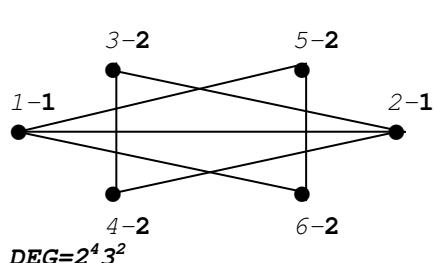
$$A: -3.6.8; \quad B: -2.5.6; \quad C: -2.4.4; \quad D: +3.5.6; \quad E: +3.6.8.$$



	1	1	1	1	2	2	k
i	1	2	3	4	5	6	
E	E	E	D	-C	1	01112	1 21
E	E	E	D	-C	2	01112	1 21
0	-B	-C	D		3	01112	1 21
0	-C	D		4	01112	1 21	
	0	-A		5	10220	2 20	
0		6	10220	2	20		

GS.81 (complement of GS.57), its binary signs and semiotic model SM:

$$A: -3.4.3; \quad B: -2.3.2; \quad C: +1.2.1; \quad D: +2.3.3.$$



	1	1	2	2	2	2	k
i	1	2	3	4	5	6	
C	-B	-B	D	D	1	0212	1 12
D	D	-B	-B	-B	2	0212	1 12
	0	D	-A	-A	3	2102	2 11
0	-A	-A		4	2102	2 11	
0	D		5	2102	2 11		
0		6	2102	2	11		

Correspondence of vertex positions (orbits):

GS .57	1	2
GS .81	2	1

Distinguishing invariants and measures:

GS	E	$N^t$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS .57	8	2	3	5	2	4	3	$4^2$	0.667	0	0	2.561	bhp
GS .81	7	3	2	4	3	3	3	$1^1 2^1 4^1$	0.509	0.857	0	2.557	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3
	Supp <sub>n</sub>	34	44	52
GS .57	$k.k' (p)$	2.2 (-A)	1.1 (-B)	1.2 (-C)
	PF <sub>n</sub>	1/7	2/7	4/7
	Sub <sub>n</sub>	83	90	
	$k.k' (p)$	1.2 (D)	1.1 (E)	-
	PF <sub>n</sub>	4/8	4/8	
	Supp <sub>n</sub>	59	66	
GS .81	$k.k' (p)$	2.2 (-A)	1.2 (-B)	-
	PF <sub>n</sub>	4/8	4/8	
	Sub <sub>n</sub>	103	113	121
	$k.k' (p)$	1.1 (C)	2.2 (D)	1.2 (D)
	PF <sub>n</sub>	1/7	2/7	4/7

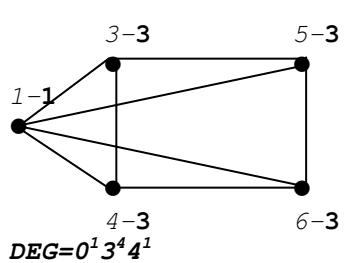
### Graph-structures GS.58 (6.8.4) and GS.82 (6.7.4) (by Graph Atlas G132 and G117).

Common invariants of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	5	$1^2 4^1$	0.516	$1^1 2^1 4^3$	2.174	0.444	8	42

GS.58, its binary signs and semiotic model SM:

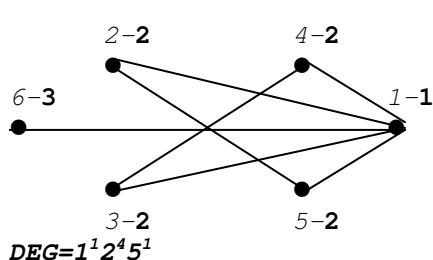
$$A: -2.5.8; \quad B: -u.2.0; \quad C: +2.3.3; \quad D: +2.4.5.$$



	1	2	3	3	3	3	i	ABCD	k
	1	2	3	4	5	6			123
	0	-B	D	D	D	D	1	0104	1 004
	0	-B	-B	-B	-B		2	0500	2 000
	0	C	C	-A			3	1121	3 102
	0	-A	C		4		4	1121	3 102
	0	C		5			5	1121	3 102
	0			6			6	1121	3 102

GS.82 (complement of GS.58), its binary signs and semiotic model SM:

$$A: -2.3.2; \quad B: +1.2.1; \quad C: +2.3.3.$$



	1	2	2	2	2	3	i	ABC	k
	1	2	3	4	5	6			123
	0	C	C	C	C	B	1	014	1 041
	0	-A	-A	C	-A		2	302	2 110
	0	C	-A	-A	-A		3	302	2 110
	0	-A	-A	-A	-A		4	302	2 110
	0	-A	-A	-A	-A		5	302	2 110
	0						6	410	3 100

Correspondence of vertex positions (orbits):

GS.58	1	2	3
GS.82	3	1	2

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.58	8	2	3	4	3	3	2	$4^2$	0.667	1.000	0	2.311	p
GS.82	7	3	2	3	3	3	2	$1^1 2^1 4^1$	0.509	0.857	0.143	2.407	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	$Adj_n$	1	2	3
	$Supp_n$	39	40	51
GS.58	$k.k' (p)$	3.3 (-A)	1.2 (-B)	2.3 (-B)
	$PF_n$	2/7	1/7	4/7
	$Sub_n$	89	95	
	$k.k' (p)$	1.3 (D)	3.3 (C)	-
	$PF_n$	4/8	4/8	
	$Supp_n$	65	71	
GS.82	$k.k' (p)$	2.3 (-A)	2.2 (-A)	-
	$PF_n$	4/8	4/8	
	$Sub_n$	108	109	120
	$k.k' (p)$	2.2 (C)	1.3 (B)	1.2 (C)
	$PF_n$	2/7	1/7	4/7

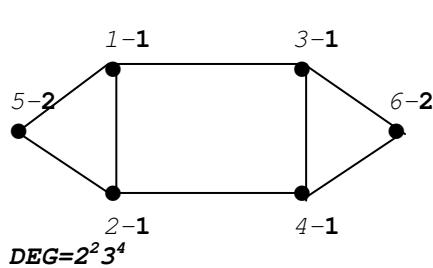
Graph-structures GS.59 (6.8.5) and GS.83 (6.7.5) (by Graph Atlas G152 and G128).

Common invariants of the structure and its complement:

GS	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	2	6	$2^1 4^1$	0.645	$1^1 2^3 4^2$	2.440	0.374	4	84

GS.59, its binary signs and semiotic model SM:

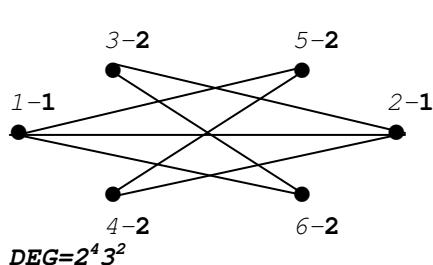
$$A: -3.6.8; \quad B: -2.4.4; \quad C: -2.3.2; \quad D: +2.3.3; \quad E: +3.4.4.$$



	1	1	1	1	2	2	k
i	1	2	3	4	5	6	
D	0	<b>E</b>	-B	D	-C	1	01121 1 21
E	0	-B	<b>E</b>	D	-C	2	01121 1 21
D	0	<b>D</b>	-C	<b>D</b>	1	3	01121 1 21
C	0	-C	<b>D</b>	D	4	01121 1 21	
A	1	0	-A	5	10220 2 20		
B	0	1	6	10220 2 20			

GS.83 (complement of GS.59), its binary signs and semiotic model SM:

$$A: -3.6.7; \quad B: -2.4.4; \quad C: -2.3.2; \quad D: +3.4.4; \quad E: +3.6.7.$$



	1	1	2	2	2	2	k
i	1	2	3	4	5	6	
E	0	<b>E</b>	-B	-B	D	D	1 12
D	0	<b>D</b>	<b>D</b>	-B	-B	1	02021 1 12
C	1	0	-C	-A	<b>D</b>	3	11120 2 11
A	0	<b>D</b>	-A	1	4	11120 2 11	
B	0	-C	5	11120 2 11			
B	0	1	6	11120 2 11			

Correspondence of vertex positions (orbits):

GS.59	1	2
GS.83	2	1

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N <sup>r</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS.59	8	3	3	5	3	4	3	$2^2 4^1$	0.500	0.750	0	2.561	hp
GS.83	7	3	3	5	2	4	3	$1^1 2^1 4^1$	0.509	0	0	2.557	bhpu

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3
	<i>Supp<sub>n</sub></i>	<b>36</b>	<b>45</b>	<b>48</b>
GS.59	<i>k.k' (p)</i>	2.2 (-A)	1.1 (-B)	1.2 (-C)
	<i>PF<sub>n</sub></i>	1/7	2/7	4/7
	<i>Sub<sub>n</sub></i>	<b>81</b>	<b>94</b>	<b>102</b>
	<i>k.k' (p)</i>	1.1 ( <b>E</b> )	1.1 ( <b>D</b> )	1.2 ( <b>D</b> )
	<i>PF<sub>n</sub></i>	2/8	2/8	4/8
	<i>Supp<sub>n</sub></i>	<b>57</b>	<b>70</b>	<b>78</b>
GS.83	<i>k.k' (p)</i>	2.2 (-A)	2.2 (-C)	1.2 (-B)
	<i>PF<sub>n</sub></i>	2/8	2/8	4/8
	<i>Sub<sub>n</sub></i>	<b>105</b>	<b>114</b>	<b>117</b>
	<i>k.k' (p)</i>	1.1 ( <b>E</b> )	2.2 ( <b>D</b> )	1.2 ( <b>D</b> )
	<i>PF<sub>n</sub></i>	1/7	2/7	4/7

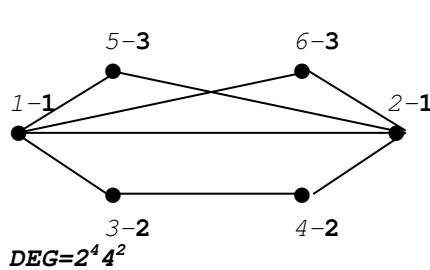
### Graph-structures GS.60 (6.8.6) and GS.84 (6.7.6) (by Graph Atlas G145 and G115).

Common invariants of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	7	$2^3$	0.523	$1^3 2^2 4^2$	2.574	0.341	4	84

GS.60, its binary signs and semiotic model SM:

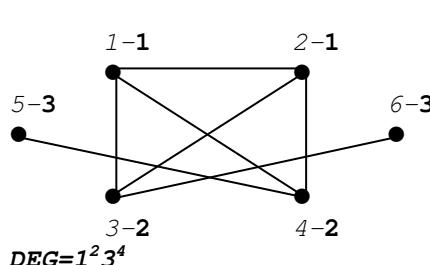
$$A:-2.4.5; B:-2.4.4; C:-2.3.2; D:+2.3.3; E:+2.4.5; F:+3.4.4.$$



1	1	2	2	3	3	i	ABCDEF	k
	1	2	3	4	5	6		123
	0	<b>E</b>	<b>F</b>	-B	D	D	1	010 <b>211</b> 1 112
		0 -B	<b>F</b>	D	D		2	010 <b>211</b> 1 112
			0	<b>F</b>  -C	-C		3	012 <b>002</b> 2 110
				0 -C	-C		4	012 <b>002</b> 2 110
				0	-A		5	102 <b>200</b> 3 200
						0	6	102 <b>200</b> 3 200

GS.84 (complement of GS.60), its binary signs and semiotic model SM:

$$A:-4.6.7; B:-3.5.6; C:-2.4.5; D:-2.3.2; E:+1.2.1; F:+2.3.3; G:+2.4.5.$$



1	1	2	2	3	3	i	ABCDEFG	k
	1	2	3	4	5	6		123
	0	<b>G</b>	<b>F</b>	<b>F</b>	-D	-D	1	0002 <b>021</b> 1 120
		0	<b>F</b>	<b>F</b>	-D	-D	2	0002 <b>021</b> 1 120
			0	-C	-B	<b>E</b>	3	0110 <b>120</b> 2 201
				0	<b>E</b>	-B	4	0110 <b>120</b> 2 201
					0	-A	5	1102 <b>100</b> 3 010
						0	6	1102 <b>100</b> 3 010

Correspondence of vertex positions (orbits):

GS . 60	1	2	3
GS . 84	3	2	1

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
<b>GS . 60</b>	8	4	3	6	3	4	2	$1^2 2^1 4^1$	0.416	0.625	0	2.500	<b>ep</b>
<b>GS . 84</b>	7	3	4	7	3	3	4	$1^1 2^1 4^1$	0.509	0.714	0.286	2.449	<b>p</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4
	<i>Supp<sub>n</sub></i>	<b>42</b>	<b>49</b>	<b>54</b>	
<i>GS . 60</i>	<i>k . k' (p)</i>	3 . 3 (-A)	1 . 2 (-B)	2 . 3 (-C)	-
	<i>PF<sub>n</sub></i>	1/7	2/7	4/7	
	<i>Sub<sub>n</sub></i>	<b>85</b>	<b>86</b>	<b>98</b>	<b>101</b>
	<i>k . k' (p)</i>	1 . 1 ( <b>E</b> )	2 . 2 ( <b>F</b> )	1 . 2 ( <b>F</b> )	1 . 3 ( <b>D</b> )
	<i>PF<sub>n</sub></i>	1/8	1/8	2/8	4/8
	<i>Supp<sub>n</sub></i>	<b>61</b>	<b>62</b>	<b>74</b>	<b>77</b>
<i>GS . 84</i>	<i>k . k' (p)</i>	3 . 3 (-A)	2 . 2 (-C)	2 . 3 (-B)	1 . 3 (-D)
	<i>PF<sub>n</sub></i>	1/8	1/8	2/8	4/8
	<i>Sub<sub>n</sub></i>	<b>111</b>	<b>118</b>	<b>123</b>	
	<i>k . k' (p)</i>	1 . 1 ( <b>G</b> )	2 . 3 ( <b>E</b> )	1 . 2 ( <b>F</b> )	-
	<i>PF<sub>n</sub></i>	1/7	2/7	4/7	

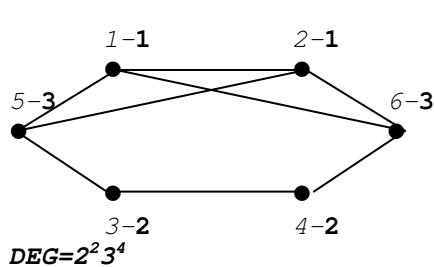
### Graph-structures GS.61 (6.8.7) and GS.85 (6.7.7) (by Graph Atlas G153 and G129).

Common invariants of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	7	$2^3$	0.523	$1^3 2^2 4^2$	2.574	0.341	4	84

**GS.61**, its binary signs and semiotic model SM:

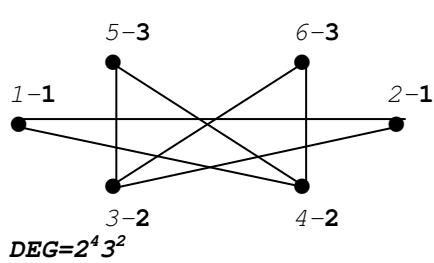
$$A: -2 \cdot 4 \cdot 5; \quad B: -2 \cdot 3 \cdot 2; \quad C: +2 \cdot 3 \cdot 3; \quad D: +2 \cdot 4 \cdot 5; \quad E: +4 \cdot 6 \cdot 8.$$



1	1	2	2	3	3	i	ABCDE	k
1	2	3	4	5	6	i	ABCDE	123
0	D	-B	-B	C	C	1	02210	1
0	-B	-B	C	C		2	02210	1
0	E	E	-B	3		03002	2	011
0	-B	E	4		03002	2	011	
0	-A		5	11201	3		210	
0	6		11201	3			210	

**GS.85** (complement of **GS.61**), its binary signs and semiotic model SM:

$$A: -2 \cdot 4 \cdot 4; \quad B: -2 \cdot 3 \cdot 2; \quad C: +3 \cdot 4 \cdot 4; \quad D: +4 \cdot 6 \cdot 7.$$



1	1	2	2	3	3	i	ABCD	k
1	2	3	4	5	6	i	ABCD	123
0	D	-B	D	-B	-B	1	0302	1
0	D	-B	-B	-B		2	0302	1
0	-A	C	C	3		1121	2	102
0	C	C	4		1121	2	102	
0	-A		5	1220	3		020	
0	6		1120	3			020	

Correspondence of vertex positions (orbits):

GS . 61	1	2	3
GS . 85	3	2	1

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS . 61	8	4	3	5	3	5	2	$1^2 2^1 4^1$	0.417	0.625	0	2.561	hp
GS . 85	7	3	4	4	2	5	2	$1^1 2^1 4^1$	0.509	0	0	2.557	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	$Adj_n$	1	2	3	4
	$Supp_n$	<b>42</b>	<b>46</b>	<b>48</b>	
GS . 61	$k \cdot k' (p)$	3.3 (-A)	1.2 (-B)	2.3 (-B)	-
	$PF_n$	1/7	4/7	2/7	
	$Sub_n$	<b>84</b>	<b>85</b>	<b>94</b>	<b>97</b>
	$k \cdot k' (p)$	2.2 (E)	1.1 (D)	1.3 (C)	2.3 (E)
	$PF_n$	1/8	1/8	4/8	2/8
	$Supp_n$	<b>60</b>	<b>61</b>	<b>70</b>	<b>73</b>
GS . 85	$k \cdot k' (p)$	2.2 (-A)	3.3 (-A)	1.3 (-B)	1.2 (-B)
	$PF_n$	1/8	1/8	4/8	2/8
	$Sub_n$	<b>111</b>	<b>115</b>	<b>117</b>	
	$k \cdot k' (p)$	1.1 (D)	2.3 (C)	1.2 (D)	-
	$PF_n$	1/7	4/7	2/7	

Comments: The first of five cases in the graph system  $\mathfrak{G}^{W=6}$ , where complement is also its adjacent structure: a) Complement **GS.85** of structure **GS.61** is also its adjacent substructure  $Sub_{n=2}$ . b) Complement **GS.61** of structure **GS.85** is also its adjacent superstructure  $Supp_{n=2}$ .

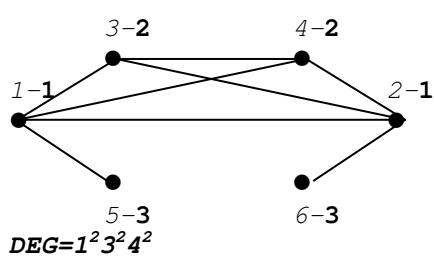
## Graph-structures GS.62 (6.8.8) and GS.86 (6.7.8) (by Graph Atlas G134 and G112).

Common invariants of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	3	7	$2^3$	0.523	$1^3 2^2 4^2$	2.574	0.341	4	84

GS.62, its binary signs and semiotic model SM:

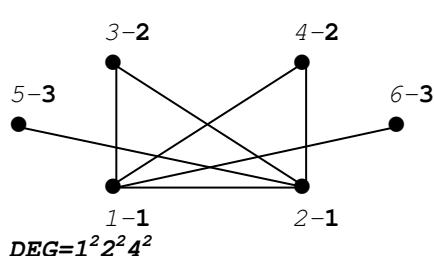
$$A: -3.4.3; \quad B: -2.3.2; \quad C: +1.2.1; \quad D: +2.4.6.$$



1	1	2	2	3	3	i	ABCD	k
	1	2	3	4	5	6		
	0	D	D	D	C	-B	1	0113 1 123
	0	D	D	D	-B	C	2	0113 1 121
	0	D	-B	-B	-B		3	0203 2 210
	0	-B	-B	-B	-B		4	0203 2 210
	0	-A		5	1310	3		100
	0			6	1310	3		100

GS.86 (complement of GS.62), its binary signs and semiotic model SM:

$$A: -3.4.3; \quad B: -2.4.5; \quad C: -2.3.2; \quad D: +1.2.1; \quad E: +2.3.3; \quad F: +2.4.5.$$



1	1	2	2	3	3	i	ABCDEF	k
	1	2	3	4	5	6		
	0	F	E	E	-C	D	1	001121 1 123
	0	E	E	D	-C		2	001121 1 121
	0	-B	-C	-C		3	012020 2 200	
	0	-C	-C		4	012020 2 200		
	0	-A		5	103100	3		100
	0			6	103100	3		100

Correspondence of vertex positions (orbits):

GS . 62	1	2	3
GS . 86	3	2	1

Distinguishing invariants and measures:

GS	E	$N^+$	$N^-$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS . 62	8	4	3	4	4	3	3	$1^2 2^1 4^1$	0.416	0.750	0.250	2.406	p
GS . 86	7	3	4	6	3	3	3	$1^1 2^1 4^1$	0.509	0.714	0.286	2.379	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4
	Supp <sub>n</sub>	42	50	53	
GS . 62	$k \cdot k' (p)$	3.3 (-A)	1.3 (-B)	2.3 (-B)	-
	PF <sub>n</sub>	1/7	2/7	4/7	
	Sub <sub>n</sub>	84	86	87	100
	$k \cdot k' (p)$	1.1 (D)	2.2 (D)	1.3 (C)	1.2 (D)
	PF <sub>n</sub>	1/8	1/8	2/8	4/8
	Supp <sub>n</sub>	60	62	63	76
GS . 86	$k \cdot k' (p)$	3.3 (-A)	2.2 (-B)	1.3 (-C)	2.3 (-C)
	PF <sub>n</sub>	1/8	1/8	2/8	4/8
	Sub <sub>n</sub>	111	119	122	
	$k \cdot k' (p)$	1.1 (F)	1.3 (D)	1.2 (E)	-
	PF <sub>n</sub>	1/7	2/7	4/7	

Comments: a) Complement GS.86 of structure GS.62 is also its adjacent substructure Sub<sub>n=2</sub>. b) Complement GS.86 of structure GS.86 is also its adjacent superstructure Supp<sub>n=2</sub>.

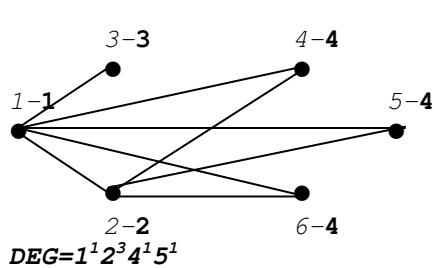
### Graph-structures GS.63 (6.8.9) and GS.87 (6.7.9) (by Graph Atlas G135 and G107).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	7	$1^33^1$	0.183	$1^33^4$	2.639	0.325	6	56

GS.63, its binary signs and semiotic model SM:

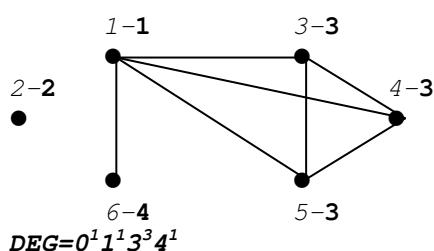
$$A: -2.4.5; \quad B: -2.3.2; \quad C: +1.2.1; \quad D: +2.3.3; \quad E: +2.5.7.$$



	1	2	3	4	4	4	k
	1	2	3	4	5	6	i ABCDE
	0	E	C	D	D	D	1 00131 1 0113
	0	-B	D	D	D	D	2 01031 2 1003
	0	-B	-B	-B	-B	-B	3 04100 3 1000
	0	-A	-A	-A	-A	-A	4 21020 4 1100
0	-A						5 21020 4 1100
0							6 21020 4 1100

GS.87 (complement of GS.63), its binary signs and semiotic model SM:

$$A: -2.3.2; \quad B: -u.2.0; \quad C: +1.2.1; \quad D: +2.4.6.$$



	1	2	3	3	3	4	k
	1	2	3	4	5	6	i ABCD
	0	-B	D	D	D	C	1 0113 1 0031
	0	-B	-B	-B	-B	-B	2 0500 2 0000
	0	D	D	-A	-A	-A	3 1103 3 1020
0	D	-A	-A	-A	-A	-A	4 1103 3 1020
0	-A						5 1103 3 1020
0							6 3110 4 1000

Correspondence of vertex positions (orbits):

GS. 63	1	2	3	4
GS. 87	2	4	1	3

Distinguishing invariants and measures:

GS	E	$N^t$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 63	8	4	3	5	3	3	$1^23^2$	0.396	0.875	0.125	2.399	p
GS. 87	7	3	4	4	4	3	$1^13^2$	0.484	0.857	0.143	2.217	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4
	<i>Supp<sub>n</sub></i>	<b>35</b>	<b>49</b>	<b>50</b>	
	<i>k.k' (p)</i>	2.3 (-B)	3.4 (-B)	4.4 (-A)	-
GS. 63	<i>PF<sub>n</sub></i>	1/7	3/7	3/7	
	<i>Sub<sub>n</sub></i>	<b>80</b>	<b>86</b>	<b>88</b>	<b>93</b>
	<i>k.k' (p)</i>	1.3 (C)	1.4 (D)	1.2 (E)	2.4 (D)
	<i>PF<sub>n</sub></i>	1/8	3/8	1/8	3/8
	<i>Supp<sub>n</sub></i>	<b>56</b>	<b>62</b>	<b>64</b>	<b>69</b>
	<i>k.k' (p)</i>	1.2 (-B)	2.3 (-B)	2.4 (-B)	3.4 (-A)
GS. 87	<i>PF<sub>n</sub></i>	1/8	3/8	1/8	3/8
	<i>Sub<sub>n</sub></i>	<b>104</b>	<b>118</b>	<b>119</b>	
	<i>k.k' (p)</i>	1.4 (C)	1.3 (D)	3.3 (D)	-
	<i>PF<sub>n</sub></i>	1/7	3/7	3/7	

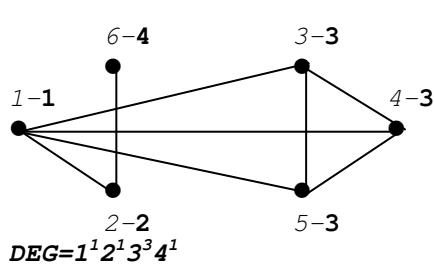
### Graph-structures GS.64 (6.8.10) and GS.88 (6.7.10) (by Graph Atlas G142 and G121).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	7	$1^3 3^1$	0.183	$1^3 3^4$	2.639	0.325	6	56

GS.64, its binary signs and semiotic model SM:

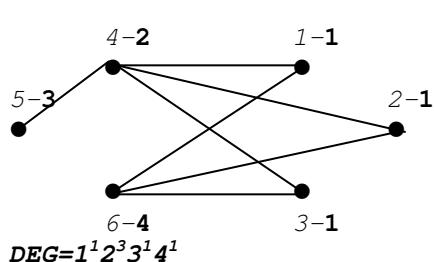
$$A: -3.4.3; \quad B: -2.3.2; \quad C: +1.2.1; \quad D: +2.4.6.$$



1	2	3	3	3	4	i	ABCD	k
1	2	3	4	5	6	1	0113	1 0130
0	C	D	D	D	-B	1	0320	2 1001
0	-B	-B	-B	C		2	1103	3 1020
0	D	D	-A			3	1103	3 1020
0	D	-A		4		4	1103	3 1020
0	-A			5		5	1103	3 1020
0				6		6	3110	4 0100

GS.88 (complement of GS.64), its binary signs and semiotic model SM:

$$A: -3.6.7; \quad B: -2.5.6; \quad C: -2.4.4; \quad D: -2.3.2; \quad E: +1.2.1; \quad F: +3.5.6.$$



1	1	1	2	3	4	i	ABCDEF	k
1	2	3	4	5	6	1	002102	1 0101
0	-C	-C	F	-D	F	1	002102	1 0101
0	-C	F	-D	F		2	002102	1 0101
0	F	-D	F			3	002102	1 0101
0	E	-B				4	010013	2 3010
0	-A			5		5	100310	3 0100
0				6		6	110003	4 3000

Correspondence of vertex positions (orbits):

GS. 64	1	2	3	4
GS. 88	3	4	1	2

Distinguishing invariants and measures:

GS	E	$N^t$	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 64	8	4	3	4	4	3	$1^2 3^2$	0.396	0.750	0.250	2.484	p
GS. 88	7	3	4	6	2	4	$1^1 3^2$	0.484	0	0.143	2.468	bpu

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4
	<i>Supp<sub>n</sub></i>	<b>38</b>	<b>42</b>	<b>43</b>	
GS. 64	<i>k.k' (p)</i>	1.4 (-B)	3.4 (-A)	2.3 (-B)	-
	<i>PF<sub>n</sub></i>	1/7	3/7	3/7	
	<i>Sub<sub>n</sub></i>	<b>79</b>	<b>87</b>	<b>97</b>	<b>98</b>
	<i>k.k' (p)</i>	1.2 (C)	2.4 (C)	1.3 (D)	3.3 (D)
	<i>PF<sub>n</sub></i>	1/8	1/8	3/8	3/8
	<i>Supp<sub>n</sub></i>	<b>55</b>	<b>63</b>	<b>73</b>	<b>74</b>
GS. 88	<i>k.k' (p)</i>	3.4 (-A)	2.4 (-B)	1.3 (-D)	1.1 (-C)
	<i>PF<sub>n</sub></i>	1/8	1/8	3/8	3/8
	<i>Sub<sub>n</sub></i>	<b>107</b>	<b>111</b>	<b>112</b>	
	<i>k.k' (p)</i>	2.3 (E)	1.2 (F)	1.4 (F)	-
	<i>PF<sub>n</sub></i>	1/7	3/7	3/7	

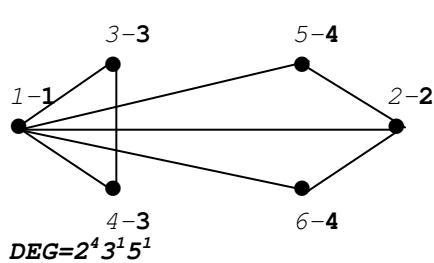
### Graph-structures GS.65 (6.8.11) and GS.89 (6.7.11) (by Graph Atlas G144 and G110).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	8	$1^2 2^2$	0.266	$1^3 2^4 4^1$	2.840	0.273	4	84

GS.65, its binary signs and semiotic model SM:

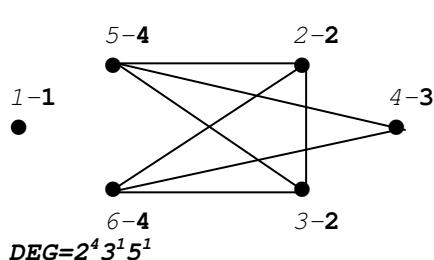
$$A: -2.4.5; \quad B: -2.3.2; \quad C: +2.3.3; \quad D: +2.4.5.$$



1	2	3	3	4	4	i	ABCD	k
1	2	3	4	5	6	i	ABCD	1234
0	D	C	C	C	C	1	0041	1 0122
0	-B	-B	C	C	C	2	0221	2 1002
0	C	-B	-B	3	0320	3	1010	
0	-B	-B	4	0320	3	1010		
0	-A	5	1220	4	1100			
0	6	1220	4	1100				

GS.89 (complement of GS.65), its binary signs and semiotic model SM:

$$A: -2.5.7; \quad B: -2.4.4; \quad C: -u.2.0; \quad D: +2.3.3; \quad E: +2.4.5; \quad F: +3.5.7.$$



1	2	2	3	4	4	i	ABCDEF	k
1	2	3	4	5	6	i	ABCDEF	1234
0	-C	-C	-C	-C	-C	1	005000	1 0000
0	E	-B	D	D	D	2	011210	2 0102
0	-B	D	D	D	D	3	011210	2 0102
0	F	F	4	021002	3	0002		
0	-A	5	101201	4	0210			
0	6	101201	4	0210				

Correspondence of vertex positions (orbits):

GS. 65	1	2	3	4
GS. 89	1	3	4	2

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 65	8	5	3	4	3	3	2	$1^2 2^3$	0.250	1.000	0	2.477	p
GS. 89	7	3	5	6	3	4	2	$1^1 2^1 4^1$	0.509	0.714	0	2.306	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5
	Supp <sub>n</sub>	38	47	49		
GS. 65	$k \cdot k' (p)$	4.4 (-A)	3.4 (-B)	2.3 (-B)	-	-
	PF <sub>n</sub>	1/7	4/7	2/7		
	Sub <sub>n</sub>	82	91	93	98	99
	$k \cdot k' (p)$	2.4 (C)	1.2 (D)	3.3 (C)	1.3 (C)	1.4 (C)
	PF <sub>n</sub>	2/8	1/8	1/8	2/8	2/8
	Supp <sub>n</sub>	58	67	69	74	75
GS. 89	$k \cdot k' (p)$	2.3 (-B)	1.3 (-C)	4.4 (-A)	1.4 (-C)	1.2 (-C)
	PF <sub>n</sub>	2/8	1/8	1/8	2/8	2/8
	Sub <sub>n</sub>	107	116	118		
	$k \cdot k' (p)$	2.2 (E)	2.4 (D)	3.4 (F)	-	-
	PF <sub>n</sub>	1/7	4/7	2/7		

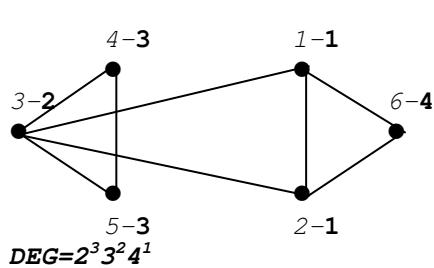
### Graph-structures GS.66 (6.8.12) and GS.90 (6.7.12) (by Graph Atlas G150 and G125).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	8	$1^2 2^2$	0.266	$1^3 2^4 4^1$	2.840	0.273	4	84

GS.66, its binary signs and semiotic model SM:

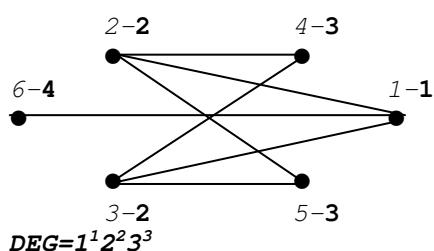
$$A:-3.5.6; B:-2.4.5; C:-2.3.2; D:+2.3.3; E:+2.4.5.$$



1	1	2	3	3	4	i	ABCDE	k
1   2   3   4   5   6   i   ABCDE   1234								
0   E   D   -C   -C   D   1   00221   1   1101								
0   D   -C   -C   D   2   00221   1   1101								
0   D   D   -B   3   01040   2   2020								
0   D   -A   4   10220   3   0110								
0   -A   5   10220   3   0110								
0   6   21020   4   2000								

GS.90 (complement of GS.66), its binary signs and semiotic model SM:

$$A:-3.5.5; B:-2.5.6; C:-2.4.4; D:-2.3.2; E:+1.2.1; F:+3.5.6.$$



1	2	2	3	3	4	i	ABCDEF	k
1   2   3   4   5   6   i   ABCDEF   1234								
0   F   F   -C   -C   E   1   002012   1   0201								
0   -B   F   F   -D   2   010103   2   1020								
0   F   F   -D   3   010103   2   1020								
0   C   -A   4   102002   3   0200								
0   -A   5   102002   3   0200								
0   6   200210   4   1000								

Correspondence of vertex positions (orbits):

GS. 66	1	2	3	4
GS. 90	3	4	2	1

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 66	8	5	3	5	3	3	$1^2 2^3$	0.250	1.000	0	2.531	p
GS. 90	7	3	5	6	2	4	$1^1 2^1 4^1$	0.509	0	0.143	2.503	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5
	Supp <sub>n</sub>	38	45	48		
GS. 66	$k \cdot k' (p)$	2.4 (-B)	1.3 (-C)	3.4 (-A)	-	-
	PF <sub>n</sub>	1/7	4/7	2/7		
	Sub <sub>n</sub>	81	91	92	97	99
	$k \cdot k' (p)$	1.2 (D)	1.1 (E)	3.3 (D)	2.3 (D)	1.4 (D)
	PF <sub>n</sub>	2/8	1/8	1/8	2/8	2/8
	Supp <sub>n</sub>	57	67	68	73	75
GS. 90	$k \cdot k' (p)$	3.4 (-A)	3.3 (-C)	2.2 (-B)	2.4 (-D)	1.3 (-C)
	PF <sub>n</sub>	2/8	1/8	1/8	2/8	2/8
	Sub <sub>n</sub>	107	114	117		
	$k \cdot k' (p)$	1.4 (E)	2.3 (F)	1.2 (F)	-	-
	PF <sub>n</sub>	1/7	4/7	2/7		

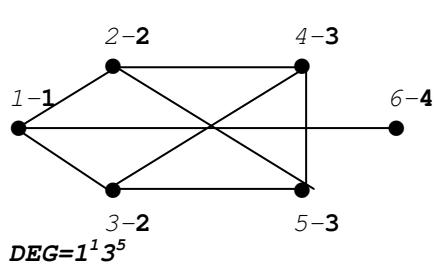
## Graph-structures GS.67 (6.8.13) and GS.91 (6.7.13) (by Graph Atlas G143 and G126 ).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	8	$1^2 2^2$	0.266	$1^3 2^4 4^1$	2.840	0.273	4	84

GS.67, its binary signs and semiotic model SM:

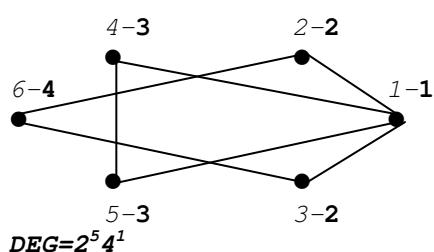
$$A: -3.5.5; B: -2.5.7; C: -2.4.4; D: -2.3.2; \\ E: +1.2.1; F: +2.3.3; G: +2.4.5; H: +3.5.7.$$



	1	2	2	3	3	4		k
	1	2	3	4	5	6	i	ABCDE
	0	H	H	-C	-C	E	1	00201002
	0	0	-B	F	F	-D	2	01010201
	0	0	F	F	-D		3	01010201
	0	0	G	-A	A		4	10100210
	0	0	-A		5		3	10100210
	0	0			6		4	20021000

GS.91 (complement of GS.67), its binary signs and semiotic model SM:

$$A: -3.5.5; B: -2.4.4; C: -2.3.2; D: +2.3.3; E: +3.4.4.$$



	1	2	2	3	3	4		k
	1	2	3	4	5	6	i	ABCDE
	0	E	E	D	D	-B	1	01022
	0	0	-B	-C	-C	E	2	01202
	0	-C	-C	E			3	01202
	0	0	D	-A	4		4	10220
	0	0	-A		5		3	10220
	0	0			6		4	21002

Correspondence of vertex positions (orbits):

GS. 67	1	2	3	4
GS. 91	4	3	2	1

Distinguishing invariants and measures:

GS	E	N <sup>+</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 67	8	4	4	8	3	4	$1^2 2^1 4^1$	0.416	0.625	0.125	2.514	p
GS. 91	7	4	4	5	3	4	$1^1 2^3$	0.305	0.429	0	2.522	ep

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4
	Supp <sub>n</sub>	43	48	51	52
GS. 67	$k \cdot k' (p)$	2.2 (-B)	2.4 (-D)	1.3 (-C)	3.4 (-A)
	PF <sub>n</sub>	1/7	2/7	2/7	2/7
	Sub <sub>n</sub>	89	90	97	102
	$k \cdot k' (p)$	1.4 (E)	3.3 (G)	1.2 (H)	2.3 (F)
	PF <sub>n</sub>	1/8	1/8	2/8	4/8
	Supp <sub>n</sub>	65	66	73	78
GS. 91	$k \cdot k' (p)$	1.4 (-B)	2.2 (-B)	3.4 (-A)	2.3 (-C)
	PF <sub>n</sub>	1/8	1/8	2/8	4/8
	Sub <sub>n</sub>	112	117	120	121
	$k \cdot k' (p)$	3.3 (D)	1.3 (D)	2.4 (E)	1.2 (E)
	PF <sub>n</sub>	1/7	2/7	2/7	2/7

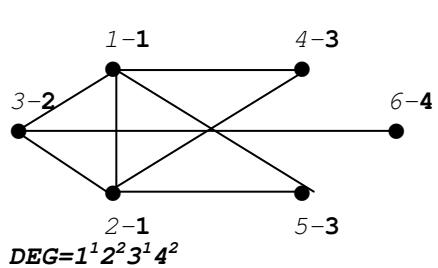
**Graph-structures GS.68 (6.8.14) and GS.92 (6.7.14) (by Graph Atlas G138 and G114).**

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	8	$1^2 2^2$	0.266	$1^3 2^4 4^1$	2.840	0.273	4	84

GS.68, its binary signs and semiotic model SM:

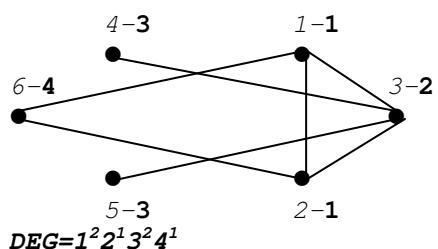
$$A:-3.5.6; B:-2.4.5; C:-2.3.2; D:+1.2.1; E:+2.3.3; F:+2.5.7.$$



1	1	2	3	3	4	i	ABCDEF	k
1	2	3	4	5	6	i	ABCDEF	1234
0	<b>F</b>	<b>E</b>	<b>E</b>	<b>E</b>	-C	1	001 <b>031</b>	1 1120
0	<b>E</b>	<b>E</b>	<b>E</b>	-C		2	001 <b>031</b>	1 1120
0	-B	-B	<b>D</b>		3	020 <b>120</b>	2 2001	
0	-B	-A		4	120 <b>020</b>	3 2000		
0	-A			5	120 <b>020</b>	3 2000		
0				6	202 <b>100</b>	4 0100		

GS.92 (complement of GS.68), its binary signs and semiotic model SM:

$$A:-3.5.6; B:-2.4.5; C:-2.3.2; D:+1.2.1; E:+2.3.3; F:+2.4.5.$$



1	1	2	3	3	4	i	ABCDEF	k
1	2	3	4	5	6	i	ABCDEF	1234
0	<b>F</b>	<b>E</b>	-C	-C	<b>E</b>	1	002 <b>021</b>	1 1101
0	<b>E</b>	-C	-C	<b>E</b>		2	002 <b>021</b>	1 1101
0	<b>D</b>	<b>D</b>	-B		3	010 <b>220</b>	2 2020	
0	-C	-A		4	103 <b>100</b>	3 0100		
0	-A			5	103 <b>100</b>	3 0100		
0				6	210 <b>020</b>	4 2000		

Correspondence of vertex positions (orbits):

GS. 68	1	2	3	4
GS. 92	3	4	1	2

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 68	8	4	4	6	3	3	$1^2 2^1 4^1$	0.416	0.875	0.125	2.453	<b>P</b>
GS. 92	7	4	4	6	3	3	$1^1 2^3$	0.305	0.714	0.286	2.414	<b>P</b>

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4
	<i>Supp<sub>n</sub></i>	<b>43</b>	<b>44</b>	<b>49</b>	<b>53</b>
GS. 68	<i>k.k' (P)</i>	3.3 (-B)	3.4 (-A)	1.4 (-C)	2.3 (-B)
	<i>PF<sub>n</sub></i>	1/7	2/7	2/7	2/7
	<i>Sub<sub>n</sub></i>	<b>80</b>	<b>90</b>	<b>98</b>	<b>100</b>
	<i>k.k' (P)</i>	2.4 (D)	1.1 (F)	1.2 (E)	1.3 (E)
	<i>PF<sub>n</sub></i>	1/8	1/8	2/8	4/8
	<i>Supp<sub>n</sub></i>	<b>56</b>	<b>66</b>	<b>74</b>	<b>76</b>
GS. 92	<i>k.k' (P)</i>	2.4 (-B)	3.3 (-C)	3.4 (-A)	1.3 (-C)
	<i>PF<sub>n</sub></i>	1/8	1/8	2/8	4/8
	<i>Sub<sub>n</sub></i>	<b>112</b>	<b>113</b>	<b>118</b>	<b>122</b>
	<i>k.k' (P)</i>	1.1 (F)	1.2 (E)	2.3 (D)	1.4 (E)
	<i>PF<sub>n</sub></i>	1/7	2/7	2/7	2/7

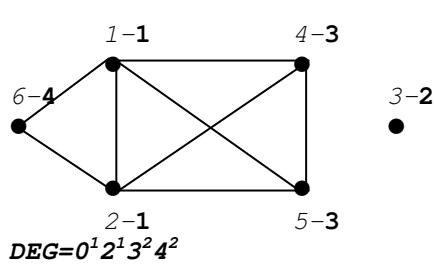
### Graph-structures GS.69 (6.8.15) and GS.93 (6.7.15) (by Graph Atlas G131 and G111).

Common invariants and measures of the structure and its complement:

GS	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	8	$1^2 2^2$	0.266	$1^3 2^4 4^1$	2.840	0.273	4	84

GS.69, its binary signs and semiotic model SM:

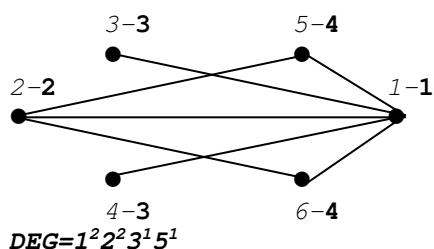
$$A: -2.4.5; \quad B: -u.2.0; \quad C: +2.3.3; \quad D: +2.4.6; \quad E: +2.5.8.$$



	1	1	2	3	3	4		k
	1	2	3	4	5	6	i	ABCDE
	0	E   -B   D   D   C					1	01121 1 1021
	0   -B   D   D   C						2	01121 1 1021
	0   -B   -B   -B					3	05000 2 0000	
	0   -A   D   -A					4	11030 3 2010	
	0   -A   D   -A					5	11030 3 2010	
	0	6					4	21200 4 2000

GS.93 (complement of GS.69), its binary signs and semiotic model SM:

$$A: -2.4.5; \quad B: -2.3.2; \quad C: +1.2.1; \quad D: +2.3.3; \quad E: +2.4.5.$$



	1	2	3	3	4	4		k
	1	2	3	4	5	6	i	ABCDE
	0	E   C   C   D   D					1	00221 1 0122
	0   -B   -B   D   D						2	02021 2 1002
	0   -B   -B   -B				3		04100 3 1000	
	0   -B   -B				4		04100 3 1000	
	0   -A				5		12020 4 1100	
	0	6					4	12020 4 1100

Correspondence of vertex positions (orbits):

GS. 69	1	2	3	4
GS. 93	3	1	4	2

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 69	8	4	4	5	4	3	$1^2 2^1 4^1$	0.416	1.000	0	2.281	p
GS. 93	7	4	4	5	3	3	$1^1 2^3$	0.305	0.714	0.286	2.353	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4
	<i>Supp<sub>n</sub></i>	<b>39</b>	<b>43</b>	<b>50</b>	<b>53</b>
GS. 69	<i>k.k' (p)</i>	3.4 (-A)	2.4 (-B)	1.2 (-B)	2.3 (-B)
	<i>PF<sub>n</sub></i>	2/7	1/7	2/7	2/7
	<i>Sub<sub>n</sub></i>	<b>80</b>	<b>87</b>	<b>89</b>	<b>95</b>
	<i>k.k' (p)</i>	3.3 (D)	1.4 (C)	1.1 (E)	1.3 (D)
	<i>PF<sub>n</sub></i>	1/8	2/8	1/8	4/8
	<i>Supp<sub>n</sub></i>	<b>56</b>	<b>63</b>	<b>65</b>	<b>71</b>
GS. 93	<i>k.k' (p)</i>	4.4 (-A)	2.3 (-B)	3.3 (-B)	3.4 (-B)
	<i>PF<sub>n</sub></i>	1/8	2/8	1/8	4/8
	<i>Sub<sub>n</sub></i>	<b>108</b>	<b>112</b>	<b>119</b>	<b>122</b>
	<i>k.k' (p)</i>	2.4 (D)	1.2 (E)	1.3 (C)	1.4 (D)
	<i>PF<sub>n</sub></i>	2/7	1/7	2/7	2/7

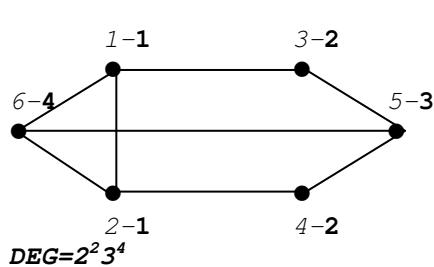
## Graph-structures GS.70 (6.8.16) and GS.94 (6.7.16) (by Graph Atlas G151 and G127).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	9	$1^2 2^2$	0,266	$1^3 2^6$	3.107	0.205	2	168

GS.70, its binary signs and semiotic model SM:

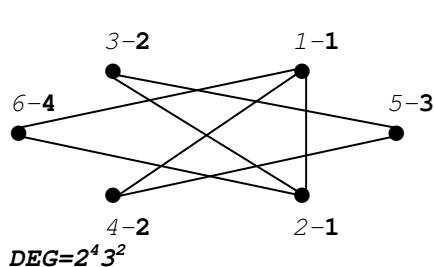
$$A: -2.4.4; \quad B: -2.3.2; \quad C: +2.3.3; \quad D: +3.4.4; \quad E: +3.6.8.$$



	1	1	2	2	3	4		k
	1	2	3	4	5	6	i	ABCDE
	0	C	D	-B	-A	C	1	11210 1
	0	-B	D	-A	C		2	11210 1
	0	-B	D	-A		3	12020 2	1101
	0	D	-A		4	12020 2	1010	
	0	E			5	20021 3	0201	
	0				6	20201 4	2010	

GS.94 (complement of GS.70), its binary signs and semiotic model SM:

$$A: -3.6.7; \quad B: -2.3.2; \quad C: +2.3.3; \quad D: +4.5.5.$$



	1	1	2	2	3	4		k
	1	2	3	4	5	6	i	ABCD
	0	C	-B	D	-B	C	1	0221 1
	0	D	-B	-B	C		2	0221 1
	0	-B	D	-B		3	0302 2	1101
	0	D	-B		4	0302 2	1010	
	0	-A			5	1202 3	0200	
	0				6	1220 4	2000	

Correspondence of vertex positions (orbits):

GS. 70	1	2	3	4
GS. 94	2	1	3	4

Distinguishing invariants and measures:

GS	E	N <sup>+</sup>	N <sup>-</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 70	8	5	4	5	3	4	2	$1^2 2^3$	0.250	0.375	0	2.561	hp
GS. 94	7	4	5	4	3	5	3	$1^1 2^3$	0.305	0.429	0	2.557	hp

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5
GS. 70	$Supp_n$	36	46	52	54	
	$k \cdot k' (p)$	2.2 (-B)	2.4 (-A)	1.2 (-B)	1.3 (-A)	-
	$PF_n$	1/7	2/7	2/7	2/7	
	$Sub_n$	83	85	94	96	102
GS. 94	$k \cdot k' (p)$	1.1 (C)	1.4 (C)	3.4 (E)	2.3 (D)	1.2 (D)
	$PF_n$	1/8	2/8	1/8	2/8	2/8
	$Supp_n$	59	61	70	72	78
	$k \cdot k' (p)$	2.2 (-B)	2.4 (-B)	3.4 (-A)	1.3 (-B)	1.2 (-B)
GS. 94	$PF_n$	1/8	2/8	1/8	2/8	2/8
	$Sub_n$	105	115	121	123	
	$k \cdot k' (p)$	1.1 (C)	1.4 (C)	1.2 (D)	2.3 (D)	-
	$PF_n$	1/7	2/7	2/7	2/7	

Comments: Complements appear to adjacent structures: a) Complement GS.94 of structure GS.70 is also its adjacent substructure  $Sub_{n=3}$ . b) Complement GS.70 of structure GS.94 is also its adjacent superstructure  $Supp_{n=3}$ .

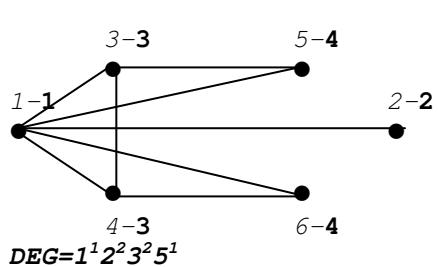
### Graph-structures GS.71 (6.8.17) and GS.95 (6.7.17) (by Graph Atlas G136 and G109).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	9	$1^2 2^2$	0.266	$1^3 2^6$	3.107	0.205	2	168

GS.71, its binary signs and semiotic model SM:

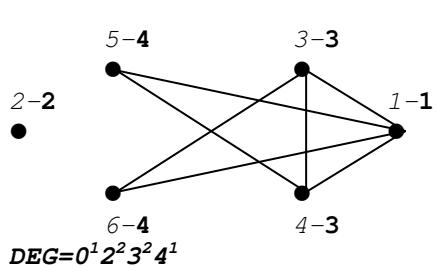
$$A:-2.4.5; B:-2.3.2; C:+1.2.1; D:+2.3.3; E:+2.4.5.$$



i	1	2	3	3	4	4	k
1	1	2	3	4	5	6	1234
0	C	E	E	D	D	1	00122 1 0122
0	-B	-B	-B	-B	-B	2	04100 2 1000
0	D	D	-A	3	11021 3 1011		
0	-A	D	4	11021 3 1011			
0	-B	5	12020 4 1010				
0	6	12020 4 1010					

GS.95 (complement of GS.71), its binary signs and semiotic model SM:

$$A:-2.4.5; B:-2.3.2; C:-u.2.0; D:+2.3.3; E:+2.4.5.$$



i	1	2	3	3	4	4	k
1	1	2	3	4	5	6	1234
0	-C	E	E	D	D	1	00122 1 0022
0	-C	-C	-C	-C	-C	2	00500 2 0000
0	D	-A	D	3	10121 3 1011		
0	D	-A	4	10121 3 1011			
0	-B	5	11120 4 1010				
0	6	11120 4 1010					

Correspondence of vertex positions (orbits):

GS. 71	1	2	3	4
GS. 95	2	1	4	3

Distinguishing invariants and measures:

GS	E	N <sup>+</sup>	N <sup>-</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 71	8	5	4	5	3	3	2	$1^2 2^3$	0.250	0.875	0.125	2.430	p
GS. 95	7	4	5	5	3	3	2	$1^1 2^3$	0.305	1.000	0	2.271	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5
GS. 71	$Supp_n$	40	47	49	50	
	$k \cdot k' (p)$	4.4 (-B)	2.4 (-B)	2.3 (-B)	3.4 (-A)	-
	$PF_n$	1/7	2/7	2/7	2/7	
	$Sub_n$	82	93	95	100	101
GS. 95	$Supp_n$	58	69	71	76	78
	$k \cdot k' (p)$	4.4 (-B)	3.4 (-A)	1.2 (-C)	2.3 (-C)	2.4 (-C)
	$PF_n$	1/8	2/8	1/8	2/8	2/8
	$Sub_n$	109	116	118	119	
	$k \cdot k' (p)$	3.3 (D)	1.3 (E)	1.4 (D)	3.4 (D)	-
	$PF_n$	1/7	2/7	2/7	2/7	

Comments: Complements appear to adjacent structures: a) Complement GS.95 of structure GS.71 is also its adjacent substructure  $Sub_{n=3}$ . b) Complement GS.71 of structure GS.95 is also its adjacent superstructure  $Supp_{n=3}$ .

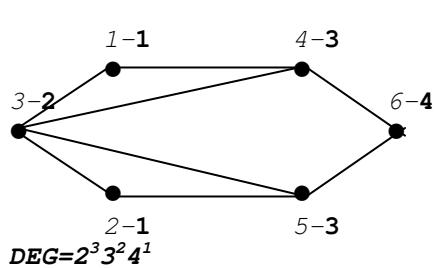
### Graph-structures GS.72 (6.8.18) and GS.96 (6.7.18) (by Graph Atlas G148 and G124).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	4	9	$1^2 2^2$	0.266	$1^3 2^6$	3.107	0.205	2	168

GS.72, its binary signs and semiotic model SM:

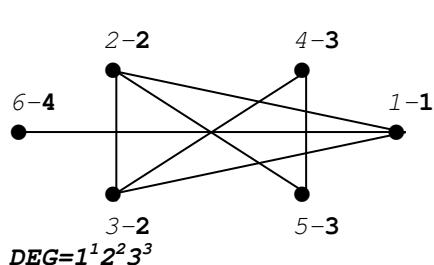
$$A: -2 \cdot 4 \cdot 4; \quad B: -2 \cdot 3 \cdot 2; \quad C: +2 \cdot 3 \cdot 3; \quad D: +3 \cdot 4 \cdot 4.$$



1	1	2	3	3	4	i	ABCD	k
1   2   3   4   5   6   i   ABCD   1234								
0   -B   C   C   -B   -B   1   0320   1   0110								
0   C   -B   C   -B   2   0320   1   0110								
0   C   C   -A   3   1040   2   2020								
0   -A   D   4   1121   3   1101								
0   D   5   1121   3   1101								
0   6   1202   4   0020								

GS.96 (complement of GS.72), its binary signs and semiotic model SM:

$$A: -3 \cdot 4 \cdot 3; \quad B: -2 \cdot 4 \cdot 4; \quad C: -2 \cdot 3 \cdot 2; \quad D: +1 \cdot 2 \cdot 1; \quad E: +2 \cdot 3 \cdot 3; \quad F: +3 \cdot 4 \cdot 4.$$



1	2	2	3	3	4	i	ABCDEF	k
1   2   3   4   5   6   i   ABCDEF   1234								
0   E   E   -C   -C   D   1   002120   1   0201								
0   E   -B   F   -C   2   011021   2   1110								
0   F   -B   -C   3   011021   2   1110								
0   F   -A   4   111002   3   0110								
0   -A   5   111002   3   0110								
0   6   202100   4   1000								

Correspondence of vertex positions (orbits):

GS. 72	1	2	3	4
GS. 96	2	4	3	1

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N <sup>r</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 72	8	4	5	4	3	4	2	$2^4$	0.333	0.750	0	2.531	hp
GS. 96	7	5	4	6	3	4	3	$1^3 2^2$	0.204	0.429	0.143	2.503	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5
	<i>Supp<sub>n</sub></i>	<b>37</b>	<b>46</b>	<b>47</b>	<b>48</b>	<b>54</b>
GS. 72	<i>k.k' (p)</i>	3.3 (-A)	1.1 (-B)	2.4 (-A)	1.4 (-B)	1.3 (-B)
	<i>PF<sub>n</sub></i>	1/7	1/7	1/7	2/7	2/7
	<i>Sub<sub>n</sub></i>	<b>94</b>	<b>99</b>	<b>101</b>	<b>102</b>	
	<i>k.k' (p)</i>	2.3 (C)	3.4 (D)	1.3 (C)	1.2 (C)	-
	<i>PF<sub>n</sub></i>	2/8	2/8	2/8	2/8	
	<i>Supp<sub>n</sub></i>	<b>70</b>	<b>75</b>	<b>77</b>	<b>78</b>	
GS. 96	<i>k.k' (p)</i>	3.4 (-A)	1.3 (-C)	2.3 (-B)	2.4 (-C)	-
	<i>PF<sub>n</sub></i>	2/8	2/8	2/8	2/8	
	<i>Sub<sub>n</sub></i>	<b>106</b>	<b>115</b>	<b>116</b>	<b>117</b>	<b>123</b>
	<i>k.k' (p)</i>	3.3 (F)	2.2 (E)	1.4 (D)	1.2 (E)	2.3 (F)
	<i>PF<sub>n</sub></i>	1/7	1/7	1/7	2/7	2/7

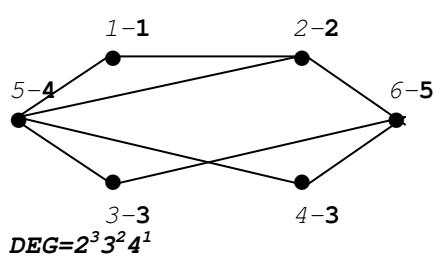
### Graph-structures GS.73 (6.8.19) and GS.97 (6.7.19) (by Graph Atlas G149 and G123).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	5	11	$1^4 2^1$	0.129	$1^7 2^4$	3.374	0.137	2	168

GS.73, its binary signs and semiotic model SM:

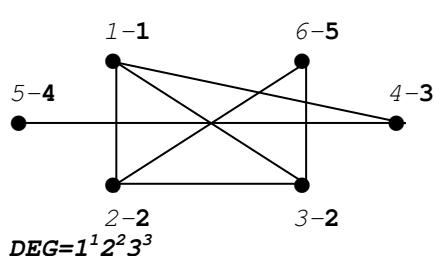
$$A:-2.5.6; B:-2.4.4; C:-2.3.2; D:+2.3.3; E:+3.5.6.$$



1	2	3	3	4	5	i	ABCDE	k
1	2	3	4	5	6	i	ABCDE	12345
0	D	-C	-C	D	-C	1	00320	1
0	-B	-B	D	E		2	02021	2
0	-B	E	E		3	02102	3	00011
0	E	E		4	02102	3	00011	
0	-A		5	10022	4	11200		
0		6	10103	5	01200			

GS.97 (complement of GS.73), its binary signs and semiotic model SM:

$$A:-4.6.7; B:-3.5.6; C:-3.4.3; D:-2.4.5; E:-2.3.2; F:+1.2.1; G:+2.3.3; H:+2.4.5.$$



1	2	2	3	4	5	i	ABCDEFGH	k
1	2	3	4	5	6	i	ABCDEFGH	12345
0	G	G	F	-E	-D	1	00011120	1
0	H	-E	-C	G		2	00101021	2
0	-E	-C	G		3	00101021	2	11001
0	F	-B		4	01002200	3	10010	
0	-A		5	10201100	4	00100		
0		6	11010020	5	02000			

Correspondence of vertex positions (orbits):

GS. 73	1	2	3	4	5
GS. 97	1	5	2	4	3

Distinguishing invariants and measures:

GS	E	N <sup>+</sup>	N <sup>-</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 73	8	6	5	8	3	4	2	$1^4 2^2$	0.167	0.375	0	2.531	p
GS. 97	7	5	6	6	3	3	4	$1^3 2^2$	0.204	0.714	0.286	2.503	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5	6
	Supp <sub>n</sub>	41	48	49	52	54	
GS. 73	$k \cdot k' (p)$	1.5 (-C)	3.3 (-B)	4.5 (-A)	1.3 (-C)	2.3 (-B)	-
	PF <sub>n</sub>	1/7	1/7	1/7	2/7	2/7	
	Sub <sub>n</sub>	85	88	90	91	101	102
	$k \cdot k' (p)$	2.4 (D)	1.2 (D)	1.4 (D)	2.5 (E)	3.5 (E)	3.4 (E)
	PF <sub>n</sub>	1/8	1/8	1/8	1/8	2/8	2/8
	Supp <sub>n</sub>	61	64	66	67	77	78
GS. 97	$k \cdot k' (p)$	4.5 (-A)	1.5 (-D)	1.4 (-E)	3.5 (-B)	2.3 (-E)	2.4 (-C)
	PF <sub>n</sub>	1/8	1/8	1/8	1/8	2/8	2/8
	Sub <sub>n</sub>	110	117	118	121	123	
	$k \cdot k' (p)$	1.3 (F)	2.2 (H)	3.4 (F)	1.2 (G)	2.5 (G)	-
	PF <sub>n</sub>	1/7	1/7	1/7	2/7	2/7	

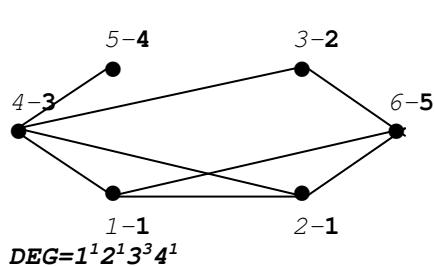
### Graph-structures GS.74 (6.8.20) and GS.98 (6.7.20) (by Graph Atlas G141 and G120 ).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	5	11	$1^4 2^1$	0.129	$1^7 2^4$	3.374	0.137	2	168

GS.74, its binary signs and semiotic model SM:

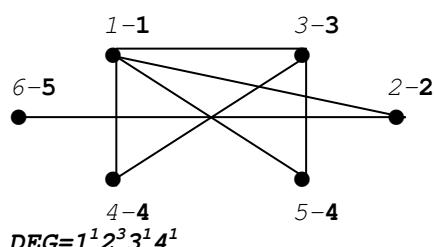
$$A:-3.6.8; B:-2.5.7; C:-2.4.4; D:-2.3.2; \\ E:+1.2.1; F:+2.3.3; G:+2.4.5; H:+3.5.7.$$



	1	2	3	4	5	i	ABCDEF	k
0	G	-C	F	-D	F	1	00110210	1
0	-C	F	-D	F		2	00110210	1
0	H	-D	H		3	00210002	2	00101
0	E	-B		4	01001201	3	21010	
0	-A		5	10031000	4	00100		
0		6	11000201	5	21000			

GS.98 (complement of GS.74), its binary signs and semiotic model SM:

$$A:-3.4.3; B:-2.4.5; C:-2.3.2; D:+1.2.1; E:+2.3.3; F:+2.4.5.$$



	1	2	3	4	4	5	i	ABCDEF	k
0	D	F	E	E	-C	1	001121	1	01120
0	-C	-C	-C	D		2	003200	2	10001
0	E	E	-A		3	101021	3	10020	
0	B	-A		4	111020	4	10100		
0	-A		5	111020	4	10100			
0		6	301100	5	01000				

Correspondence of vertex positions (orbits):

GS. 74	1	2	3	4	5
GS. 98	4	3	5	1	2

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 74	8	6	5	8	3	4	3	$1^4 2^2$	0.167	0.625	0.125	2.484	P
GS. 98	7	5	6	6	3	3	3	$1^3 2^2$	0.204	0.714	0.286	2.468	P

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5	6
	Supp <sub>n</sub>	41	48	50	51	54	
GS. 74	$k \cdot k' (p)$	4.5 (-A)	2.4 (-D)	3.5 (-B)	1.2 (-C)	1.4 (-D)	-
	PF <sub>n</sub>	1/7	1/7	1/7	2/7	2/7	
	Sub <sub>n</sub>	84	88	89	92	101	102
	$k \cdot k' (p)$	2.3 (H)	1.1 (G)	3.4 (E)	2.5 (H)	1.5 (F)	1.3 (F)
	PF <sub>n</sub>	1/8	1/8	1/8	1/8	2/8	2/8
	Supp <sub>n</sub>	60	64	65	68	77	78
GS. 98	$k \cdot k' (p)$	3.5 (-A)	4.4 (-B)	1.5 (-C)	2.3 (-C)	2.4 (-C)	4.5
	PF <sub>n</sub>	1/8	1/8	1/8	1/8	2/8	
	Sub <sub>n</sub>	110	117	119	120	123	
	$k \cdot k' (p)$	1.2 (D)	1.3 (F)	2.5 (D)	3.4 (E)	1.4 (E)	-
	PF <sub>n</sub>	1/7	1/7	1/7	2/7	2/7	

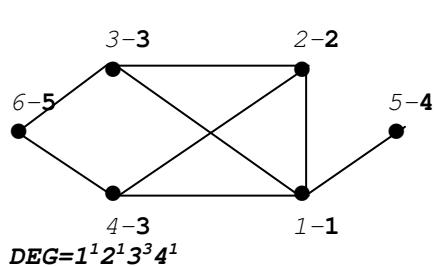
### Graph-structures GS.75 (6.8.21) and GS.99 (6.7.21) (by Graph Atlas G140 and G119).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
Partial	5	11	$1^4 2^1$	0.129	$1^7 2^4$	3.374	0.137	2	168

GS.75, its binary signs and semiotic model SM:

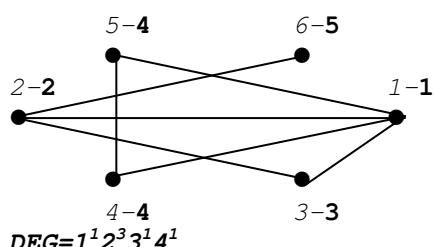
$$A: -3.5.5; \quad B: -2.5.7; \quad C: -2.4.4; \quad D: -2.3.2; \\ E: +1.2.1; \quad F: +2.3.3; \quad G: +2.4.5; \quad H: +3.5.7.$$



	1	2	3	3	4	5		k
	1	2	3	4	5	6	i	ABCDE $\overline{EFGH}$
	0	G	F	F	E	-C	1	12345
	0	F	F	-D	-C		2	01210
	0	-B	-D	H			3	10200
	0	-D	H				4	11001
	0	-A					5	11001
	0							10000
	0							00200

GS GS.99 (GS.75 complement of), its binary signs and semiotic model SM:

$$A: -3.4.3; \quad B: -2.3.2; \quad C: +1.2.1; \quad D: +2.3.3.$$



	1	2	3	4	4	5		k
	1	2	3	4	5	6	i	ABCD
	0	D	D	D	-B		1	12345
	0	D	-B	-B	C		2	01120
	0	-B	-B	-B			3	10101
	0	-B	-B	-B			4	11000
	0	D	-A				5	10010
	0	-A						10010
	0							01000
	0							01000

Correspondence of vertex positions (orbits):

GS. 75	1	2	3	4	5
GS. 99	3	5	4	1	2

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 75	8	5	6	8	3	4	3	$1^2 2^3$	0.250	0.625	0.125	2.484	P
GS. 99	7	6	5	4	3	3	3	$1^5 2^1$	0.102	0.857	0.143	2.468	P

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

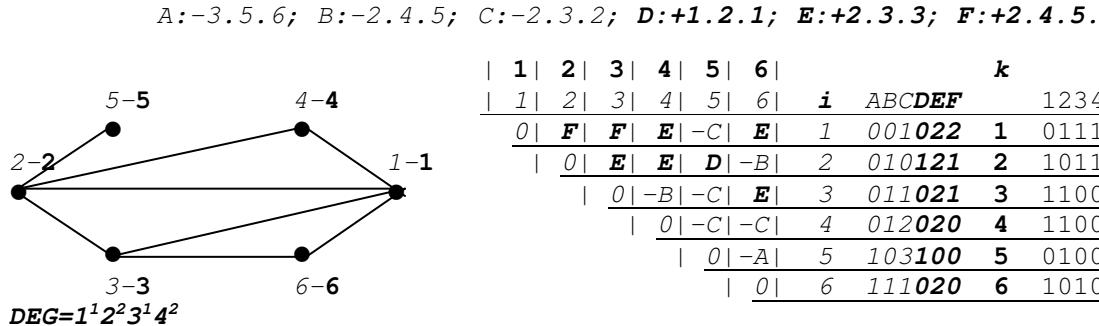
GS	Adj <sub>n</sub>	1	2	3	4	5	6
	Supp <sub>n</sub>	40	44	51	52	53	54
GS. 75	$k \cdot k' (P)$	1.5 (-C)	2.4 (-D)	2.5 (-C)	4.5 (-A)	3.3 (-B)	3.4 (-D)
	PF <sub>n</sub>	1/7	1/7	1/7	1/7	1/7	2/7
	Sub <sub>n</sub>	89	90	96	100	101	
	$k \cdot k' (P)$	1.4 (E)	1.2 (G)	1.3 (F)	3.5 (H)	2.3 (F)	-
	PF <sub>n</sub>	1/8	1/8	2/8	2/8	2/8	
	Supp <sub>n</sub>	65	66	72	76	77	
GS. 99	$k \cdot k' (P)$	1.5 (-B)	3.5 (-B)	4.5 (-A)	2.4 (-B)	3.4 (-B)	-
	PF <sub>n</sub>	1/8	1/8	2/8	2/8	2/8	
	Sub <sub>n</sub>	109	113	120	121	122	123
	$k \cdot k' (P)$	2.5 (C)	1.3 (D)	2.3 (D)	1.2 (D)	4.4 (D)	1.4 (D)
	PF <sub>n</sub>	1/7	1/7	1/7	1/7	1/7	2/7

### Graph-structures GS.76 (6.8.22) and GS.100 (6.7.22) (by Graph Atlas G137 and G113).

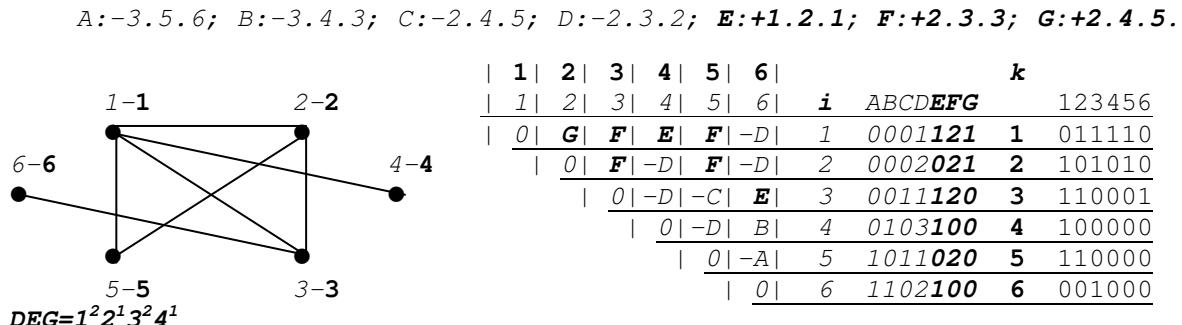
Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
0-symmetry	6	15	1 <sup>6</sup>	0	1 <sup>15</sup>	3.907	0	1	336

GS.76, its binary signs and semiotic model SM:



GS.100 (complement of GS.76), its binary signs and semiotic model SM:



Correspondence of vertex positions (orbits):

GS. 76	1	2	3	4	5	6
GS. 100	4	6	5	2	1	3

Distinguishing invariants and measures:

GS	E	N <sup>+</sup>	N <sup>-</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 76	8	8	7	6	3	3	3	1 <sup>8</sup>	0	0.875	0.125	2.453	p
GS. 100	7	7	8	7	3	3	3	1 <sup>7</sup>	0	0.714	0.286	2.414	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	GS	1	2	3	4	5	6	7	8
GS. 76	<i>Supp<sub>n</sub></i>	37	45	49	50	51	53	54	
	<i>k.k'</i>	3.5	4.5	1.5	2.6	4.6	3.4	5.6	-
	<i>PF<sub>n</sub></i>	1/7	1/7	1/7	1/7	1/7	1/7	1/7	
	<i>Sub<sub>n</sub></i>	86	92	95	99	100	100	101	102
	<i>k.k'</i>	3.6	1.4	2.5	2.3	1.6	2.4	1.3	1.2
	<i>PF<sub>n</sub></i>	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8
GS. 100	<i>Supp<sub>n</sub></i>	62	68	71	75	76	76	77	78
	<i>k.k'</i>	3.5	2.4	1.6	5.6	2.6	3.4	4.5	4.6
	<i>PF<sub>n</sub></i>	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8
	<i>Sub<sub>n</sub></i>	106	114	118	119	120	122	123	
	<i>k.k'</i>	1.5	1.2	1.4	3.6	2.3	2.5	1.3	
	<i>PF<sub>n</sub></i>	1/7	1/7	1/7	1/7	1/7	1/7	1/7	

Comments: a) In the case of 0-symmetry can be happen that the number of adjacent structures is less than the number of binary positions. So induces here the *adjacent substructure GS.100* of *GS.76* by two binary positions. 1.6 and 2.4. and the *adjacent superstructure GS.76* of *GS.100* by binary positions 2.6 and 3.4. b) It is also third case in the system  $\mathfrak{G}^{IV=6}$ , where the complements are also their adjacent structures.

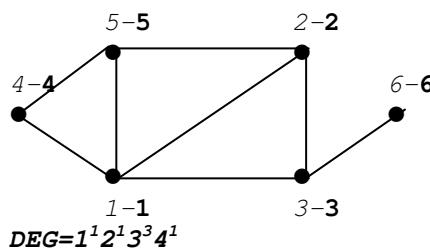
### Graph-structures GS.77 (6.8.23) and GS.101 (6.7.23) (by Graph Atlas G139 and G118).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
0-symmetry	6	15	1 <sup>6</sup>	0	1 <sup>15</sup>	3.907	0	1	336

GS.77, its binary signs and semiotic model SM:

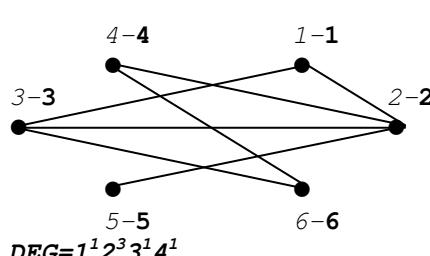
$$A:-3.5.6; B:-3.4.3; C:-2.4.5; D:-2.3.2; E:+1.2.1; F:+2.3.3; G:+2.4.5.$$



1	2	3	4	5	6	i	ABCDEF	k
1	2	3	4	5	6	i	ABCDEF	123456
0	G	F	F	G	-D	1	0001022	1
0	F	-C	F	-D		2	0011021	2
0	-D	-C	E			3	0011120	3
0	F	-B				4	0111020	4
0	-A					5	1010021	5
0						6	1102100	6

GS.101 (complement of GS.77), its binary signs and semiotic model SM:

$$A:-3.5.5; B:-2.4.4; C:-2.3.2; D:+1.2.1; E:+2.3.3; F:+3.4.4.$$



1	2	3	4	5	6	i	ABCDEF	k
1	2	3	4	5	6	i	ABCDEF	123456
0	E	E	-C	-C	-C	1	003020	1
0	E	F	D	-B		2	010121	2
0	-B	-C	F			3	011021	3
0	-C	F				4	012002	4
0	-A					5	103100	5
0						6	111002	6

Correspondence of vertex positions (orbits):

GS . 77	1	2	3	4	5	6
GS . 101	5	1	6	3	4	2

Distinguishing invariants and measures:

GS	E	N <sup>t</sup>	N <sup>r</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS . 77	8	8	7	7	3	3	3	1 <sup>8</sup>	0	0.875	0.125	2.484	p
GS . 101	7	7	8	6	3	4	3	1 <sup>7</sup>	0	0.429	0.143	2.468	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	GS	1	2	3	4	5	6	7	8
GS . 77	<i>Supp<sub>n</sub></i>	<b>43</b>	<b>45</b>	<b>46</b>	<b>47</b>	<b>51</b>	<b>53</b>	<b>54</b>	
	<i>k.k'</i>	2.4	2.6	4.6	1.6	3.4	3.5	5.6	-
	<i>PF<sub>n</sub></i>	1/7	1/7	1/7	1/7	1/7	1/7	1/7	
	<i>Sub<sub>n</sub></i>	<b>84</b>	<b>95</b>	<b>96</b>	<b>97</b>	<b>98</b>	<b>99</b>	<b>100</b>	<b>102</b>
	<i>k.k'</i>	1.4	3.6	1.5	1.3	2.3	2.5	4.5	1.2
GS . 101	<i>PF<sub>n</sub></i>	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8
	<i>Supp<sub>n</sub></i>	<b>60</b>	<b>71</b>	<b>72</b>	<b>73</b>	<b>74</b>	<b>75</b>	<b>76</b>	<b>78</b>
	<i>k.k'</i>	3.5	2.6	4.5	5.6	1.6	1.4	3.4	1.5
	<i>PF<sub>n</sub></i>	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8
	<i>Sub<sub>n</sub></i>	<b>112</b>	<b>114</b>	<b>115</b>	<b>116</b>	<b>120</b>	<b>122</b>	<b>123</b>	
	<i>k.k'</i>	1.3	1.2	2.3	2.5	3.6	4.6	2.4	-
	<i>PF<sub>n</sub></i>	1/7	1/7	1/7	1/7	1/7	1/7	1/7	

Comments: a) GS.77 and GS.101 are the 0-symmetric structures in  $\mathbb{G}^{M=6}$ , where the 15 binary positions correspond to the 15 adjacent structures  $Adj_n$ . b) In the case of 0-symmetric structure form its s-vectors a custom adjacent matrix  $E$ .

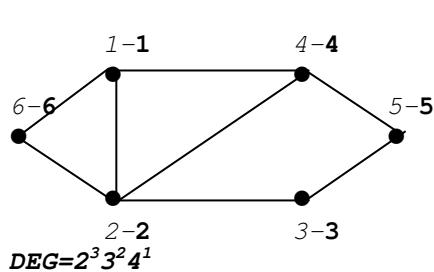
### Graph-structures GS.78 (6.8.24) and GS.102 (6.7.24) (by Graph Atlas G147 and G122).

Common invariants and measures of the structure and its complement:

Symmetry	K	N	SVV	SV	SRV	HR	SR	aut	3003PS
0-symmetry	6	15	1 <sup>6</sup>	0	1 <sup>15</sup>	3.907	0	1	336

**GS.78**, its binary signs and semiotic model SM:

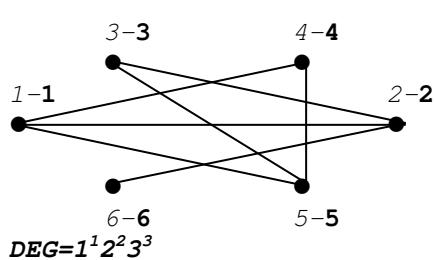
$$A:-3.6.8; B:-2.4.5; C:-2.4.4; D:-2.3.2; E:+2.3.3; F:+2.4.5; G:+3.4.4.$$



	1	2	3	4	5	6	i	ABCDE	F	k
	1	2	3	4	5	6				123456
	1	2	3	4	5	6	i	A	B	
	0		F	-D	E	-D	E	1	0002	210
	0		G	E	-C	E	2	0010	211	2
	0		-C	G	-D		3	0012	002	3
	0		G	-B			4	0110	201	4
	0		-A				5	1011	002	5
	0						6	1101	200	6
	0									110000

**GS.102** (complement of GS.78), its binary signs and semiotic model SM:

$$A:-3.5.5; B:-3.4.3; C:-2.4.4; D:-2.3.2; E:+1.2.1; F:+2.3.3; G:+3.4.4.$$



	1	2	3	4	5	6	i	ABCDE	F	k
	1	2	3	4	5	6				123456
	1	2	3	4	5	6	i	A	B	
	0		G	-C	F	F	-D	1	0011	021
	0		G	-D	-C	E		2	0011	102
	0		-D	G	-D			3	0012	002
	0		F	-B				4	0102	020
	0		-A					5	1010	021
	0							6	1102	100
	0									100000

Correspondence of vertex positions (orbits):

GS. 77	1	2	3	4	5	6
GS. 101	5	1	6	3	4	2

Distinguishing invariants and measures:

GS	E	N <sup>r</sup>	N <sup>-</sup>	P	CL	G	DM	SEV	SE	TRA	BRA	HE	type
GS. 78	8	8	7	7	3	4	3	1 <sup>8</sup>	0	0.625	0	2.531	hp
GS. 102	7	7	8	7	3	4	3	1 <sup>7</sup>	0	0.429	0.143	2.503	p

Identifiers of adjacent structures and characteristics of morphisms  $F_n$ :

GS	Adj <sub>n</sub>	1	2	3	4	5	6	7	8
GS. 78	<i>Supp<sub>n</sub></i>	<b>42</b>	<b>44</b>	<b>45</b>	<b>46</b>	<b>47</b>	<b>52</b>	<b>54</b>	
	<i>k.k'</i>	4.6	1.3	3.4	3.6	2.5	5.6	1.5	-
	<i>PF<sub>n</sub></i>	1/7	1/7	1/7	1/7	1/7	1/7	1/7	
	<i>Sub<sub>n</sub></i>	<b>83</b>	<b>91</b>	<b>94</b>	<b>96</b>	<b>97</b>	<b>98</b>	<b>100</b>	<b>101</b>
	<i>k.k'</i>	1.2	1.4	2.4	2.6	2.3	4.5	3.5	1.6
	<i>PF<sub>n</sub></i>	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8
GS. 102	<i>Supp<sub>n</sub></i>	<b>59</b>	<b>67</b>	<b>70</b>	<b>72</b>	<b>73</b>	<b>74</b>	<b>76</b>	<b>77</b>
	<i>k.k'</i>	3.6	3.4	4.6	1.6	5.6	2.4	2.5	1.3
	<i>PF<sub>n</sub></i>	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8
	<i>Sub<sub>n</sub></i>	<b>111</b>	<b>113</b>	<b>114</b>	<b>115</b>	<b>116</b>	<b>121</b>	<b>123</b>	
	<i>k.k'</i>	1.4	3.5	4.5	1.5	2.6	1.2	2.3	-
	<i>PF<sub>n</sub></i>	1/7	1/7	1/7	1/7	1/7	1/7	1/7	

Comment: GS.78 and GS.102 are the fourth and last 0-symmetric structures in  $\mathfrak{G}^{V=6}$ , where to 15 binary positions correspond 15 adjacent structures  $Adj_n$ .