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COMPUTER INVESTIGATIONS OF THE MAXIMAL EXCEPTIONAL GRAPHS

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Abstract. A graph is said to be exceptional if it is connected, has least eigenvalue greater than or equal to -2, and is not a generalized line graph. Such graphs are known to be representable in the exceptional root system E_8. The 473 maximal exceptional graphs have been found by computer using the star complement technique, and subsequently described using properties of E_8. Here we present some information about these graphs obtained in the computer search: the exceptional star complements, some data on extendability graphs and the corresponding maximal graphs, the maximal exceptional graphs and some of their invariants.

1 Introduction

A graph is said to be *exceptional* if it is connected, has least eigenvalue greater than or equal to -2, and is not a generalized line graph. Generalized line graphs have been studied in [10, 16], while exceptional graphs first appeared in the context of spectral characterizations of certain classes of line graphs by A. J. Hoffman and others in the 1960s (see, for example, [14, pp. 12-14]). The key paper [5] introduced root systems as a means of investigating graphs with least eigenvalue -2; in particular it was shown by this technique that an exceptional graph has at most 36 vertices and each vertex has degree at most 28. The regular exceptional graphs, 187 in number, were found in [2, 3], but the problem of finding a suitable description of all the exceptional graphs remained open. Much information on these topics can be found in the monographs [1, 6, 9] and in the expository paper [4].

We described in [12] the results of an exhaustive computer search for the exceptional graphs which are maximal in the sense that every exceptional graph is an induced subgraph of (at least) one such graph. These graphs, 473 in all, were found as maximal extensions of appropriate star complements (cf. [11, 15, 16, 24] and below). These maximal exceptional graphs were partitioned into three types: (a) those which are cones of order 29, (b) those which have a vertex of degree 28 but have more than 29 vertices, (c) those in which each vertex has degree less than 28. There are 430 graphs of type (a), 37 of type (b) and 6 of type (c).

An independent means of constructing the maximal exceptional graphs with maximal degree 28 was included in [12]: the crucial property is that the neighbours of a vertex of degree 28 induce a subgraph which is switching-equivalent to the line graph $L(K_8)$. This serves to construct the maximal exceptional graphs of type (a), while those of type (b) can then be constructed from 'dissections' of 8-vertex graphs as described in Section 3 below. This provides not only an explanation of how such graphs arise but also a drastic reduction in the use of a computer.

In [17] a variant of this approach was used to obtain various constructions for the maximal exceptional graphs of type (c), but isomorphisms between such graphs were not investigated. In [18] it was verified, without recourse to a computer, that there are precisely six graphs of type (c): the proof uses direct constructions from the root system E_8, and below we define these six 'exceptional maximal exceptional graphs' by means of representations in E_8.

In the light of investigations following the original computer search, it became clear that revised orderings of the maximal exceptional graphs, and the relevant star complements, were desirable. Relations between the old and new orderings are included in the tables provided at the end of this report.

2 Star complements

We take G to be a simple graph with vertex set $V(G) = \{1, \ldots, n\}$, and with $(0,1)$-adjacency matrix A. Let P denote the orthogonal projection of $\mathbb{R}^n$ onto the eigenspace $\mathcal{E}(\mu)$ of A, and let $\{\mathbf{e}_1, \ldots, \mathbf{e}_n\}$ be the standard orthonormal basis of $\mathbb{R}^n$. Since $\mathcal{E}(\mu)$ is spanned by the vectors $P\mathbf{e}_j$ $(j = 1, \ldots, n)$ there exists $X \subseteq V(G)$ such that the vectors $P\mathbf{e}_j$ $(j \in X)$ form a basis for $\mathcal{E}(\mu)$. Such a subset X of $V(G)$ is called a *star set* for μ in G. An equivalent definition which is useful in a computational context is the following: if μ has multiplicity k then a star set for μ in G is a set X of k vertices of G such that μ is not an eigenvalue of $G - X$ [14, Theorem 7.2.9]. Here $G - X$ is the subgraph of G induced by $\overline{X}$, the complement of X in $V(G)$. Accordingly, the graph $G - X$ is called the *star complement* for μ corresponding to X.

The following fundamental result combines the Reconstruction Theorem [14, Theorem 7.4.1] with its converse [14, Theorem 7.4.4].

Theorem 2.1 *Let X be a set of vertices in the graph G and suppose that G has adjacency matrix $\begin{pmatrix} A_X & B^T \\ B & C \end{pmatrix}$, where A_X is the adjacency matrix of the subgraph induced by X. Then X is a star set for μ in G if and only if μ is not an eigenvalue of C and*

$$\mu I - A_X = B^T(\mu I - C)^{-1}B. \tag{1}$$

Note that if X is a star set for μ then the corresponding star complement $H(= G - X)$ has adjacency matrix C, and Eq. (1) tells us that G is determined by μ, H and the H-neighbourhoods of vertices in X. In this situation, let $|V(H)| = t$ and define a bilinear form on $\mathbb{R}^t$ by $\langle \mathbf{x}, \mathbf{y}\rangle = \mathbf{x}^T(\mu I - C)^{-1}\mathbf{y}$. Denote the columns of B by $\mathbf{b}_u$ $(u \in X)$. To discuss graphs with a prescribed star complement we shall use the following consequence of Theorem 2.1.

Corollary 2.2 *Suppose that μ is not an eigenvalue of the graph H. There exists a graph G with a star set X for μ such that $G - X = H$ if and only if the characteristic vectors $\mathbf{b}_u$ $(u \in X)$ satisfy*

(i) $\langle \mathbf{b}_u, \mathbf{b}_u\rangle = \mu$ *for all* $u \in X$, *and*

(ii) $\langle \mathbf{b}_u, \mathbf{b}_v\rangle \in \{-1, 0\}$ *for all pairs* u, v *of distinct vertices in* X.

If G has H as a star complement for μ with corresponding star set X then each induced subgraph $G - Y$ $(Y \subseteq X)$ also has H as a star complement for μ. Moreover any graph with H as a star complement for μ is an induced subgraph of such a graph G for which X is maximal, because H-neighbourhoods determine adjacencies among vertices in a star set. Accordingly, in determining all the graphs with H as a star complement for μ, it suffices to describe those for which a star set X is maximal. We call such graphs *H-maximal*; they always exist when $\mu \neq -1$ or 0 because then distinct vertices of X have distinct H-neighbourhoods [14, Corollary 7.3.6], and it follows that $|X|$ is bounded by 2^t. In fact, $|X| \leq \frac{1}{2}(t-1)(t+4)$ when $t > 1$ and $\mu \neq -1, 0$ [23]. This bound of order $\frac{1}{2}t^2$ is asymptotically best possible as $t \to \infty$ because in $L(K_t)$ the eigenspace of -2 has codimension t. In any case there are only finitely many graphs with a prescribed star complement for an eigenvalue $\mu \neq -1$ or 0, and this is the basis for several characterizations of graphs by star complements (cf. [15], [24]).

For $\Delta \subseteq V(H)$ let H_Δ denote the graph obtained from H by adding a vertex with Δ as its neighbourhood. For $\mu \in \mathbb{R}$ let $\mathcal{S}(H, \mu)$ be the set of those Δ for which μ is an eigenvalue of H_Δ but not of H. When $\mathcal{S}(H, \mu)$ is not empty it is convenient to define the *extendability graph* $\Gamma(H, \mu)$ on $\mathcal{S}(H, \mu)$ as follows: Δ_1 is adjacent to Δ_2 in $\Gamma(H, \mu)$ if and only if Δ_1, Δ_2 feature as H-neighbourhoods in a $(t + 2)$-vertex graph for which H is a star complement. If we identify a set Δ with its characteristic vector, this graph is the 'compatibility graph' of [21, Algorithm 2.4]: the vertices of $\Gamma(H, \mu)$ are the $(0, 1)$-vectors $\mathbf{b}$ in $\mathbb{R}^t$ such that $\langle \mathbf{b}, \mathbf{b}\rangle = \mu$, and $\mathbf{b}_1 \sim \mathbf{b}_2$ if and only if $\langle \mathbf{b}_1, \mathbf{b}_2\rangle \in \{-1, 0\}$. A graph G with a maximal star set X for μ such that $G - X = H$ corresponds to a maximal clique in $\Gamma(H, \mu)$. Thus the problem of finding the H-maximal graphs is transformed to the (NP-hard) problem of finding the maximal cliques in $\Gamma(H, \mu)$ and partitioning the corresponding maximal graphs into isomorphism classes.

Now let G be a graph with least eigenvalue -2. It was proved in [16] that G is exceptional if and only if it has an exceptional star complement for -2. Such a star complement has least eigenvalue greater than -2 (by interlacing) and hence is one of 573 graphs of the following types [20]:

(i) one of 20 graphs on 6 vertices representable in E_6;
(ii) one of 110 graphs on 7 vertices representable in E_7 (but not E_6);
(iii) one of 443 graphs on 8 vertices representable in E_8 (but not E_7).

The graphs of type (iii) are one-vertex extensions of graphs of type (ii), which are in turn one-vertex extensions of graphs of type (i). The 443 graphs of type (iii) are described in [4]. The 110 graphs of type (ii) are identified in [11] by means of the list of 7-vertex graphs in [8]. The twenty 6-vertex graphs of type (i) are identified in [13]: they belong to the family $\mathcal{F}$ of 31 minimal forbidden subgraphs which characterize generalized line graphs, the other eleven having least eigenvalue equal to -2 [10]. Accordingly a graph is exceptional if and only if its least eigenvalue is greater than or equal to -2 and it contains as an induced subgraph one of the twenty graphs of type (i) [16, Proposition 3.1]. Since $\mathcal{F}$ was determined in [20] independently of root systems, the star complement technique provides a means of determining the exceptional graphs without recourse to root systems.

In order to describe the exceptional graphs representable in E_6, it suffices to find the H-maximal graphs for a star complement H of type (i); for those representable in E_7 (but not E_6) we take H to be of type (ii); while if H is of type (iii), the H-maximal graphs are precisely the maximal exceptional graphs. (Note that since E_8 is an extension of E_6 and E_7, each H-maximal graph of type (i) or (ii) is an induced subgraph of an H-maximal graph of type (iii); see [1, Chapter 3].) The H-maximal graphs in question have been obtained by one of the authors (M.L.) using a program (called 'Star') which implements the above algorithm for finding maximal star sets from maximal cliques in an extendability graph (cf. also [11]). Ten H-maximal graphs arise when H is of type (i), and they are described in [11, Example 5]. When H is of type (ii) we obtain 39 H-maximal graphs, and a few details are given in [16, section 3]. It was an enormous task to generate all the maximal graphs starting from the 443 star complements of type (iii). In the first difficult case (graph $H010$ of Table 3.1 below) a 750MHz PC-586 computer using the latest version of 'Star' took 140 minutes to produce all 1048580 maximal graphs, which fall into 457 isomorphism classes. The worst case was graph $H443$ of Table 3.1: this has the largest extendability graph, with 83 vertices, and the running time was about 120 hours. It turns out that there are 473 maximal exceptional graphs in all, and some data concerning them are given in the tables below.

3 The root system E_8.

It is well known that any exceptional graph G is representable in the root system E_8 (see [6, Chapter 3] or [1, Chapter 3]). This means that if G has A as a $(0,1)$-adjacency matrix then $I + \frac{1}{2}A$ is the Gram matrix of a set of normalized vectors in E_8; explicitly, if $\{\mathbf{e}_1, \ldots, \mathbf{e}_8\}$ is an orthonormal basis for $\mathbb{R}^8$ then $8I + 4A$ is the Gram matrix of a subset of the following set of 240 vectors (cf. [2, 12]):

type a: 28 vectors of the form $\mathbf{a}_{ij} = 2\mathbf{e}_i + 2\mathbf{e}_j$; $i, j = 1, \ldots, 8$, $i < j$;

type a′: 28 vectors opposite to those of type a;

type b: 28 vectors of the form $\mathbf{b}_{ij} = -2\mathbf{e}_i - 2\mathbf{e}_j + \sum_{k=1}^{8} \mathbf{e}_k$;

type b′: 28 vectors opposite to those of type b;

type c: 56 vectors of the form $\mathbf{c}_{ij} = 2\mathbf{e}_i - 2\mathbf{e}_j$; $i, j = 1, \ldots, 8$, $i \neq j$;

type d: 70 vectors of the form $\mathbf{d}_{ijkl} = -2\mathbf{e}_i - 2\mathbf{e}_j - 2\mathbf{e}_k - 2\mathbf{e}_l + \sum_{s=1}^{8} \mathbf{e}_s$ with distinct $i, j, k, l \in \{1, \ldots, 8\}$;

type e: 2 vectors $\mathbf{e}$ and $-\mathbf{e}$, where $\mathbf{e} = \sum_{i=1}^{8} \mathbf{e}_i$.

These 240 vectors determine 120 lines at 60° or 90°. Let Γ denote the graph which has these lines as vertices, with two vertices adjacent if and only if the corresponding lines are orthogonal. We recall from [7, p.85] some properties of the automorphism group of Γ. This group has as a subgroup of index 2 the orthogonal group $O^+(8, 2)$, which is transitive on the vertices of Γ.

Moreover the stabilizer of a vertex v acts as a rank 3 group on the subgraph $\Gamma(v)$ induced by the neighbours of v; in particular, the stabilizer of v is edge-transitive on $\Gamma(v)$.

By a *representation* of the exceptional graph G we mean a subset $\mathcal{R}(G)$ of E_8 whose Gram matrix is a scalar multiple of $8I + 4A$, where A is the adjacency matrix of G. Note that if $\mathcal{R}(G)$ is a representation of G then so is $-\mathcal{R}(G) = \{-\mathbf{u} : \mathbf{u} \in \mathcal{R}(G)\}$. In view of the transitivity of $\mathrm{Aut}(\Gamma)$, we can therefore assume that $\mathbf{e}$ represents a vertex of maximal degree, and in this case we call $\mathcal{R}(G)$ a *standard* representation. Note that then no vector of type a', b' features in $\mathcal{R}(G)$; moreover a second standard representation is given by $\phi(\mathcal{R}(G))$ where the involutory map ϕ is defined by: $\phi(\mathbf{e}) = \mathbf{e}$, $\phi(\mathbf{a}_{ij}) = \mathbf{b}_{ij}$, $\phi(\mathbf{b}_{ij}) = \mathbf{a}_{ij}$, $\phi(\mathbf{c}_{ij}) = \mathbf{c}_{ji}$ $(-\mathbf{c}_{ij})$, $\phi(\mathbf{d}_{ijkl}) = \mathbf{d}_{\overline{ijkl}}$ $(= -\mathbf{d}_{ijkl})$. We refer to $\mathcal{R}(G)$ and $\phi(\mathcal{R}(G))$ as *dual* representations. (Accordingly we may assume if necessary that the number of vectors of type b in $\mathcal{R}(G)$ does not exceed the number of vectors of type a.)

It follows from the proof of [5, Lemma 1.10] that a 29-vertex cone with -2 as least eigenvalue, of multiplicity 21, is a cone over a graph which is switching-equivalent to $L(K_8)$. The representation of E_8 in Section 1 enables us to say a little more (cf. [2, Theorem 3.]).

Proposition 3.1 *If a graph, represented in E_8, contains a vertex of degree 28, then its neighbours induce a subgraph switching equivalent to $L(K_8)$.*

Proof. Since the graph Γ is transitive, we may assume that the vertex of degree 28 is represented by the vector $\mathbf{e}$. Then its neighbours are represented by vectors of type a or of type b. The proof follows. □

It follows that a maximal exceptional graph of type (a) is a cone over a graph switching equivalent to $L(K_8)$. In order to describe the maximal graphs of type (b), we first establish a criterion for the maximality of such a cone. Let $G(P)$ denote the cone over the graph obtained from $L(K_8)$ by switching with respect to the edge-set $E(P)$, where P is a spanning subgraph of K_8. (Thus for each edge ij of P the a type vector $2\mathbf{e}_i + 2\mathbf{e}_j$ is replaced by the corresponding b type vector $\mathbf{e} - 2\mathbf{e}_i - 2\mathbf{e}_j$.) We define properties (I), (II) of P as follows:

(I) P has a 4-clique and a 4-coclique on disjoint sets of vertices,
(II) P has six vertices adjacent to a seventh and non-adjacent to the eighth.

These configurations are called *dissections* of P of type I or II. A dissection of type I yields a partition of the vertex set into two subsets of cardinality 4, while a dissection of type II yields a partition into subsets of cardinalities 6 and 2.

Now we can characterize the cones which are not maximal:

Theorem 3.2 *The graph $G(P)$ is maximal if and only if P cannot be dissected (that is, P has neither property (I) nor property (II)).*

Proof. The graph $G(P)$ is not maximal if and only if a vector of type c or d can be added to the 29 vectors of types a, b and e described in the proof of Proposition 3.1. The presence of a vector $\mathbf{v}$ of type c or d excludes 6 vectors of type a and 6 vectors of type b, and so forces the presence of 6 vectors of type b and 6 vectors of type a (along with one of type e and one of type c or d). The 6 vectors of type a which are included correspond to six edges of P, and the 6 vectors of type a which are excluded correspond to six non-edges of P. These conditions are reflected in property (I) or (II) according as $\mathbf{v}$ is of type d or c. □

Theorem 3.3 *Let G be an exceptional graph with $29 + k$ vertices $(k \geq 0)$, and suppose that G has a vertex u of degree 28. Let Y be the set of vertices not adjacent to u. Then G is a maximal exceptional graph if and only if $G - Y$ is isomorphic to a cone $G(P)$ in which P has exactly k dissections.*

Proof. As before we take u to be the vector $\mathbf{e}$, so that u and its 28 neighbours of type a or b induce a subgraph $G(P)$. An exceptional graph may be obtained from $G(P)$ by adding a vertex of type c or d if and only if P admits the corresponding dissection. Accordingly it suffices to show that any two vertic es which may be added individually may also be added simultaneously. Suppose that the additional vectors are $\mathbf{v}$ and $\mathbf{w}$, each of type c or d. Each is adjacent to a neighbour of $\mathbf{e}$ and so $\mathbf{v} + \mathbf{w} \neq \mathbf{0}$. There are three cases to consider: (i) $\mathbf{v}$ and $\mathbf{w}$ are both of type c, (ii) $\mathbf{v}$ and $\mathbf{w}$ are both of type d, (iii) $\mathbf{v}$ is of type c and $\mathbf{w}$ is of type d. In each case we suppose by way of contradiction that $\mathbf{v}$ and $\mathbf{w}$ cannot be added simultaneously, that is, the inner product of $\mathbf{v}$ and $\mathbf{w}$ is negative.

In case (i) we may take $\mathbf{v} = \mathbf{c}_{12}$, $\mathbf{w} = \mathbf{c}_{23}$ without loss of generality; but then both $\mathbf{a}_{13}$ and $\mathbf{b}_{13}$ are excluded, a contradiction. In case (ii) we may take $\mathbf{v} = \mathbf{d}_{1234}$, $\mathbf{w} = \mathbf{d}_{4567}$ without loss of generality; but then both $\mathbf{a}_{23}$ and $\mathbf{b}_{23}$ are excluded, a contradiction. In case (iii) we may take $\mathbf{v} = \mathbf{c}_{12}$, $\mathbf{w} = \mathbf{d}_{1345}$ without loss of generality; but then both $\mathbf{a}_{26}$ and $\mathbf{b}_{26}$ are excluded, a contradiction. □

Thus we can determine the maximal exceptional graphs of type (b) by first finding the graphs P which have a dissection. Note that (i) P and $\overline{P}$ have the same dissections and (ii) $G(P) = G(\overline{P})$. Therefore we shall say that maximal exceptional graphs of the type described in Theorem 3.3 are generated by sets $\{P, \overline{P}\}$.

Finally, we define the six maximal exceptional graphs of type (c) (namely $M001, M002$, $M417, M428, M437$ and $M462$ in the notation of [12, 17]) by the standard representations given in Table 6. (These standard representations are not unique.)

4 Description of the tables

Our computational results are given in the following tables:

Table 1: The exceptional graphs with least eigenvalue greater than -2 (pp. 9–14);
Table 2: Some data on extendability graphs (pp. 15–27);
Table 3: Exceptional star complements and maximal exceptional graphs (pp. 28–41);
Table 4: The maximal exceptional graphs of type (a) (pp. 42–45);
Table 5: The maximal exceptional graphs of type (b) (pp. 46–52);
Table 6: The maximal exceptional graphs of type (c) (p. 53);
Table 7: The index and vertex degrees of the maximal exceptional graphs (pp. 54–58);
Table 8: The relation between old and new orderings (pp. 59–65).

Now we shall describe the content of each table.

Table 1 contains data on the 573 exceptional graphs with least eigenvalue greater than -2. There are 20 graphs on six vertices, 110 on seven vertices and 443 on eight vertices; in each case, the graphs are ordered lexicographically by spectral moments.

As usual for a graph on n vertices, the vertices are denoted by $1, 2, \ldots, n$. The graphs on 6 vertices are specified by their edges, presented as pairs of vertices. Instead of identification numbers 1–20, the first column contains the names $F_1, F_2, \ldots, F_{20}$ by which these graphs are denoted in [16]. The last three columns contain: the graph identification numbers used in the table of connected graphs on six vertices in [13], the graph names used in [10], and finally the names of any which appear in Harary's list [22] of graphs that are forbidden for line graphs. To avoid conflicting notation, the names used in this last category are $H_1, H_2, \ldots, H_9$ instead as $G_1, G_2, \ldots, G_9$ respectively in [22, Chapter 8].

Each graph G on n vertices ($n = 7, 8$) is represented by a line which contains: the identification number of G, the identification number of the subgraph induced by the vertices $1, 2, \ldots, n-1$, the vertices to which vertex n is adjacent, the number of edges, the maximal vertex degree, the least eigenvalue, and the largest eigenvalue. The list of graphs on seven vertices includes one further column which contains the identification numbers used in the table of connected graphs on seven vertices in [8], reproduced from [11]. In what follows, the graphs of order 8 are labelled $H001$ to $H443$ in order of the graph identification numbers.

Table 2 consists of two parts.

Table 2.1 gives the numbers of vertices in the extendability graphs for exceptional star complements of order 8. It is is organized in two rows. The first row contains the identification numbers of the 443 exceptional graphs on 8 vertices as listed in Table 1. For each of these graphs in the role of a star complement for the eigenvalue -2, the second row contains the number N of vertices in the extendability graph.

Table 2.2 gives the number of maximal cliques in the extendability graph for each exceptional star complement of order 8. The total number of maximal cliques in the 443 extendability graphs is $417,149,909$.

Table 3 consists of two parts.

Table 3.1 gives statistics for exceptional star complements of maximal exceptional graphs. It contains 11 columns, the first column listing the 443 exceptional graphs on 8 vertices ordered as in Table 1. For each such graph H, columns 2–10 contain the numbers of non-isomorphic maximal graphs on 22, 28, 29, 30, 31, 32, 33, 34, 36 vertices respectively, obtained when H is taken as a star complement for the eigenvalue -2. Column 11 contains the total number of the non-isomorphic maximal graphs obtained from H in this way.

Table 3.2. gives the identification numbers of maximal exceptional graphs corresponding to each star complement.

The 473 maximal exceptional graphs are labelled $G001$ to $G473$, ordered first by the number of vertices, then by the largest eigenvalue (index) and finally by the sequence of vertex degrees. These graphs are defined in Tables 4–6.

Table 4 contains the 430 maximal exceptional graphs of type (a). Here each maximal graph G is determined, in accordance with Theorem 3.2, by a graph P on 8 vertices having no dissections. Each row in the table contains: the row ordinal number, the identifier of a maximal exceptional graph G, the number of edges of P, and the edges of P as pairs of vertices.

Table 5 contains the 37 maximal exceptional graphs of type (b) and all their representations by means of dissections of 8-vertex graphs as described in Theorem 3.3. The table consists of two parts, 5.1 and 5.2.

Table 5.1 contains the 280 graphs P with 8 vertices and at most 14 edges which have dissections: these are the graphs which yield maximal exceptional graphs G in accordance with Theorem 3.3. They are ordered by their spectral moments, and there are two rows for each graph P. The first row contains a number which identifies the graph, followed by the number of edges, and the edges as pairs of vertices. The second row contains the number of dissections, the dissections given as pairs of vertices (dissections of type II) or quadruples of vertices (dissections of type I), and the identification number (name) of G.

Table 5.2 contains a row for each of the 37 graphs G. A row contains the identifier of G, the number of vertices of G, the number of graphs P from Theorem 3.3 yielding G, and the identification numbers of the graphs P as in Table 5.1.

Table 6 contains the six maximal exceptional graphs of type (c), given by standard representations in the root system E_8.

Table 7 contains the largest eigenvalue (index) and the degree sequence for each maximal exceptional graph G. Often these parameters are common to several maximal exceptional graphs. In each row of the table, identification numbers ijk for graphs $Gijk$ are followed by the number of vertices, the number of edges, the largest eigenvalue and the degree sequence (multiplicities being given as exponents). Here graphs with the same index are in fact cospectral.

The 443 exceptional graphs on 8 vertices in Table 1 are listed in an order (the 'new' order $H001$ to $H443$) different from that originally given in [12] (the 'old' order $E001$ to $E443$). Part 8.1 of Table 8 give the mappings 'old $\mapsto$ new' (8.1.1) and 'new $\mapsto$ old' (8.1.2). Similar remarks apply to the maximal exceptional graphs, with 'new' order $G001$ to $G473$ and 'old' order $M001$ to $M473$: tables 8.2.1 and 8.2.2 give the mappings 'old $\mapsto$ new' and 'new $\mapsto$ old' respectively.

Table 1

THE EXCEPTIONAL GRAPHS WITH LEAST EIGENVALUE GREATER THAN -2

Graphs on six vertices

F_1	12	23	34	36	45									110	G_{18}	
F_2	12	23	26	34	45	56								105	G_{19}	
F_3	12	23	34	35	36	45								97	G_{20}	
F_4	12	23	26	34	36	45	46							80	G_{12}	H_4
F_5	12	23	24	25	26	34	56							79	G_{23}	
F_6	12	23	25	26	34	35	56							77	G_{21}	
F_7	12	15	16	23	26	34	36	45						69	G_{15}	H_7
F_8	12	23	24	26	34	45	46	56						59	G_{22}	
F_9	12	23	24	25	26	34	45	56						58	G_{24}	
F_{10}	12	16	23	25	26	34	35	45	56					44	G_{16}	H_8
F_{11}	12	14	16	23	24	34	45	46	56					43	G_{27}	
F_{12}	12	23	25	34	35	36	45	46	56					35	G_{13}	H_5
F_{13}	12	23	24	25	26	34	45	46	56					33	G_{26}	
F_{14}	12	15	16	23	26	34	36	45	46	56				28	G_{17}	H_9
F_{15}	12	13	14	15	16	23	34	36	45	46				22	G_{25}	
F_{16}	12	23	24	26	34	35	36	45	46	56				20	G_{28}	
F_{17}	12	13	14	15	16	23	25	34	35	36	46			13	G_{14}	H_6
F_{18}	12	13	14	16	23	34	35	36	45	46	56			12	G_{29}	
F_{19}	12	13	14	15	16	23	25	34	35	36	46	56		7	G_{30}	
F_{20}	12	14	16	23	24	25	26	34	35	36	45	46	56	3	G_{31}	

Graphs on seven vertices

1.	1	1	6	3	-1.9696	1.9696	3	61.	6	1256	11	5	-1.9045	3.6147	474
2.	1	16	7	3	-1.9449	2.1515	14	62.	6	1235	11	5	-1.9059	3.6392	476
3.	2	4	7	3	-1.9122	2.1987	15	63.	8	246	11	5	-1.8738	3.6534	477
4.	1	12	7	3	-1.9672	2.2970	29	64.	16	1	11	4	-1.9460	3.6940	482
5.	3	1	7	4	-1.9653	2.3894	33	65.	6	2356	11	5	-1.9359	3.7524	486
6.	1	23	7	4	-1.9624	2.4745	39	66.	10	123	12	5	-1.8378	3.6254	540
7.	2	45	8	3	-1.9354	2.4728	62	67.	10	345	12	5	-1.9030	3.6519	574
8.	2	12	8	4	-1.9354	2.4728	63	68.	11	234	12	6	-1.9044	3.7161	575
9.	1	125	8	3	-1.9323	2.4877	64	69.	8	1234	12	5	-1.8781	3.7530	578
10.	2	23	8	4	-1.9210	2.5554	67	70.	7	1236	12	4	-1.8890	3.7637	579
11.	3	12	8	4	-1.9620	2.5270	86	71.	9	1234	12	6	-1.8623	3.7759	581
12.	4	1	8	3	-1.9586	2.7209	94	72.	9	1245	12	6	-1.8284	3.8284	588
13.	3	23	8	5	-1.9555	2.7649	98	73.	15	34	12	5	-1.8284	3.8284	589
14.	6	4	8	4	-1.9555	2.7649	99	74.	16	12	12	5	-1.9371	3.7762	599
15.	1	236	8	4	-1.9542	2.7711	100	75.	12	235	12	5	-1.9262	3.8627	601
16.	6	5	8	4	-1.9434	2.8517	106	76.	12	346	12	5	-1.9134	3.8744	602
17.	2	145	9	3	-1.8662	2.6554	122	77.	4	12346	12	5	-1.9080	3.8938	603
18.	2	345	9	3	-1.8944	2.8162	148	78.	6	23456	12	5	-1.9092	3.9118	606
19.	2	123	9	4	-1.8944	2.8162	149	79.	9	2345	12	6	-1.8636	3.923	608
20.	2	236	9	4	-1.9134	2.8826	155	80.	11	2345	13	6	-1.8234	3.9211	663
21.	4	12	9	4	-1.9537	2.8847	185	81.	10	2345	13	5	-1.8658	3.9806	683
22.	6	34	9	4	-1.9497	2.9240	186	82.	11	1234	13	6	-1.8833	4.0059	684
23.	3	236	9	5	-1.9483	2.9937	190	83.	13	1234	13	6	-1.8707	4.0233	685
24.	1	1236	9	4	-1.9431	3.0245	194	84.	10	2356	13	5	-1.8019	4.0329	686
25.	4	23	9	4	-1.9364	3.0536	196	85.	8	12456	13	5	-1.8595	4.0561	689
26.	3	346	9	5	-1.9334	3.0569	197	86.	12	2345	13	5	-1.8886	4.1465	701
27.	1	1234	9	4	-1.9334	3.0569	198	87.	8	23456	13	5	-1.8772	4.1610	702
28.	3	234	9	5	-1.9230	3.0842	201	88.	9	23456	13	6	-1.8809	4.1747	703
29.	6	23	9	5	-1.8950	3.1131	205	89.	12	3456	13	5	-1.9350	4.2136	707
30.	3	345	9	5	-1.9588	3.1877	215	90.	13	2456	13	6	-1.9266	4.2533	709
31.	7	45	10	3	-1.9107	2.9107	261	91.	7	123456	14	6	-1.8065	4.1736	741
32.	4	125	10	4	-1.9047	2.9928	262	92.	17	125	14	6	-1.8877	4.2121	755
33.	2	1234	10	4	-1.8620	3.1085	268	93.	11	12346	14	6	-1.8182	4.2806	757
34.	3	1236	10	5	-1.9330	3.1843	303	94.	18	146	14	5	-1.8498	4.2860	758
35.	4	123	10	4	-1.9229	3.2100	306	95.	13	12456	14	6	-1.8741	4.3876	767
36.	6	345	10	4	-1.8981	3.2370	307	96.	16	2346	14	5	-1.9165	4.4636	772
37.	6	126	10	5	-1.9235	3.2530	309	97.	13	23456	14	6	-1.9119	4.4741	773
38.	5	123	10	6	-1.9188	3.2554	310	98.	10	123456	15	6	-1.8019	4.4751	797
39.	8	45	10	5	-1.9086	3.2755	315	99.	15	12345	15	6	-1.7525	4.5114	800
40.	8	26	10	5	-1.9098	3.3132	318	100.	17	1235	15	6	-1.9095	4.5188	807
41.	12	1	10	4	-1.9502	3.3571	339	101.	12	123456	15	6	-1.8799	4.5602	808
42.	5	234	10	6	-1.9502	3.3571	340	102.	15	12346	15	6	-1.8068	4.5898	810
43.	3	3456	10	5	-1.9437	3.4114	343	103.	16	23456	15	5	-1.9248	4.7306	812
44.	4	236	10	4	-1.9437	3.4114	344	104.	14	123456	16	6	-1.7016	4.7016	823
45.	6	235	10	5	-1.9376	3.4592	348	105.	17	12345	16	6	-1.8376	4.7520	827
46.	13	4	10	5	-1.9254	3.4774	349	106.	16	123456	16	6	-1.8822	4.8386	832
47.	7	145	11	4	-1.8558	3.1774	388	107.	18	123456	17	6	-1.8116	5.0157	842
48.	7	234	11	4	-1.8019	3.2959	390	108.	19	123456	18	6	-1.8255	5.2434	847
49.	10	34	11	4	-1.8774	3.3539	427	109.	20	23456	18	6	-1.8945	5.2965	849
50.	8	123	11	5	-1.8569	3.3940	428	110.	20	123456	19	6	-1.8882	5.5033	851
51.	6	1234	11	5	-1.8943	3.4449	430								
52.	7	126	11	4	-1.8812	3.4467	431								
53.	9	123	11	6	-1.8248	3.4636	433								
54.	2	23456	11	5	-1.8760	3.4926	435								
55.	9	236	11	6	-1.8434	3.5366	446								
56.	12	12	11	4	-1.9427	3.4219	464								
57.	5	1234	11	6	-1.9340	3.5557	468								
58.	8	456	11	5	-1.9246	3.5719	469								
59.	3	12345	11	5	-1.9208	3.5996	472								
60.	5	2345	11	6	-1.9045	3.6147	473								

Graphs on eight vertices

1.	1	7	7	3	-1.9890	1.9890	51.	1	2345	10	4	-1.9772	3.0625
2.	1	57	8	3	-1.9738	2.0912	52.	16	12	10	5	-1.9772	3.0625
3.	1	56	8	3	-1.9816	2.1648	53.	5	234	10	5	-1.9747	3.0894
4.	1	16	8	3	-1.9701	2.2245	54.	1	1234	10	4	-1.9731	3.0929
5.	1	17	8	3	-1.9886	2.2623	55.	6	347	10	5	-1.9666	3.1215
6.	5	7	8	4	-1.9877	2.3920	56.	14	23	10	5	-1.9666	3.1215
7.	1	12	8	3	-1.9877	2.3920	57.	6	236	10	5	-1.9634	3.1247
8.	1	23	8	4	-1.9863	2.4943	58.	16	26	10	5	-1.9439	3.1516
9.	6	7	8	4	-1.9850	2.5606	59.	4	127	10	4	-1.9871	3.1112
10.	2	45	9	3	-1.9801	2.3590	60.	6	237	10	5	-1.9841	3.2567
11.	3	12	9	4	-1.9661	2.4981	61.	7	127	11	4	-1.9434	2.8517
12.	7	7	9	3	-1.9772	2.5466	62.	2	1457	11	4	-1.9508	2.9008
13.	2	34	9	4	-1.9772	2.5466	63.	8	345	11	4	-1.9623	2.8950
14.	1	125	9	3	-1.9760	2.5604	64.	7	123	11	4	-1.9623	2.8950
15.	3	23	9	4	-1.9374	2.5919	65.	9	346	11	4	-1.9623	2.9078
16.	1	347	9	4	-1.9712	2.6278	66.	31	7	11	3	-1.9704	2.9321
17.	5	17	9	4	-1.9871	2.4491	67.	9	236	11	4	-1.9584	3.0031
18.	5	12	9	4	-1.9859	2.5697	68.	12	125	11	4	-1.9683	3.0215
19.	12	7	9	3	-1.9855	2.7231	69.	10	345	11	4	-1.9277	3.0347
20.	4	23	9	4	-1.9855	2.7231	70.	10	126	11	5	-1.9587	3.0662
21.	14	7	9	4	-1.9846	2.7668	71.	8	236	11	5	-1.9684	3.0819
22.	1	346	9	4	-1.9841	2.7741	72.	2	2345	11	4	-1.9464	3.0898
23.	5	23	9	5	-1.9841	2.7741	73.	3	1256	11	4	-1.9369	3.1211
24.	13	7	9	5	-1.9823	2.8194	74.	8	123	11	5	-1.9369	3.1211
25.	15	7	9	4	-1.9790	2.8658	75.	2	1234	11	4	-1.9547	3.1441
26.	2	125	10	3	-1.9476	2.6373	76.	10	236	11	5	-1.9232	3.1964
27.	3	145	10	4	-1.9247	2.7393	77.	4	3456	11	4	-1.9795	3.0537
28.	4	145	10	3	-1.9716	2.6809	78.	11	346	11	5	-1.9763	3.0932
29.	5	147	10	4	-1.9697	2.7101	79.	21	34	11	4	-1.9763	3.1504
30.	6	145	10	4	-1.9672	2.7210	80.	4	2345	11	4	-1.9750	3.1598
31.	12	57	10	3	-1.9642	2.7480	81.	11	234	11	5	-1.9718	3.1817
32.	1	1457	10	4	-1.9734	2.7810	82.	6	3456	11	5	-1.9764	3.2053
33.	2	127	10	3	-1.9673	2.8204	83.	7	457	11	4	-1.9750	3.2084
34.	6	125	10	4	-1.9698	2.8254	84.	8	127	11	5	-1.9750	3.2084
35.	3	126	10	4	-1.9357	2.8278	85.	12	345	11	4	-1.9751	3.2133
36.	10	26	10	5	-1.9611	2.8719	86.	4	1257	11	4	-1.9735	3.2163
37.	2	236	10	4	-1.9719	2.8956	87.	4	1236	11	4	-1.9675	3.2432
38.	3	345	10	4	-1.9572	2.9028	88.	14	126	11	5	-1.9751	3.2564
39.	14	57	10	4	-1.9572	2.9028	89.	14	345	11	4	-1.9614	3.2620
40.	16	46	10	4	-1.9654	2.9654	90.	22	23	11	5	-1.9614	3.2620
41.	12	17	10	3	-1.9847	2.7633	91.	13	346	11	6	-1.9720	3.2788
42.	14	47	10	4	-1.9836	2.8038	92.	1	12367	11	5	-1.9700	3.2813
43.	4	346	10	4	-1.9830	2.8277	93.	5	3457	11	5	-1.9677	3.2837
44.	11	23	10	5	-1.9830	2.9139	94.	25	46	11	4	-1.9399	3.2867
45.	12	12	10	4	-1.9830	2.9139	95.	37	7	11	5	-1.9652	3.3026
46.	14	34	10	4	-1.9817	2.9512	96.	13	236	11	6	-1.9571	3.3073
47.	1	3456	10	4	-1.9810	3.0259	97.	25	26	11	5	-1.9682	3.3401
48.	6	346	10	5	-1.9810	3.0259	98.	6	1234	11	5	-1.9654	3.3422
49.	5	346	10	5	-1.9783	3.0587	99.	11	127	11	4	-1.9852	3.1458
50.	12	34	10	4	-1.9783	3.0587	100.	41	7	11	4	-1.9831	3.3574

101.	5	3456	11	5	-1.9811	3.4122
102.	13	237	11	6	-1.9811	3.4122
103.	12	236	11	4	-1.9802	3.4171
104.	14	235	11	5	-1.9785	3.4645
105.	44	7	11	4	-1.9774	3.4662
106.	43	7	11	5	-1.9733	3.4842
107.	45	7	11	5	-1.9750	3.5122
108.	17	123	12	4	-1.9220	3.0766
109.	12	1457	12	4	-1.9634	3.1295
110.	21	145	12	4	-1.9597	3.1407
111.	18	126	12	4	-1.9122	3.0644
112.	9	3456	12	4	-1.9500	3.1768
113.	18	236	12	4	-1.9503	3.2242
114.	7	1234	12	4	-1.9505	3.2295
115.	10	1256	12	5	-1.9425	3.2834
116.	9	1457	12	4	-1.9324	3.3086
117.	19	126	12	5	-1.9324	3.3086
118.	7	1457	12	4	-1.9515	3.3183
119.	9	1234	12	4	-1.9335	3.3442
120.	3	12347	12	5	-1.9176	3.3666
121.	10	1234	12	5	-1.9349	3.3808
122.	21	345	12	4	-1.9723	3.2782
123.	22	126	12	5	-1.9724	3.3238
124.	11	1236	12	5	-1.9626	3.3564
125.	12	1237	12	4	-1.9591	3.3726
126.	5	12367	12	5	-1.9660	3.3890
127.	21	123	12	5	-1.9542	3.4120
128.	15	3456	12	5	-1.9543	3.4153
129.	25	345	12	5	-1.9364	3.4320
130.	9	1257	12	4	-1.9346	3.4562
131.	14	1234	12	5	-1.9633	3.4660
132.	15	1234	12	5	-1.9633	3.4689
133.	16	1234	12	5	-1.9552	3.4840
134.	23	346	12	6	-1.9483	3.4857
135.	10	1237	12	5	-1.9483	3.4857
136.	2	12367	12	5	-1.9634	3.4967
137.	12	3467	12	4	-1.9596	3.4984
138.	29	126	12	6	-1.9400	3.5015
139.	29	345	12	5	-1.9113	3.5031
140.	3	23456	12	5	-1.9415	3.5328
141.	26	356	12	6	-1.9560	3.5443
142.	28	235	12	6	-1.9323	3.5762
143.	41	17	12	4	-1.9819	3.3651
144.	21	127	12	5	-1.9819	3.3651
145.	22	347	12	5	-1.9804	3.3849
146.	11	3456	12	5	-1.9795	3.4298
147.	41	12	12	4	-1.9795	3.4298
148.	23	345	12	6	-1.9795	3.4920
149.	21	236	12	5	-1.9786	3.5272
150.	13	3456	12	6	-1.9765	3.5699
151.	22	235	12	5	-1.9765	3.5699
152.	4	12347	12	5	-1.9702	3.5909
153.	25	346	12	5	-1.9722	3.6153
154.	46	12	12	6	-1.9703	3.6166
155.	5	12345	12	5	-1.9703	3.6166
156.	14	1256	12	5	-1.9703	3.6166
157.	13	3457	12	6	-1.9622	3.6326
158.	15	3467	12	5	-1.9580	3.6359
159.	6	23457	12	5	-1.9704	3.6432
160.	14	1235	12	5	-1.9704	3.6432
161.	13	2347	12	6	-1.9658	3.6572
162.	6	12367	12	5	-1.9625	3.6585
163.	25	236	12	5	-1.9455	3.6734
164.	29	237	12	6	-1.9271	3.6746
165.	16	1235	12	5	-1.9465	3.6975
166.	64	7	12	4	-1.9818	3.6943
167.	15	2367	12	5	-1.9775	3.7573
168.	16	2356	12	5	-1.9737	3.8108
169.	18	1256	13	4	-1.9158	3.3606
170.	31	234	13	4	-1.9365	3.3939
171.	18	1234	13	4	-1.9010	3.4670
172.	20	1234	13	5	-1.9244	3.5298
173.	17	1457	13	4	-1.8990	3.5457
174.	31	457	13	4	-1.9664	3.3327
175.	21	1257	13	5	-1.9637	3.4657
176.	31	126	13	4	-1.9559	3.4837
177.	35	456	13	4	-1.9254	3.4774
178.	32	346	13	4	-1.9502	3.5234
179.	36	126	13	5	-1.9291	3.5162
180.	32	236	13	5	-1.9564	3.5748
181.	39	123	13	5	-1.9312	3.5492
182.	24	2345	13	5	-1.9438	3.5691
183.	8	23456	13	5	-1.9569	3.5815
184.	28	1236	13	6	-1.9335	3.6300
185.	35	126	13	5	-1.9522	3.6408
186.	8	12347	13	5	-1.9446	3.6443
187.	9	12367	13	5	-1.9448	3.6464
188.	9	23457	13	5	-1.9360	3.6603
189.	19	2367	13	5	-1.9135	3.6843
190.	38	124	13	7	-1.9460	3.6940
191.	30	1236	13	6	-1.9740	3.5804
192.	22	1256	13	5	-1.9662	3.6612
193.	38	256	13	7	-1.9686	3.6774
194.	22	3457	13	5	-1.9548	3.6783
195.	35	346	13	5	-1.9664	3.6893
196.	22	1235	13	5	-1.9664	3.7297
197.	39	457	13	6	-1.9600	3.7419
198.	37	235	13	6	-1.9665	3.7526
199.	25	1237	13	5	-1.9603	3.7660
200.	13	12367	13	6	-1.9556	3.7671
201.	18	3457	13	4	-1.9492	3.7699
202.	19	1237	13	5	-1.9492	3.7699
203.	40	456	13	5	-1.9637	3.7774
204.	28	3456	13	6	-1.9561	3.7902
205.	15	23457	13	5	-1.9562	3.7918
206.	13	12345	13	6	-1.9603	3.8010
207.	36	235	13	5	-1.9425	3.8028
208.	29	1256	13	6	-1.9249	3.8038
209.	23	2347	13	6	-1.9505	3.8134
210.	20	2367	13	5	-1.9606	3.8212
211.	39	246	13	6	-1.9437	3.8246
212.	26	2347	13	6	-1.9447	3.8455
213.	16	12567	13	5	-1.9447	3.8455
214.	29	1235	13	6	-1.9170	3.8770
215.	64	17	13	4	-1.9804	3.7020
216.	64	12	13	5	-1.9777	3.7836
217.	23	2367	13	6	-1.9753	3.8653
218.	41	235	13	5	-1.9753	3.8653
219.	41	346	13	5	-1.9723	3.8756
220.	75	7	13	5	-1.9705	3.8964

221.	12	23456	13	5	-1.9705	3.8964
222.	12	12346	13	5	-1.9628	3.9083
223.	15	12367	13	5	-1.9707	3.9156
224.	26	3457	13	6	-1.9591	3.9280
225.	28	2347	13	6	-1.9362	3.9563
226.	16	23456	13	5	-1.9635	3.9623
227.	29	2357	13	6	-1.9491	3.9731
228.	30	3457	13	6	-1.9831	4.1090
229.	32	1457	14	4	-1.9050	3.5549
230.	33	1256	14	5	-1.8675	3.6294
231.	17	23456	14	5	-1.8765	3.7191
232.	32	1257	14	5	-1.9141	3.6593
233.	32	1237	14	5	-1.9256	3.7423
234.	19	23456	14	5	-1.8953	3.7521
235.	35	3457	14	5	-1.9270	3.7648
236.	36	1234	14	5	-1.9024	3.7943
237.	19	12567	14	5	-1.9066	3.8148
238.	53	126	14	7	-1.8284	3.8284
239.	41	1237	14	5	-1.9512	3.7306
240.	50	456	14	5	-1.9436	3.7605
241.	34	3456	14	6	-1.9439	3.8027
242.	22	12347	14	5	-1.9571	3.8513
243.	36	1256	14	5	-1.9058	3.8393
244.	23	12345	14	6	-1.9572	3.8863
245.	24	34567	14	5	-1.9456	3.8833
246.	38	1256	14	7	-1.9341	3.8856
247.	39	1234	14	6	-1.9133	3.8941
248.	26	12345	14	6	-1.9360	3.9068
249.	52	236	14	5	-1.9345	3.9186
250.	40	1234	14	6	-1.9463	3.9338
251.	7	234567	14	6	-1.9384	3.9443
252.	19	12347	14	5	-1.9206	3.9464
253.	38	2345	14	7	-1.9217	3.9476
254.	37	1235	14	6	-1.9469	3.9520
255.	10	234567	14	6	-1.9235	3.9642
256.	29	12347	14	6	-1.8951	3.9743
257.	56	127	14	5	-1.9778	3.6329
258.	42	1256	14	7	-1.9742	3.8704
259.	56	346	14	5	-1.9689	3.9053
260.	56	235	14	5	-1.9727	3.9280
261.	21	23456	14	5	-1.9666	3.9595
262.	11	123457	14	6	-1.9666	3.9595
263.	42	2356	14	7	-1.9561	3.9895
264.	35	1237	14	5	-1.9561	3.9895
265.	23	12367	14	6	-1.9667	4.0068
266.	36	3457	14	5	-1.9250	4.0011
267.	37	1267	14	6	-1.9607	4.0162
268.	22	23456	14	5	-1.9512	4.0266
269.	23	34567	14	6	-1.9507	4.0363
270.	38	1237	14	7	-1.9507	4.0363
271.	35	2367	14	5	-1.9437	4.0447
272.	14	234567	14	6	-1.9569	4.0507
273.	45	1256	14	6	-1.9569	4.0507
274.	58	246	14	6	-1.9308	4.0612
275.	24	12347	14	5	-1.9518	4.0690
276.	27	23457	14	5	-1.9338	4.0786
277.	25	12346	14	5	-1.9523	4.0843
278.	29	23456	14	6	-1.9146	4.1099
279.	41	2345	14	5	-1.9664	4.1483
280.	24	12367	14	5	-1.9635	4.1637
281.	44	3467	14	5	-1.9491	4.1729
282.	26	34567	14	6	-1.9638	4.1781
283.	27	12347	14	5	-1.9399	4.1877
284.	29	23567	14	6	-1.9423	4.2146
285.	46	2345	14	6	-1.9517	4.2276
286.	42	2347	14	7	-1.9796	4.1991
287.	44	2367	14	5	-1.9754	4.2559
288.	45	2357	14	6	-1.9725	4.2943
289.	47	1236	15	5	-1.9383	3.9217
290.	66	345	15	5	-1.9403	3.9629
291.	50	1267	15	6	-1.9085	4.0246
292.	32	12346	15	5	-1.9081	4.0522
293.	37	12347	15	6	-1.9301	4.0603
294.	53	1245	15	7	-1.8651	4.1162
295.	58	1234	15	6	-1.9529	4.0586
296.	50	1237	15	6	-1.9135	4.0702
297.	57	2356	15	7	-1.9466	4.1049
298.	51	2356	15	6	-1.9468	4.1309
299.	35	23456	15	5	-1.9237	4.1308
300.	53	2456	15	7	-1.9206	4.1397
301.	37	23456	15	6	-1.9236	4.1548
302.	63	1234	15	6	-1.8794	4.1854
303.	18	234567	15	6	-1.9267	4.1928
304.	36	12357	15	5	-1.9059	4.2012
305.	46	12347	15	6	-1.9286	4.2067
306.	38	23567	15	7	-1.9286	4.2067
307.	33	12347	15	5	-1.8907	4.2081
308.	20	234567	15	6	-1.9404	4.2123
309.	55	2345	15	7	-1.9091	4.2350
310.	40	12456	15	6	-1.9297	4.2403
311.	74	127	15	6	-1.9756	3.9756
312.	56	2345	15	5	-1.9609	4.1965
313.	75	346	15	6	-1.9612	4.2333
314.	21	123467	15	6	-1.9570	4.2347
315.	34	12367	15	6	-1.9570	4.2347
316.	38	12347	15	7	-1.9574	4.2693
317.	41	34567	15	5	-1.9520	4.2705
318.	37	12567	15	6	-1.9465	4.2902
319.	76	456	15	5	-1.9529	4.2958
320.	37	23567	15	6	-1.9371	4.3037
321.	44	12346	15	5	-1.9464	4.3093
322.	25	234567	15	6	-1.9382	4.3159
323.	28	123457	15	6	-1.9231	4.3290
324.	58	4567	15	6	-1.9690	4.3344
325.	30	123457	15	6	-1.9667	4.3661
326.	42	23457	15	7	-1.9607	4.3729
327.	45	12357	15	6	-1.9572	4.4244
328.	46	12456	15	6	-1.9330	4.4317
329.	64	2346	15	5	-1.9726	4.4655
330.	43	34567	15	6	-1.9709	4.4766
331.	96	7	15	5	-1.9665	4.4984
332.	46	23456	15	6	-1.9639	4.5187
333.	68	3456	16	7	-1.9142	4.2612
334.	50	12456	16	6	-1.8691	4.2687
335.	32	234567	16	6	-1.9153	4.2832
336.	53	12567	16	7	-1.8757	4.3107
337.	33	234567	16	6	-1.8803	4.3220
338.	67	1256	16	6	-1.9467	4.2186
339.	68	1456	16	7	-1.9535	4.2741
340.	67	2356	16	6	-1.9262	4.3319

341.	57	12567	16	7	-1.9392	4.3460
342.	50	12347	16	6	-1.9033	4.3591
343.	71	2456	16	7	-1.8898	4.3657
344.	34	123457	16	6	-1.9405	4.3778
345.	51	12347	16	6	-1.8954	4.3849
346.	53	23456	16	7	-1.9051	4.3967
347.	51	12357	16	6	-1.9104	4.4257
348.	53	23457	16	7	-1.8678	4.4331
349.	39	124567	16	6	-1.9146	4.4368
350.	67	3457	16	6	-1.9613	4.3655
351.	68	2347	16	7	-1.9615	4.4231
352.	43	123457	16	6	-1.9474	4.4876
353.	35	123467	16	6	-1.9397	4.4935
354.	57	23457	16	7	-1.9387	4.4989
355.	36	234567	16	6	-1.9265	4.5048
356.	60	23567	16	7	-1.9047	4.5265
357.	61	12357	16	6	-1.9291	4.5308
358.	40	234567	16	6	-1.9101	4.5513
359.	74	2346	16	6	-1.9693	4.5238
360.	75	2357	16	6	-1.9671	4.5505
361.	57	12347	16	7	-1.9671	4.5505
362.	41	123456	16	6	-1.9573	4.5671
363.	44	234567	16	6	-1.9577	4.5915
364.	61	12567	16	6	-1.9352	4.5980
365.	60	23457	16	7	-1.9132	4.6080
366.	62	12357	16	6	-1.9369	4.6214
367.	45	234567	16	6	-1.9380	4.6303
368.	65	23567	16	6	-1.9710	4.7697
369.	31	1234567	17	7	-1.9186	4.4569
370.	81	1256	17	6	-1.8905	4.4808
371.	68	12456	17	7	-1.9312	4.5490
372.	92	235	17	6	-1.9418	4.5598
373.	68	23457	17	7	-1.9321	4.5810
374.	50	234567	17	6	-1.8811	4.5919
375.	51	234567	17	6	-1.9169	4.6160
376.	71	12457	17	7	-1.8912	4.6444
377.	83	2456	17	7	-1.9480	4.6440
378.	69	12347	17	6	-1.9286	4.6732
379.	71	12347	17	7	-1.9291	4.6870
380.	58	124567	17	6	-1.9413	4.6911
381.	61	234567	17	6	-1.9099	4.7053
382.	54	234567	17	6	-1.9154	4.7270
383.	63	124567	17	6	-1.8761	4.7443
384.	72	12457	17	7	-1.8761	4.7443
385.	55	234567	17	7	-1.9172	4.7473
386.	75	34567	17	6	-1.9382	4.7668
387.	70	12367	17	5	-1.9536	4.7742
388.	75	23457	17	6	-1.9479	4.7786
389.	59	123457	17	6	-1.9236	4.7878
390.	65	234567	17	6	-1.9580	4.8745
391.	79	23457	17	7	-1.9367	4.8797
392.	47	1234567	18	7	-1.8959	4.6666
393.	48	1234567	18	7	-1.8241	4.7225
394.	49	1234567	18	7	-1.8924	4.7608
395.	52	1234567	18	7	-1.8916	4.7911
396.	69	124567	18	6	-1.8970	4.7990
397.	73	123457	18	6	-1.8541	4.8541
398.	92	1346	18	7	-1.9544	4.7566
399.	56	1234567	18	7	-1.9489	4.7795
400.	83	12347	18	7	-1.9100	4.8439
401.	68	123467	18	7	-1.9155	4.8636
402.	75	123456	18	6	-1.9324	4.8710
403.	71	234567	18	7	-1.8810	4.8908
404.	74	123456	18	6	-1.9400	4.9060
405.	64	1234567	18	7	-1.9485	4.9204
406.	77	234567	18	6	-1.9090	4.9613
407.	77	123467	18	6	-1.9257	5.0380
408.	78	234567	18	6	-1.9407	5.0472
409.	79	234567	18	7	-1.9285	5.0540
410.	89	34567	18	6	-1.9729	5.1410
411.	90	24567	18	7	-1.9694	5.1706
412.	66	1234567	19	7	-1.8568	4.9817
413.	67	1234567	19	7	-1.9198	4.9917
414.	70	1234567	19	7	-1.9213	5.0367
415.	83	124567	19	7	-1.8983	5.0506
416.	76	1234567	19	7	-1.9182	5.1125
417.	85	124567	19	6	-1.8826	5.1375
418.	90	124567	19	7	-1.9487	5.2666
419.	87	234567	19	6	-1.9282	5.2702
420.	88	234567	19	7	-1.9417	5.2778
421.	96	23467	19	6	-1.9620	5.3241
422.	100	12346	20	7	-1.9185	5.2182
423.	81	1234567	20	7	-1.8950	5.2475
424.	84	1234567	20	7	-1.8187	5.2840
425.	86	1234567	20	7	-1.8895	5.3486
426.	100	12357	20	7	-1.9624	5.3402
427.	89	1234567	20	7	-1.9495	5.3796
428.	95	124567	20	7	-1.9147	5.4173
429.	97	234567	20	7	-1.9587	5.5336
430.	91	1234567	21	7	-1.8654	5.4269
431.	94	1234567	21	7	-1.8514	5.5016
432.	100	123457	21	7	-1.9342	5.5159
433.	96	1234567	21	7	-1.9176	5.6116
434.	103	234567	21	6	-1.9675	5.7623
435.	98	1234567	22	7	-1.8383	5.6750
436.	101	1234567	22	7	-1.8925	5.7275
437.	103	1234567	22	7	-1.9501	5.8373
438.	104	1234567	23	7	-1.8730	5.8730
439.	106	1234567	23	7	-1.9221	5.9634
440.	107	1234567	24	7	-1.9008	6.1325
441.	109	234567	24	7	-1.9556	6.2151
442.	108	1234567	25	7	-1.9245	6.3347
443.	110	1234567	26	7	-1.9511	6.5605

Table 2

2.1. SOME DATA ON EXTENDABILITY GRAPHS

2.1. Numbers of vertices in the extendability graphs

GRAPH	001	002	003	004	005	006	007	008	009	010	011	012	013	014	015
N	38	43	43	42	41	39	40	39	39	46	43	44	44	45	43

GRAPH	016	017	018	019	020	021	022	023	024	025	026	027	028	029	030
N	44	41	42	44	41	43	43	39	39	42	51	48	48	46	47

GRAPH	031	032	033	034	035	036	037	038	039	040	041	042	043	044	045
N	50	47	49	46	47	44	48	47	47	47	47	46	46	42	45

GRAPH	046	047	048	049	050	051	052	053	054	055	056	057	058	059	060
N	45	46	44	44	45	46	43	44	45	44	43	43	43	45	42

GRAPH	061	062	063	064	065	066	067	068	069	070	071	072	073	074	075
N	52	53	51	51	52	52	51	51	49	50	50	52	50	50	51

GRAPH	076	077	078	079	080	081	082	083	084	085	086	087	088	089	090
N	48	50	49	47	48	47	47	49	49	50	50	49	49	48	44

GRAPH	091	092	093	094	095	096	097	098	099	100	101	102	103	104	105
N	44	48	47	47	47	43	45	46	48	50	47	41	48	46	47

GRAPH	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
N	44	45	57	54	53	56	55	54	53	52	55	55	54	54	52

GRAPH	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135
N	52	52	52	51	53	49	51	52	50	54	51	51	50	50	52

GRAPH	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150
N	53	53	48	48	50	50	48	52	50	50	51	52	49	50	47

GRAPH	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165
N	48	50	49	44	48	51	47	51	48	51	46	49	48	44	48

GRAPH	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
N	52	49	47	58	58	58	57	59	58	55	58	57	57	56	56

GRAPH	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195
N	54	55	54	52	56	55	56	55	57	49	51	55	47	54	54

GRAPH	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210
N	53	51	52	53	49	56	56	50	52	53	48	51	51	52	54

GRAPH	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225
N	49	52	52	49	56	53	51	53	55	52	54	53	53	51	49

GRAPH	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
N	50	48	48	61	61	61	60	60	59	59	58	60	56	59	58

GRAPH	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255
N	56	56	58	55	57	53	55	55	59	54	56	59	52	57	55

GRAPH	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270
N	53	58	51	58	56	55	54	49	57	54	56	56	55	55	50

GRAPH	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285
N	57	54	54	52	56	55	54	51	57	56	55	54	54	51	49

GRAPH	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300
N	46	54	50	62	61	61	62	60	58	59	60	56	58	60	57

GRAPH	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315
N	59	56	60	59	54	54	61	59	55	55	57	59	58	57	56

GRAPH	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330
N	54	61	59	59	58	58	56	55	57	54	51	55	52	58	56

GRAPH	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345
N	55	52	62	63	63	61	63	62	61	62	58	62	59	59	61

GRAPH	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360
N	60	61	59	59	62	59	59	61	57	60	56	61	57	59	58

GRAPH	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375
N	57	61	59	61	55	59	57	56	66	64	63	63	64	64	63

GRAPH	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390
N	62	60	63	62	62	63	63	60	60	60	63	64	62	60	60

GRAPH	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405
N	57	69	69	67	68	66	64	65	66	64	65	65	64	65	65

GRAPH	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420
N	65	64	63	61	64	58	70	69	70	67	68	67	63	65	64

GRAPH	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435
N	65	70	71	71	70	67	70	68	66	75	73	72	71	68	76

GRAPH	436	437	438	439	440	441	442	443
N	75	73	79	77	80	78	82	83

2.2. Numbers of cliques in the extendability graph for each exceptional star complement of order 8

clique order	14	20	21	22	23	24	25	26	28	total number
graph										
H001	0	1	1	9	91	36	5	1	0	144
H002	0	0	3	850	257	93	19	4	0	1226
H003	0	0	0	790	291	107	22	4	0	1214
H004	0	1	4	868	219	58	7	1	0	1158
H005	0	2	6	865	195	51	6	1	0	1126
H006	0	0	5	929	127	21	2	0	0	1084
H007	0	0	3	860	169	45	6	1	0	1084
H008	0	0	5	929	127	21	2	0	0	1084
H009	0	2	2	15	122	42	5	1	0	189
H010	0	0	1045690	2721	150	17	2	0	0	1048580
H011	0	2	10	1816	305	66	7	1	0	2207
H012	0	4	6	822	390	138	24	5	0	1389
H013	0	2	6	1687	429	123	22	4	0	2273
H014	0	1	10	1598	414	121	22	4	0	2170
H015	0	3	8	879	252	64	7	1	0	1214
H016	0	3	6	864	320	105	19	4	0	1321
H017	0	0	6	1803	253	53	6	1	0	2122
H018	0	4	10	876	228	57	6	1	0	1182
H019	0	0	7	1537	412	132	31	6	0	2125
H020	0	0	6	1803	253	53	6	1	0	2122
H021	0	2	5	858	289	99	19	4	0	1276
H022	0	2	3	744	345	115	22	4	0	1235
H023	0	2	2	15	122	42	5	1	0	189
H024	0	0	5	929	127	21	2	0	0	1084
H025	0	2	7	873	221	58	7	1	0	1169
H026	0	0	1041307	6553	699	148	25	4	0	1048736
H027	0	6	18	2502	689	191	29	5	0	3440
H028	0	0	1043884	4337	322	52	6	1	0	1048602
H029	0	3	22	2502	554	137	22	4	0	3244
H030	0	4	15	2362	706	204	38	7	0	3336
H031	0	0	1041342	6489	680	151	32	6	0	1048700
H032	0	3	14	2260	772	239	44	8	0	3340
H033	0	0	1042996	5120	432	73	9	1	0	1048631
H034	0	3	22	2502	554	137	22	4	0	3244
H035	0	4	21	2444	680	187	29	5	0	3370
H036	0	3	6	864	320	105	19	4	0	1321
H037	0	0	1043841	4417	319	41	5	0	0	1048623
H038	0	5	12	1554	603	183	29	5	0	2391
H039	0	3	15	2488	626	179	29	5	0	3345
H040	0	4	12	1605	551	175	29	5	0	2381

H041	0	0	1043859	4379	304	45	5	1	0	1048593
H042	0	2	11	2351	673	198	38	7	0	3280
H043	0	0	1045209	3177	177	19	2	0	0	1048584
H044	0	4	10	876	228	57	6	1	0	1182
H045	0	2	18	2288	670	191	37	7	0	3213
H046	0	3	19	1559	470	129	22	4	0	2206
H047	0	2	14	2321	674	200	39	7	0	3257
H048	0	2	6	1687	429	123	22	4	0	2273
H049	0	2	6	1687	429	123	22	4	0	2273
H050	0	1	18	2491	521	131	22	4	0	3188
H051	0	2	9	1465	568	188	38	7	0	2277
H052	0	2	10	1816	305	66	7	1	0	2207
H053	0	3	6	864	320	105	19	4	0	1321
H054	0	2	16	1554	468	129	22	4	0	2195
H055	0	3	6	864	320	105	19	4	0	1321
H056	0	3	8	879	252	64	7	1	0	1214
H057	0	2	10	1816	305	66	7	1	0	2207
H058	0	3	8	879	252	64	7	1	0	1214
H059	0	0	1046147	2310	108	10	1	0	0	1048576
H060	0	4	10	876	228	57	6	1	0	1182
H061	0	8	32	4477	1562	566	124	33	1	6803
H062	0	2	1037861	9535	1238	282	47	8	0	1048973
H063	0	6	16	4118	1626	609	135	33	1	6544
H064	0	5	21	4173	1697	639	144	36	1	6716
H065	0	2	1038268	9195	1131	241	42	7	0	1048886
H066	0	0	1038729	9511	1169	232	42	6	0	1049689
H067	0	1	1039432	8301	846	160	25	4	0	1048769
H068	0	2	1039587	8041	945	206	37	7	0	1048825
H069	0	6	41	3901	1035	271	45	8	0	5307
H070	0	2	11	3051	1067	429	102	29	1	4692
H071	0	0	0	2832	1191	495	115	30	1	4664
H072	0	1	1038701	8816	1065	235	42	7	0	1048867
H073	0	8	34	3790	1204	337	54	9	0	5436
H074	0	2	11	3051	1067	429	102	29	1	4692
H075	0	1	1040392	7386	791	156	25	4	0	1048755
H076	0	6	18	2502	689	191	29	5	0	3440
H077	0	0	1039775	8069	721	123	14	2	0	1048704
H078	0	6	16	3052	957	382	89	26	1	4529
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H080	0	0	1042921	5247	375	56	6	1	0	1048606

H081	0	4	15	2362	706	204	38	7	0	3336
H082	0	4	26	3225	814	216	39	7	0	4331
H083	0	8	48	3844	1136	294	47	8	0	5385
H084	0	6	16	3052	957	382	89	26	1	4529
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H086	0	0	1040714	7205	655	115	13	2	0	1048704
H087	0	0	1042036	6035	487	77	9	1	0	1048645
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H091	0	2	6	1687	429	123	22	4	0	2273
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H094	1	8	21	1515	659	191	29	5	0	2429
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H096	0	2	10	1816	305	66	7	1	0	2207
H097	1	8	9	836	453	150	24	5	0	1486
H098	0	3	22	2502	554	137	22	4	0	3244
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H100	0	0	1039957	7765	835	169	33	6	0	1048765
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H103	0	0	1042950	5213	403	62	7	1	0	1048636
H104	0	3	22	2502	554	137	22	4	0	3244
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H106	0	4	14	1827	338	72	7	1	0	2263
H107	1	8	9	836	453	150	24	5	0	1486
H108	0	6	1031627	15898	2970	866	177	40	1	1051585
H109	0	2	1033607	14661	2089	447	79	13	0	1050898
H110	0	4	30	8085	3021	1147	267	67	2	12623
H111	0	4	1032053	15373	2843	834	175	39	1	1051322
H112	0	4	1033317	14779	2291	517	89	14	0	1051011
H113	0	4	1035243	12554	1676	348	55	8	0	1049888
H114	0	11	57	7158	2442	811	169	40	1	10689
H115	0	8	33	6018	1921	663	144	36	1	8824
H116	0	5	1034585	12874	1991	465	77	12	0	1050009
H117	0	0	1032966	13554	2062	622	140	35	1	1049380
H118	0	18	54	7024	2853	978	198	45	1	11171
H119	0	3	1036158	11721	1584	340	55	8	0	1049869
H120	0	11	48	6465	1622	423	63	10	0	8642

H121	0	8	32	4477	1562	566	124	33	1	6803
H122	0	2	27	6532	2601	1031	247	63	2	10505
H123	0	2	1035382	11930	1292	253	42	7	0	1048908
H124	0	6	16	4118	1626	609	135	33	1	6544
H125	0	2	1036197	11583	1590	346	62	10	0	1049790
H126	0	6	30	5031	1107	282	46	8	0	6510
H127	0	7	27	5070	1835	655	144	36	1	7775
H128	0	2	1036826	10564	1212	247	42	7	0	1048900
H129	0	8	49	5628	1367	349	54	9	0	7464
H130	0	2	1035756	12001	1699	376	59	9	0	1049902
H131	0	7	26	3529	1476	558	124	33	1	5754
H132	0	1	1038469	9211	899	164	25	4	0	1048773
H133	1	10	43	3802	1208	337	54	9	0	5464
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H135	0	8	33	6018	1921	663	144	36	1	8824
H136	0	2	1036010	11225	1393	304	50	8	0	1048992
H137	0	2	1036953	11098	1385	284	48	7	0	1049777
H138	0	5	27	3392	766	195	29	5	0	4419
H139	1	9	27	2463	745	199	29	5	0	3478
H140	0	9	40	4738	1290	345	54	9	0	6485
H141	0	0	0	2832	1191	495	115	30	1	4664
H142	0	6	18	2502	689	191	29	5	0	3440
H143	0	10	0	6960	3693	1567	386	96	3	12715
H144	0	6	18	6261	2233	771	169	39	1	9498
H145	0	0	1037828	9940	816	127	13	2	0	1048726
H146	0	6	20	7206	2314	783	170	39	1	10539
H147	0	0	1036488	11488	1459	282	46	7	0	1049770
H148	0	6	16	3052	957	382	89	26	1	4529
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H150	0	4	26	3225	814	216	39	7	0	4331
H151	0	6	26	4105	996	263	44	8	0	5448
H152	0	0	1040232	7659	681	117	13	2	0	1048704
H153	1	11	42	2959	1061	290	47	8	0	4419
H154	0	4	14	1827	338	72	7	1	0	2263
H155	0	6	26	4105	996	263	44	8	0	5448
H156	0	6	21	5114	1781	647	144	36	1	7750
H157	0	4	15	2362	706	204	38	7	0	3336
H158	0	1	1039432	8301	846	160	25	4	0	1048769
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H161	0	3	22	2502	554	137	22	4	0	3244
H162	0	6	30	5031	1107	282	46	8	0	6510
H163	1	9	27	2463	745	199	29	5	0	3478
H164	0	4	14	1827	338	72	7	1	0	2263
H165	1	9	27	2463	745	199	29	5	0	3478
H166	0	0	1036180	11545	1587	345	70	11	0	1049738
H167	0	0	1040592	7401	567	83	9	1	0	1048653
H168	1	9	24	1520	661	191	29	5	0	2440
H169	0	12	1027220	22257	4435	1197	230	47	1	1055399
H170	0	8	1026972	22143	4631	1417	303	71	2	1055547
H171	0	10	1028369	19804	3900	1081	210	44	1	1053419
H172	0	8	1028789	18556	3170	882	177	40	1	1051623
H173	0	18	1027713	20233	4410	1263	239	49	1	1053926
H174	0	12	1025866	23194	6080	2206	506	125	4	1057993
H175	0	14	42	11345	4985	1913	440	106	3	18848
H176	0	10	1026826	21596	5200	1791	405	99	3	1055930
H177	0	4	1028547	19165	3969	1269	281	67	2	1053304
H178	0	12	1028314	19756	3867	1063	214	45	1	1053272
H179	0	6	1029269	17961	3084	854	175	39	1	1051389
H180	0	6	1028742	18511	3084	847	173	39	1	1051403
H181	0	12	57	8680	2962	982	200	45	1	12939
H182	0	5	1030966	16988	2466	531	89	14	0	1051059
H183	0	6	38	8358	2986	1129	258	65	2	12842
H184	0	8	33	6018	1921	663	144	36	1	8824
H185	0	8	1030578	16059	2850	834	172	40	1	1050542
H186	0	8	41	9911	3406	1245	278	69	2	14960
H187	0	7	1030149	17656	2668	594	97	15	0	1051186
H188	0	6	1032716	14629	2140	477	77	12	0	1050057
H189	0	7	1029704	17723	3078	874	177	40	1	1051604
H190	0	0	2090446	6319	388	45	5	0	0	2097203
H191	0	6	20	7206	2314	783	170	39	1	10539
H192	0	6	1030533	17367	2532	537	89	14	0	1051078
H193	0	0	2092295	4623	219	21	2	0	0	2097160
H194	0	4	1032972	14589	1940	396	59	9	0	1049969
H195	0	6	1032596	14839	2033	429	70	11	0	1049984
H196	0	4	1033100	14018	1546	306	47	8	0	1049029
H197	0	10	61	6532	1507	365	54	9	0	8538
H198	0	8	33	6018	1921	663	144	36	1	8824
H199	0	12	63	8106	2528	819	169	40	1	11738
H200	0	6	30	5031	1107	282	46	8	0	6510

H201	0	6	1030911	17293	3009	678	108	16	0	1052021
H202	0	6	1029269	17961	3084	854	175	39	1	1051389
H203	2	15	57	3868	1203	306	47	8	0	5506
H204	0	8	33	6018	1921	663	144	36	1	8824
H205	0	4	1035023	12193	1438	298	47	8	0	1049011
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H207	1	13	55	5647	1432	361	54	9	0	7572
H208	1	12	49	4699	1346	353	54	9	0	6523
H209	0	8	32	4477	1562	566	124	33	1	6803
H210	0	4	1033320	14379	1784	356	55	8	0	1049906
H211	1	10	33	3411	831	207	29	5	0	4527
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H213	1	13	57	6477	1626	423	63	10	0	8670
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H215	0	6	1027889	18967	4426	1579	370	91	3	1053331
H216	0	0	1032232	15864	2274	469	81	13	0	1050933
H217	0	6	16	4118	1626	609	135	33	1	6544
H218	0	4	30	9077	3053	1147	267	67	2	13647
H219	0	6	1030945	15689	2671	773	166	38	1	1050289
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H221	0	2	1032697	15492	2179	462	81	13	0	1050926
H222	0	2	1035208	12595	1659	334	52	8	0	1049858
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H229	0	22	1019829	33029	9055	2981	641	147	4	1065708
H230	0	20	1020153	31349	7726	2436	510	116	3	1062313
H231	0	22	1021511	29362	6748	1992	393	85	2	1060115
H232	0	16	1020231	30363	7971	2705	595	140	4	1062025
H233	0	19	1021593	28656	6997	2243	479	111	3	1060101
H234	0	10	1022637	25899	5337	1606	334	76	2	1055901
H235	0	13	1023607	26240	5509	1617	333	75	2	1057396
H236	0	12	1024577	23384	4157	1101	210	44	1	1053486
H237	0	13	1021923	28114	5866	1742	356	80	2	1058096
H238	0	0	2078608	16366	2184	630	140	35	1	2097964
H239	0	12	1022099	27400	7052	2453	551	132	4	1059703
H240	0	16	1022830	25965	5108	1368	265	53	1	1055606

H241	0	14	48	13148	5238	1966	446	107	3	20970
H242	0	10	1025442	22069	3017	622	97	15	0	1051272
H243	0	13	1024343	25004	4600	1209	230	47	1	1055447
H244	0	8	41	9911	3406	1245	278	69	2	14960
H245	0	9	1024957	23838	3646	800	133	21	0	1053404
H246	0	2	2082468	13376	1334	255	42	7	0	2097484
H247	0	15	69	10525	3186	1006	200	45	1	15047
H248	0	8	41	9911	3406	1245	278	69	2	14960
H249	0	12	1023381	27105	5325	1565	325	75	2	1057790
H250	1	16	78	9015	2670	835	169	40	1	12825
H251	0	22	90	10915	3713	1187	229	50	1	16207
H252	0	10	1023065	25515	5270	1600	334	76	2	1055872
H253	0	1	2085074	11113	968	168	25	4	0	2097353
H254	0	8	1026866	20381	3278	890	177	40	1	1051641
H255	0	17	59	8322	2715	890	177	42	1	12223
H256	1	16	69	8322	1850	447	63	10	0	10778
H257	0	24	1021007	28538	8062	2810	632	143	4	1061220
H258	0	0	2083975	12250	924	137	14	2	0	2097302
H259	0	10	1023048	25503	6142	2041	455	105	3	1057307
H260	0	8	1024814	24099	3510	736	123	20	0	1053310
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H262	0	18	44	7838	2785	925	185	42	1	11838
H263	0	0	2089526	7149	444	60	6	1	0	2097186
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H265	0	6	38	8358	2986	1129	258	65	2	12842
H266	0	7	1028034	20040	3174	690	108	16	0	1052069
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H269	0	8	41	9911	3406	1245	278	69	2	14960
H270	0	0	2087678	8847	609	85	9	1	0	2097229
H271	0	10	1027208	20222	3683	1009	200	43	1	1052376
H272	0	14	47	6477	2491	866	177	42	1	10115
H273	1	16	78	9015	2670	835	169	40	1	12825
H274	2	17	70	6556	1574	377	54	9	0	8659
H275	0	8	1028280	19411	2817	606	97	15	0	1051234
H276	0	7	1030793	16454	2248	485	77	12	0	1050076
H277	2	25	66	9813	3163	1010	198	45	1	14323
H278	1	13	55	5647	1432	361	54	9	0	7572
H279	0	4	1026233	22239	4268	1302	283	67	2	1054398
H280	0	6	1027215	21792	3359	738	127	20	0	1053257

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H282	0	6	38	8358	2986	1129	258	65	2	12842
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H285	1	10	33	3411	831	207	29	5	0	4527
H286	0	0	2093233	3756	150	12	1	0	0	2097152
H287	0	4	1031507	16006	2009	398	58	9	0	1049991
H288	2	15	57	3868	1203	306	47	8	0	5506
H289	0	48	1013047	46516	15536	5584	1233	285	8	1082257
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H291	0	22	1016361	34929	7983	2456	510	116	3	1062380
H292	0	36	1014984	41614	11361	3762	802	185	5	1072749
H293	0	16	1017216	32527	6215	1770	356	80	2	1058182
H294	0	8	2073471	22283	3347	894	177	40	1	2100221
H295	0	18	1017417	32596	5933	1515	279	55	1	1057814
H296	0	16	1016141	34037	8361	2776	604	141	4	1062080
H297	0	6	2074733	21548	2735	551	89	14	0	2099676
H298	0	15	1019154	29871	4975	1239	230	47	1	1055532
H299	0	23	1018001	33710	7614	2347	489	112	3	1062299
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H301	0	12	1018839	29472	5592	1626	334	76	2	1055953
H302	1	20	90	12382	3414	1030	200	45	1	17183
H303	0	24	1019985	29005	6001	1611	293	57	1	1056977
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H305	2	21	90	10179	2078	471	63	10	0	12914
H306	0	4	2079705	15920	1615	310	47	8	0	2097609
H307	0	24	1016989	36019	8276	2534	520	117	3	1064482
H308	0	18	1021106	25732	4719	1287	240	50	1	1053153
H309	0	4	2079925	16281	1853	360	55	8	0	2098486
H310	3	29	81	10722	3305	1026	198	45	1	15410
H311	0	48	0	24837	12722	5124	1194	278	8	44211
H312	0	18	1017588	33520	7678	2397	509	114	3	1061827
H313	0	15	1021032	28142	4841	1222	228	47	1	1055528
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H315	0	18	48	16736	5702	2054	455	108	3	25124
H316	0	4	2077854	17610	1770	332	50	8	0	2097628
H317	0	30	1016593	37961	10019	3432	750	177	5	1068967
H318	0	12	1020281	28103	5511	1620	334	76	2	1055939
H319	0	13	1020781	29826	5808	1650	335	75	2	1058490
H320	0	13	1022702	25132	4304	1113	210	44	1	1053519

H321	2	24	1022856	24077	4528	1219	229	48	1	1052984
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H323	0	17	59	8322	2715	890	177	42	1	12223
H324	0	9	1022621	25732	3924	828	121	18	0	1053253
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H326	0	0	2084914	11386	858	129	13	2	0	2097302
H327	3	29	81	10722	3305	1026	198	45	1	15410
H328	2	17	70	6556	1574	377	54	9	0	8659
H329	0	18	1021019	29475	6223	1978	424	101	3	1059241
H330	0	18	48	16736	5702	2054	455	108	3	25124
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H333	0	23	2060128	39489	8252	2476	510	116	3	2110997
H334	0	40	1008053	49188	12747	4102	857	194	5	1075186
H335	0	42	1009031	49381	12925	4115	856	193	5	1076548
H336	0	16	2061898	36254	6392	1782	356	80	2	2106780
H337	0	39	1009944	44747	10411	3073	603	130	3	1068950
H338	0	48	1007496	51617	16016	5661	1241	286	8	1082373
H339	0	16	2060341	38218	8564	2790	604	141	4	2110678
H340	0	32	1010032	45179	10858	3368	697	156	4	1070326
H341	0	12	2064932	31978	4172	840	133	21	0	2102088
H342	0	30	1009734	45273	10991	3419	706	157	4	1070314
H343	0	15	2065759	31773	5044	1243	230	47	1	2104112
H344	0	30	104	21161	7106	2426	510	118	3	31458
H345	0	27	1010846	41808	8708	2568	520	117	3	1064597
H346	0	12	2064481	32284	5714	1634	334	76	2	2104537
H347	2	30	1013015	37360	7356	2040	393	85	2	1060283
H348	0	13	2068344	27944	4426	1121	210	44	1	2102103
H349	2	41	153	18003	5521	1640	294	60	1	25715
H350	0	48	1008703	50630	15758	5607	1235	285	8	1082274
H351	0	18	2064246	32734	5552	1402	265	53	1	2104271
H352	0	30	104	21161	7106	2426	510	118	3	31458
H353	0	28	1013877	39168	8883	2659	540	120	3	1065278
H354	0	10	2070124	25796	3194	634	97	15	0	2099870
H355	2	30	1015281	33423	6352	1639	293	57	1	1057078
H356	0	8	2074560	21014	2517	505	77	12	0	2098693
H357	2	29	1014938	35535	7248	2032	393	85	2	1060264
H358	3	33	117	14613	4165	1235	229	50	1	20446
H359	0	18	1012033	38611	8137	2470	517	115	3	1061904
H360	0	30	98	19358	6853	2373	504	117	3	29336

H361	0	8	2068631	28561	3803	772	127	20	0	2101922
H362	0	30	1013120	41318	10571	3539	763	178	5	1069524
H363	2	30	1016873	30413	5770	1508	278	55	1	1054930
H364	0	25	1014112	38766	8441	2546	520	117	3	1064530
H365	0	4	2077172	18770	2143	410	59	9	0	2098567
H366	2	27	1018302	29064	5110	1319	239	49	1	1054113
H367	3	33	117	14613	4165	1235	229	50	1	20446
H368	0	9	1022364	25363	3576	722	108	16	0	1052158
H369	0	32	3047958	83159	16213	4422	864	177	4	3152829
H370	0	66	999349	68558	21061	7180	1532	343	9	1098098
H371	0	32	2051150	52042	11435	3453	706	157	4	2118979
H372	0	42	1001243	56337	12645	3755	753	165	4	1074944
H373	0	42	2049897	55573	13124	4130	857	194	5	2123822
H374	0	49	1002225	58556	14614	4522	918	203	5	1081092
H375	2	46	1003371	50920	10911	3113	603	130	3	1069099
H376	2	31	2056782	41920	7625	2060	393	85	2	2108900
H377	0	21	2055956	42112	6542	1561	279	55	1	2106527
H378	0	39	1002814	54676	12629	3794	762	166	4	1074884
H379	0	27	2055528	45535	8885	2580	520	117	3	2113195
H380	4	54	1005246	45438	9080	2286	394	72	1	1062575
H381	2	45	1005240	49165	10762	3101	603	130	3	1069051
H382	0	44	1006659	49591	11454	3316	639	135	3	1071841
H383	5	52	180	21701	5973	1688	294	60	1	29954
H384	2	27	2062984	32791	5287	1331	239	49	1	2102711
H385	0	20	2062950	32117	5096	1315	240	50	1	2101789
H386	0	46	1006279	53729	13393	4194	863	194	5	1078703
H387	0	120	1001876	80932	25826	9062	1944	443	12	1120215
H388	2	44	1007688	45480	10017	2908	572	125	3	1066839
H389	0	38	134	26520	8388	2754	561	127	3	38525
H390	2	33	1011056	37382	6675	1665	293	57	1	1057164
H391	0	9	2069450	26809	3618	724	108	16	0	2100734
H392	0	90	3024053	117231	29167	8844	1774	376	9	3181544
H393	0	73	3026807	109689	24797	7229	1423	300	7	3170325
H394	0	48	3030961	99526	19922	5482	1065	219	5	3157228
H395	0	60	3029417	103182	21852	6250	1228	258	6	3162253
H396	2	77	992233	74690	18035	5304	1031	220	5	1091597
H397	9	92	342	37168	9904	2664	432	80	1	50692
H398	0	66	2036764	78824	21953	7317	1546	345	9	2146824
H399	0	56	3030436	99763	19873	5278	1008	197	4	3156615
H400	0	42	2041353	64192	13238	3840	762	166	4	2123597

H401	0	52	2042200	66696	15140	4562	918	203	5	2129776
H402	4	76	994335	69933	16697	4925	969	210	5	1087154
H403	2	48	2045215	57305	11288	3141	603	130	3	2117735
H404	0	120	992917	91978	28307	9677	2048	459	12	1125518
H405	0	30	3037781	91475	16270	4091	770	149	3	3150569
H406	6	98	996731	73610	18811	5783	1153	252	6	1096450
H407	6	92	999211	69200	17799	5537	1112	245	6	1093208
H408	2	51	1000514	55380	11887	3350	639	135	3	1071961
H409	2	33	2055256	41563	6878	1679	293	57	1	2105762
H410	0	120	997957	84688	25976	9074	1945	443	12	1120215
H411	0	12	2061160	35248	4533	874	121	18	0	2101966
H412	0	98	3005599	132788	29882	8606	1672	350	8	3179003
H413	0	102	3005455	133823	31307	9242	1828	384	9	3182150
H414	0	144	3005393	148881	38096	11728	2349	501	12	3207104
H415	4	86	2027504	87248	18912	5372	1031	220	5	2140382
H416	0	70	3014449	117107	24158	6705	1292	266	6	3164053
H417	8	123	985118	91006	22532	6654	1279	271	6	1106997
H418	6	63	2040517	57996	9957	2354	394	72	1	2111360
H419	6	99	990321	81201	20048	6052	1186	256	6	1099175
H420	2	53	2041930	62149	12331	3384	639	135	3	2120626
H421	6	102	991651	80088	19469	5885	1162	253	6	1098622
H422	0	114	4017825	165959	35353	9978	1931	399	9	4231568
H423	0	172	2979901	177978	44531	13434	2652	559	13	3219240
H424	6	147	2984349	159354	35854	10223	1955	405	9	3192302
H425	6	132	2990589	150180	33075	9301	1770	363	8	3185424
H426	0	72	4026893	146050	25673	6336	1159	219	4	4206406
H427	0	150	2989323	163707	39479	11923	2364	503	12	3207461
H428	10	132	2020389	103564	23409	6722	1279	271	6	2155782
H429	6	102	2028860	90717	20657	6098	1186	256	6	2147888
H430	0	248	4939635	273655	64998	18748	3584	730	16	5301614
H431	14	225	2953607	204773	46885	13231	2487	510	11	3221743
H432	0	192	3988671	213373	49023	14255	2763	575	13	4268865
H433	12	189	2965121	180266	39747	11084	2079	422	9	3198929
H434	30	420	968183	201672	61645	20420	4150	900	22	1257442
H435	6	334	4890725	335516	79557	22759	4315	875	19	5334106
H436	12	314	4898099	312181	71158	19965	3754	752	16	5306251
H437	30	456	2932206	292783	77797	23798	4637	969	22	3332698
H438	0	480	6784737	494094	117348	33095	6185	1230	26	7437195
H439	36	570	4842954	427463	104978	30416	5745	1164	25	5413351
H440	36	738	6703810	611313	146286	41347	7683	1528	32	7512773
H441	54	696	5805204	506158	119297	33678	6264	1251	26	6472628
H442	60	1032	8512141	844038	200690	55896	10254	2005	41	9626157
H443	90	1380	10262459	1097251	255140	69450	12545	2395	47	11700757

Table 3

EXCEPTIONAL STAR COMPLEMENTS AND MAXIMAL EXCEPTIONAL GRAPHS

3.1. Statistics for exceptional star complements of maximal exceptional graphs

The table gives the numbers of maximal exceptional graphs of each order, and the total number of maximal exceptional graphs, with a given star complement for -2

	number of maximal graphs of order								total		number of maximal graphs of order								total
	22	28	29	30	31	32	33	34	36 number		22	28	29	30	31	32	33	34	36 number
H001		1	1	1	6	3	1	1	14	H051		1	2	23	7	3	1	2	39
H002			1	23	6	3	1	2	36	H052		1	2	24	6	3	1	1	38
H003				22	7	3	1	2	35	H053		1	2	23	6	3	1	2	38
H004		1	2	22	6	3	1	1	36	H054		1	2	23	7	3	1	2	39
H005		1	2	23	6	3	1	1	37	H055		1	2	23	6	3	1	2	38
H006			2	23	6	3	1		35	H056		1	2	22	6	3	1	1	36
H007			2	22	6	3	1	1	35	H057		1	2	24	6	3	1	1	38
H008			2	23	6	3	1		35	H058		1	2	22	6	3	1	1	36
H009		1	1	1	6	3	1	1	14	H059			426	21	5	2	1		455
H010			424	23	6	3	1		457	H060		1	2	23	6	3	1	1	37
H011		1	2	24	6	3	1	1	38	H061		1	2	24	7	3	1	2	1 41
H012		1	2	23	6	3	1	2	38	H062		1	428	24	7	3	1	2	466
H013		1	2	24	7	3	1	2	40	H063		1	2	25	7	3	1	2	1 42
H014		1	2	23	7	3	1	2	39	H064		1	2	24	7	3	1	2	1 41
H015		1	2	22	6	3	1	1	36	H065		1	428	24	7	3	1	2	466
H016		1	2	23	6	3	1	2	38	H066			429	25	7	3	1	2	467
H017			2	24	6	3	1	1	37	H067		1	428	24	7	3	1	2	466
H018		1	2	23	6	3	1	1	37	H068		1	429	24	7	3	1	2	467
H019			2	23	7	3	1	2	38	H069		1	2	24	7	3	1	2	40
H020			2	24	6	3	1	1	37	H070		1	2	24	7	3	1	2	1 41
H021		1	2	23	6	3	1	2	38	H071				24	7	3	1	2	1 38
H022		1	2	22	7	3	1	2	38	H072		1	428	24	7	3	1	2	466
H023		1	1	1	6	3	1	1	14	H073		1	2	24	7	3	1	2	40
H024			2	23	6	3	1		35	H074		1	2	24	7	3	1	2	1 41
H025		1	2	22	6	3	1	1	36	H075		1	429	24	7	3	1	2	467
H026			425	23	7	3	1	2	461	H076		1	2	24	7	3	1	2	40
H027		1	2	24	7	3	1	2	40	H077			428	24	7	3	1	1	464
H028			428	23	6	3	1	1	462	H078		1	2	24	7	3	1	2	1 41
H029		1	2	24	7	3	1	2	40	H079		1	2	24	7	3	1	2	40
H030		1	2	24	7	3	1	2	40	H080			428	24	6	3	1	1	463
H031			425	23	7	3	1	2	461	H081		1	2	24	7	3	1	2	40
H032		1	2	23	7	3	1	2	39	H082		1	2	24	7	3	1	2	40
H033			429	24	7	3	1	1	465	H083		1	2	24	7	3	1	2	40
H034		1	2	24	7	3	1	2	40	H084		1	2	24	7	3	1	2	1 41
H035		1	2	24	7	3	1	2	40	H085		1	429	24	7	3	1	2	467
H036		1	2	23	6	3	1	2	38	H086			429	24	7	3	1	1	465
H037			426	24	7	3	1		461	H087			429	24	7	3	1	1	465
H038		1	2	22	7	3	1	2	38	H088		1	2	24	7	3	1	2	1 41
H039		1	2	24	7	3	1	2	40	H089		1	2	24	7	3	1	2	40
H040		1	2	22	7	3	1	2	38	H090		1	2	24	6	3	1	1	38
H041			428	24	6	3	1	1	463	H091		1	2	24	7	3	1	2	40
H042		1	2	24	7	3	1	2	40	H092		1	2	23	7	3	1	2	39
H043			428	24	6	3	1		462	H093		1	2	24	7	3	1	2	40
H044		1	2	23	6	3	1	1	37	H094	1	1	2	22	7	3	1	2	39
H045		1	2	24	7	3	1	2	40	H095		1	2	24	7	3	1	2	40
H046		1	2	23	7	3	1	2	39	H096		1	2	24	6	3	1	1	38
H047		1	2	23	7	3	1	2	39	H097	1	1	2	23	6	3	1	2	39
H048		1	2	24	7	3	1	2	40	H098		1	2	24	7	3	1	2	40
H049		1	2	24	7	3	1	2	40	H099			1	23	7	3	1	2	37
H050		1	2	24	7	3	1	2	40	H100			429	24	7	3	1	2	466

H101		1	2	24	7	3	1	2		40	H161		1	2	24	7	3	1	2		40
H102			2	24	6	3	1	1		37	H162		1	2	24	7	3	1	2		40
H103			429	24	7	3	1	1		465	H163	1	1	2	24	7	3	1	2		41
H104		1	2	24	7	3	1	2		40	H164		1	2	24	6	3	1	1		38
H105		1	2	23	7	3	1	2		39	H165	1	1	2	24	7	3	1	2		41
H106		1	2	24	6	3	1	1		38	H166			429	25	7	3	1	2		467
H107	1	1	2	23	6	3	1	2		39	H167			429	24	7	3	1	1		465
H108		1	429	25	7	3	1	2	1	469	H168	1	1	2	22	7	3	1	2		39
H109		1	429	25	7	3	1	2		468	H169		1	429	25	7	3	1	2	1	469
H110		1	2	25	7	3	1	2	1	42	H170		1	429	25	7	3	1	2	1	469
H111		1	429	25	7	3	1	2	1	469	H171		1	429	25	7	3	1	2	1	469
H112		1	429	25	7	3	1	2		468	H172		1	429	25	7	3	1	2	1	469
H113		1	429	25	7	3	1	2		468	H173		1	429	25	7	3	1	2	1	469
H114		1	2	24	7	3	1	2	1	41	H174		1	429	25	7	3	1	2	1	469
H115		1	2	24	7	3	1	2	1	41	H175		1	2	25	7	3	1	2	1	42
H116		1	429	25	7	3	1	2		468	H176		1	429	25	7	3	1	2	1	469
H117			425	24	7	3	1	2	1	463	H177		1	429	25	7	3	1	2	1	469
H118		1	2	24	7	3	1	2	1	41	H178		1	429	25	7	3	1	2	1	469
H119		1	429	25	7	3	1	2		468	H179		1	429	25	7	3	1	2	1	469
H120		1	2	24	7	3	1	2		40	H180		1	429	25	7	3	1	2	1	469
H121		1	2	24	7	3	1	2	1	41	H181		1	2	24	7	3	1	2	1	41
H122		1	2	25	7	3	1	2	1	42	H182		1	429	25	7	3	1	2		468
H123		1	428	24	7	3	1	2		466	H183		1	2	25	7	3	1	2	1	42
H124		1	2	25	7	3	1	2	1	42	H184		1	2	24	7	3	1	2	1	41
H125		1	429	25	7	3	1	2		468	H185		1	429	25	7	3	1	2	1	469
H126		1	2	24	7	3	1	2		40	H186		1	2	25	7	3	1	2	1	42
H127		1	2	24	7	3	1	2	1	41	H187		1	429	25	7	3	1	2		468
H128		1	429	24	7	3	1	2		467	H188		1	429	25	7	3	1	2		468
H129		1	2	24	7	3	1	2		40	H189		1	429	25	7	3	1	2	1	469
H130		1	429	25	7	3	1	2		468	H190			427	24	7	3	1			462
H131		1	2	24	7	3	1	2	1	41	H191		1	2	25	7	3	1	2	1	42
H132		1	429	24	7	3	1	2		467	H192		1	429	25	7	3	1	2		468
H133	1	1	2	24	7	3	1	2		41	H193			429	24	6	3	1			463
H134		1	2	24	7	3	1	2	1	41	H194		1	429	25	7	3	1	2		468
H135		1	2	24	7	3	1	2	1	41	H195		1	429	25	7	3	1	2		468
H136		1	429	24	7	3	1	2		467	H196		1	428	24	7	3	1	2		466
H137		1	429	25	7	3	1	2		468	H197		1	2	24	7	3	1	2		40
H138		1	2	24	7	3	1	2		40	H198		1	2	24	7	3	1	2	1	41
H139	1	1	2	24	7	3	1	2		41	H199		1	2	24	7	3	1	2	1	41
H140		1	2	24	7	3	1	2		40	H200		1	2	24	7	3	1	2		40
H141				24	7	3	1	2	1	38	H201		1	429	25	7	3	1	2		468
H142		1	2	24	7	3	1	2		40	H202		1	429	25	7	3	1	2	1	469
H143		1		25	7	3	1	2	1	40	H203	1	1	2	24	7	3	1	2		41
H144		1	2	25	7	3	1	2	1	42	H204		1	2	24	7	3	1	2	1	41
H145			429	24	7	3	1	1		465	H205		1	429	24	7	3	1	2		467
H146		1	2	25	7	3	1	2	1	42	H206		1	2	24	7	3	1	2		40
H147			429	25	7	3	1	2		467	H207	1	1	2	24	7	3	1	2		41
H148		1	2	24	7	3	1	2	1	41	H208	1	1	2	24	7	3	1	2		41
H149		1	2	25	7	3	1	2	1	42	H209		1	2	24	7	3	1	2	1	41
H150		1	2	24	7	3	1	2		40	H210		1	429	25	7	3	1	2		468
H151		1	2	24	7	3	1	2		40	H211	1	1	2	24	7	3	1	2		41
H152			429	24	7	3	1	1		465	H212		1	2	24	7	3	1	2	1	41
H153	1	1	2	24	7	3	1	2		41	H213	1	1	2	24	7	3	1	2		41
H154		1	2	24	6	3	1	1		38	H214	1	1	2	24	7	3	1	2		41
H155		1	2	24	7	3	1	2		40	H215		1	429	25	7	3	1	2	1	469
H156		1	2	24	7	3	1	2	1	41	H216			429	25	7	3	1	2		467
H157		1	2	24	7	3	1	2		40	H217		1	2	25	7	3	1	2	1	42
H158		1	429	24	7	3	1	2		467	H218		1	2	25	7	3	1	2	1	42
H159		1	2	24	7	3	1	2		40	H219		1	429	25	7	3	1	2	1	469
H160		1	2	24	7	3	1	2	1	41	H220		1	429	24	7	3	1	2		467

H221		1	429	25	7	3	1	2		468	H281		1	429	25	7	3	1	2		468
H222		1	429	25	7	3	1	2		468	H282		1	2	25	7	3	1	2	1	42
H223		1	429	24	7	3	1	2		467	H283		1	429	25	7	3	1	2		468
H224		1	2	25	7	3	1	2	1	42	H284	1	1	2	24	7	3	1	2		41
H225		1	2	24	7	3	1	2		40	H285	1	1	2	24	7	3	1	2		41
H226	1	1	2	24	7	3	1	2		41	H286			427	21	5	2	1			456
H227	1	1	2	24	7	3	1	2		41	H287		1	429	25	7	3	1	2		468
H228			1	23	7	3	1	2		37	H288	1	1	2	24	7	3	1	2		41
H229		1	429	25	7	3	1	2	1	469	H289		1	429	25	7	3	1	2	1	469
H230		1	429	25	7	3	1	2	1	469	H290		1	429	25	7	3	1	2	1	469
H231		1	429	25	7	3	1	2	1	469	H291		1	429	25	7	3	1	2	1	469
H232		1	429	25	7	3	1	2	1	469	H292		1	429	25	7	3	1	2	1	469
H233		1	429	25	7	3	1	2	1	469	H293		1	429	25	7	3	1	2	1	469
H234		1	429	25	7	3	1	2	1	469	H294		1	430	25	7	3	1	2	1	470
H235		1	429	25	7	3	1	2	1	469	H295		1	429	25	7	3	1	2	1	469
H236		1	429	25	7	3	1	2	1	469	H296		1	429	25	7	3	1	2	1	469
H237		1	429	25	7	3	1	2	1	469	H297		1	430	25	7	3	1	2		469
H238			426	24	7	3	1	2	1	464	H298		1	429	25	7	3	1	2	1	469
H239		1	429	25	7	3	1	2	1	469	H299		1	429	25	7	3	1	2	1	469
H240		1	429	25	7	3	1	2	1	469	H300		1	430	25	7	3	1	2	1	470
H241		1	2	25	7	3	1	2	1	42	H301		1	429	25	7	3	1	2	1	469
H242		1	429	25	7	3	1	2		468	H302	1	1	2	24	7	3	1	2	1	42
H243		1	429	25	7	3	1	2	1	469	H303		1	429	25	7	3	1	2	1	469
H244		1	2	25	7	3	1	2	1	42	H304	1	1	429	25	7	3	1	2	1	470
H245		1	429	25	7	3	1	2		468	H305	1	1	2	24	7	3	1	2		41
H246		1	430	24	7	3	1	2		468	H306		1	430	24	7	3	1	2		468
H247		1	2	24	7	3	1	2	1	41	H307		1	429	25	7	3	1	2	1	469
H248		1	2	25	7	3	1	2	1	42	H308		1	429	25	7	3	1	2	1	469
H249		1	429	25	7	3	1	2	1	469	H309		1	430	25	7	3	1	2		469
H250	1	1	2	24	7	3	1	2	1	42	H310	1	1	2	24	7	3	1	2	1	42
H251		1	2	24	7	3	1	2	1	41	H311		1		25	7	3	1	2	1	40
H252		1	429	25	7	3	1	2	1	469	H312		1	429	25	7	3	1	2	1	469
H253		1	430	24	7	3	1	2		468	H313		1	429	25	7	3	1	2	1	469
H254		1	429	25	7	3	1	2	1	469	H314		1	2	25	7	3	1	2	1	42
H255		1	2	24	7	3	1	2	1	41	H315		1	2	25	7	3	1	2	1	42
H256	1	1	2	24	7	3	1	2		41	H316		1	430	24	7	3	1	2		468
H257		1	429	25	7	3	1	2	1	469	H317		1	429	25	7	3	1	2	1	469
H258			430	24	7	3	1	1		466	H318		1	429	25	7	3	1	2	1	469
H259		1	429	25	7	3	1	2	1	469	H319		1	429	25	7	3	1	2	1	469
H260		1	429	25	7	3	1	2		468	H320		1	429	25	7	3	1	2	1	469
H261		1	2	25	7	3	1	2	1	42	H321	1	1	429	25	7	3	1	2	1	470
H262		1	2	25	7	3	1	2	1	42	H322	1	1	2	24	7	3	1	2	1	42
H263			429	24	6	3	1	1		464	H323		1	2	24	7	3	1	2	1	41
H264		1	429	25	7	3	1	2	1	469	H324		1	429	25	7	3	1	2		468
H265		1	2	25	7	3	1	2	1	42	H325		1	2	25	7	3	1	2	1	42
H266		1	429	25	7	3	1	2		468	H326			430	24	7	3	1	1		466
H267		1	429	25	7	3	1	2	1	469	H327	1	1	2	24	7	3	1	2	1	42
H268		1	429	25	7	3	1	2		468	H328	1	1	2	24	7	3	1	2		41
H269		1	2	25	7	3	1	2	1	42	H329		1	429	25	7	3	1	2	1	469
H270			430	24	7	3	1	1		466	H330		1	2	25	7	3	1	2	1	42
H271		1	429	25	7	3	1	2	1	469	H331		1	429	25	7	3	1	2		468
H272		1	2	24	7	3	1	2	1	41	H332	1	1	2	24	7	3	1	2		41
H273	1	1	2	24	7	3	1	2	1	42	H333		1	430	25	7	3	1	2	1	470
H274	1	1	2	24	7	3	1	2		41	H334		1	429	25	7	3	1	2	1	469
H275		1	429	25	7	3	1	2		468	H335		1	429	25	7	3	1	2	1	469
H276		1	429	25	7	3	1	2		468	H336		1	430	25	7	3	1	2	1	470
H277	1	1	2	24	7	3	1	2	1	42	H337		1	429	25	7	3	1	2	1	469
H278	1	1	2	24	7	3	1	2		41	H338		1	429	25	7	3	1	2	1	469
H279		1	429	25	7	3	1	2	1	469	H339		1	430	25	7	3	1	2	1	470
H280		1	429	25	7	3	1	2		468	H340		1	429	25	7	3	1	2	1	469

H341		1	430	25	7	3	1	2		469
H342		1	429	25	7	3	1	2	1	469
H343		1	430	25	7	3	1	2	1	470
H344		1	2	25	7	3	1	2	1	42
H345		1	429	25	7	3	1	2	1	469
H346		1	430	25	7	3	1	2	1	470
H347	1	1	429	25	7	3	1	2	1	470
H348		1	430	25	7	3	1	2	1	470
H349	1	1	2	24	7	3	1	2	1	42
H350		1	429	25	7	3	1	2	1	469
H351		1	430	25	7	3	1	2	1	470
H352		1	2	25	7	3	1	2	1	42
H353		1	429	25	7	3	1	2	1	469
H354		1	430	25	7	3	1	2		469
H355	1	1	429	25	7	3	1	2	1	470
H356		1	430	25	7	3	1	2		469
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H358	1	1	2	24	7	3	1	2	1	42
H359		1	429	25	7	3	1	2	1	469
H360		1	2	25	7	3	1	2	1	42
H361		1	430	25	7	3	1	2		469
H362		1	429	25	7	3	1	2	1	469
H363	1	1	429	25	7	3	1	2	1	470
H364		1	429	25	7	3	1	2	1	469
H365		1	430	25	7	3	1	2		469
H366	1	1	429	25	7	3	1	2	1	470
H367	1	1	2	24	7	3	1	2	1	42
H368		1	429	25	7	3	1	2		468
H369		1	431	25	7	3	1	2	1	471
H370		1	429	25	7	3	1	2	1	469
H371		1	430	25	7	3	1	2	1	470
H372		1	429	25	7	3	1	2	1	469
H373		1	430	25	7	3	1	2	1	470
H374		1	429	25	7	3	1	2	1	469
H375	1	1	429	25	7	3	1	2	1	470
H376	1	1	430	25	7	3	1	2	1	471
H377		1	430	25	7	3	1	2	1	470
H378		1	429	25	7	3	1	2	1	469
H379		1	430	25	7	3	1	2	1	470
H380	1	1	429	25	7	3	1	2	1	470
H381	1	1	429	25	7	3	1	2	1	470
H382		1	427	25	7	3	1	2	1	467
H383	1	1	2	24	7	3	1	2	1	42
H384	1	1	430	25	7	3	1	2	1	471
H385		1	430	25	7	3	1	2	1	470
H386		1	429	25	7	3	1	2	1	469
H387		1	422	25	7	3	1	2	1	462
H388	1	1	429	25	7	3	1	2	1	470
H389		1	2	25	7	3	1	2	1	42
H390	1	1	429	25	7	3	1	2	1	470
H391		1	430	25	7	3	1	2		469
H392		1	431	25	7	3	1	2	1	471
H393		1	431	25	7	3	1	2	1	471
H394		1	431	25	7	3	1	2	1	471
H395		1	431	25	7	3	1	2	1	471
H396	1	1	429	25	7	3	1	2	1	470
H397	1	1	2	24	7	3	1	2	1	42
H398		1	430	25	7	3	1	2	1	470
H399		1	431	25	7	3	1	2	1	471
H400		1	430	25	7	3	1	2	1	470

H401		1	430	25	7	3	1	2	1	470
H402	1	1	429	25	7	3	1	2	1	470
H403	1	1	430	25	7	3	1	2	1	471
H404		1	429	25	7	3	1	2	1	469
H405		1	431	25	7	3	1	2	1	471
H406	1	1	429	25	7	3	1	2	1	470
H407	1	1	429	25	7	3	1	2	1	470
H408	1	1	429	25	7	3	1	2	1	470
H409	1	1	430	25	7	3	1	2	1	471
H410		1	422	25	7	3	1	2	1	462
H411		1	430	25	7	3	1	2		469
H412		1	431	25	7	3	1	2	1	471
H413		1	431	25	7	3	1	2	1	471
H414		1	431	25	7	3	1	2	1	471
H415	1	1	430	25	7	3	1	2	1	471
H416		1	431	25	7	3	1	2	1	471
H417	1	1	429	25	7	3	1	2	1	470
H418	1	1	430	25	7	3	1	2	1	471
H419	1	1	426	25	7	3	1	2	1	467
H420	1	1	430	25	7	3	1	2	1	471
H421	1	1	418	25	7	3	1	2	1	459
H422		1	431	25	7	3	1	2	1	471
H423		1	431	25	7	3	1	2	1	471
H424	1	1	431	25	7	3	1	2	1	472
H425	1	1	431	25	7	3	1	2	1	472
H426		1	431	25	7	3	1	2	1	471
H427		1	431	25	7	3	1	2	1	471
H428	1	1	430	25	7	3	1	2	1	471
H429	1	1	430	25	7	3	1	2	1	471
H430		1	431	25	7	3	1	2	1	471
H431	1	1	431	25	7	3	1	2	1	472
H432		1	431	25	7	3	1	2	1	471
H433	1	1	431	25	7	3	1	2	1	472
H434	1	1	411	25	7	3	1	2	1	452
H435	1	1	431	25	7	3	1	2	1	472
H436	1	1	431	25	7	3	1	2	1	472
H437	1	1	431	25	7	3	1	2	1	472
H438		1	429	25	7	3	1	2	1	469
H439	1	1	431	25	7	3	1	2	1	472
H440	1	1	431	25	7	3	1	2	1	472
H441	1	1	426	25	7	3	1	2	1	467
H442	1	1	429	25	7	3	1	2	1	470
H443	1	1	426	25	7	3	1	2	1	467

3.2. Exceptional star complements and corresponding maximal exceptional graphs

The table gives the maximal exceptional graphs corresponding to a given exceptional star complement for -2. After the name of a star complement the number of corresponding maximal graphs is given. If the number of maximal graphs is less than 400 then they are given by suffices ijk of their names $Gijk$. Otherwise, the maximal graphs which do *not* appear are indicated.

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H001   14   002 425 455 460 461 462 463 464 465 467 468 469 470 472
H002   36   425 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 455
            456 457 458 460 461 462 463 464 465 467 468 469 470 471 472
H003   35   435 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 455 456 457
            458 460 461 462 463 464 465 466 467 468 469 470 471 472
H004   36   002 425 430 435 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453
            455 456 457 458 460 461 462 463 464 465 467 468 469 470 472
H005   37   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
            453 455 456 457 458 460 461 462 463 464 465 467 468 469 470 472
H006   35   425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453
            455 456 457 458 460 461 462 463 464 465 467 468 469 470
H007   35   425 430 435 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 455
            456 457 458 460 461 462 463 464 465 467 468 469 470 472
H008   35   425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453
            455 456 457 458 460 461 462 463 464 465 467 468 469 470
H009   14   002 425 455 460 461 462 463 464 465 467 468 469 470 472
H010  457   001 002 006 421 425 428 429 430 433 434 454 459 466 471 472 473

H011   38   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H012   38   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
            453 455 456 457 458 460 461 462 463 464 465 467 468 469 470 471 472
H013   40   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H014   39   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H015   36   002 425 430 435 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453
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H016   38   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
            453 455 456 457 458 460 461 462 463 464 465 467 468 469 470 471 472
H017   37   425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453
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H018   37   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H019   38   425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453
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H020   37   425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453
            454 455 456 457 458 460 461 462 463 464 465 467 468 469 470 472

H021   38   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H022   38   002 425 430 435 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453
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H023   14   002 425 455 460 461 462 463 464 465 467 468 469 470 472
H024   35   425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453
            455 456 457 458 460 461 462 463 464 465 467 468 469 470
H025   36   002 425 430 435 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453
            455 456 457 458 460 461 462 463 464 465 467 468 469 470 472
H026  461   001 002 006 421 428 429 430 433 434 454 459 473
H027   40   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H028  462   001 002 006 425 429 434 436 459 466 471 473
H029   40   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
            453 454 455 456 457 458 460 461 462 463 464 465 466 467 468 469 470 471 472
H030   40   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
            453 454 455 456 457 458 460 461 462 463 464 465 466 467 468 469 470 471 472
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H031  461   001 002 006 421 428 429 430 433 434 454 459 473
H032   39   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H033  465   001 002 006 429 434 459 471 473
H034   40   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
            453 454 455 456 457 458 460 461 462 463 464 465 466 467 468 469 470 471 472
H035   40   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H036   38   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H037  461   001 002 006 428 429 430 433 434 459 471 472 473
H038   38   002 425 430 435 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453
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H039   40   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H040   38   002 425 430 435 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453
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H041  463   001 002 006 425 429 434 459 466 471 473
H042   40   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H043  462   001 002 006 425 429 434 459 466 471 472 473
H044   37   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H045   40   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H046   39   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H047   39   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H048   40   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H049   40   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H050   40   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H051   39   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H052   38   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H053   38   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H054   39   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H057   38   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H058   36   002 425 430 435 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453
            455 456 457 458 460 461 462 463 464 465 467 468 469 470 472
H059  455   001 002 006 425 429 430 431 434 436 455 457 459 463 466 469 471 472 473
H060   37   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
            453 455 456 457 458 460 461 462 463 464 465 467 468 469 470 472

H061   41   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
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H062  466   001 006 421 429 434 459 473
H063   42   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
            453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473
H064   41   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
            453 454 455 456 457 458 460 461 462 463 464 465 466 467 468 469 470 471 472 473
H065  466   001 006 421 429 434 459 473
H066  467   001 002 006 429 434 473
H067  466   001 006 421 429 434 459 473
H068  467   001 006 429 434 459 473
H069   40   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
            453 454 455 456 457 458 460 461 462 463 464 465 466 467 468 469 470 471 472
H070   41   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
            453 454 455 456 457 458 460 461 462 463 464 465 466 467 468 469 470 471 472 473
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H329  469   001 006 429 434
H330   42   002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452
            453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473
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H332   41   001 002 425 430 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451
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H333  470   001 429 434
H334  469   001 006 429 434
H335  469   001 006 429 434
H336  470   001 429 434
H337  469   001 006 429 434
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H340  469   001 006 429 434

H341  469   001 429 434 473
H342  469   001 006 429 434
H343  470   001 429 434
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H346  470   001 429 434
H347  470   006 429 434
H348  470   001 429 434
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            452 453 454 455 456 457 458 460 461 462 463 464 465 466 467 468 469 470 471 472 473
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            453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473

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H363  470   006 429 434
H364  469   001 006 429 434
H365  469   001 006 434 473
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            452 453 454 455 456 457 458 460 461 462 463 464 465 466 467 468 469 470 471 472 473
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H369  471   001 006
H370  469   001 006 429 434

H371  470   001 429 434
H372  469   001 006 429 434
H373  470   001 429 434
H374  469   001 006 429 434
H375  470   006 429 434
H376  471   429 434
H377  470   001 429 434
H378  469   001 006 429 434
H379  470   001 429 434
H380  470   006 429 434
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H385  470   001 006 434
H386  469   001 006 429 434
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H390  470   006 429 434

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H392  471   001 006
H393  471   001 006
H394  471   001 006
H395  471   001 006
H396  470   006 429 434
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            452 453 454 455 456 457 458 460 461 462 463 464 465 466 467 468 469 470 471 472 473
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H420  471   006 434

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H432  471   001 429
H433  472   006
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118 205 311 429 434
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Table 4

MAXIMAL EXCEPTIONAL GRAPHS OF TYPE (a)

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5.	G007	5	14 23 56 67 78
6.	G008	7	12 13 24 35 46 57 68
7.	G009	7	15 23 24 34 56 67 78
8.	G010	7	14 15 23 25 34 67 78
9.	G011	9	12 13 18 24 35 46 57 68 78
10.	G012	3	14 23 56
11.	G013	1	23
12.	G014	7	14 16 23 25 34 56 78
13.	G015	5	14 23 48 56 67
14.	G016	9	12 13 17 24 35 46 58 68 78
15.	G017	7	15 16 23 24 34 56 78
16.	G018	6	14 23 37 45 56 78
17.	G019	10	12 13 16 24 35 37 47 48 58 68
18.	G020	6	16 23 25 34 45 78
19.	G021	8	12 13 18 24 35 46 57 68
20.	G022	6	14 23 45 56 67 78
21.	G023	6	14 23 38 45 56 67
22.	G024	6	15 23 24 34 67 78
23.	G025	8	12 13 24 35 46 57 58 68
24.	G026	4	14 23 56 67
25.	G027	2	14 23
26.	G028	5	15 23 24 34 67
27.	G029	7	14 17 23 25 34 56 67
28.	G030	9	12 13 16 24 35 48 58 67 68
29.	G031	7	12 13 17 24 35 46 78
30.	G032	5	14 23 45 56 67
31.	G033	7	15 23 24 34 47 56 78
32.	G034	3	14 23 45
33.	G035	7	12 13 24 28 35 46 57
34.	G036	7	12 13 18 24 35 46 57
35.	G037	7	16 23 25 34 45 58 67
36.	G038	5	14 23 37 45 56
37.	G039	9	12 13 17 24 35 46 48 58 78
38.	G040	7	16 23 25 34 45 57 78
39.	G041	7	15 23 24 34 56 67 68
40.	G042	7	12 13 24 35 46 48 57
41.	G043	7	14 15 23 25 34 58 67
42.	G044	5	14 23 56 67 68
43.	G045	6	14 23 25 34 56 67
44.	G046	6	16 23 25 34 45 67
45.	G047	6	15 23 24 34 56 67
46.	G048	8	12 13 17 24 35 38 46 58
47.	G049	8	12 13 17 24 35 38 46 78
48.	G050	8	12 13 17 24 28 35 46 58
49.	G051	8	12 13 17 24 35 38 46 68
50.	G052	6	14 23 45 56 58 67
51.	G053	4	14 23 45 56
52.	G054	8	12 13 18 24 35 37 46 68
53.	G055	6	14 15 23 25 34 67
54.	G056	2	23 34
55.	G057	8	12 13 24 35 46 48 57 58
56.	G058	6	14 23 37 45 56 58
57.	G059	8	12 13 18 24 35 46 48 57
58.	G060	6	14 23 45 56 67 68
59.	G061	8	12 13 24 35 37 46 48 58
60.	G062	4	14 23 36 45
61.	G063	8	17 23 25 34 36 45 56 78
62.	G064	8	14 15 23 25 34 46 56 78
63.	G065	6	14 23 37 38 45 56
64.	G066	7	12 13 17 24 28 35 46
65.	G067	9	12 13 16 24 35 38 48 67 68
66.	G068	3	14 23 34
67.	G069	5	16 23 25 34 45
68.	G070	7	12 13 16 24 28 35 67
69.	G071	7	14 16 23 25 34 45 67
70.	G072	7	14 15 23 25 34 56 67
71.	G073	7	14 15 23 26 34 45 67
72.	G074	7	12 13 17 24 35 38 46
73.	G075	9	12 13 17 24 35 38 46 48 78
74.	G076	7	16 23 25 34 45 48 57
75.	G077	5	14 23 25 34 56
76.	G078	5	14 23 45 56 57
77.	G079	9	12 13 18 24 35 46 48 57 58
78.	G080	7	14 16 23 25 34 56 67
79.	G081	7	15 23 24 34 46 67 68
80.	G082	5	15 23 24 34 56
81.	G083	7	12 13 17 24 35 46 48
82.	G084	7	16 23 25 34 38 45 57
83.	G085	7	12 13 24 35 37 46 48
84.	G086	9	14 15 23 25 26 34 36 45 78
85.	G087	5	14 23 36 45 47
86.	G088	9	14 15 16 23 25 34 36 45 78
87.	G089	6	14 23 25 34 36 67
88.	G090	6	15 23 24 34 46 67
89.	G091	8	14 15 23 25 27 34 56 67
90.	G092	8	14 16 23 25 34 56 57 67
91.	G093	4	15 23 24 34
92.	G094	6	14 16 23 25 34 56
93.	G095	6	14 23 45 48 56 57
94.	G096	10	12 13 17 24 27 35 38 46 48 78
95.	G097	6	15 16 23 24 34 56
96.	G098	8	12 13 16 24 27 35 38 48
97.	G099	8	12 13 16 24 28 35 38 67
98.	G100	6	14 23 25 34 37 56
99.	G101	4	14 23 25 34
100.	G102	6	16 23 25 34 45 57

101.	G103	8	14 16 23 25 34 37 56 67
102.	G104	6	15 23 24 34 47 56
103.	G105	8	12 13 16 24 27 35 38 58
104.	G106	8	12 13 16 24 27 35 38 68
105.	G107	8	14 16 23 25 34 47 56 67
106.	G108	8	12 13 17 24 35 38 46 48
107.	G109	8	12 13 18 24 35 37 46 48
108.	G110	6	14 23 25 34 56 57
109.	G111	8	14 15 23 25 34 38 45 67
110.	G112	8	12 13 17 18 24 35 46 68
111.	G113	4	14 23 45 46
112.	G114	8	12 13 24 35 37 38 46 68
113.	G115	6	15 23 24 34 56 57
114.	G116	10	14 15 16 23 25 26 34 36 45 78
115.	G117	6	14 23 36 38 45 47
116.	G118	3	23 24 34
117.	G119	7	15 23 24 28 34 37 46
118.	G120	7	14 15 23 34 45 56 67
119.	G121	9	14 15 17 23 25 34 46 56 67
120.	G122	9	14 15 23 25 26 34 37 56 67
121.	G123	5	15 23 24 34 46
122.	G124	7	14 16 23 25 34 45 57
123.	G125	7	14 15 23 26 34 37 45
124.	G126	7	14 15 23 26 34 45 57
125.	G127	5	14 23 25 34 36
126.	G128	7	14 15 23 25 34 45 67
127.	G129	9	14 15 23 25 34 37 46 56 67
128.	G130	7	12 13 16 18 24 35 67
129.	G131	9	14 15 23 25 26 34 47 56 67
130.	G132	7	14 15 23 25 27 34 56
131.	G133	9	12 13 16 24 28 35 38 67 68
132.	G134	7	14 16 17 23 25 34 45
133.	G135	3	23 34 35
134.	G136	5	14 15 23 25 34
135.	G137	7	12 13 16 24 27 35 38
136.	G138	7	14 16 23 25 27 34 45
137.	G139	9	12 13 16 17 24 35 38 48 68
138.	G140	5	14 23 25 34 46
139.	G141	7	17 23 25 34 36 45 56
140.	G142	7	14 15 23 25 34 47 56
141.	G143	7	14 15 23 26 27 34 45
142.	G144	9	12 13 15 17 24 26 38 48 58
143.	G145	7	12 13 17 18 24 35 46
144.	G146	7	16 23 25 34 45 57 58
145.	G147	9	12 13 24 26 27 35 38 48 68
146.	G148	7	12 13 24 35 37 38 46
147.	G149	7	15 23 24 34 56 57 58
148.	G150	8	14 15 23 25 26 34 56 67
149.	G151	6	15 23 24 34 37 46
150.	G152	8	14 15 16 23 25 34 45 67
151.	G153	8	12 13 16 18 24 27 35 68
152.	G154	6	14 16 23 25 34 45
153.	G155	6	14 15 23 26 34 45
154.	G156	8	14 15 23 25 34 46 56 67
155.	G157	6	14 23 25 34 37 46
156.	G158	8	14 15 23 25 26 34 37 56
157.	G159	8	14 17 23 25 34 36 45 56
158.	G160	8	14 16 23 25 34 45 56 67
159.	G161	4	14 23 34 45
160.	G162	8	12 13 16 24 27 35 37 78
161.	G163	4	23 25 34 45
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164.	G166	6	14 15 23 25 34 56
165.	G167	8	12 13 16 24 27 28 35 58
166.	G168	8	14 15 23 25 34 37 46 56
167.	G169	8	12 13 16 17 24 28 35 48
168.	G170	8	14 15 23 25 26 34 47 56
169.	G171	6	14 23 45 56 57 58
170.	G172	8	12 13 17 18 24 35 46 48
171.	G173	6	14 23 25 27 34 46
172.	G174	8	17 23 25 34 36 45 56 58
173.	G175	8	12 13 24 35 37 38 46 48
174.	G176	6	14 23 36 45 47 48
175.	G177	7	14 15 23 34 45 46 67
176.	G178	7	14 15 17 23 34 45 56
177.	G179	9	14 15 16 23 25 34 45 57 67
178.	G180	7	16 23 24 34 35 45 57
179.	G181	7	17 23 24 34 45 46 56
180.	G182	9	14 16 23 25 34 45 56 57 67
181.	G183	5	14 15 23 34 45
182.	G184	7	14 15 23 25 26 34 56
183.	G185	9	14 15 16 23 25 34 36 45 67
184.	G186	7	12 13 16 18 24 27 35
185.	G187	7	15 23 24 34 37 46 48
186.	G188	7	14 16 23 25 34 45 56
187.	G189	7	14 15 23 26 34 36 45
188.	G190	5	14 23 34 36 45
189.	G191	5	14 23 25 34 45
190.	G192	7	14 23 25 34 37 45 56
191.	G193	7	14 16 23 25 34 45 47
192.	G194	7	14 15 23 34 37 45 56
193.	G195	9	14 15 23 25 34 46 56 57 67
194.	G196	9	12 13 16 24 27 28 35 38 68
195.	G197	9	14 15 23 25 27 34 46 56 57
196.	G198	7	14 15 23 25 34 46 56
197.	G199	7	12 13 16 24 27 28 35
198.	G200	7	14 15 23 25 34 56 57
199.	G201	9	14 15 23 25 34 37 46 56 57
200.	G202	5	14 23 45 46 47
201.	G203	9	12 13 24 35 37 38 46 47 48
202.	G204	7	12 13 24 26 28 35 37
203.	G205	9	18 23 25 34 36 37 45 56 57
204.	G206	8	12 13 16 18 24 26 35 67
205.	G207	10	14 15 17 23 25 26 34 45 56 67
206.	G208	4	23 24 34 45
207.	G209	6	16 23 24 34 35 45
208.	G210	8	14 16 23 25 34 45 46 57
209.	G211	8	14 15 23 25 34 45 56 67
210.	G212	8	14 16 23 25 27 34 35 45
211.	G213	6	14 15 23 34 45 56
212.	G214	8	12 13 16 24 26 28 35 67
213.	G215	8	14 23 25 34 36 45 56 67
214.	G216	8	14 15 23 25 27 34 36 45
215.	G217	6	14 23 25 34 45 56
216.	G218	6	14 15 23 34 36 45
217.	G219	8	14 16 23 25 34 45 56 57
218.	G220	8	14 15 17 23 25 34 36 45
219.	G221	8	17 23 24 26 34 35 45 56
220.	G222	6	14 23 25 34 36 37

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223.	G225	8	12 13 16 24 27 28 35 38
224.	G226	6	14 23 25 26 34 45
225.	G227	8	14 16 23 25 27 34 45 46
226.	G228	8	14 17 23 25 26 34 45 46
227.	G229	8	14 15 23 25 34 46 56 57
228.	G230	6	14 23 25 34 46 47
229.	G231	10	18 23 24 26 27 34 35 45 56 57
230.	G232	9	14 15 16 23 25 34 45 56 67
231.	G233	5	14 23 34 35 45
232.	G234	9	12 13 15 17 24 25 28 48 56
233.	G235	7	14 15 23 34 45 47 56
234.	G236	9	14 15 23 25 26 34 45 56 67
235.	G237	7	14 16 23 25 34 35 45
236.	G238	9	14 17 23 25 34 36 45 46 56
237.	G239	7	14 15 23 34 36 45 47
238.	G240	9	14 15 16 23 25 34 36 45 47
239.	G241	7	14 15 16 23 25 34 45
240.	G242	7	14 16 23 25 34 45 46
241.	G243	9	14 15 23 25 34 36 45 56 67
242.	G244	9	14 15 17 23 25 34 36 45 56
243.	G245	7	14 15 23 34 45 56 57
244.	G246	7	14 23 25 34 36 45 56
245.	G247	7	14 15 23 25 34 36 45
246.	G248	7	14 23 25 34 45 56 57
247.	G249	9	14 15 16 23 25 34 36 45 57
248.	G250	5	14 23 34 45 46
249.	G251	7	14 15 23 34 36 37 45
250.	G252	9	14 15 16 23 25 34 36 37 45
251.	G253	9	12 13 16 24 27 28 35 37 38
252.	G254	7	14 23 25 26 34 45 47
253.	G255	9	14 15 23 25 34 46 47 56 57
254.	G256	9	12 13 15 16 17 24 38 48 58
255.	G257	6	14 23 34 35 45 56
256.	G258	8	14 15 23 34 45 46 56 67
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258.	G260	10	14 17 23 25 34 36 45 46 56 67
259.	G261	8	14 15 16 23 25 34 45 57
260.	G262	6	14 15 23 34 45 46
261.	G263	8	14 16 23 25 34 35 45 47
262.	G264	8	14 15 23 34 36 45 46 57
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265.	G267	6	14 15 23 25 34 45
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269.	G271	8	14 16 23 25 34 36 45 56
270.	G272	8	14 15 23 25 26 34 36 45
271.	G273	6	14 23 34 36 45 47
272.	G274	8	14 15 16 23 25 34 36 45
273.	G275	8	14 23 25 34 36 45 47 56
274.	G276	4	23 34 35 36
275.	G277	6	23 25 34 36 45 56
276.	G278	8	14 23 25 34 36 45 56 57
277.	G279	6	14 23 25 34 45 46
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281.	G283	8	12 13 16 17 18 24 35 48
282.	G284	8	12 13 24 26 27 28 35 58
283.	G285	8	12 13 24 26 28 35 37 38
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286.	G288	5	23 24 34 35 45
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288.	G290	7	14 15 23 34 45 46 56
289.	G291	7	14 23 34 35 45 56 57
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322.	G324	8	14 15 23 25 26 34 45 56
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333.	G335	8	12 13 24 26 27 28 35 38
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367. G369 7 23 24 34 45 46 47 56
368. G370 9 12 13 15 17 18 24 25 28 56
369. G371 7 14 23 34 35 36 45 46
370. G372 9 14 16 23 25 34 35 36 45 56

371. G373 9 14 16 23 25 34 35 45 46 56
372. G374 11 14 15 23 25 34 36 45 46 56 57 67
373. G375 9 14 23 25 34 36 45 46 47 56
374. G376 9 14 15 23 25 34 36 45 46 56
375. G377 7 14 23 34 35 45 46 47
376. G378 5 23 34 35 36 37
377. G379 9 14 23 25 26 34 35 45 46 47
378. G380 9 23 24 26 27 34 35 45 56 57
379. G381 9 14 23 25 26 27 34 45 46 47
380. G382 10 14 23 25 34 35 45 46 56 57 67

381. G383 8 14 23 25 34 35 36 45 56
382. G384 8 14 23 25 34 35 45 56 57
383. G385 8 14 23 25 34 35 45 46 56
384. G386 10 14 23 25 26 34 35 45 46 56 67
385. G387 6 23 24 34 45 46 47
386. G388 10 14 15 16 23 25 26 34 36 45 56
387. G389 8 12 13 15 17 18 24 26 28
388. G390 10 14 23 25 26 27 34 35 45 46 56
389. G391 8 14 23 25 34 35 45 46 47
390. G392 10 23 24 26 27 34 35 45 56 57 67

391. G393 10 14 23 25 26 27 34 35 45 46 47
392. G394 10 12 13 24 26 27 28 35 36 37 38
393. G395 7 23 24 34 35 36 45 46
394. G396 9 23 24 34 35 45 46 47 56 67
395. G397 7 23 24 34 35 45 46 47
396. G398 9 14 23 25 34 35 45 46 56 57
397. G399 9 14 16 23 26 34 35 36 45 46
398. G400 9 14 23 25 34 35 45 46 47 56
399. G401 9 14 23 25 26 34 35 45 46 56
400. G402 9 12 13 15 16 17 18 24 38 48

401. G403 9 12 13 14 15 16 17 28 38 48
402. G404 8 23 24 34 35 45 46 47 56
403. G405 10 23 24 27 34 35 45 46 47 56 67
404. G406 10 14 23 25 26 34 35 45 46 56 57
405. G407 8 14 23 34 35 36 45 46 47
406. G408 8 23 24 26 34 35 45 46 56
407. G409 10 14 15 23 25 26 34 36 45 46 56
408. G410 8 12 13 15 16 17 18 24 38
409. G411 10 23 24 26 34 35 37 45 46 56 67
410. G412 8 12 13 15 16 17 18 24 48

411. G413 10 23 25 34 36 37 38 45 56 57 58
412. G414 9 23 24 34 35 45 46 47 56 57
413. G415 9 23 24 26 34 35 45 46 47 56
414. G416 9 12 13 15 17 18 24 26 27 28
415. G417 9 12 13 15 16 17 18 24 28 38
416. G418 11 23 24 26 34 35 37 45 46 56 57 67
417. G419 9 12 13 15 16 17 18 24 28 48
418. G420 7 12 13 15 16 17 18 24
419. G421 11 12 13 14 15 16 17 28 38 48 58 68
420. G422 8 23 24 34 35 36 45 46 47

421. G423 10 23 24 26 34 35 45 46 47 56 67
422. G424 8 12 13 15 16 17 18 24 28
423. G426 9 14 23 34 35 36 37 45 46 47
424. G427 9 12 13 15 16 17 18 24 27 28
425. G429 12 23 24 26 27 34 35 37 45 46 56 57 67
426. G430 12 12 13 14 15 16 17 28 38 48 58 68 78
427. G431 9 23 24 34 35 36 37 45 46 47
428. G432 10 12 13 15 16 17 18 24 26 27 28
429. G433 11 12 13 15 16 17 18 24 25 26 27 28
430. G434 13 12 13 14 15 16 17 18 28 38 48 58 68 78

Table 5

THE MAXIMAL EXCEPTIONAL GRAPHS OF TYPE (b)

5.1. The 280 graphs with 8 vertices and at most 14 edges which have dissections

```
 1.   6  23 34 35 36 37 38
      1  13  G454

 2.   6  23 24 25 34 35 45
      1  1678  G436

 3.   7  12 13 14 15 16 17 18
      7  21 31 41 51 61 71 81  G473

 4.   7  23 24 34 45 46 47 48
      1  14  G450

 5.   7  23 24 25 34 35 45 56
      1  1678  G438

 6.   8  12 13 14 15 16 17 18 28
      5  31 41 51 61 71  G472

 7.   8  23 24 34 45 46 47 48 56
      1  14  G447

 8.   8  23 24 34 35 45 46 47 48
      1  14  G453

 9.   8  14 23 34 35 36 45 46 56
      1  1278  G441

10.   8  23 24 25 34 35 45 56 57
      1  1678  G444

11.   8  23 24 25 34 35 45 46 56
      1  1678  G444

12.   9  12 13 14 15 16 17 18 27 38
      3  41 51 61  G467

13.   9  12 13 14 15 16 17 18 28 38
      4  41 51 61 71  G470

14.   9  23 24 34 45 46 47 48 56 78
      1  14  G439

15.   9  23 24 34 45 46 47 48 56 67
      1  14  G443

16.   9  23 24 34 35 45 46 47 48 56
      1  14  G449

17.   9  23 24 34 35 36 45 46 47 48
      1  14  G456

18.   9  14 23 34 35 36 45 46 56 67
      1  1278  G437

19.   9  14 23 34 35 36 45 46 47 56
      1  1278  G443

20.   9  23 24 25 34 35 45 56 57 58
      2  15 1678  G462

21.   9  14 23 25 34 35 36 45 46 56
      1  1278  G443

22.   9  23 24 25 34 35 45 46 56 57
      1  1678  G448

23.   9  23 24 25 34 35 36 45 46 56
      2  1278 1678  G462

24.  10  12 13 14 15 16 17 18 26 37 48
      1  51  G452

25.  10  12 13 14 15 16 17 18 27 38 48
      2  51 61  G464

26.  10  12 13 14 15 16 17 18 27 28 38
      3  41 51 61  G468

27.  10  12 13 14 15 16 17 18 28 38 48
      3  51 61 71  G469

28.  10  23 24 34 38 45 46 47 48 56 67
      1  14  G441

29.  10  23 24 34 45 46 47 48 56 67 78
      1  14  G440

30.  10  12 13 15 17 24 25 27 56 57 78
      1  3468  G435

31.  10  12 13 15 17 18 24 25 28 56 58
      1  3467  G440

32.  10  23 24 34 45 46 47 48 56 67 68
      1  14  G446

33.  10  23 24 34 35 45 46 47 48 56 67
      1  14  G445

34.  10  12 13 15 17 18 24 26 27 28 78
      1  3456  G446

35.  10  12 13 15 16 17 18 24 27 28 78
      1  3456  G453

36.  10  23 24 34 35 45 46 47 48 56 57
      1  14  G451

37.  10  12 13 14 15 16 17 18 27 28 78
      5  31 41 51 61 3456  G471

38.  10  23 24 26 34 35 45 46 47 48 56
      1  14  G452

39.  10  23 24 34 35 36 37 45 46 47 48
      1  14  G458

40.  10  23 24 25 34 35 45 56 57 58 67
      1  15  G444
```

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41.  10  14 23 25 34 35 36 45 46 56 67
      1  1278  G440

42.  10  14 23 25 34 35 36 45 46 47 56
      1  1278  G447

43.  10  14 23 25 34 35 36 45 46 56 57
      1  1278  G445

44.  10  14 23 34 35 36 37 45 46 47 56
      1  1278  G451

45.  10  23 24 25 34 35 45 46 56 57 58
      2  15 1678  G464

46.  10  14 16 23 25 34 35 36 45 46 56
      1  1278  G446

47.  10  23 24 25 34 35 37 45 46 56 57
      1  1678  G451

48.  10  23 24 25 34 35 45 46 47 56 57
      1  1678  G457

49.  10  14 23 25 26 34 35 36 45 46 56
      1  1278  G453

50.  10  23 24 25 34 35 36 45 46 56 57
      2  1278 1678  G464

51.  10  23 24 25 26 34 35 36 45 46 56
      5  1278 1378 1478 1578 1678  G471

52.  11  12 13 14 15 16 17 18 27 37 48 58
      1  61  G448

53.  11  12 13 14 15 16 17 18 26 28 37 48
      1  51  G449

54.  11  12 13 14 15 16 17 18 27 38 48 58
      1  61  G456

55.  11  12 13 14 15 16 17 18 26 28 37 38
      2  41 51  G461

56.  11  12 13 14 15 16 17 18 27 28 38 48
      2  51 61  G465

57.  11  12 13 14 15 16 17 18 27 28 37 38
      3  41 51 61  G467

58.  11  12 13 14 15 16 17 18 28 38 48 58
      2  61 71  G466

59.  11  23 24 34 35 45 46 47 48 56 67 78
      1  14  G437

60.  11  12 13 14 15 16 17 18 26 28 37 68
      2  41 51  G462

61.  11  23 24 26 34 35 45 46 47 48 56 78
      1  14  G439

62.  11  12 13 15 17 18 24 25 28 48 56 58
      1  3467  G439

63.  11  12 13 15 17 18 24 25 28 38 56 58
      1  3467  G437

64.  11  23 24 34 35 45 46 47 48 56 67 68
      1  14  G443

65.  11  12 13 15 17 18 24 26 27 28 38 78
      1  3456  G443

66.  11  23 24 34 35 45 46 47 48 56 58 67
      1  14  G442

67.  11  12 13 15 17 18 24 25 27 28 56 58
      1  3467  G442

68.  11  23 24 27 34 35 45 46 47 48 56 67
      1  14  G442

69.  11  12 13 15 16 17 18 24 27 28 48 78
      1  3456  G450

70.  11  12 13 15 16 17 18 24 27 28 38 78
      1  3456  G449

71.  11  12 13 15 16 17 18 24 26 27 28 68
      1  3457  G456

72.  11  23 24 34 35 38 45 46 47 48 56 57
      1  14  G448

73.  11  12 13 14 15 16 17 18 27 28 38 78
      4  41 51 61 3456  G470

74.  11  23 24 26 34 35 45 46 47 48 56 67
      1  14  G449

75.  11  23 24 34 35 45 46 47 48 56 57 58
      1  14  G456

76.  11  23 24 34 35 36 37 38 45 46 47 48
      2  13 14  G466

77.  11  23 24 25 34 35 45 56 57 58 67 78
      1  15  G438

78.  11  23 24 25 34 35 45 48 56 57 58 67
      1  15  G443

79.  11  23 24 25 34 35 45 46 56 57 58 67
      1  15  G448

80.  11  14 16 23 25 34 35 36 45 46 56 67
      1  1278  G443

81.  11  14 23 25 34 35 36 45 46 56 57 67
      1  1278  G442

82.  11  14 23 25 34 35 36 45 46 47 56 57
      1  1278  G449

83.  11  23 24 25 34 35 37 45 46 56 57 58
      2  15 1678  G461

84.  11  14 23 25 34 35 36 37 45 46 56 57
      1  1278  G448

85.  11  23 24 25 34 35 45 46 47 56 57 58
      2  15 1678  G465

86.  11  14 23 25 26 34 35 36 45 46 47 56
      1  1278  G450

87.  11  14 23 25 26 34 35 36 45 46 56 67
      1  1278  G449

88.  11  14 23 34 35 36 37 45 46 47 56 67
      2  1258 1278  G461

89.  11  23 24 25 34 35 36 45 46 56 57 58
      3  15 1278 1678  G467

90.  11  23 24 25 34 35 36 45 46 56 57 67
      1  1278  G456
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 91.  11  23 24 25 34 35 36 45 46 47 56 57
       2  1278 1678  G465

 92.  11  23 24 25 26 34 35 36 45 46 56 67
       4  1278 1378 1478 1578  G470

 93.  12  12 13 14 15 16 17 18 26 28 37 38 47
       1  51  G445

 94.  12  12 13 14 15 16 17 18 26 37 38 47 48
       1  51  G447

 95.  12  12 13 14 15 16 17 18 27 28 37 48 58
       1  61  G451

 96.  12  12 13 14 15 16 17 18 26 28 37 38 48
       1  51  G451

 97.  12  12 13 14 15 16 17 18 26 27 37 38 68
       2  41 51  G460

 98.  12  12 13 14 15 16 17 18 27 37 48 58 78
       1  61  G457

 99.  12  12 13 14 15 16 17 18 27 28 37 38 48
       2  51 61  G464

100.  12  12 13 14 15 16 17 18 27 28 38 48 58
       1  61  G458

101.  12  12 13 14 15 16 17 18 28 38 48 58 68
       1  71  G459

102.  12  12 13 14 15 16 17 18 26 28 37 47 68
       1  51  G444

103.  12  23 24 28 34 35 45 46 47 48 56 67 78
       1  14  G435

104.  12  12 13 14 15 16 17 18 26 28 37 48 68
       1  51  G453

105.  12  12 13 15 17 18 24 26 27 28 37 48 78
       1  3456  G441

106.  12  12 13 15 17 18 24 25 27 28 56 58 68
       1  3467  G440

107.  12  12 13 15 17 18 24 25 28 48 56 58 68
       1  3467  G440

108.  12  23 24 27 34 35 45 46 47 48 56 67 78
       1  14  G440

109.  12  12 13 15 17 18 24 25 28 38 48 56 58
       1  3467  G440

110.  12  12 13 15 16 17 18 24 27 28 37 48 78
       1  3456  G447

111.  12  12 13 14 15 16 17 18 26 28 37 38 68
       2  41 51  G464

112.  12  12 13 15 17 18 24 26 27 28 38 48 78
       1  3456  G445

113.  12  12 13 15 16 17 18 24 27 28 37 58 78
       1  3456  G445

114.  12  23 24 26 34 35 45 46 47 48 56 67 78
       1  14  G440

115.  12  12 13 15 17 18 24 25 28 38 56 58 78
       1  3467  G441

116.  12  12 13 15 16 17 18 24 27 28 38 48 78
       1  3456  G453

117.  12  12 13 15 16 17 18 24 26 27 28 38 68
       1  3457  G451

118.  12  12 13 15 17 18 24 26 27 28 38 58 78
       1  3456  G444

119.  12  12 13 15 16 17 18 24 27 28 38 58 78
       1  3456  G451

120.  12  12 13 14 15 16 17 18 27 28 37 48 78
       3  51 61 3456  G468

121.  12  23 24 26 34 35 38 45 46 47 48 56 67
       1  14  G447

122.  12  23 24 26 34 35 45 46 47 48 56 58 67
       1  14  G445

123.  12  12 13 15 16 17 18 24 25 26 27 28 58
       1  3467  G458

124.  12  12 13 14 15 16 17 18 27 28 38 48 78
       3  51 61 3456  G469

125.  12  23 24 26 34 35 45 46 47 48 56 67 68
       1  14  G453

126.  12  23 24 26 34 35 37 45 46 47 48 56 67
       1  14  G453

127.  12  23 24 25 34 35 45 46 56 57 58 67 78
       1  15  G441

128.  12  23 24 25 34 35 45 46 56 57 58 67 68
       1  15  G444

129.  12  23 24 25 34 35 38 45 46 56 57 58 67
       1  15  G445

130.  12  12 13 15 17 18 24 26 27 28 37 38 78
       1  3456  G447

131.  12  14 16 23 25 34 35 36 45 46 56 57 67
       1  1278  G445

132.  12  12 13 15 17 18 24 25 27 28 56 58 78
       1  3467  G445

133.  12  12 13 15 16 17 18 24 27 28 47 48 78
       1  3456  G454

134.  12  23 24 25 34 35 45 46 48 56 57 58 67
       1  15  G451

135.  12  12 13 15 16 17 18 24 27 28 37 38 78
       1  3456  G452

136.  12  23 24 25 28 34 35 37 45 46 56 57 58
       2  15 1678  G460

137.  12  14 16 23 26 34 35 36 37 45 46 47 67
       1  1258  G452

138.  12  12 13 15 17 18 24 25 27 28 56 57 58
       2  3467 3468  G460

139.  12  14 16 23 25 34 35 36 45 46 47 56 67
       1  1278  G444

140.  12  12 13 15 16 17 18 24 26 27 28 68 78
       2  3456 3457  G464
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141.  12  23 24 26 34 35 45 46 47 48 56 57 67
       1  14  G451

142.  12  12 13 14 15 16 17 18 27 28 37 38 78
       5  41 51 61 2456 3456  G472

143.  12  23 24 25 34 35 37 45 46 48 56 57 58
       2  15 1678  G464

144.  12  23 24 25 34 35 45 46 47 48 56 57 58
       3  14 15 1678  G469

145.  12  23 24 25 34 35 45 56 57 58 67 68 78
       1  15  G436

146.  12  23 24 25 34 35 36 45 46 56 57 58 78
       1  15  G447

147.  12  23 24 25 34 35 45 46 47 56 57 58 67
       1  15  G457

148.  12  14 23 25 26 34 35 36 45 46 47 56 67
       1  1278  G453

149.  12  14 23 25 34 35 36 45 46 47 56 57 67
       1  1278  G451

150.  12  23 24 25 34 35 36 45 46 56 57 58 67
       2  15 1278  G464

151.  12  14 23 25 26 34 35 36 45 46 56 57 67
       1  1278  G451

152.  12  14 23 25 34 35 36 37 45 46 47 56 57
       2  1268 1278  G464

153.  12  23 24 25 34 35 36 45 46 47 56 57 58
       3  15 1278 1678  G468

154.  12  14 23 34 35 36 37 45 46 47 56 57 67
       3  1258 1268 1278  G468

155.  12  23 24 25 26 34 35 36 45 46 56 67 68
       5  16 1278 1378 1478 1578  G472

156.  12  23 24 25 34 35 36 45 46 47 56 57 67
       1  1278  G458

157.  12  23 24 25 34 35 36 37 45 46 47 56 57
       3  1268 1278 1678  G469

158.  12  23 24 25 26 34 35 36 45 46 56 57 67
       3  1278 1378 1478  G469

159.  13  12 13 14 15 16 17 18 25 27 36 37 58 68
       1  41  G437

160.  13  12 13 14 15 16 17 18 26 27 37 38 48 68
       1  51  G442

161.  13  12 13 14 15 16 17 18 26 28 37 38 47 48
       1  51  G443

162.  13  12 13 14 15 16 17 18 27 28 37 38 47 58
       1  61  G449

163.  13  12 13 14 15 16 17 18 26 27 28 37 38 48
       1  51  G448

164.  13  12 13 14 15 16 17 18 27 28 37 38 48 58
       1  61  G456

165.  13  12 13 14 15 16 17 18 27 28 37 38 47 48
       2  51 61  G462

166.  13  12 13 14 15 16 17 18 26 28 37 38 47 68
       1  51  G443

167.  13  12 13 14 15 16 17 18 26 28 37 47 68 78
       1  51  G448

168.  13  12 13 14 15 16 17 18 26 28 37 38 47 78
       1  51  G449

169.  13  12 13 15 17 18 24 26 27 28 37 48 58 78
       1  3456  G437

170.  13  12 13 15 17 18 24 25 27 28 38 48 56 58
       1  3467  G439

171.  13  12 13 15 16 17 18 24 27 28 37 48 58 78
       1  3456  G443

172.  13  12 13 15 17 18 24 25 28 38 48 56 58 68
       1  3467  G442

173.  13  12 13 15 17 18 24 26 27 28 37 48 68 78
       1  3456  G438

174.  13  12 13 15 16 17 18 24 26 27 28 38 48 68
       1  3457  G449

175.  13  12 13 15 16 17 18 24 27 28 38 47 58 78
       1  3456  G443

176.  13  12 13 14 15 16 17 18 26 28 37 38 48 68
       1  51  G456

177.  13  12 13 15 17 18 24 25 28 38 48 56 58 78
       1  3467  G443

178.  13  12 13 14 15 16 17 18 26 27 28 37 48 78
       2  51 3456  G461

179.  13  12 13 15 17 18 24 26 27 28 38 48 58 78
       1  3456  G448

180.  13  23 24 27 34 35 45 46 47 48 56 58 67 78
       1  14  G439

181.  13  12 13 15 16 17 18 24 27 28 38 48 58 78
       1  3456  G456

182.  13  12 13 14 15 16 17 18 26 27 28 37 38 68
       2  41 51  G461

183.  13  23 24 26 34 35 45 46 47 48 56 58 67 78
       1  14  G437

184.  13  12 13 14 15 16 17 18 27 28 37 48 58 78
       2  61 3456  G465

185.  13  12 13 15 16 17 18 24 27 28 38 58 68 78
       1  3456  G456

186.  13  23 24 26 34 35 37 45 46 47 48 56 67 78
       1  14  G443

187.  13  12 13 14 15 16 17 18 27 28 38 48 58 78
       2  61 3456  G466

188.  13  23 24 26 34 35 37 45 46 47 48 56 67 68
       1  14  G450

189.  13  12 13 14 15 16 17 18 25 27 36 38 57 68
       1  41  G438

190.  13  12 13 14 15 16 17 18 26 37 38 47 48 78
       1  51  G450
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191.  13  23 24 27 34 35 45 46 47 48 56 67 68 78
       1  14  G437

192.  13  12 13 15 17 18 24 26 27 28 37 38 48 78
       1  3456  G443

193.  13  12 13 15 17 18 24 25 27 28 56 58 68 78
       1  3467  G442

194.  13  12 13 15 16 17 18 24 27 28 38 47 48 78
       1  3456  G450

195.  13  12 13 14 15 16 17 18 26 28 37 38 68 78
       2  41 51  G465

196.  13  12 13 15 16 17 18 24 27 28 37 38 48 78
       1  3456  G449

197.  13  12 13 15 16 17 18 24 26 27 28 37 38 78
       1  3456  G449

198.  13  12 13 15 16 17 18 24 26 27 28 37 68 78
       1  3456  G448

199.  13  23 24 26 34 35 45 46 47 48 56 67 68 78
       1  14  G443

200.  13  12 13 15 17 18 24 26 27 28 37 38 58 78
       1  3456  G443

201.  13  23 24 26 34 35 38 45 46 47 48 56 57 67
       1  14  G443

202.  13  12 13 15 17 18 24 25 27 28 38 56 58 78
       1  3467  G443

203.  13  23 24 26 34 35 45 46 47 48 56 57 67 78
       1  14  G442

204.  13  12 13 14 15 16 17 18 26 27 28 37 38 78
       3  41 51 3456  G467

205.  13  12 13 15 16 17 18 24 27 28 37 38 58 78
       1  3456  G449

206.  13  12 13 15 16 17 18 24 26 27 28 48 68 78
       2  3456 3457  G462

207.  13  12 13 15 16 17 18 24 26 27 28 38 68 78
       2  3456 3457  G461

208.  13  23 24 26 34 35 45 46 47 48 56 57 67 68
       1  14  G449

209.  13  12 13 15 16 17 18 24 25 26 27 28 58 68
       2  3457 3467  G465

210.  13  12 13 14 15 16 17 18 27 28 37 38 48 78
       4  51 61 2456 3456  G470

211.  13  23 24 25 34 35 45 46 56 57 58 67 68 78
       1  15  G438

212.  13  23 24 25 34 35 36 45 46 56 57 58 67 78
       1  15  G443

213.  13  23 24 25 34 35 45 46 47 56 57 58 67 78
       1  15  G448

214.  13  23 24 25 34 35 36 45 46 47 56 57 58 78
       1  15  G449

215.  13  23 24 25 28 34 35 36 45 46 56 57 58 67
       1  15  G449

216.  13  14 16 23 26 34 35 36 37 45 46 47 57 67
       1  1258  G449

217.  13  14 16 23 25 34 35 36 45 46 47 56 57 67
       1  1278  G448

218.  13  23 24 25 34 35 36 45 46 56 57 58 67 68
       2  15 1278  G462

219.  13  23 24 25 34 35 36 45 46 48 56 57 58 67
       2  15 1278  G461

220.  13  23 24 25 34 35 45 46 47 48 56 57 58 67
       2  14 15  G465

221.  13  23 24 25 34 35 36 38 45 46 47 56 57 58
       3  15 1278 1678  G467

222.  13  23 24 25 27 34 35 36 45 46 56 57 58 67
       1  15  G456

223.  13  23 24 25 34 35 36 45 46 47 48 56 57 58
       4  14 15 1278 1678  G470

224.  13  12 13 15 17 18 24 25 27 28 56 57 58 78
       2  3467 3468  G461

225.  13  12 13 15 16 17 18 24 26 27 28 67 68 78
       3  3456 3457 3458  G467

226.  13  14 23 25 26 34 35 36 45 46 47 56 57 67
       1  1278  G456

227.  13  12 13 14 15 16 17 18 26 27 28 67 68 78
       7  31 41 51 2345 3456 3457 3458  G473

228.  13  23 24 25 34 35 36 45 46 47 56 57 58 67
       2  15 1278  G465

229.  13  14 23 25 26 34 35 36 37 45 46 56 57 67
       1  1278  G456

230.  13  23 24 25 34 35 36 37 45 46 47 56 57 58
       4  15 1268 1278 1678  G470

231.  13  23 24 25 26 34 35 36 45 46 56 67 68 78
       1  16  G450

232.  13  14 23 25 34 35 36 37 45 46 47 56 57 67
       2  1268 1278  G465

233.  13  23 24 25 26 34 35 36 45 46 56 57 67 68
       4  16 1278 1378 1478  G470

234.  13  23 24 25 26 34 35 36 45 46 47 56 57 67
       2  1278 1378  G466

235.  14  12 13 14 15 16 17 18 26 27 37 38 47 48 68
       1  51  G440

236.  14  12 13 14 15 16 17 18 25 27 36 37 58 68 78
       1  41  G441

237.  14  12 13 14 15 16 17 18 26 27 28 37 38 47 48
       1  51  G444

238.  14  12 13 14 15 16 17 18 27 28 37 38 47 48 58
       1  61  G453

239.  14  12 13 14 15 16 17 18 25 27 28 36 37 58 68
       1  41  G440

240.  14  12 13 15 17 18 24 26 27 28 37 47 58 68 78
       1  3456  G435
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241. 14 12 13 15 17 18 24 26 27 28 37 48 57 68 78
1 3456 G436

242. 14 12 13 14 15 16 17 18 26 28 37 38 47 48 68
1 51 G446

243. 14 12 13 14 15 16 17 18 25 27 28 36 37 38 58
1 41 G445

244. 14 12 13 14 15 16 17 18 25 27 36 37 38 58 78
1 41 G445

245. 14 12 13 15 17 18 24 25 28 38 48 56 58 68 78
1 3467 G451

246. 14 12 13 14 15 16 17 18 26 27 28 37 38 48 68
1 51 G451

247. 14 12 13 15 17 18 24 26 27 28 38 48 58 68 78
1 3456 G457

248. 14 12 13 15 16 17 18 24 27 28 38 48 58 68 78
1 3456 G458

249. 14 12 13 14 15 16 17 18 27 28 38 48 58 68 78
1 3456 G459

250. 14 12 13 14 15 16 17 18 25 27 28 36 38 57 68
1 41 G441

251. 14 12 13 14 15 16 17 18 25 27 28 36 37 58 78
1 41 G447

252. 14 12 13 14 15 16 17 18 26 28 37 38 47 68 78
1 51 G451

253. 14 12 13 15 17 18 24 26 27 28 37 47 48 58 78
1 3456 G440

254. 14 12 13 15 16 17 18 24 27 28 37 47 48 58 78
1 3456 G447

255. 14 12 13 15 16 17 18 24 26 27 28 37 38 48 78
1 3456 G445

256. 14 12 13 15 17 18 24 26 27 28 37 38 47 58 78
1 3456 G441

257. 14 12 13 14 15 16 17 18 26 28 37 38 47 48 78
1 51 G453

258. 14 12 13 14 15 16 17 18 25 27 28 36 37 38 78
1 41 G452

259. 14 12 13 15 16 17 18 24 26 27 28 37 48 68 78
1 3456 G444

260. 14 12 13 15 17 18 24 26 27 28 37 38 48 58 78
1 3456 G445

261. 14 12 13 15 16 17 18 24 27 28 38 47 48 58 78
1 3456 G453

262. 14 12 13 14 15 16 17 18 26 27 28 38 48 67 68
2 51 3457 G464

263. 14 12 13 14 15 16 17 18 26 27 28 37 38 48 78
2 51 3456 G464

264. 14 12 13 14 15 16 17 18 26 28 37 38 48 68 78
1 51 G458

265. 14 12 13 14 15 16 17 18 27 28 37 38 47 58 78
3 61 2456 3456 G468

266. 14 12 13 14 15 16 17 18 26 27 28 36 37 38 68
2 41 51 G464

267. 14 12 13 14 15 16 17 18 27 28 37 38 48 58 78
3 61 2456 3456 G469

268. 14 12 13 15 17 18 24 26 27 28 37 38 47 48 78
1 3456 G446

269. 14 12 13 15 16 17 18 24 27 28 37 38 47 48 78
1 3456 G453

270. 14 12 13 15 16 17 18 24 26 27 28 37 38 68 78
1 3456 G451

271. 14 12 13 15 16 17 18 24 25 26 27 28 57 58 68
1 3467 G457

272. 14 12 13 14 15 16 17 18 26 27 28 37 38 68 78
3 41 51 3456 G468

273. 14 12 13 15 17 18 24 26 27 28 37 38 57 58 78
1 3456 G446

274. 14 12 13 14 15 16 17 18 27 28 37 38 47 48 78
5 51 61 2356 2456 3456 G471

275. 14 12 13 14 15 16 17 18 25 27 28 36 57 58 78
1 41 G454

276. 14 12 13 15 17 18 24 25 27 28 38 56 57 58 78
1 3467 G451

277. 14 12 13 15 16 17 18 24 26 27 28 48 67 68 78
2 3456 3457 G464

278. 14 12 13 15 16 17 18 24 26 27 28 38 67 68 78
2 3456 3457 G464

279. 14 12 13 15 16 17 18 24 25 26 27 28 57 58 78
3 3456 3467 3468 G468

280. 14 12 13 14 15 16 17 18 26 27 28 38 67 68 78
5 41 51 2345 3456 3457 G472

5.2. The maximal exceptional graphs of type (b) and their representations by graphs of order 8.

G435	30	3	30 103 240
G436	30	3	2 145 241
G437	30	7	18 59 63 159 169 183 191
G438	30	5	5 77 173 189 211
G439	30	5	14 61 62 170 180
G440	30	11	29 31 41 106 107 108 109 114 235 239 253
G441	30	8	9 28 105 115 127 236 250 256
G442	30	8	66 67 68 81 160 172 193 203
G443	30	19	15 19 21 64 65 78 80 161 166 171 175 177 186 192 199 200 201 202 212
G444	30	9	10 11 40 102 118 128 139 237 259
G445	30	13	33 43 93 112 113 122 129 131 132 243 244 255 260
G446	30	6	32 34 46 242 268 273
G447	30	9	7 42 94 110 121 130 146 251 254
G448	30	11	22 52 72 79 84 163 167 179 198 213 217
G449	30	16	16 53 70 74 82 87 162 168 174 196 197 205 208 214 215 216
G450	30	7	4 69 86 188 190 194 231
G451	30	16	36 44 47 95 96 117 119 134 141 149 151 245 246 252 270 276
G452	30	5	24 38 135 137 258
G453	30	12	8 35 49 104 116 125 126 148 238 257 261 269
G454	30	3	1 133 275
G456	30	12	17 54 71 75 90 164 176 181 185 222 226 229
G457	30	5	48 98 147 247 271
G458	30	6	39 100 123 156 248 264
G459	30	2	101 249
G460	31	3	97 136 138
G461	31	8	55 83 88 178 182 207 219 224
G462	31	6	20 23 60 165 206 218
G464	31	14	25 45 50 99 111 140 143 150 152 262 263 266 277 278
G465	31	9	56 85 91 184 195 209 220 228 232
G466	31	4	58 76 187 234
G467	32	6	12 57 89 204 221 225
G468	32	7	26 120 153 154 265 272 279
G469	32	6	27 124 144 157 158 267
G470	33	7	13 73 92 210 223 230 233
G471	34	3	37 51 274
G472	34	4	6 142 155 280
G473	36	2	3 227

Table 6

The maximal exceptional graphs of type (c)

The six graphs of this type are defined below by standard representations in E_8.

- $G001$ $(M001)$ (22 vertices, with degrees 16^{14}, 7^8; the vertices of degree 16 induce the cocktail-party graph $\overline{7K_2}$, while those of degree 7 form a coclique)
  $\mathbf{a}_{ij}$ $(ij = 12, 13, 14, 15, 23, 24, 26, 34, 37, 48)$;
  $\mathbf{b}_{ij}$ $(ij = 56, 57, 58, 67, 68, 78)$;
  $\mathbf{c}_{ij}$ $(ij = 15, 26, 37, 48)$; $\mathbf{d}_{5678}$; $\mathbf{e}$.

- $G002$ $(M002)$ (28 vertices, with degrees 22^7, 16^{14}, 10^7; the vertices of degree 10 form a coclique)
  $\mathbf{a}_{ij}$ $(ij = 12, 13, 14, 17, 18, 23, 25, 27, 28, 36, 37, 38, 78)$;
  $\mathbf{b}_{ij}$ $(ij = 45, 46, 47, 48, 56, 57, 58, 67, 68)$;
  $\mathbf{c}_{ij}$ $(ij = 14, 25, 36)$; $\mathbf{d}_{4567}$, $\mathbf{d}_{4568}$; $\mathbf{e}$.

- $G425$ $(M417)$ (29 vertices, with degrees 26^1, 24^2, 18^{16}, 12^8, 10^2)
  $\mathbf{a}_{ij}$ $(ij = 12, 15, 16, 17, 18, 25, 26, 27, 28, 57, 68)$;
  $\mathbf{b}_{ij}$ $(ij = 13, 24, 34, 35, 36, 37, 38, 45, 46, 47, 48, 56, 58, 67, 78)$;
  $\mathbf{c}_{13}$, $\mathbf{c}_{24}$; $\mathbf{e}$.

- $G430$ $(M428)$ (29 vertices, with degrees 26^2, 22^1, 18^{16}, 14^6, 10^4)
  $\mathbf{a}_{ij}$ $(ij = 12, 15, 16, 17, 18, 25, 26, 27, 28)$;
  $\mathbf{b}_{ij}$ $(ij = 13, 24, 34, 35, 36, 37, 38, 45, 46, 47, 48, 56, 57, 58, 67, 68, 78)$;
  $\mathbf{c}_{13}$, $\mathbf{c}_{24}$; $\mathbf{e}$.

- $G455$ $(M437)$ (30 vertices, with degrees 26^2, 24^1, 20^8, 17^8, 16^1, 14^2, 13^4, 11^4)
  $\mathbf{a}_{ij}$ $(ij = 12, 15, 16, 17, 18, 25, 26, 27, 28, 56)$;
  $\mathbf{b}_{ij}$ $(ij = 13, 24, 34, 35, 36, 37, 38, 45, 46, 47, 48, 57, 58, 67, 68, 78)$;
  $\mathbf{c}_{13}$, $\mathbf{c}_{24}$; $\mathbf{d}_{3478}$; $\mathbf{e}$.

- $G463$ $(M462)$ (31 vertices, with degrees 26^3, 22^4, 19^8, 16^4, 15^6, 12^6)
  $\mathbf{a}_{ij}$ $(ij = 12, 15, 16, 17, 18, 25, 26, 27, 28, 56, 67)$;
  $\mathbf{b}_{ij}$ $(ij = 13, 24, 34, 35, 36, 37, 38, 45, 46, 47, 48, 57, 58, 68, 78)$;
  $\mathbf{c}_{13}$, $\mathbf{c}_{24}$; $\mathbf{d}_{3458}$, $\mathbf{d}_{3478}$; $\mathbf{e}$.

Table 7

THE INDEX AND VERTEX DEGREES OF THE MAXIMAL EXCEPTIONAL GRAPHS

The table gives the index and degree sequence of each graph.

	001	22	140	14.0000	07^08 16^14
	002	28	224	17.0000	10^07 16^14 22^07
003 -	006	29	196	14.0000	13^28 28^01
007 -	013	29	199	14.2915	12^12 14^15 16^01 28^01
014 -	017	29	199	14.2915	10^01 12^09 14^18 28^01
018 -	027	29	200	14.3852	11^04 13^16 15^08 28^01
028 -	029	29	203	14.6569	12^14 14^07 16^07 28^01
030 -	033	29	203	14.6569	10^01 12^11 14^10 16^06 28^01
034 -	040	29	203	14.6569	10^02 12^08 14^13 16^05 28^01
041 -	043	29	203	14.6569	10^03 12^05 14^16 16^04 28^01
	044	29	203	14.6569	10^04 12^02 14^19 16^03 28^01
045 -	056	29	204	14.7446	11^06 13^10 15^10 17^02 28^01
057 -	063	29	204	14.7446	09^01 11^04 13^10 15^12 17^01 28^01
064 -	065	29	204	14.7446	09^02 11^02 13^10 15^14 28^01
066 -	073	29	207	15.0000	10^02 12^09 14^08 16^08 18^01 28^01
074 -	082	29	207	15.0000	10^03 12^06 14^11 16^07 18^01 28^01
083 -	084	29	207	15.0000	08^01 10^01 12^07 14^10 16^09 28^01
085 -	088	29	207	15.0000	08^01 10^02 12^04 14^13 16^08 28^01
089 -	093	29	208	15.0828	11^06 13^10 15^06 17^06 28^01
094 -	097	29	208	15.0828	11^09 15^18 19^01 28^01
098 -	107	29	208	15.0828	09^01 11^04 13^10 15^08 17^05 28^01
108 -	113	29	208	15.0828	09^02 11^02 13^10 15^10 17^04 28^01
114 -	115	29	208	15.0828	09^03 13^10 15^12 17^03 28^01
116 -	117	29	208	15.0828	07^01 11^06 15^21 28^01
	118	29	211	15.3246	12^15 16^10 18^03 28^01
	119	29	211	15.3246	10^01 12^12 14^03 16^09 18^03 28^01
120 -	123	29	211	15.3246	10^02 12^09 14^06 16^08 18^03 28^01
124 -	131	29	211	15.3246	10^03 12^06 14^09 16^07 18^03 28^01
132 -	135	29	211	15.3246	10^04 12^03 14^12 16^06 18^03 28^01
	136	29	211	15.3246	10^05 14^15 16^05 18^03 28^01
	137	29	211	15.3246	08^01 12^10 14^05 16^10 18^02 28^01
138 -	141	29	211	15.3246	08^01 10^01 12^07 14^08 16^09 18^02 28^01
142 -	145	29	211	15.3246	08^01 10^02 12^04 14^11 16^08 18^02 28^01
	146	29	211	15.3246	08^01 10^03 12^01 14^14 16^07 18^02 28^01
	147	29	211	15.3246	08^02 12^05 14^10 16^10 18^01 28^01
	148	29	211	15.3246	08^02 10^01 12^02 14^13 16^09 18^01 28^01
	149	29	211	15.3246	08^03 14^15 16^10 28^01
150 -	153	29	212	15.4031	11^07 13^06 15^08 17^06 19^01 28^01

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154 - 161  29 212 15.4031   09^01 11^05 13^06 15^10 17^05 19^01 28^01
162 - 165  29 212 15.4031   09^02 13^16 17^10 28^01
166 - 170  29 212 15.4031   09^02 11^03 13^06 15^12 17^04 19^01 28^01
      171  29 212 15.4031   09^03 11^01 13^06 15^14 17^03 19^01 28^01
172 - 173  29 212 15.4031   07^01 11^04 13^06 15^11 17^06 28^01
174 - 175  29 212 15.4031   07^01 09^01 11^02 13^06 15^13 17^05 28^01
      176  29 212 15.4031   07^01 09^02 13^06 15^15 17^04 28^01

177 - 180  29 215 15.6332   10^02 12^08 14^07 16^05 18^06 28^01
181 - 183  29 215 15.6332   10^03 12^05 14^10 16^04 18^06 28^01
184 - 190  29 215 15.6332   10^04 12^04 14^06 16^12 18^01 20^01 28^01
191 - 195  29 215 15.6332   08^01 10^01 12^06 14^09 16^06 18^05 28^01
196 - 197  29 215 15.6332   08^01 10^02 12^03 14^12 16^05 18^05 28^01
198 - 199  29 215 15.6332   08^01 10^02 12^05 14^05 16^14 20^01 28^01
200 - 201  29 215 15.6332   08^02 12^04 14^11 16^07 18^04 28^01
      202  29 215 15.6332   08^02 10^01 12^01 14^14 16^06 18^04 28^01
203 - 204  29 215 15.6332   06^01 10^02 12^03 14^07 16^14 18^01 28^01
      205  29 215 15.6332   06^01 08^01 12^04 14^06 16^16 28^01

206 - 209  29 216 15.7082   11^06 13^08 15^04 17^08 19^02 28^01
210 - 214  29 216 15.7082   09^01 11^04 13^08 15^06 17^07 19^02 28^01
215 - 224  29 216 15.7082   09^02 11^02 13^08 15^08 17^06 19^02 28^01
225 - 228  29 216 15.7082   07^01 11^03 13^08 15^07 17^08 19^01 28^01
229 - 230  29 216 15.7082   07^01 09^01 11^01 13^08 15^09 17^07 19^01 28^01
      231  29 216 15.7082   07^02 13^08 15^10 17^08 28^01

232 - 234  29 219 15.9282   10^02 12^08 14^04 16^08 18^05 20^01 28^01
235 - 238  29 219 15.9282   10^03 12^05 14^07 16^07 18^05 20^01 28^01
239 - 241  29 219 15.9282   10^04 12^02 14^10 16^06 18^05 20^01 28^01
      242  29 219 15.9282   08^01 12^09 14^03 16^10 18^04 20^01 28^01
243 - 245  29 219 15.9282   08^01 10^01 12^06 14^06 16^09 18^04 20^01 28^01
246 - 250  29 219 15.9282   08^01 10^02 12^03 14^09 16^08 18^04 20^01 28^01
251 - 252  29 219 15.9282   08^02 12^04 14^08 16^10 18^03 20^01 28^01
      253  29 219 15.9282   06^01 12^07 14^05 16^10 18^05 28^01
      254  29 219 15.9282   06^01 10^01 12^04 14^08 16^09 18^05 28^01
      255  29 219 15.9282   06^01 10^02 12^01 14^11 16^08 18^05 28^01
      256  29 219 15.9282   06^01 08^01 12^02 14^10 16^10 18^04 28^01

257 - 260  29 220 16.0000   11^06 13^06 15^06 17^06 19^04 28^01
261 - 264  29 220 16.0000   09^01 11^04 13^06 15^08 17^05 19^04 28^01
265 - 266  29 220 16.0000   09^01 11^06 13^01 15^10 17^09 21^01 28^01
267 - 270  29 220 16.0000   09^02 11^02 13^06 15^10 17^04 19^04 28^01
271 - 274  29 220 16.0000   09^02 11^04 13^01 15^12 17^08 21^01 28^01
275 - 276  29 220 16.0000   09^03 13^06 15^12 17^03 19^04 28^01
277 - 281  29 220 16.0000   07^01 11^03 13^06 15^09 17^06 19^03 28^01
282 - 283  29 220 16.0000   07^01 09^01 11^01 13^06 15^11 17^05 19^03 28^01
      284  29 220 16.0000   07^02 13^06 15^12 17^06 19^02 28^01
      285  29 220 16.0000   05^01 11^04 13^01 15^12 17^10 28^01
      286  29 220 16.0000   05^01 09^01 11^02 13^01 15^14 17^09 28^01

287 - 288  29 223 16.2111   10^01 12^08 14^08 18^10 20^01 28^01
289 - 291  29 223 16.2111   10^02 12^07 14^04 16^08 18^05 20^02 28^01
292 - 295  29 223 16.2111   10^03 12^04 14^07 16^07 18^05 20^02 28^01
296 - 297  29 223 16.2111   10^06 16^21 22^01 28^01
298 - 299  29 223 16.2111   08^01 12^06 14^10 16^01 18^09 20^01 28^01
300 - 301  29 223 16.2111   08^01 10^01 12^05 14^06 16^09 18^04 20^02 28^01
302 - 304  29 223 16.2111   08^01 10^02 12^02 14^09 16^08 18^04 20^02 28^01
      305  29 223 16.2111   08^02 12^03 14^08 16^10 18^03 20^02 28^01
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      306  29 223 16.2111   08^02 10^01 14^11 16^09 18^03 20^02 28^01
      307  29 223 16.2111   06^01 12^04 14^12 16^01 18^10 28^01
      308  29 223 16.2111   06^01 12^06 14^05 16^10 18^05 20^01 28^01
      309  29 223 16.2111   06^01 10^01 12^03 14^08 16^09 18^05 20^01 28^01
      310  29 223 16.2111   06^01 08^01 12^01 14^10 16^10 18^04 20^01 28^01
      311  29 223 16.2111   04^01 10^03 16^24 28^01

      312  29 224 16.2801   11^06 13^05 15^04 17^10 19^02 21^01 28^01
313 - 314  29 224 16.2801   11^07 15^14 19^07 28^01
315 - 317  29 224 16.2801   09^01 11^02 13^10 15^04 17^05 19^06 28^01
318 - 321  29 224 16.2801   09^01 11^04 13^05 15^06 17^09 19^02 21^01 28^01
322 - 325  29 224 16.2801   09^02 11^02 13^05 15^08 17^08 19^02 21^01 28^01
      326  29 224 16.2801   09^03 13^05 15^10 17^07 19^02 21^01 28^01
327 - 328  29 224 16.2801   07^01 11^01 13^10 15^05 17^06 19^05 28^01
      329  29 224 16.2801   07^01 11^03 13^05 15^07 17^10 19^01 21^01 28^01
      330  29 224 16.2801   07^01 11^04 15^17 19^06 28^01
      331  29 224 16.2801   07^01 09^01 11^01 13^05 15^09 17^09 19^01 21^01 28^01
      332  29 224 16.2801   07^02 13^05 15^10 17^10 21^01 28^01
      333  29 224 16.2801   07^02 11^01 15^20 19^05 28^01
      334  29 224 16.2801   05^01 11^02 13^05 15^08 17^10 19^02 28^01
      335  29 224 16.2801   05^01 09^01 13^05 15^10 17^09 19^02 28^01

      336  29 227 16.4833   10^01 12^08 14^04 16^06 18^06 20^03 28^01
337 - 338  29 227 16.4833   10^02 12^05 14^07 16^05 18^06 20^03 28^01
      339  29 227 16.4833   10^03 12^02 14^10 16^04 18^06 20^03 28^01
340 - 341  29 227 16.4833   10^04 12^02 14^04 16^11 18^06 22^01 28^01
342 - 343  29 227 16.4833   08^01 12^06 14^06 16^07 18^05 20^03 28^01
344 - 345  29 227 16.4833   08^01 10^01 12^03 14^09 16^06 18^05 20^03 28^01
      346  29 227 16.4833   08^01 10^02 14^12 16^05 18^05 20^03 28^01
347 - 348  29 227 16.4833   08^01 10^02 12^03 14^03 16^13 18^05 22^01 28^01
      349  29 227 16.4833   08^02 12^04 14^02 16^15 18^04 22^01 28^01
      350  29 227 16.4833   06^01 12^04 14^08 16^07 18^06 20^02 28^01
      351  29 227 16.4833   06^01 10^01 12^01 14^11 16^06 18^06 20^02 28^01
      352  29 227 16.4833   04^01 10^01 12^02 14^04 16^14 18^06 28^01

353 - 354  29 228 16.5498   11^05 13^05 15^06 17^06 19^05 21^01 28^01
355 - 358  29 228 16.5498   09^01 11^03 13^05 15^08 17^05 19^05 21^01 28^01
359 - 360  29 228 16.5498   09^02 13^10 17^14 21^02 28^01
      361  29 228 16.5498   09^02 11^01 13^05 15^10 17^04 19^05 21^01 28^01
362 - 363  29 228 16.5498   07^01 11^02 13^05 15^09 17^06 19^04 21^01 28^01
      364  29 228 16.5498   07^01 09^01 13^05 15^11 17^05 19^04 21^01 28^01
      365  29 228 16.5498   05^01 13^10 17^16 21^01 28^01
      366  29 228 16.5498   05^01 11^01 13^05 15^10 17^06 19^05 28^01

367 - 369  29 231 16.7460   10^02 12^04 14^06 16^08 18^03 20^05 28^01
370 - 371  29 231 16.7460   10^02 12^05 14^04 16^07 18^08 20^01 22^01 28^01
372 - 373  29 231 16.7460   10^03 12^02 14^07 16^06 18^08 20^01 22^01 28^01
      374  29 231 16.7460   08^01 12^05 14^05 16^10 18^02 20^05 28^01
      375  29 231 16.7460   08^01 10^01 12^02 14^08 16^09 18^02 20^05 28^01
376 - 377  29 231 16.7460   08^01 10^01 12^03 14^06 16^08 18^07 20^01 22^01 28^01
      378  29 231 16.7460   08^02 14^10 16^10 18^01 20^05 28^01
      379  29 231 16.7460   06^01 12^03 14^07 16^10 18^03 20^04 28^01
      380  29 231 16.7460   06^01 12^04 14^05 16^09 18^08 22^01 28^01
      381  29 231 16.7460   04^01 12^02 14^07 16^09 18^08 20^01 28^01

382 - 383  29 232 16.8102   11^04 13^06 15^04 17^08 19^04 21^02 28^01
384 - 385  29 232 16.8102   09^01 11^02 13^06 15^06 17^07 19^04 21^02 28^01
386 - 387  29 232 16.8102   09^02 13^06 15^08 17^06 19^04 21^02 28^01
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388 - 389  29 232 16.8102   09^02 11^03 15^07 17^14 19^01 23^01 28^01
390 - 391  29 232 16.8102   07^01 11^01 13^06 15^07 17^08 19^03 21^02 28^01
      392  29 232 16.8102   07^01 11^04 15^06 17^16 23^01 28^01
      393  29 232 16.8102   05^01 13^06 15^08 17^08 19^04 21^01 28^01
      394  29 232 16.8102   03^01 11^02 15^08 17^16 19^01 28^01

      395  29 235 17.0000   12^09 16^09 18^06 20^03 22^01 28^01
      396  29 235 17.0000   10^01 12^06 14^03 16^08 18^06 20^03 22^01 28^01
397 - 398  29 235 17.0000   10^02 12^03 14^06 16^07 18^06 20^03 22^01 28^01
      399  29 235 17.0000   10^03 14^09 16^06 18^06 20^03 22^01 28^01
      400  29 235 17.0000   08^01 12^04 14^05 16^09 18^05 20^03 22^01 28^01
      401  29 235 17.0000   08^01 10^01 12^01 14^08 16^08 18^05 20^03 22^01 28^01
      402  29 235 17.0000   06^01 12^02 14^07 16^09 18^06 20^02 22^01 28^01
      403  29 235 17.0000   04^01 14^09 16^09 18^06 20^03 28^01

      404  29 236 17.0623   11^04 13^03 15^08 17^06 19^04 21^03 28^01
      405  29 236 17.0623   11^05 13^02 15^05 17^10 19^05 23^01 28^01
      406  29 236 17.0623   09^01 11^02 13^03 15^10 17^05 19^04 21^03 28^01
      407  29 236 17.0623   09^01 11^03 13^02 15^07 17^09 19^05 23^01 28^01
      408  29 236 17.0623   09^02 13^03 15^12 17^04 19^04 21^03 28^01
      409  29 236 17.0623   09^02 11^01 13^02 15^09 17^08 19^05 23^01 28^01
      410  29 236 17.0623   07^01 11^01 13^03 15^11 17^06 19^03 21^03 28^01
      411  29 236 17.0623   07^01 11^02 13^02 15^08 17^10 19^04 23^01 28^01
      412  29 236 17.0623   05^01 13^03 15^12 17^06 19^04 21^02 28^01
      413  29 236 17.0623   03^01 13^02 15^10 17^10 19^05 28^01

      414  29 239 17.2462   10^01 12^04 14^06 16^04 18^10 20^01 22^02 28^01
      415  29 239 17.2462   10^02 12^02 14^04 16^13 20^06 22^01 28^01
      416  29 239 17.2462   10^04 14^01 16^12 18^10 24^01 28^01
      417  29 239 17.2462   08^01 12^02 14^08 16^05 18^09 20^01 22^02 28^01
      418  29 239 17.2462   08^01 10^02 12^01 16^14 18^09 24^01 28^01
      419  29 239 17.2462   06^01 14^10 16^05 18^10 22^02 28^01
      420  29 239 17.2462   06^01 12^01 14^05 16^15 20^05 22^01 28^01
      421  29 239 17.2462   02^01 12^01 16^16 18^10 28^01

      422  29 240 17.3066   11^03 13^05 15^03 17^10 19^05 21^01 23^01 28^01
      423  29 240 17.3066   09^01 11^01 13^05 15^05 17^09 19^05 21^01 23^01 28^01
      424  29 240 17.3066   07^01 13^05 15^06 17^10 19^04 21^01 23^01 28^01

      425  29 239 17.3899   10^02 12^08 18^16 24^02 26^01

      426  29 243 17.4853   10^02 12^02 14^03 16^08 18^10 20^02 24^01 28^01
      427  29 243 17.4853   08^01 12^03 14^02 16^10 18^09 20^02 24^01 28^01

      428  29 244 17.5440   09^03 17^24 25^01 28^01
      429  29 244 17.5440   01^01 17^27 28^01

      430  29 243 17.5887   10^04 14^06 18^16 22^01 26^02

      431  29 247 17.7178   12^04 14^06 18^16 22^01 24^01 28^01

      432  29 248 17.7750   09^01 11^02 15^04 17^14 19^06 25^01 28^01

      433  29 255 18.1652   10^02 16^08 18^16 20^01 26^01 28^01

      434  29 271 19.0000   18^27 28^02

435 - 436  30 244 17.2111   12^01 13^16 20^12 28^01
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437 - 438  30 247 17.3859   12^07 14^09 16^01 19^06 21^06 28^01
      439  30 247 17.3859   10^01 12^04 14^12 19^06 21^06 28^01

440 - 441  30 248 17.4434   11^02 12^01 13^08 15^06 18^02 20^08 22^02 28^01

      442  30 251 17.6139   12^07 14^05 16^05 17^01 19^05 21^05 23^01 28^01
      443  30 251 17.6139   10^01 12^04 14^08 16^04 17^01 19^05 21^05 23^01 28^01

444 - 445  30 252 17.6700   11^02 12^01 13^06 15^06 17^02 18^04 20^04 22^04 28^01
      446  30 252 17.6700   11^04 12^01 15^12 16^01 20^10 24^01 28^01
      447  30 252 17.6700   09^01 12^01 13^06 15^08 17^01 18^04 20^04 22^04 28^01

      448  30 255 17.8365   12^06 14^04 16^06 17^02 18^01 19^04 21^04 23^02 28^01
      449  30 255 17.8365   10^01 12^03 14^07 16^05 17^02 18^01 19^04 21^04 23^02 28^01
      450  30 255 17.8365   08^01 12^01 14^09 16^06 17^02 19^04 21^04 23^02 28^01

      451  30 256 17.8913   11^02 12^01 13^04 15^06 16^01 17^04 18^02 20^06 22^02 24^01 28^01
      452  30 256 17.8913   11^03 12^01 15^12 18^06 19^01 22^06 28^01
      453  30 256 17.8913   09^01 12^01 13^04 15^08 16^01 17^03 18^02 20^06 22^02 24^01 28^01
      454  30 256 17.8913   07^01 12^01 15^15 18^06 22^06 28^01

      455  30 256 17.9589   11^04 13^04 14^02 16^01 17^08 20^08 24^01 26^02

      456  30 259 18.0539   10^01 12^03 14^03 15^01 16^09 18^01 19^05 21^05 25^01 28^01

      457  30 260 18.1075   12^01 13^08 16^02 17^08 20^08 24^02 28^01

      458  30 264 18.3190   11^02 12^01 14^01 15^06 17^08 18^01 20^08 22^01 26^01 28^01

      459  30 276 18.9282   12^02 17^16 20^10 28^02

      460  31 269 18.2621   13^12 18^12 23^06 28^01

      461  31 272 18.4136   12^03 13^02 14^06 16^01 17^06 19^06 22^03 24^03 28^01
      462  31 272 18.4136   10^01 13^02 14^09 17^06 19^06 22^03 24^03 28^01

      463  31 272 18.4462   12^06 15^06 16^04 19^08 22^04 26^03

      464  31 273 18.4637   11^01 13^06 15^05 16^02 18^08 20^02 21^01 23^04 25^01 28^01

      465  31 276 18.6125   12^02 13^02 14^04 15^02 16^04 17^02 19^08 22^04 24^01 26^01 28^01

      466  31 284 19.0000   13^04 16^10 19^10 22^05 28^02

      467  32 290 18.9833   12^02 14^07 17^12 20^03 22^03 25^04 28^01

      468  32 291 19.0292   13^04 14^03 15^02 16^06 18^06 21^06 24^02 26^02 28^01

      469  32 295 19.2111   14^06 15^06 18^09 21^06 24^03 28^02

      470  33 309 19.5498   14^03 15^08 17^08 20^06 23^04 26^02 28^02

      471  34 326 20.0000   16^20 22^10 28^04
      472  34 326 20.0000   13^01 16^15 19^10 25^05 28^03

      473  36 364 21.0000   18^28 28^08
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Table 8

THE RELATION BETWEEN OLD AND NEW ORDERINGS

8.1. Old and new order of the exceptional graphs of order 8

Table 8.1.1. Mapping 'old ↦ new'

OLD	001	002	003	004	005	006	007	008	009	010	011	012	013	014	015	(E)
NEW	001	003	002	004	005	006	007	008	009	010	013	011	017	014	012	(H)
OLD	016	017	018	019	020	021	022	023	024	025	026	027	028	029	030	(E)
NEW	019	022	016	015	018	021	020	023	025	024	026	031	033	028	041	(H)
OLD	031	032	033	034	035	036	037	038	039	040	041	042	043	044	045	(E)
NEW	032	037	043	027	035	029	030	042	047	034	039	049	036	044	059	(H)
OLD	046	047	048	049	050	051	052	053	054	055	056	057	058	059	060	(E)
NEW	038	045	051	050	046	040	053	048	057	056	052	054	055	060	058	(H)
OLD	061	062	063	064	065	066	067	068	069	070	071	072	073	074	075	(E)
NEW	062	061	063	065	064	072	077	067	074	071	084	070	078	066	068	(H)
OLD	076	077	078	079	080	081	082	083	084	085	086	087	088	089	090	(E)
NEW	075	086	073	083	069	099	085	100	088	080	087	079	092	101	093	(H)
OLD	091	092	093	094	095	096	097	098	099	100	101	102	103	104	105	(E)
NEW	082	076	081	091	090	096	103	089	095	094	098	104	097	106	102	(H)
OLD	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	(E)
NEW	105	107	108	111	112	109	110	143	117	114	118	122	115	146	123	(H)
OLD	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	(E)
NEW	120	121	135	124	126	116	113	144	119	130	125	147	136	128	127	(H)
OLD	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	(E)
NEW	145	148	134	141	137	166	132	131	156	149	129	150	138	160	133	(H)
OLD	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	(E)
NEW	162	151	139	154	152	140	158	155	157	142	167	153	159	163	161	(H)
OLD	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	(E)
NEW	164	165	168	174	169	170	176	175	173	171	178	177	215	172	180	(H)
OLD	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	(E)
NEW	179	183	186	181	191	190	193	187	202	189	182	192	184	196	200	(H)
OLD	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	(E)
NEW	185	201	188	194	195	219	216	199	218	204	198	197	221	210	205	(H)
OLD	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	(E)
NEW	223	209	217	212	224	208	213	207	203	206	211	214	222	220	225	(H)

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OLD  226 227 228 229 230 231 232 233 234 235 236 237 238 239 240   (E)
NEW  228 226 227 229 232 230 257 238 231 233 239 234 237 240 241   (H)

OLD  241 242 243 244 245 246 247 248 249 250 251 252 253 254 255   (E)
NEW  246 258 235 259 252 236 243 249 245 242 260 244 248 247 253   (H)

OLD  256 257 258 259 260 261 262 263 264 265 266 267 268 269 270   (E)
NEW  261 265 250 270 256 264 251 254 267 255 262 269 263 271 279   (H)

OLD  271 272 273 274 275 276 277 278 279 280 281 282 283 284 285   (E)
NEW  266 275 280 268 272 282 273 274 276 277 286 278 281 283 287   (H)

OLD  286 287 288 289 290 291 292 293 294 295 296 297 298 299 300   (E)
NEW  284 285 288 289 311 290 292 296 291 293 295 294 300 297 307   (H)

OLD  301 302 303 304 305 306 307 308 309 310 311 312 313 314 315   (E)
NEW  299 317 312 301 298 315 302 316 306 305 304 310 303 308 314   (H)

OLD  316 317 318 319 320 321 322 323 324 325 326 327 328 329 330   (E)
NEW  318 313 309 319 320 324 321 329 322 330 323 325 326 327 328   (H)

OLD  331 332 333 334 335 336 337 338 339 340 341 342 343 344 345   (E)
NEW  331 332 338 339 333 334 336 341 335 350 337 342 340 346 351   (H)

OLD  346 347 348 349 350 351 352 353 354 355 356 357 358 359 360   (E)
NEW  343 345 344 348 347 359 352 349 361 354 353 362 355 357 364   (H)

OLD  361 362 363 364 365 366 367 368 369 370 371 372 373 374 375   (E)
NEW  360 356 358 363 365 366 367 368 369 370 371 373 372 374 377   (H)

OLD  376 377 378 379 380 381 382 383 384 385 386 387 388 389 390   (E)
NEW  375 378 379 376 387 381 380 384 383 382 386 385 388 389 390   (H)

OLD  391 392 393 394 395 396 397 398 399 400 401 402 403 404 405   (E)
NEW  391 392 393 398 395 394 399 396 400 397 401 404 405 402 403   (H)

OLD  406 407 408 409 410 411 412 413 414 415 416 417 418 419 420   (E)
NEW  406 407 410 408 409 411 412 413 414 415 416 417 418 419 420   (H)

OLD  421 422 423 424 425 426 427 428 429 430 431 432 433 434 435   (E)
NEW  421 422 423 424 426 425 427 428 429 430 432 431 433 434 435   (H)

OLD  436 437 438 439 440 441 442 443                               (E)
NEW  436 437 438 439 440 441 442 443                               (H)
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Table 8.1.2. Mapping ‘new $\mapsto$ old’

```
NEW  001 002 003 004 005 006 007 008 009 010 011 012 013 014 015   (H)
OLD  001 003 002 004 005 006 007 008 009 010 012 015 011 014 019   (E)

NEW  016 017 018 019 020 021 022 023 024 025 026 027 028 029 030   (H)
OLD  018 013 020 016 022 021 017 023 025 024 026 034 029 036 037   (E)

NEW  031 032 033 034 035 036 037 038 039 040 041 042 043 044 045   (H)
OLD  027 031 028 040 035 043 032 046 041 051 030 038 033 044 047   (E)
```

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NEW  046 047 048 049 050 051 052 053 054 055 056 057 058 059 060   (H)
OLD  050 039 053 042 049 048 056 052 057 058 055 054 060 045 059   (E)

NEW  061 062 063 064 065 066 067 068 069 070 071 072 073 074 075   (H)
OLD  062 061 063 065 064 074 068 075 080 072 070 066 078 069 076   (E)

NEW  076 077 078 079 080 081 082 083 084 085 086 087 088 089 090   (H)
OLD  092 067 073 087 085 093 091 079 071 082 077 086 084 098 095   (E)

NEW  091 092 093 094 095 096 097 098 099 100 101 102 103 104 105   (H)
OLD  094 088 090 100 099 096 103 101 081 083 089 105 097 102 106   (E)

NEW  106 107 108 109 110 111 112 113 114 115 116 117 118 119 120   (H)
OLD  104 107 108 111 112 109 110 127 115 118 126 114 116 129 121   (E)

NEW  121 122 123 124 125 126 127 128 129 130 131 132 133 134 135   (H)
OLD  122 117 120 124 131 125 135 134 146 130 143 142 150 138 123   (E)

NEW  136 137 138 139 140 141 142 143 144 145 146 147 148 149 150   (H)
OLD  133 140 148 153 156 139 160 113 128 136 119 132 137 145 147   (E)

NEW  151 152 153 154 155 156 157 158 159 160 161 162 163 164 165   (H)
OLD  152 155 162 154 158 144 159 157 163 149 165 151 164 166 167   (E)

NEW  166 167 168 169 170 171 172 173 174 175 176 177 178 179 180   (H)
OLD  141 161 168 170 171 175 179 174 169 173 172 177 176 181 180   (E)

NEW  181 182 183 184 185 186 187 188 189 190 191 192 193 194 195   (H)
OLD  184 191 182 193 196 183 188 198 190 186 185 192 187 199 200   (E)

NEW  196 197 198 199 200 201 202 203 204 205 206 207 208 209 210   (H)
OLD  194 207 206 203 195 197 189 219 205 210 220 218 216 212 209   (E)

NEW  211 212 213 214 215 216 217 218 219 220 221 222 223 224 225   (H)
OLD  221 214 217 222 178 202 213 204 201 224 208 223 211 215 225   (E)

NEW  226 227 228 229 230 231 232 233 234 235 236 237 238 239 240   (H)
OLD  227 228 226 229 231 234 230 235 237 243 246 238 233 236 239   (E)

NEW  241 242 243 244 245 246 247 248 249 250 251 252 253 254 255   (H)
OLD  240 250 247 252 249 241 254 253 248 258 262 245 255 263 265   (E)

NEW  256 257 258 259 260 261 262 263 264 265 266 267 268 269 270   (H)
OLD  260 232 242 244 251 256 266 268 261 257 271 264 274 267 259   (E)

NEW  271 272 273 274 275 276 277 278 279 280 281 282 283 284 285   (H)
OLD  269 275 277 278 272 279 280 282 270 273 283 276 284 286 287   (E)

NEW  286 287 288 289 290 291 292 293 294 295 296 297 298 299 300   (H)
OLD  281 285 288 289 291 294 292 295 297 296 293 299 305 301 298   (E)

NEW  301 302 303 304 305 306 307 308 309 310 311 312 313 314 315   (H)
OLD  304 307 313 311 310 309 300 314 318 312 290 303 317 315 306   (E)

NEW  316 317 318 319 320 321 322 323 324 325 326 327 328 329 330   (H)
OLD  308 302 316 319 320 322 324 326 321 327 328 329 330 323 325   (E)
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NEW  331 332 333 334 335 336 337 338 339 340 341 342 343 344 345   (H)
OLD  331 332 335 336 339 337 341 333 334 343 338 342 346 348 347   (E)

NEW  346 347 348 349 350 351 352 353 354 355 356 357 358 359 360   (H)
OLD  344 350 349 353 340 345 352 356 355 358 362 359 363 351 361   (E)

NEW  361 362 363 364 365 366 367 368 369 370 371 372 373 374 375   (H)
OLD  354 357 364 360 365 366 367 368 369 370 371 373 372 374 376   (E)

NEW  376 377 378 379 380 381 382 383 384 385 386 387 388 389 390   (H)
OLD  379 375 377 378 382 381 385 384 383 387 386 380 388 389 390   (E)

NEW  391 392 393 394 395 396 397 398 399 400 401 402 403 404 405   (H)
OLD  391 392 393 396 395 398 400 394 397 399 401 404 405 402 403   (E)

NEW  406 407 408 409 410 411 412 413 414 415 416 417 418 419 420   (H)
OLD  406 407 409 410 408 411 412 413 414 415 416 417 418 419 420   (E)

NEW  421 422 423 424 425 426 427 428 429 430 431 432 433 434 435   (H)
OLD  421 422 423 424 426 425 427 428 429 430 432 431 433 434 435   (E)

NEW  436 437 438 439 440 441 442 443                               (H)
OLD  436 437 438 439 440 441 442 443                               (E)
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8.2. Old and new order of the maximal exceptional graphs

Table 8.2.1. Mapping 'old $\mapsto$ new'

```
OLD  001 002 003 004 005 006 007 008 009 010 011 012 013 014 015   (M)
NEW  001 002 434 003 004 005 006 007 008 009 010 011 012 013 014   (G)

OLD  016 017 018 019 020 021 022 023 024 025 026 027 028 029 030   (M)
NEW  015 016 017 018 019 020 021 022 023 024 025 026 027 028 029   (G)

OLD  031 032 033 034 035 036 037 038 039 040 041 042 043 044 045   (M)
NEW  030 031 032 033 034 035 036 037 038 039 040 041 042 043 044   (G)

OLD  046 047 048 049 050 051 052 053 054 055 056 057 058 059 060   (M)
NEW  045 046 047 048 049 050 051 052 053 054 055 056 057 058 059   (G)

OLD  061 062 063 064 065 066 067 068 069 070 071 072 073 074 075   (M)
NEW  060 061 062 063 064 065 066 067 068 069 070 071 072 073 074   (G)

OLD  076 077 078 079 080 081 082 083 084 085 086 087 088 089 090   (M)
NEW  075 076 077 078 079 080 081 082 083 084 085 086 087 088 089   (G)

OLD  091 092 093 094 095 096 097 098 099 100 101 102 103 104 105   (M)
NEW  090 091 092 093 094 095 096 097 098 099 100 101 102 103 104   (G)

OLD  106 107 108 109 110 111 112 113 114 115 116 117 118 119 120   (M)
NEW  105 106 107 108 109 110 111 112 113 114 115 116 117 118 119   (G)

OLD  121 122 123 124 125 126 127 128 129 130 131 132 133 134 135   (M)
NEW  120 121 122 123 124 125 126 127 128 129 130 131 132 133 134   (G)
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OLD  136 137 138 139 140 141 142 143 144 145 146 147 148 149 150   (M)
NEW  135 136 137 138 139 140 141 142 143 144 145 146 147 148 149   (G)

OLD  151 152 153 154 155 156 157 158 159 160 161 162 163 164 165   (M)
NEW  150 151 152 153 154 155 156 157 158 159 160 161 162 163 164   (G)

OLD  166 167 168 169 170 171 172 173 174 175 176 177 178 179 180   (M)
NEW  165 166 167 168 169 170 171 172 173 174 175 176 177 178 179   (G)

OLD  181 182 183 184 185 186 187 188 189 190 191 192 193 194 195   (M)
NEW  180 181 182 183 184 185 186 187 188 189 190 191 192 193 194   (G)

OLD  196 197 198 199 200 201 202 203 204 205 206 207 208 209 210   (M)
NEW  195 196 197 198 199 200 201 202 203 204 205 206 207 208 209   (G)

OLD  211 212 213 214 215 216 217 218 219 220 221 222 223 224 225   (M)
NEW  210 211 212 213 214 215 216 217 218 219 220 221 222 223 224   (G)

OLD  226 227 228 229 230 231 232 233 234 235 236 237 238 239 240   (M)
NEW  225 226 227 228 229 230 231 232 233 234 235 236 237 238 239   (G)

OLD  241 242 243 244 245 246 247 248 249 250 251 252 253 254 255   (M)
NEW  240 241 242 243 244 245 246 247 248 249 250 251 252 253 254   (G)

OLD  256 257 258 259 260 261 262 263 264 265 266 267 268 269 270   (M)
NEW  255 256 257 258 259 260 261 262 263 264 265 266 267 268 269   (G)

OLD  271 272 273 274 275 276 277 278 279 280 281 282 283 284 285   (M)
NEW  270 271 272 273 274 275 276 277 278 279 280 281 282 283 284   (G)

OLD  286 287 288 289 290 291 292 293 294 295 296 297 298 299 300   (M)
NEW  285 286 287 288 289 290 291 292 293 294 295 296 297 298 299   (G)


OLD  301 302 303 304 305 306 307 308 309 310 311 312 313 314 315   (M)
NEW  300 301 302 303 304 305 306 307 308 309 310 311 312 313 314   (G)

OLD  316 317 318 319 320 321 322 323 324 325 326 327 328 329 330   (M)
NEW  315 316 317 318 319 320 321 322 323 324 325 326 327 328 329   (G)

OLD  331 332 333 334 335 336 337 338 339 340 341 342 343 344 345   (M)
NEW  330 331 332 333 334 335 336 337 338 339 340 341 342 343 344   (G)

OLD  346 347 348 349 350 351 352 353 354 355 356 357 358 359 360   (M)
NEW  345 346 347 348 349 350 351 352 353 354 355 356 357 358 359   (G)

OLD  361 362 363 364 365 366 367 368 369 370 371 372 373 374 375   (M)
NEW  360 361 362 363 364 365 366 367 368 369 370 371 372 373 374   (G)

OLD  376 377 378 379 380 381 382 383 384 385 386 387 388 389 390   (M)
NEW  375 376 377 378 379 380 381 382 383 384 385 386 387 388 389   (G)

OLD  391 392 393 394 395 396 397 398 399 400 401 402 403 404 405   (M)
NEW  390 391 392 393 394 395 396 397 398 399 400 401 402 403 404   (G)

OLD  406 407 408 409 410 411 412 413 414 415 416 417 418 419 420   (M)
NEW  405 406 407 408 409 410 411 412 413 414 415 425 416 417 418   (G)
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OLD  421 422 423 424 425 426 427 428 429 430 431 432 433 434 435   (M)
NEW  419 420 421 422 423 424 426 430 427 428 429 431 432 433 451   (G)

OLD  436 437 438 439 440 441 442 443 444 445 446 447 448 449 450   (M)
NEW  452 455 453 454 456 457 458 459 435 436 437 438 439 440 441   (G)

OLD  451 452 453 454 455 456 457 458 459 460 461 462 463 464 465   (M)
NEW  442 443 444 445 446 447 448 449 450 460 461 463 462 464 465   (G)

OLD  466 467 468 469 470 471 472 473                               (M)
NEW  466 467 468 469 470 471 472 473                               (G)
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Table 8.2.2. Mapping 'new $\mapsto$ old'

```
NEW  001 002 003 004 005 006 007 008 009 010 011 012 013 014 015   (G)
OLD  001 002 004 005 006 007 008 009 010 011 012 013 014 015 016   (M)

NEW  016 017 018 019 020 021 022 023 024 025 026 027 028 029 030   (G)
OLD  017 018 019 020 021 022 023 024 025 026 027 028 029 030 031   (M)

NEW  031 032 033 034 035 036 037 038 039 040 041 042 043 044 045   (G)
OLD  032 033 034 035 036 037 038 039 040 041 042 043 044 045 046   (M)

NEW  046 047 048 049 050 051 052 053 054 055 056 057 058 059 060   (G)
OLD  047 048 049 050 051 052 053 054 055 056 057 058 059 060 061   (M)

NEW  061 062 063 064 065 066 067 068 069 070 071 072 073 074 075   (G)
OLD  062 063 064 065 066 067 068 069 070 071 072 073 074 075 076   (M)

NEW  076 077 078 079 080 081 082 083 084 085 086 087 088 089 090   (G)
OLD  077 078 079 080 081 082 083 084 085 086 087 088 089 090 091   (M)

NEW  091 092 093 094 095 096 097 098 099 100 101 102 103 104 105   (G)
OLD  092 093 094 095 096 097 098 099 100 101 102 103 104 105 106   (M)

NEW  106 107 108 109 110 111 112 113 114 115 116 117 118 119 120   (G)
OLD  107 108 109 110 111 112 113 114 115 116 117 118 119 120 121   (M)

NEW  121 122 123 124 125 126 127 128 129 130 131 132 133 134 135   (G)
OLD  122 123 124 125 126 127 128 129 130 131 132 133 134 135 136   (M)

NEW  136 137 138 139 140 141 142 143 144 145 146 147 148 149 150   (G)
OLD  137 138 139 140 141 142 143 144 145 146 147 148 149 150 151   (M)

NEW  151 152 153 154 155 156 157 158 159 160 161 162 163 164 165   (G)
OLD  152 153 154 155 156 157 158 159 160 161 162 163 164 165 166   (M)

NEW  166 167 168 169 170 171 172 173 174 175 176 177 178 179 180   (G)
OLD  167 168 169 170 171 172 173 174 175 176 177 178 179 180 181   (M)

NEW  181 182 183 184 185 186 187 188 189 190 191 192 193 194 195   (G)
OLD  182 183 184 185 186 187 188 189 190 191 192 193 194 195 196   (M)
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NEW  196 197 198 199 200 201 202 203 204 205 206 207 208 209 210   (G)
OLD  197 198 199 200 201 202 203 204 205 206 207 208 209 210 211   (M)

NEW  211 212 213 214 215 216 217 218 219 220 221 222 223 224 225   (G)
OLD  212 213 214 215 216 217 218 219 220 221 222 223 224 225 226   (M)

NEW  226 227 228 229 230 231 232 233 234 235 236 237 238 239 240   (G)
OLD  227 228 229 230 231 232 233 234 235 236 237 238 239 240 241   (M)

NEW  241 242 243 244 245 246 247 248 249 250 251 252 253 254 255   (G)
OLD  242 243 244 245 246 247 248 249 250 251 252 253 254 255 256   (M)

NEW  256 257 258 259 260 261 262 263 264 265 266 267 268 269 270   (G)
OLD  257 258 259 260 261 262 263 264 265 266 267 268 269 270 271   (M)

NEW  271 272 273 274 275 276 277 278 279 280 281 282 283 284 285   (G)
OLD  272 273 274 275 276 277 278 279 280 281 282 283 284 285 286   (M)

NEW  286 287 288 289 290 291 292 293 294 295 296 297 298 299 300   (G)
OLD  287 288 289 290 291 292 293 294 295 296 297 298 299 300 301   (M)

NEW  301 302 303 304 305 306 307 308 309 310 311 312 313 314 315   (G)
OLD  302 303 304 305 306 307 308 309 310 311 312 313 314 315 316   (M)

NEW  316 317 318 319 320 321 322 323 324 325 326 327 328 329 330   (G)
OLD  317 318 319 320 321 322 323 324 325 326 327 328 329 330 331   (M)

NEW  331 332 333 334 335 336 337 338 339 340 341 342 343 344 345   (G)
OLD  332 333 334 335 336 337 338 339 340 341 342 343 344 345 346   (M)

NEW  346 347 348 349 350 351 352 353 354 355 356 357 358 359 360   (G)
OLD  347 348 349 350 351 352 353 354 355 356 357 358 359 360 361   (M)

NEW  361 362 363 364 365 366 367 368 369 370 371 372 373 374 375   (G)
OLD  362 363 364 365 366 367 368 369 370 371 372 373 374 375 376   (M)

NEW  376 377 378 379 380 381 382 383 384 385 386 387 388 389 390   (G)
OLD  377 378 379 380 381 382 383 384 385 386 387 388 389 390 391   (M)

NEW  391 392 393 394 395 396 397 398 399 400 401 402 403 404 405   (G)
OLD  392 393 394 395 396 397 398 399 400 401 402 403 404 405 406   (M)

NEW  406 407 408 409 410 411 412 413 414 415 416 417 418 419 420   (G)
OLD  407 408 409 410 411 412 413 414 415 416 418 419 420 421 422   (M)

NEW  421 422 423 424 425 426 427 428 429 430 431 432 433 434 435   (G)
OLD  423 424 425 426 417 427 429 430 431 428 432 433 434 003 444   (M)

NEW  436 437 438 439 440 441 442 443 444 445 446 447 448 449 450   (G)
OLD  445 446 447 448 449 450 451 452 453 454 455 456 457 458 459   (M)

NEW  451 452 453 454 455 456 457 458 459 460 461 462 463 464 465   (G)
OLD  435 436 438 439 437 440 441 442 443 460 461 463 462 464 465   (M)

NEW  466 467 468 469 470 471 472 473                               (G)
OLD  466 467 468 469 470 471 472 473                               (M)
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References

[1] A. E. Brouwer, A. M. Cohen and A. Neumaier, *Distance-Regular Graphs*, Springer-Verlag, Berlin, 1989.

[2] F. C. Bussemaker, D. Cvetković and J. J. Seidel, Graphs related to exceptional root systems, T.H.-Report 76-WSK-05, Eindhoven, 1976.

[3] F. C. Bussemaker, D. Cvetković and J. J. Seidel, Graphs related to exceptional root systems, in: *Combinatorics* (eds. A. Hajnal, V. T. Sós), North-Holland, (Amsterdam, 1978), pp.185-191.

[4] F. C. Bussemaker and A. Neumaier, Exceptional graphs with smallest eigenvalue -2 and related problems, *Mathematics of Computation* **59** (1992), 583-608.

[5] P. J. Cameron, J. M. Goethals, J. J. Seidel and E. E. Shult, Line graphs, root systems, and elliptic geometry, *J. Algebra* **43** (1976), 305-327.

[6] P. J. Cameron and J. H. van Lint, *Designs, Graphs, Codes and their Links*, Cambridge University Press, 1991.

[7] J. H. Conway, R. T. Curtis, S. P. Norton and R. A. Wilson, *Atlas of Finite Groups*, Clarendon Press, Oxford, 1985.

[8] D. Cvetković, M. Doob, I. Gutman and A. Torgašev, "Recent Results in the Theory of Graph Spectra", North-Holland, Amsterdam, 1988.

[9] D. Cvetković, M. Doob and H. Sachs, *Spectra of Graphs*, 3rd edition, Johann Ambrosius Barth Verlag, Heidelberg, 1995.

[10] D. Cvetković, M. Doob and S. Simić, Generalized line graphs, *J. Graph Theory* **5** (1981), 385-399.

[11] D. Cvetković, M. Lepović, P. Rowlinson and S. Simić, A database of star complements of graphs, *Univ. Beograd, Publ. Elektrotehn. Fak., Ser. Mat.* **9** (1998), 103-112.

[12] D. Cvetković, M. Lepović, P. Rowlinson and S. K. Simić, The maximal exceptional graphs, to appear.

[13] D. Cvetković, M. Petrić, A table of connected graphs on six vertices, *Discrete Math.* **50** (1984), 37-49.

[14] D. Cvetković, P. Rowlinson and S. K. Simić, *Eigenspaces of Graphs*, Cambridge University Press, 1997.

[15] D. Cvetković, P. Rowlinson and S. K. Simić, Some characterizations of graphs by star complements, *Linear Algebra Appl.* **301** (1999), 83-97.

[16] D. Cvetković, P. Rowlinson and S. K. Simić, Graphs with least eigenvalue -2: the star complement technique, *J. Algebraic Combinatorics* **14** (2001), 5-16.

[17] D. Cvetković, P. Rowlinson and S. K. Simić, *Constructions of the maximal exceptional graphs with largest degree less than 28*, Technical Report CSM-156, Dept. of Computing Science & Mathematics, University of Stirling, 2000.

[18] D. Cvetković, P. Rowlinson and S. K. Simić, The maximal exceptional graphs with maximal degree less than 28, *Bull. Acad. Serbe Sci. Arts, Cl. Math. Natur, Sci. Math.*, to appear.

[19] E. R. van Dam, Nonregular graphs with three eigenvalues, *J. Combin. Theory Ser. B* **73** (1998), 101-118.

[20] M. Doob and D. Cvetković, On spectral characterizations and embeddings of graphs, *Linear Algebra Appl.* **27** (1979), 17-26.

[21] M. N. Ellingham, Basic subgraphs and graph spectra, *Australasian J. Combinatorics* **8** (1993), 247-265.

[22] F. Harary, *Graph Theory*, Addison-Wesley, 1969

[23] P. Rowlinson, On graphs with multiple eigenvalues, *Linear Algebra Appl.* **283** (1998), 75-85.

[24] P. Rowlinson, Star sets and star complements in finite graphs: a spectral construction technique, in: *Discrete Mathematical Chemistry* (eds. P. Hansen, P. Fowler, M. Zheng), *DIMACS Setries in Discrete Mathematics and Theoretical Computer Science* **51**, American Mathematical Society (2000), pp.323-332.