



Chair of Applied Mathematics

Master's Thesis



Symmetric Quadratic Traveling Salesman
Problem with Reload Costs: Applications
& Solution Approaches

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Abstract

This thesis delves into the intricate world of the Symmetric Quadratic Traveling Salesman Problem (SQTSP), particularly focusing on instances where reload costs are incurred when switching between two types of edges during the traversal. Such a scenario is not only realistic in various practical applications, like logistics and route planning, but also poses unique challenges to traditional solution methods. The primary objective of this research is to rigorously test and evaluate the effectiveness of existing Integer Linear Programm (ILP) linearizations, various Subtour Elimination Constraint (SEC)s, and heuristics, as documented in the literature, when applied to the SQTSP that models the reload cost component.

In addition to the evaluative study, this thesis contributes by the development of a novel heuristic specifically designed for this unique variant of the SQTSP. This new heuristic is tailored to effectively handle the complexities introduced by the reload costs, aiming to optimize the traversal sequence in a manner that balances the traditional optimization goals of the SQTSP with the specific cost considerations.

The findings unveil a nuanced interdependence between graph composition and solver complexity, particularly under the influence of the balance of flagged to unflagged edges and the relative magnitude of reload costs. Notably, solver times manifest a bell-shaped curve akin to a normal distribution when related to the percentage of flagged edges, peaking as this percentage nears a 50/50 equilibrium. Concurrently, solver times respond to an increase in reload costs relative to average edge weights in an exponential fashion, highlighting the intricate, non-linear dynamics at play.

The exploration and findings presented in this thesis not only contribute to the theoretical advancement in the field of operations research but also have implications for practical applications. By extending the existing knowledge on SQTSP and introducing new methodologies for addressing the complexities of reload costs, this research provides valuable insights for both academics and practitioners in the field of optimization and logistics.

In essence, this thesis navigates through the theoretical and practical landscapes of the SQTSP with reload costs, offering a comprehensive analysis of existing methods and pioneering a new approach to address the nuanced challenges of this problem.

Zusammenfassung

Diese Arbeit taucht in die komplizierte Welt des Symmetrischen Quadratischen Traveling Salesman Problem (SQTSP) ein und konzentriert sich insbesondere auf Fälle, in denen beim Wechsel zwischen zwei Arten von Kanten Kosten für das Umsteigen anfallen. Ein solches Szenario ist nicht nur in verschiedenen praktischen Anwendungen wie Logistik und Routenplanung realistisch, sondern stellt auch eine besondere Herausforderung für traditionelle Lösungsmethoden dar. Das Hauptziel dieser Forschungsarbeit ist es, die Effektivität bestehender Linearisierungsverfahren der Ganzzahligen Linearen Programmierung (ILP), insbesondere diverse Ungleichungen sowie Heuristiken, wie sie in der Literatur dokumentiert sind, rigoros zu testen und zu bewerten, wenn sie auf das SQTSP angewendet werden, das die Umladekostenkomponente modelliert.

Zusätzlich zu der evaluativen Studie leistet diese Arbeit einen Beitrag durch die Entwicklung einer neuen Heuristik, die speziell für diese einzigartige Variante des SQTSP entwickelt wurde. Diese neue Heuristik ist darauf zugeschnitten, die Komplexität, die durch die Umladekosten eingeführt wird, effektiv zu handhaben, und zielt darauf ab, die Traversalsequenz in einer Weise zu optimieren, die die traditionellen Optimierungsziele des SQTSP mit den spezifischen Kostenüberlegungen in Einklang bringt.

Die Ergebnisse zeigen eine nuancierte Interdependenz zwischen der Zusammensetzung des Graphen und der Komplexität des Solvers, insbesondere unter dem Einfluss des Verhältnisses zwischen markierten und nicht markierten Kanten und der relativen Größe der Umladekosten. Bemerkenswert ist, dass die Laufzeiten der Lösungsmethoden eine glockenförmige Kurve aufweisen, die einer Normalverteilung ähnelt, wenn sie in Bezug auf den Prozentsatz der markierten Kanten betrachtet werden, wobei sie ihren Höhepunkt erreichen, wenn dieser Prozentsatz einem Gleichgewicht von 50/50 nahekommt. Gleichzeitig reagieren die Laufzeiten auf einen Anstieg der Umladekosten im Verhältnis zu den durchschnittlichen Kantenkosten auf exponentielle Weise, was die komplexen, nicht-linearen Dynamiken verdeutlicht.

Die in dieser Arbeit vorgestellten Untersuchungen und Ergebnisse tragen nicht nur zum theoretischen Fortschritt auf dem Gebiet des Operations Research bei, sondern haben auch Auswirkungen auf praktische Anwendungen. Durch die Erweiterung des vorhandenen Wissens über SQTSP und die Einführung neuer Methoden zur Bewältigung der Komplexität von Umladekosten liefert diese Arbeit wertvolle Erkenntnisse sowohl für die Wissenschaft als auch für die Praxis im Bereich der Optimierung und Logistik.

Im Wesentlichen navigiert diese Arbeit durch die theoretischen und praktischen Landschaften des SQTSP mit Umladekosten und bietet eine umfassende Analyse bestehender Methoden und bahnt einen neuen Ansatz, um die nuancierten Herausforderungen dieses Problems anzugehen.



AFFIDAVIT

I declare on oath that I wrote this thesis independently, did not use any sources and aids other than those specified, have fully and truthfully reported the use of generative methods and models of artificial intelligence, and did not otherwise use any other unauthorized aids.

I declare that I have read, understood and complied with the "Good Scientific Practice" of the Montanuniversität Leoben.

Furthermore, I declare that the electronic and printed versions of the submitted thesis are identical in form and content.

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Chapter 1

Introduction

The Traveling Salesman Problem (TSP) is a classical problem in combinatorial optimization, renowned for its conceptual simplicity and computational complexity, as shown extensively in the literature like [5, 10, 15]. The problem is framed by a simple question: Given a list of cities and the distances between each pair of them, what is the shortest possible route that visits each city exactly once and returns to the origin city?

Tracing back to the 18th century, the TSP was initially a purely mathematical problem. However, over time, its significance has expanded into various fields like logistics, planning, and computer science.[1]

In mathematical terms, the TSP is represented as a graph where cities are vertices, and paths are edges with weights indicating distances. The goal is to find a Hamiltonian cycle with the minimum total weight, requiring an optimal permutation of the vertices.

Despite its simplicity, the TSP is \mathcal{NP} -complete [15], establishing its importance in computational complexity and heuristic algorithms studies. It has become a benchmark for optimization techniques, leading to numerous developments in exact and approximate algorithmic solutions.

Building upon the classic TSP, the Quadratic Traveling Salesman Problem (QTSP) introduces an additional layer of complexity. First introduced by Jäger and Molitor [11], the QTSP extends the objective beyond finding the shortest route that visits each city exactly once and returns to the origin. It also considers the interactions between successive edge pairs in the route. In the QTSP, pairs of consecutive edges in the route generate additional costs, affecting the total cost of the route. This extension makes the QTSP a more realistic model for scenarios where the costs at one stage of a route depend on the previous stages [9]. It is important to emphasize that in QTSP, the route's cost is not necessarily defined by the lengths of individual edges, as exemplified by the AngleTSP [2, 18]. Furthermore, the classic TSP can be considered a special case of the QTSP, where the costs between edge pairs are either zero or constant. The SQTSP emerges as a special case of the QTSP, characterized by identical costs for traversing edge pairs in either direction.

In a variety of applications, the QTSP demonstrates its relevance through the nuanced cost implications of route choices. Particularly noteworthy is the cost incurred when transitioning between different transportation modes, a common occurrence in urban mobility. For instance, a shift from pedestrian travel to the use of E-Scooters introduces not only the regular costs associated with distance but also additional expenses related to the mode transition. This phenomenon is also observed in logistics and transportation planning, where the integration of multiple transport modes, such as rail and road or air and ground, entails not just the cost per unit distance but also supplementary costs at each transition point. These transition costs might include time delays, transfer fees, and additional operational expenses. Such complexities underscore the importance of QTSP in optimizing routes where the cost structure is influenced not only by the distance traveled but significantly by the sequence and choice of transportation modes.

The QTSP presents a significant computational complexity challenge and has inspired the development of specialized heuristic and exact algorithms.

1.1 Related Literature & Contribution

The research conducted in this thesis makes a contribution to the field of operations research, particularly in the nuanced area of the SQTSP with reload costs. The work examines how existing models and SECs [2] for SQTSP, originally not targeted reload costs, perform under new scenarios and investigates the effects of specific input parameters, like the quantity of possibilities to switch to another edge type and the severity of an exchange on the test instances. Additionally, the performance of some heuristics is evaluated, leading to the development of a new heuristic specifically tailored for the SQTSP with reload costs. This exploration helps in understanding the limitations and potential adaptability of these models to handle additional operational parameters, providing insight into their applicability and effectiveness in more complex scenarios.

1.2 Formal Problem Definition

"Let $G = (V, E)$ be an undirected complete graph with vertex set $V = \{1, 2, \dots, n\}$ and edge set $E = \{ij : i, j \in V, i \neq j\}$. A path P is an ordered sequence of vertices i.e., $P = (p_1, p_2, \dots, p_{|P|})$ with $p_i \in V$. We will only consider simple paths i.e., paths containing each vertex at most once. A subtour T is a path with the additional interpretation that all vertices are visited in the given order and finally the edge from $p_{|T|}$ to p_1 is traversed. If T contains all vertices of V , i.e., a Hamiltonian cycle, we call T a tour in the graph. Alternatively, a permutation σ also describes a tour $T = \sigma(1), \sigma(2), \dots, \sigma(n)$. For a tour $T = \{t_1, \dots, t_n\}$ we define the set of tour edges as $E(T) := \{t_1 t_2\}, \{t_2 t_3\}, \dots, \{t_n t_1\}$. Finally, for

auxiliary graphs $G = (V, E)$ we denote the set of all neighbouring vertices of $v \in V$ by $\delta(v)$. In the general QTSP, costs are associated with every pair of adjacent edges traversed in succession. So using the (incident) edges e and f one after the other in a tour gives rise to a certain cost value $c_{ef} \in \mathbb{R}_0^+$ which is assigned to the edge pair (e, f) . Equivalently, we can state costs for every triple of vertices $(i, j, k) \in V \times V \times V$ by setting $c_{ijk} = c_{ef}$ for $e = \{i, j\}$ and $f = \{j, k\}$. The QTSP asks for a tour T minimizing the objective function

$$z(G, T) := \left(\sum_{i=1}^{n-2} c_{\sigma(i)\sigma(i+1)\sigma(i+2)} \right) + c_{\sigma(n-1)\sigma(n)\sigma(1)} + c_{\sigma(n)\sigma(1)\sigma(2)}.$$

"[18]

In the symmetric case, costs are $c_{ef} = c_{fe}$ for all $e \neq f \in E$. For the considered problem variant, we introduce reload costs that are specific to transitions between different types of edges within a graph. If e_i and e_j represent edges of different types, a reload cost r_{ij} is incurred when transitioning from e_i to e_j . The objective function accounts for these reload costs, with the total cost of a tour being the sum of the traversal costs and any applicable reload costs. This is mathematically formulated as:

$$c_{ijk} = c_{ef} = c_e + c_f + r_{ef} \cdot \delta(e, f) \tag{1.1}$$

where $e = \{i, j\}$ and $f = \{j, k\}$ are the edges, with c_e and c_f representing the traversal costs for edges e and f respectively, and $\delta(e, f)$ is an indicator function that is 1 if edges e and f are of different types and 0 otherwise.

Chapter 2

Integer Program Representations

The QTSP can be represented as a Quadratic Integer Programm (QIP), as done by Aichholzer et al. [2]. The program utilizes binary edge variables $x_e = x_{ij}$ for each edge $e = \{i, j\} \in V$ in the vertex set, with $\delta(i) = \{e : e = \{i, j\} \in V^2\}$ denoting the set of all edges incident to vertex i in V .

The objective of the program is formulated as a minimization problem:

$$\min \sum_{\substack{e^{(3)} = \langle i, j, k \rangle \in V^{(3)} \\ e = (i, j), f = (j, k)}} d_{e^{(3)}} x_e x_f \quad (2.1)$$

$$\text{s.t. } \sum_{e \in \delta(i)} x_e = 2, \quad i \in V, \quad (2.2)$$

$$\sum_{\substack{e = (i, j) \in V^{\{2\}} \\ i, j \in S}} x_e \leq |S| - 1, \quad S \subsetneq V, S \neq \emptyset, \quad (2.3)$$

$$x_e \in \{0, 1\}, \quad e \in V^{\{2\}}. \quad (2.4)$$

[2]

In the objective function, a weight $d_{e^{(3)}}$ for a 2-edge $e^{(3)} \in V^{(3)}$ is considered if both edges $e = \{i, j\}$ and $f = \{j, k\}$ are included in the tour. Constraint (2.2) represents the degree constraints ensuring that flow in and out of each vertex is two and subsequently is visited exactly once. Constraint (2.3) represents the well-known Dantzig-Fulkerson-Johnson SEC (illustrated in Figure 2.1), and constraint (2.4) enforces the binary nature of the edge variables. This model modifies only the objective function compared to the standard model for the TSP, as can be found for example in [14].

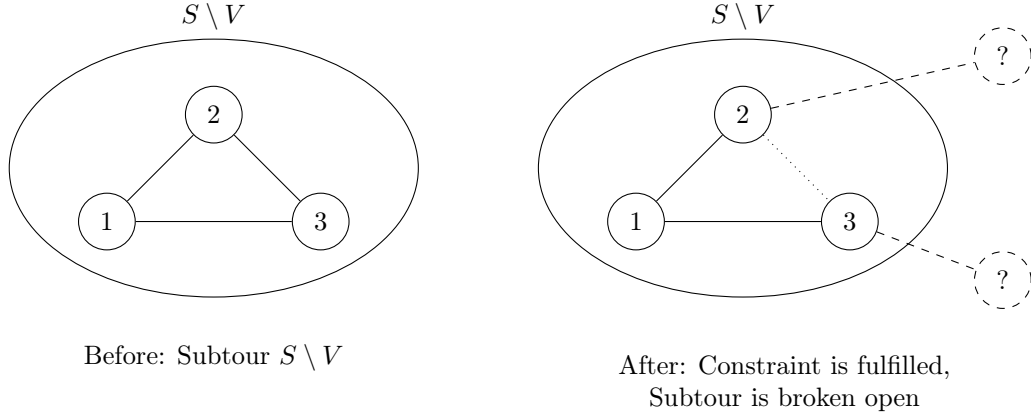


Figure 2.1: Illustration of the Effects of Constraint (2.3)

2.1 Linearizations and Subtour Elimination Constraints

The quadratic integer program for the QTSP can be linearized by introducing additional binary variables $y_{e^{(3)}} = y_{ijk}$ for all 2-edges $e^{(3)} = \langle i, j, k \rangle \in V^{(3)}$, where $y_{ijk} = 1$ if and only if the vertices i, j , and k are visited in the tour in consecutive order. This linearization approach was taken over from [2, 9].

The linear representation of the objective function and associated constraints are structured as follows:

$$\min \sum_{e^{(3)} \in V^{(3)}} d_{e^{(3)}} y_{e^{(3)}} \quad (2.5)$$

$$\text{s.t. } (2.2), (2.3), (2.4), \quad (2.6)$$

$$x_e = \sum_{k \in V \setminus \{i, j\}} y_{ijk} = \sum_{k \in V \setminus \{i, j\}} y_{kij}, \quad e = \{i, j\} \in V^{\{2\}}, \quad (2.7)$$

$$y_{e^{(3)}} \in \{0, 1\}, e^{(3)} \in V^{(3)}. \quad (2.8)$$

[2]

The objective function, shown in (2.5), aims to minimize the total cost of the tour in the QTSP. In this equation, $d_{e^{(3)}}$ represents the cost associated with each 2-edge sequence $e^{(3)} = \langle i, j, k \rangle$ in the set $V^{(3)}$. The variable $y_{e^{(3)}}$ indicates whether the sequence of vertices i, j, k is included in the tour. The sum of these costs over all such edge sequences in the graph provides the total cost of the tour, which the model seeks to minimize. In this model, constraint (2.7) plays a pivotal role in connecting the x -variables and the y -variables. The x -variables represent the inclusion of edges in the tour, while the y -variables are introduced to linearize the quadratic aspect of the problem by capturing

sequences of three consecutive vertices. Specifically, constraint (2.7) ensures that an edge $e = \{i, j\}$ is part of the solution if and only if there exists a vertex k such that the sequence of vertices i, j, k (or k, i, j) is included in the tour. Here, the summation of y -variables over all vertices k other than i and j ensures that the tour transitions through vertices i to j are properly accounted for, maintaining the continuity and flow of the tour in the linearized formulation of the problem. Finally constraint (2.8) enforces the binary nature of the additional variables. [2]

During the performance evaluation of constraints, (2.3) emerges as the least efficient in terms of solver performance (see Chapter 6.2). Regardless of the node count, (2.3) consistently generates an exceptionally high number of SECs, hence also solver runs. In the case of reload costs, the solver runtime for (2.3) shows an exponential increase. Conversely, when analyzing solver time over the percent of flagged edges in an instance, a pattern resembling a normal distribution is observed, with a near 50/50 mix of flagged and unflagged edges leading to significantly higher solver times. Compared to its counterparts, (2.3) displays consistently higher runtimes and solver runs across both low and high node counts, particularly in scenarios with a balanced mix of flagged and unflagged edges.

2.2 Elementary Integral Approach

This thesis also follows the approach from Aichholzer et al. [2], where SEC (2.3) is relaxed, and added specifically for each detected subtour after each run by the solver. Note, that this thesis only utilizes the pure integer approach, tested for the TSP by Pferschy and Staněk [13].

The elementary integral approach for solving the QTSP is outlined below: [2, 13]:

Algorithm 1 Main Idea of the Elementary Integral Approach

- 1: **Require:** SQTSP instance
 - 2: **Ensure:** An optimal SQTSP tour
 - 3: Define current model as constraints (2.2), (2.4)-(2.8);
 - 4: **repeat**
 - 5: Solve the current model to optimality using an ILP-solver;
 - 6: **if** solution contains no subtour **then**
 - 7: **return** the solution as the optimal tour;
 - 8: **else**
 - 9: Find all subtours of the solution and add the corresponding SECs to the model;
 - 10: **end if**
 - 11: **until** an optimal tour is found;
-

In practice, the elementary integral approach outlined above provides a structured framework for solving the QTSP. By iteratively refining the model

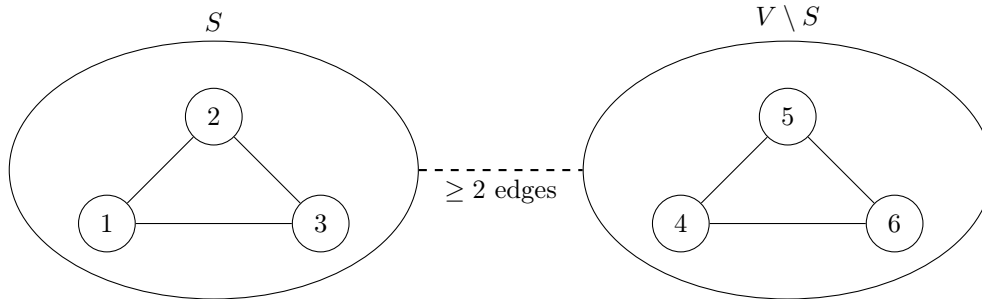


Figure 2.2: Illustration of the Initial Scenario Constraint 2.9 resolves

with SECs as subtours are detected, this method capitalizes on the capability to identify and rectify subtours efficiently. An additional note regarding the approach in this thesis is that SECs were only added to the model for all detected subtours, consisting of at least three nodes, between each iteration.

2.3 Equivalent Subtour Elimination Constraints to the Basic Approach

This section focuses on equivalent and strengthen SECs compared to (2.3), which can lead to a different solver performance.

Mathematically equivalent to (2.3), (2.9) is also another form of a SEC. If a subtour is detected, the constraint forces the vertices within the subtour to have a flow to vertices outside the tour of at least two. The effect of (2.9) is illustrated in Figure 2.2 and Figure 2.3.

$$\sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i \in S, j \in V \setminus S}} x_e \geq 2, \quad S \subsetneq V, S \neq \emptyset. \quad (2.9)$$

[2]

As highlighted by [2], the performance of the solver varies notably when substituting (2.3) with (2.9). Referring to the computational results in Chapter 6.2, (2.9) ranks among the lower-performing constraints in terms of runtime. A exponential increase in runtime is observed, as the percentage of reload costs relative to the average edge weight rises. Similarly, a rise in runtime is evident when the percentage of flagged edges approaches a near equilibrium, exhibiting a pattern akin to a normal distribution. Despite consistent behavior across different node sizes, the substantial number of subtour elimination constraints and corresponding solver runs, particularly under scenarios of high reload costs and a 50/50 flagged/unflagged edge ratio, contribute to the less efficient runtime of (2.9). Nevertheless, (2.9) demonstrates better and more consistent performance compared to (2.3).

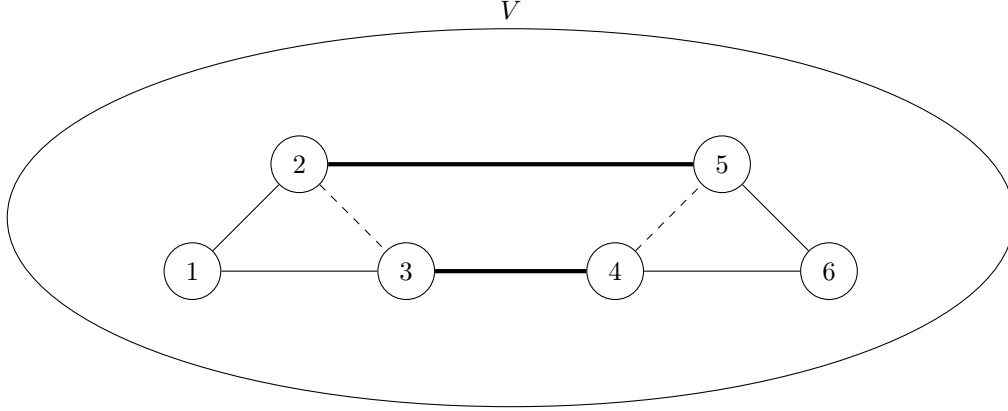


Figure 2.3: Illustration of the Effect of Constraint 2.9

Another approach to further improve the solvers performance can be archived by conditional combining (2.3), if $|S| \leq \frac{2n+1}{3}$ and (2.9) if $|S| > \frac{2n+1}{3}$.

$$\sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i,j \in S}} x_e \leq |S| - 1, \quad \text{if } S \subset V, S \neq \emptyset, |S| \leq \frac{2n+1}{3},$$

$$\sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i \in S, j \in V \setminus S}} x_e \geq 2, \quad \text{if } S \subsetneq V, |S| > \frac{2n+1}{3}. \quad (2.10)$$

[2]

(2.10) presents an intriguing performance profile, exhibiting variability based on instance size and graph characteristics. For most instances, the performance of (2.10) is placed between (2.3) and (2.9)

In terms of scalability, the runtime for both small and large instances in relation to the reload costs follows a exponential trend, similar to other constraints. The interquartile range, median, and whiskers for (2.10) are generally in line with the majority of the other constraints regarding solver time, indicating a level of robustness and predictability in its performance.

When examining the runtime over the percentage of flagged edges within an instance, (2.10) demonstrates a pattern akin to a normal distribution, mirroring the behavior seen in other constraints.

A closer look at the created subtour elimination constraints reveals a normal distribution pattern over percent flagged for larger instances, placing (2.10) between (2.3) and (2.9) in terms of the number of subtour constraints generated. Similarly, in the context of solver runs over changing reload costs, it occupies an intermediate position between (2.3) and (2.9).

[2] indicates a potentially enhanced efficiency of (2.10) over (2.3) and (2.9).

The findings from the computational experiments in this thesis, however, offer a more nuanced perspective on this comparison.

2.4 Strengthened Variants of Subtour Elimination Constraints

The concept is centered around the notion that the y -variable y_{ikj} , with $ikj \in V^{(3)}$, behaves in a manner akin to the x -variable x_{ij} , where $i, j \in V^{(2)}$. In a solution where these variables are set to one, it signifies that the nodes i and j are sequentially adjacent in the tour.[2] It is important to note the strategic significance of these advanced constraints in solving the QTSP. They represent an evolution from simpler models by capturing more complex relationships between the nodes and edges in the graph. Utilizing this fact, as a stronger form of (2.3) we get (2.11),

$$\begin{aligned} \sum_{\substack{e=(i,j) \in V^{(2)} \\ i,j \in S}} x_e + \sum_{\substack{e^{(3)}=(i,k,j) \in V^{(3)} \\ i,j \in S, k \in V \setminus S}} y_{e^{(3)}} &\leq |S| - 1, \quad S \subset V, S \neq \emptyset, |S| < \frac{n}{2}, \\ \sum_{\substack{e=(i,j) \in V^{(2)} \\ i,j \in S}} x_e + \sum_{\substack{e^{(3)}=(i,k,j) \in V^{(3)} \\ i,j \in S, k \in V \setminus (S \cup \{\hat{t}\})}} y_{e^{(3)}} &\leq |S| - 1, \quad S \subsetneq V, |S| \geq \frac{n}{2}, \hat{t} \in V \setminus S. \end{aligned} \tag{2.11}$$

[2]

and respectively as a stronger form of (2.9), we get (2.12).

$$\begin{aligned} \sum_{\substack{e=(i,j) \in V^{(2)} \\ i \in S, j \in V \setminus S}} x_e - 2 \cdot \sum_{\substack{e^{(3)}=(i,k,j) \in V^{(3)} \\ i,j \in S, k \in V \setminus S}} y_{e^{(3)}} &\geq 2, \quad S \subset V, S \neq \emptyset, |S| < \frac{n}{2}, \\ \sum_{\substack{e=(i,j) \in V^{(2)} \\ i \in S, j \in V \setminus S}} x_e - 2 \cdot \sum_{\substack{e^{(3)}=(i,k,j) \in V^{(3)} \\ i,j \in S, k \in V \setminus (S \cup \{\hat{t}\})}} y_{e^{(3)}} &\geq 2, \quad S \subsetneq V, |S| \geq \frac{n}{2}, \hat{t} \in V \setminus S. \end{aligned} \tag{2.12}$$

[2]

The second part of the constraints (2.11) and (2.12) account not only for the direct connections between nodes within a set S , but also for those paths that exit S and then immediately return. This makes the constraint more potent in this form, as (2.3) and (2.9) only account for edges within S .

(2.11) is distinguished as one of the top-performing constraints, demonstrating notable efficiency across both small and large instances. The solver time in response to increasing reload costs for (2.11) is minimal, indicative of an exceptionally low exponential growth. This is further evidenced by the consistently

low interquartile range, and whiskers, all of which are confined within a tight range.

When examining solver times over growing percent of flagged edges, (2.11) continues to exhibit superior performance, aligning with the normal distribution pattern observed in other constraints. In this respect, it stands out as one of the leading performers.

A closer analysis of the number of created SECs, over the percentage of flagged edges in an instance, places (2.11) in a unique category. Alongside (2.11), (2.14), (2.16) and (2.20), it demonstrates significantly fewer SECs, highlighting its exceptional efficiency. This pattern is mirrored in the number of solver runs over the percentage of flagged edges, where (2.11) follows a similar trend as in its number of created SECs.

Lastly, in the context of SECs over the relative sreload costs, (2.11) continues to outshine its counterparts. The trend is exponential, akin to that observed in the other mentioned constraints, yet (2.11) shows a marked superiority. This robust performance is consistent in smaller instances and demonstrates a manageable increase in efficiency for larger instances, further solidifying its position as a highly effective constraint in various scenarios. The performance of (2.11) is in not line with the results from [2], as Aichholzer et al. do not find sustainable performance gains.

(2.12), when assessed in smaller instances, presents an interesting profile in terms of solver time in relation to growing relative reload costs. The trend observed for (2.12) is somewhat akin to that of (2.11), albeit more aligned with the general behavior of other constraints. This trend underscores its consistent performance across varying reload costs.

In the realm of solver time over percent flagged edges, (2.12) conforms to the normal distribution pattern, much like the majority of the other constraints. This aspect of its performance does not particularly stand out, indicating a standard level of efficiency in handling instances with different percentages of flagged edges.

Analyzing the SECs over different deviation of flagged edges, (2.12) maintains alignment with the general trend observed in other constraints. Similarly, its behavior in terms of SECs over the reload costs follows the established exponential pattern, indicative of a consistent response to varying reload costs.

The number of solver runs for (2.12), both over changing relative reload costs and flagged edges, also mirrors the patterns exhibited by other constraints, further indicating its typical performance characteristics in smaller instances.

Transitioning to larger instances, the performance of (2.12) remains exponential in response to rising reload costs, paralleling the trends seen in other constraints. This exponential response is consistent across various metrics, including solver runs over changing percentage of flagged edges, SECs over changing percentage of flagged edges and solver time over changing percentage of flagged edges.

In summary, while (2.12) does not exhibit exceptionally distinct performance characteristics, it maintains a level of predictability across both smaller and larger instances. This uniformity in response to varying graph parameters,

whether in terms of changing reload costs or flagged edges, positions (2.12) as a reliable, though not outstanding, performer within the solver framework. The overall performance of (2.12) is in line with the performance mentioned in [2].

$$\hat{t} = \arg \max_{k \in V \setminus S} \left\{ \min_{\substack{i, j \in S \\ i \neq j}} d_{ikj} \right\}. \quad (2.13)$$

[2]

Equation (2.13) searches the vertex \hat{t} that offers the greatest possible minimum distance d_{ikj} for all pairs of distinct nodes i and j within the set S , considering the path that passes through vertex k . Here, the vertex k is chosen from the set $V \setminus S$. The function $\arg \max$ seeks the value of k for which the inner expression, the minimum of d_{ikj} across all pairs of i and j , is maximized. This approach identifies the optimal vertex k that maximizes the distances within the set S in relation to an external node, thus pinpointing a sort of 'worst-case' scenario for the distances within S , extending the efficiency of (2.11), (2.12) and later in (2.14).[2]

Constraint (2.14) is an extension from (2.11), where the second part of the constraint only applies, if the vertices i and j are connected by an edge in the current solution, hence $x_{ij}^* = 1$.

$$\begin{aligned} \sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i, j \in S}} x_e + \sum_{\substack{e^{(3)}=(i,k,j) \in V^{\{3\}} \\ i, j \in S, k \in V \setminus S \\ x_{ij}^* = 1}} y_{e^{(3)}} \leq |S| - 1, \quad S \subset V, S \neq \emptyset, |S| < \frac{n}{2}, \\ \sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i, j \in S}} x_e + \sum_{\substack{e^{(3)}=(i,k,j) \in V^{\{3\}} \\ i, j \in S, k \in V \setminus (S \cup \{\hat{t}\}) \\ x_{ij}^* = 1}} y_{e^{(3)}} \leq |S| - 1, \quad S \subsetneq V, |S| \geq \frac{n}{2}, \hat{t} \in V \setminus S. \end{aligned} \quad (2.14)$$

In the evaluation of smaller instances, (2.14)'s performance in terms of solution time over reload costs reveals again a exponential pattern. Distinctively, (2.14) ranks as one of the top performers, characterized by a very low median and a tight interquartile range. This reflects its efficiency in handling varying reload costs.

Regarding the solver time over percent flagged edges, (2.14) adheres to the normal distribution pattern observed in other constraints. However, its performance stands out as exceptionally strong, aligning it with the high-performing constraints such as (2.11), (2.16), and (2.20). This indicates a significant level of effectiveness in managing scenarios with various levels of percent flagged edges.

In the context of subtour elimination constraints, (2.14) falls into the lower tier alongside the previously mentioned high-performing constraints. It does

not exhibit any unique pattern, maintaining consistency with the general trends observed in other constraints.

Transitioning to the analysis of larger instances, (2.14) continues to demonstrate exemplary performance. It maintains its standing as a top performer, with no deviation from the expected patterns in subtour elimination constraints and solver runs. The consistency observed in the behavior of (2.14) across various metrics, including subtour elimination constraints and solver runs, reinforces its position as a robust and efficient constraint in diverse instance sizes.

Overall, (2.14)'s performance, especially in its low median and tight interquartile range for reload costs and its exceptional handling of percent flagged edges, establishes it as a remarkably efficient constraint. Its uniformity across both smaller and larger instances underscores its reliability and effectiveness within the solver's operational framework. (2.14)'s results partially correlates to the results in [2], as the performance to (2.11) marginally worse but significantly better than (2.3),

Constraint (2.15) is an adaption of (2.11) or correspondingly (2.12), where only y variables are used.

$$\sum_{\substack{e^{(3)} = \langle i, k, j \rangle \in V^{(3)} \\ i \in S, j, k \in V \setminus S}} y_{e^{(3)}} \geq 2, \quad S \subset V, S \neq \emptyset, |S| < \frac{n}{2},$$

$$\sum_{\substack{e^{(3)} = \langle i, k, j \rangle \in V^{(3)} \\ i \in S, j, k \in V \setminus S}} y_{e^{(3)}} + 2 \cdot \sum_{\substack{e^{(3)} = \langle i, \hat{i}, j \rangle \in V^{(3)} \\ i, j \in S}} y_{e^{(3)}} \geq 2, \quad S \subsetneq V, |S| \geq \frac{n}{2}, \hat{i} \in V \setminus S.$$

(2.15)

(2.15) exhibits a consistent performance pattern across both smaller and larger instances. In terms of solver time over reload costs, it aligns with the general trend observed in most constraints, demonstrating neither exceptional efficiency nor notable deficiency. This balanced performance places it within the median range of efficiency across various instance sizes.

Similarly, when considering solver run times over percent flagged edges, (2.15) adheres to the normal distribution pattern common among other constraints. This consistency further reflects its standard performance, neither outshining nor lagging behind its counterparts.

Remarkably, (2.15) stands out for its lower count of subtour elimination constraints, both over changing percentages of flagged edges and reload costs. This trend extends to the number of solver runs, where (2.15) maintains lower frequencies compared to other constraints. This aspect of its performance indicates a level of efficiency in subtour management, evident in both small and large graph instances.

Despite this efficiency in certain metrics, (2.15) does not rise to the level of the best-performing constraints in larger instances. It continues to exhibit the same performance pattern as in smaller instances, maintaining its position as a reliably average performer. The absence of significant deviations or noteworthy

peculiarities in larger instances underscores 2.15's stable and predictable behavior within the solver's operational framework, across a range of graph conditions and sizes.

2.5 Various Combinations and Extensions of Constraints

In this section, new combination and extension of existing constraints are introduced to see, if any advancement in solver performance can be archived.

2.5.1 Various Combinations of Constraints

Firstly, new combinations are introduced, base of constraint (2.10). We take the same criteria for constraint selection as in (2.11), (2.12), (2.14) and (2.15), namely $|S| < \frac{n}{2}$ for the first SEC and $|S| \geq \frac{n}{2}$ for the second SEC, but exchange one of the two constraints from (2.10) with (2.11), (2.12), (2.14) and (2.15).

The first variation of (2.10), the first part is exchanged with the first part of (2.11), shown in (2.16).

$$\sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i,j \in S}} x_e + \sum_{\substack{e^{(3)}=(i,k,j) \in V^{\{3\}} \\ i,j \in S, k \in V \setminus S}} y_{e^{(3)}} \leq |S| - 1, \quad S \subset V, S \neq \emptyset, |S| < \frac{n}{2},$$

$$\sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i \in S, j \in V \setminus S}} x_e \geq 2, \quad S \subsetneq V, |S| \geq \frac{n}{2}. \quad (2.16)$$

The constraint (2.16) is recognized for its remarkable efficiency in both small and large instances. The solver time for (2.16) shows minimal increase even as reload costs escalate, indicating a low rate of exponential growth. This is further supported by the consistently narrow interquartile range and compact whiskers in the data, signifying a constrained variation in solver time.

In terms of solver time against increasing percent flagged edges, (2.16) maintains its superior performance. It adheres to the normal distribution pattern seen in other constraints, setting it apart as another top performer in this aspect.

When analyzing the subtour elimination constraints in relation to the percent flagged edges, (2.16) stands out distinctively. Along with constraints like (2.11), (2.14) and (2.20), it shows a substantially reduced number of subtour elimination constraints, underscoring its exceptional efficiency. This trend is consistent in the number of solver runs over flagged edges, where (2.16) demonstrates a similar pattern in terms of subtour elimination constraints creation.

Furthermore, in the context of subtour elimination constraints for changing reload costs, (2.16) exhibits remarkable performance. The trend, while exponential as observed in other constraints, showcases a pronounced superiority for (2.16). This robust performance remains consistent in smaller instances and

exhibits a commendable increase in efficiency in larger instances, reinforcing its efficacy as a highly effective constraint under various operational scenarios.

Next, we adapt (2.10) by exchanging its second element with the second part of (2.11), which is detailed in (2.17). Note, that at (2.17), the same methodology for \hat{t} is used as in (2.13)

$$\begin{aligned} \sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i,j \in S}} x_e \leq |S| - 1, \quad S \subset V, S \neq \emptyset, |S| < \frac{n}{2}, \\ \sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i,j \in S}} x_e + \sum_{\substack{e^{(3)}=(i,k,j) \in V^{\{3\}} \\ i,j \in S, k \in V \setminus (S \cup \{\hat{t}\})}} y_{e^{(3)}} \leq |S| - 1, \quad S \subsetneq V, |S| \geq \frac{n}{2}, \hat{t} \in V \setminus S. \end{aligned} \quad (2.17)$$

In smaller instances, (2.17) exhibits a performance pattern that, while showing some fluctuation, generally aligns with the other variant constraints, especially under increasing reload costs. As these costs rise, (2.17)'s performance converges with its counterparts, demonstrating a narrowing spread in efficiency. Over the percent flagged edges, this constraint follows the expected normal distribution, with performance becoming more consistent near the median flagged percentage.

In the next constraint, we follow the patterns as in (2.16), but use (2.12) as the exchange candidate for the first part of the equation.

$$\begin{aligned} \sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i \in S, j \in V \setminus S}} x_e - 2 \cdot \sum_{\substack{e^{(3)}=(i,k,j) \in V^{\{3\}} \\ i,j \in S, k \in V \setminus S}} y_{e^{(3)}} \geq 2, \quad S \subset V, S \neq \emptyset, |S| < \frac{n}{2}, \\ \sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i \in S, j \in V \setminus S}} x_e \geq 2, \quad S \subsetneq V, |S| \geq \frac{n}{2}. \end{aligned} \quad (2.18)$$

Constraint (2.18) aligns closely with the general performance trends observed in most other constraints. In smaller instances, as well as in more complex scenarios, (2.18) demonstrates a consistent efficiency, particularly in its response to varying reload costs and percent flagged edges.

In terms of solver time in relation to the increasing percent of flagged edges, (2.18) mirrors the standard distribution patterns exhibited by other constraints. This indicates a level of efficiency and adaptability that is typical within this field, showcasing its effectiveness in familiar operational scenarios.

Overall, (2.18), with its alignment to common trends in efficiency, solver time, and subtour elimination constraints, reinforces its role as a reliable and standard tool in operations research, adept at handling a variety of typical operational contexts.

Further to complete the variation, we exchange the second part of (2.12).

$$\begin{aligned}
& \sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i,j \in S}} x_e \leq |S| - 1, \quad S \subset V, S \neq \emptyset, |S| < \frac{n}{2}, \\
& \sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i \in S, j \in V \setminus S}} x_e - 2 \cdot \sum_{\substack{e^{(3)}=(i,k,j) \in V^{\{3\}} \\ i,j \in S, k \in V \setminus (S \cup \{\hat{t}\})}} y_{e^{(3)}} \geq 2, \quad S \subsetneq V, |S| \geq \frac{n}{2}, \hat{t} \in V \setminus S.
\end{aligned} \tag{2.19}$$

Constraint (2.19), akin to (2.17), presents a similar behavior in small instances. Its runtime performance over growing reload costs and percent flagged edges mirrors the patterns seen in (2.17). The constraint shows a greater propensity to generate subtour constraints, particularly in scenarios with higher flagged percentages, aligning it closely with the tendencies of (2.3).

In this version, constraint (2.10) is mixed in the same manner as above with (2.14).

$$\begin{aligned}
& \sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i,j \in S}} x_e + \sum_{\substack{e^{(3)}=(i,k,j) \in V^{\{3\}} \\ i,j \in S, k \in V \setminus S \\ x_{ij}^* = 1}} y_{e^{(3)}} \leq |S| - 1, \quad S \subset V, S \neq \emptyset, |S| < \frac{n}{2}, \\
& \sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i \in S, j \in V \setminus S}} x_e \geq 2, \quad S \subsetneq V, |S| \geq \frac{n}{2}.
\end{aligned} \tag{2.20}$$

In an evaluation of operational efficiency, (2.20) emerges as a standout constraint, particularly in its response to dynamic problem sizes. The solver time associated with (2.20) remains impressively low, even as reload costs intensify, signifying an efficiency that does not steeply decline with increasing complexity. This is evidenced by a tightly grouped interquartile range and whiskers, indicating minimal variation in solver time across different instances.

Observing the solver time relative to the ascending percentage of flagged edges, (2.20) showcases a commendable level of stability. It follows a pattern of normal distribution, similar to its counterparts, but with a distinct efficiency curve that positions it as a leading constraint in this domain.

Analyzing the subtour elimination constraints with respect to the percent flagged edges reveals the streamlined efficiency of (2.20). It, along with constraints like (2.11), (2.14) and (2.16), exhibits a lower number of subtour elimination constraints, signifying an optimized approach to constraint management. This pattern is also reflected in the solver runs over flagged edges, where (2.20) maintains a trend consistent with its reduced subtour elimination constraint frequency.

Furthermore, in the realm of subtour elimination constraints in relation to reload costs, (2.20) continues to demonstrate exemplary performance. Although it follows an exponential trend similar to other constraints, (2.20) distinguishes

itself with its superior performance curve. Its robustness is evident in smaller instances and continues to impress with a scalable increase in larger instances, affirming its effectiveness as a versatile and potent constraint in a variety of operational contexts.

Here, the second part is exchanged.

$$\begin{aligned}
& \sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i,j \in S}} x_e \leq |S| - 1, \quad S \subset V, S \neq \emptyset, |S| < \frac{n}{2}, \\
& \sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i,j \in S}} x_e + \sum_{\substack{e^{(3)}=(i,k,j) \in V^{\{3\}} \\ i,j \in S, k \in V \setminus (S \cup \{\hat{t}\}) \\ x_{i_j}^* = 1}} y_{e^{(3)}} \leq |S| - 1, \quad S \subsetneq V, |S| \geq \frac{n}{2}, \hat{t} \in V \setminus S.
\end{aligned} \tag{2.21}$$

For (2.21), the trend in smaller instances indicates a performance closely related to (2.17) and (2.19), especially notable in contexts of high reload costs and median flagged edge percentages. This constraint also tends towards producing a higher number of subtour elimination constraints and solver runs, especially over flagged edges, indicating a performance trend consistent with (2.3)'s subtour creation pattern.

The last variant is a mix of (2.10) with (2.15).

$$\begin{aligned}
& \sum_{\substack{e^{(3)}=(i,k,j) \in V^{\{3\}} \\ i \in S, j,k \in V \setminus S}} y_{e^{(3)}} \geq 2, \quad S \subset V, S \neq \emptyset, |S| < \frac{n}{2}, \\
& \sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i \in S, j \in V \setminus S}} x_e \geq 2, \quad S \subsetneq V, |S| \geq \frac{n}{2}.
\end{aligned} \tag{2.22}$$

The performance of (2.22) closely follows the trends observed in many other constraints. Its behavior in small-scale instances and under complex conditions exhibits a consistency that is characteristic of most constraints.

Regarding its efficiency in varying reload cost scenarios, (2.22) aligns with the expected exponential efficiency curve, indicative of a predictable and stable response to increasing problem complexity. This mirrors the performance dynamics commonly observed in similar constraints.

In summary, (2.22) maintains a performance that is aligned with the broader trends. Its approach to managing reload costs, flagged edges, and subtour elimination constraints is in keeping with the standard practices, ensuring its utility as a reliable and effective tool in various operational settings.

Finally the exchange with the second part of (2.15).

$$\begin{aligned}
& \sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i,j \in S}} x_e \leq |S| - 1, \quad S \subset V, S \neq \emptyset, |S| < \frac{n}{2}, \\
& \sum_{\substack{e^{(3)}=(i,k,j) \in V^{\{3\}} \\ i \in S, j, k \in V \setminus S}} y_{e^{(3)}} + 2 \cdot \sum_{\substack{e^{(3)}=(i,\hat{t},j) \in V^{\{3\}} \\ i,j \in S}} y_{e^{(3)}} \geq 2, \quad S \subsetneq V, |S| \geq \frac{n}{2}, \hat{t} \in V \setminus S.
\end{aligned} \tag{2.23}$$

Finally, (2.23) shows a performance trajectory that is in line with the other variants in smaller instances. Like its counterparts, (2.23)'s efficiency over reload costs and flagged edges exhibits a converging trend towards a unified performance pattern. Its subtour elimination and solver run metrics over flagged and weighted edges reflect a similar tendency to generate more constraints, resonant with the patterns observed in (2.3).

2.5.2 Extension of Constraint

The last new constraint this thesis will cover is an extension of the existing constraint (2.12) with the lifting approach introduced in constraint (2.14), where the second part of the constraint only applies, if the vertices i and j are connected by an edge in the current solution, hence $x_{ij}^* = 1$.

$$\begin{aligned}
& \sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i \in S, j \in V \setminus S}} x_e - 2 \cdot \sum_{\substack{e^{(3)}=(i,k,j) \in V^{\{3\}} \\ i,j \in S, k \in V \setminus S \\ x_{ij}^*=1}} y_{e^{(3)}} \geq 2, \quad S \subset V, S \neq \emptyset, |S| < \frac{n}{2}, \\
& \sum_{\substack{e=(i,j) \in V^{\{2\}} \\ i \in S, j \in V \setminus S}} x_e - 2 \cdot \sum_{\substack{e^{(3)}=(i,k,j) \in V^{\{3\}} \\ i,j \in S, k \in V \setminus (S \cup \{\hat{t}\}) \\ x_{ij}^*=1}} y_{e^{(3)}} \geq 2, \quad S \subsetneq V, |S| \geq \frac{n}{2}, \hat{t} \in V \setminus S.
\end{aligned} \tag{2.24}$$

In examining the performance of (2.24) across various instance sizes, it becomes apparent that this variant does not offer a notable improvement over the original (2.12). This observation is consistent in both smaller and larger instances, covering key performance metrics such as solver time, subtour constraint generation, and the number of solver runs.

The extension of (2.12) into (2.24), while theoretically promising, does not translate into measurable benefits in terms of computational efficiency or effectiveness. In smaller instances, where nuanced differences in constraint behavior might be more discernible, (2.24) performs similarly to its base version. This trend continues in larger instances, where one might expect the extended features of (2.24) to demonstrate their potential. However, even in these scenarios, (2.24)'s performance mirrors that of (2.12), showing no significant divergence in terms of solver efficiency or subtour management.

Overall, the analysis indicates that (2.24), despite its modifications, fails to surpass the performance benchmarks set by (2.12). This lack of distinction in operational efficiency suggests that the extended attributes of (2.24) do not significantly impact its functionality within the solver's framework.

Chapter 3

Applications of the SQTSP

The SQTSP is a versatile mathematical model that finds practical applications in various fields, where routing optimization plays a critical role. This chapter explores the multifaceted nature of the SQTSP and its applicability in addressing real-world problems where costs are not merely distance-dependent but also hinge on sequential choices and transitions between different states or modes.

Logistics and Transportation Planning

In the domain of logistics, reload costs manifest primarily during the loading and unloading processes when goods are transitioned between various transport modes such as ships, trains, and trucks. The SQTSP effectively captures these costs, allowing for a more accurate representation of financial concerns in the evaluation of transport networks.[3]

Telecommunication Networks

Analogously, in telecommunication networks, reload costs correspond to the expenses incurred from transitions between different technological mediums, such as fiber-optic to copper cables or satellite transmissions. The optimization of these technology switches is essential in minimizing overall costs, which is a prime objective of the SQTSP in network planning.[17]

Urban Mobility

Urban mobility presents unique challenges, with costs arising not only from the distance of travel but also from the transition between modes such as walking, E-Scooters, or automobiles. The SQTSP addresses these challenges by considering additional expenses, including activation fees and restricted route access based on transportation mode, thus providing a tool for optimizing urban travel routes.

Street Networks and Toll Roads

Street networks offer another application where SQTSP is valuable, especially in scenarios where choices involve toll roads with associated fees or alternative

routes without tolls. The optimization here focuses on balancing the costs and benefits of quicker, but more expensive routes versus slower, toll-free options.

Healthcare Logistics

Healthcare logistics, especially in the distribution of temperature-sensitive vaccines or organs for transplant, can utilize the SQTSP to minimize reload costs associated with maintaining the cold chain and handling special medical cargo, ensuring timely and safe delivery to their destinations.

Automated Warehousing

The SQTSP can be adapted to automate warehousing systems where robots or automated guided vehicles must choose paths that minimize the energy consumption and time delays associated with the transfer of items between various storage and processing areas.

Multimodal Passenger Transport

In multimodal passenger transport systems, individuals often switch between different modes of public and private transportation. The SQTSP can help in designing optimal transit routes that consider not only the travel time and cost but also the convenience and frequency of transfers.

Chapter 4

Characterization and Creation of Test Instances for the Symmetric Quadratic Traveling Salesman Problem

In this chapter, we delve into the selection and examination of test instances crucial for evaluating the performance and applicability of the algorithms proposed in this thesis. These test instances play a pivotal role in demonstrating the efficacy of our approach under various conditions reflective of real-world scenarios.

4.1 Characterization of Instances

Reload costs, conceptualized by Wirth and Steffan [19], represent a significant theoretical construct in the optimization of network systems. These costs are attributed to the transitions within networked systems, be they in transportation, communication frameworks or any other application mentioned in chapter 3. The focus on reload costs stems from their potential to influence the efficiency of a system's operational transitions rather than the direct operational costs. Within the scope of the QTSP, reload costs provide a critical variable in the quest for optimal solutions, acknowledging that the sequence of actions, and their associated costs, can impact the total expense as much as the actions themselves.

Figure 4.1 presents a schematic illustration of a typical street network, where nodes represent intersections or destinations, and edges symbolize the roads connecting them. The differentiation between toll and non-toll roads is effectively visualized using dotted and solid lines, respectively. This distinction is crucial in QTSP, as it adds an additional layer of complexity to the route planning, where

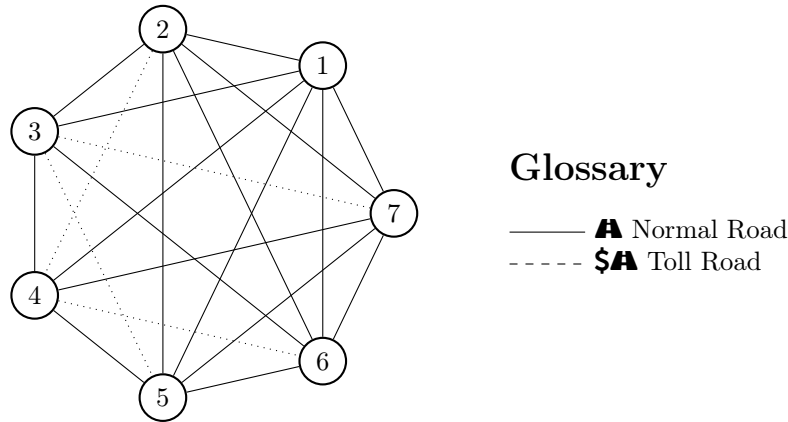


Figure 4.1: Example of a SQTSP Test Instance

Edge Transition	Cost
•.....•.....•	0
•——•——•	0
•——•.....•	7
•.....•——•	7

Table 4.1: Illustration of Reload Costs between Different Edge Types

decisions are not solely distance-based but also cost-driven. Complementing the graphical representation, Table 4.1 elucidates the cost structure associated with different edge transitions in the network. The table categorically lists the potential transitions between toll and non-toll roads and assigns a numerical cost to each. This tabular representation is instrumental in quantifying the reload costs, a fundamental aspect of the SQTSP that accounts for the expenses incurred due to the transition between different types of roads. The visualization of transitions alongside their respective costs provides a clear and concise understanding of how reload costs are integral in determining the optimal route in a network with diverse road types.

4.2 Existing Test Instances

In their research, Fischer [6] and Fischer and Helmberg [9] conducted tests on reload instances. These specific instances were utilized to validate the model (see Appendix A) and the SECs discussed in this thesis. The instances were obtained through personal communication with Fischer. Notably, these instances feature the following characteristics:

"For the reload cost instances we generated random graphs $\tilde{G} = (\tilde{V}, \tilde{E})$ by including each edge $e \in \tilde{E}$ independently with some fixed

probability $p \in [0, 1]$ and by randomly coloring these edges with colors $D = \{1, \dots, d\}$. Two types of costs are used for the instances. In the instances RI_1 each color change causes costs of one, and in RI_2 , the color change between two colors $i, j \in D, i \neq j$, causes costs d_{ij} with d_{ij} chosen uniformly at random in $\{1, \dots, 10\}$. [9]

Fischer highlighted the extreme difficulty in solving these instances but did not elaborate on the underlying reasons. In Chapter 6 of this thesis, we propose a plausible explanation, identifying the significant discrepancy between edge costs and reload costs as a contributing factor. Due to the computational demands, evidenced by the 4-10 hours required to solve a single instance among the five tested with a probability p of 1 and a node size of 20, the results for these instances have been omitted from direct discussion (see Appendix Z).

4.3 Creation of Test Instances

As already mentioned by [7, 9], random instances need to be create, as no real world instances are available. Additionally, this theses extends the existing definition for generated instances by the fact that the created graphs need to be complete.

The generated test instances encompass a wide range of configurations to thoroughly assess the performance and effectiveness of the proposed algorithms. A total of around 3500 unique test instances were created, varying across three main parameters: the number of nodes, the percentage of randomly flagged edges, and the magnitude of reload costs relative to the average edge weight for these flagged edges.

The number of nodes in the test instances ranges from 10 to 40, to capture different scales and levels of complexity. This allows for an in-depth analysis of the algorithms in terms of scalability and performance across various network sizes.

The percentage of randomly flagged edges in the test instances extends from 5% to 95% in steps of 10%. This flagging is crucial as it introduces possibilities within the traversal to change between different edge kinds, influencing the complexity of the routing. The variation in this parameter aims to demonstrate how the algorithms respond to different densities of constraints within the network.

The reload costs for a flagged edge are defined as a percentage of the average edge length of all edges in the graph. This percentage varies in the test instances from 5% to 95%, also in steps of 10%. These costs represent the additional burden incurred when transitioning from or to a flagged edge in the route. By varying these costs in the test instances, the algorithms can be evaluated for their ability to determine efficient routes considering different cost scenarios. For each parameter configuration, 5 instances were generated to obtain a more representative result.

Each generated base instance, holding the node coordinates, underwent a subsequent process where edges were randomly flagged, and different reload

Algorithm 2 Generate Graph with Euclidean Distances and Reload Costs

- 1: **Require:** Bounds for Euclidean space, percentage for flagged edges, percentage for reload cost to average edge weight
 - 2: **Ensure:** A complete graph with reload costs when traversing from or to a flagged edge
 - 3: Initialize empty graph G
 - 4: Generate random vertices within the bounds in Euclidean space
 - 5: Calculate the Euclidean distances between each pair of vertices
 - 6: Round the distances to the nearest integer and assign as edge weights
 - 7: Initialize total weight W to 0
 - 8: Initialize edge count E to 0
 - 9: **for** each pair of vertices v_i, v_j in G **do**
 - 10: Add edge (v_i, v_j) to G
 - 11: $W \leftarrow W + \text{weight}(v_i, v_j)$
 - 12: $E \leftarrow E + 1$
 - 13: **end for**
 - 14: Calculate average edge weight $\bar{w} = W/E$
 - 15: **for** each edge in G **do**
 - 16: Randomly flag this edge with given probability
 - 17: **if** edge is flagged **then**
 - 18: Assign reload cost $r = \bar{w} \times \text{reload percentage}$
 - 19: **end if**
 - 20: **end for**
 - 21: **return** Graph G with assigned reload costs
-

costs were assigned. This method allows for the potential identification of patterns in each instance, particularly in terms of how solutions might pivot or change based on the varying flagged edges and their associated reload costs. Such a nuanced approach in instance generation aids in a more comprehensive analysis of the algorithms and constraints, especially in observing their behavior and performance under varying network constraints and cost dynamics.

4.4 Challenges of Instances with Specific Attributes

In our computational experiments (referenced in Chapter 6), we have identified significant challenges associated with instances characterized by high ratios of reload costs to the average edge weight. Notably, instances from Fischer [9] that feature reload costs at times equating to 1 against an edge weight of 0 present pronounced difficulties in solving. These instances underscore the complexities involved when reload costs disproportionately influence the computational landscape of the problem. To address such challenging scenarios effectively, we recommend employing the strategy outlined in (2.16), which is designed to manage the computational burden introduced by these specific attributes efficiently. This approach aims to optimize algorithmic performance under conditions where reload costs dominate the solution process.

Chapter 5

Heuristics for SQTSP

Fischer et al. [8] have previously discussed several heuristics for the QTSP, most of which are adaptations of well-known and proven heuristics used for the regular TSP. In our study, we selected two of these heuristics mentioned in [8] and conduct comprehensive benchmark tests to evaluate their performance and effectiveness in solving SQTSP instances.

5.1 Cheapest-Insertion Heuristic (CI)

“This is a generalization of an ATSP heuristic [16]. We start with an arc $(v_1, v_2) \in A$ considered as a cycle and choose this arc so that the term

$$\min_{x \in V} cq(x, v_1, v_2) + \min_{x \in V} cq(v_1, v_2, x)$$

is minimal. Note that the natural starting point, namely starting with a pair of arcs (v_1, v_2) and (v_2, v_3) , so that $cq(v_1, v_2, v_3)$ is minimal over all pairwise distinct triples, would lead to a bad tour, if $cq(v_2, v_3, x)$ is large for all $x \in V \setminus \{v_2, v_3\}$ or if $cq(x, v_1, v_2)$ is large for all $x \in V \setminus \{v_1, v_2\}$. The new nodes are iteratively included in the cycle in a greedy manner, so that in each step the new cycle is cost minimal. The heuristic stops when the cycle is a tour.”[8]

5.2 Nearest-Neighbor Heuristic (NN)

“This is also a generalization of an ATSP heuristic [16]. Given a path $P_{k-1} = (v_1, \dots, v_k)$ we append a node $v_{k+1} \in V \setminus \{v_1, \dots, v_k\}$ so that $cq(v_{k-1}, v_k, v_{k+1})$ is minimal. The arc $(v_1, v_2) \in A$ for the first iteration is chosen so that

$$\frac{1}{n-2} \cdot \left(\sum_{x \in V} cq(x, v_1, v_2) \right) + \min_{x \in V} cq(v_1, v_2, x)$$

is minimal in order to respect the predecessor of v_1 to be chosen in the last step.[8]“

5.3 Approach on a SQTSP Heuristic

The proposed heuristic for the SQTSP combines elements of greedy algorithms with local search optimization techniques. It is designed to initiate the tour with edges that have higher costs, under the premise that this approach can potentially unlock more significant cost-saving opportunities during the optimization phase. Furthermore a key aspect of this heuristic is the initial focus on forming a tour with as many similar kind edges, subsequently reducing the number of edge switches. Only in the later stages of the heuristic, flagged edges are strategically incorporated, allowing for an efficient balance between immediate cost savings and overall tour optimization.

Adapted Nearest Neighbor

The heuristic begins with a modified Nearest Neighbor (NN) strategy to construct an initial tour. This process starts from a node that exhibits the maximum cumulative cost to its neighboring nodes, hypothesizing that such nodes could be critical in realizing an economical tour. The algorithm then iteratively appends the closest unvisited node to the tour, giving precedence to unflagged edges to minimize early commitment to potentially suboptimal paths.

Once the initial tour is established, it undergoes a series of refinement steps through the application of local search optimizations, specifically 2-Opt, 3-Opt, and 4-Opt techniques. These methods are employed sequentially to unravel and recombine tour segments, exploiting the quadratic nature of the problem’s cost function to achieve a more cost-efficient solution.

2-Opt Technique

The 2-Opt technique is the simplest form of local optimization applied in this heuristic. It inspects pairs of edges and evaluates the cost impact of exchanging these edges. If a beneficial exchange is identified, characterized by a reduction in the total tour cost, it is executed to yield a more favorable tour configuration. [8, 12]

3-Opt and 4-Opt Techniques

Building on the 2-Opt foundation, the heuristic further incorporates 3-Opt and 4-Opt techniques. These methods extend the principle of edge exchange to triplets and quadruplets of edges, respectively. They offer a more profound rearrangement of the tour structure, facilitating the escape from local optima and fostering the discovery of a tour closer to the global optimum.

Chapter 6

Computational Experiments

6.1 Test Environment

All computational experiments were executed on an Intel i7-7820HQ (2.90 GHz/3.90 GHz) with 32GB RAM, operating under Windows 10. The programs for these tests were developed in Java 18, utilizing AMPL 4.0.0 as modeling tool and Gurobi 11.0.0 as the ILP-solver. All tests were conducted in isolation, ensuring no other user processes were running in the background.

6.2 Evaluation of Constraint Performances

Preliminary

In our analysis, different statistical measures are employed for various types of data. The *Arithmetic Mean* is used for calculating the average values of time, number of subtour constraints and number of solver runs. This is due to the additive nature of these data points. The Arithmetic Mean is defined as:

$$\text{Arithmetic Mean} = \frac{1}{n} \sum_{i=1}^n x_i = \frac{x_1 + x_2 + \dots + x_n}{n} \quad (6.1)$$

where x_i represents the individual data points and n is the total number of data points.

For the analysis of heuristic gaps, which often span several orders of magnitude, the *Geometric Mean* is used. This measure is more appropriate for data that are multiplicative or where percentage changes are of interest. The Geometric Mean is defined as:

$$\text{Geometric Mean} = \left(\prod_{i=1}^n x_i \right)^{\frac{1}{n}} = \sqrt[n]{x_1 \cdot x_2 \cdot \dots \cdot x_n} \quad (6.2)$$

where x_i are the gap values observed in the heuristic analysis and n is the number of data points.[4]

Evaluation

In an in-depth examination of the plots in Appendix B, a notable trend is observed in the median computational times associated with different constraints. This trend is characterized by an increase in computational times as the percentage of flagged edges in the graph escalates from 0% to around 50%. Intriguingly, beyond this point, there is a discernible reversal in this trend, with computational times showing a tendency to revert towards their initial values.

Further analysis reveals that the variability in computational times, as evidenced by the widening of the interquartile range, becomes more pronounced with the increase in the percentage of flagged edges, up to the 50% threshold. This phenomenon suggests that the complexity inherent in efficiently solving smaller subtours might be a contributing factor. Supporting evidence for this hypothesis can be found in the correlated increase in the number of SECs and solver runs, as indicated in the plots in Appendix D and Appendix F.

Drawing conclusions from this analysis, it becomes apparent that certain SECs, specifically those represented by equations (2.11), (2.14), (2.16) and (2.20), exhibit a more robust performance in terms of solver time when faced with varying percentages of flagged edges in a graph. These constraints demonstrate consistently median values and maintain tighter interquartile ranges, indicating a higher level of efficiency compared to their counterparts.

***Hypothesis:** This hypothesis posits that the computational complexity of solving the SQTSP follows a normal distribution relative to the percentage of flagged edges in a graph, peaking when the distribution of flagged and unflagged edges approaches a 50/50 ratio. It is conjectured that an increase in the number of SECs due to this balanced edge mix leads to a higher number of solver runs, which in turn results in greater overall solving time. Thus, the balanced distribution of flagged edges relative to all edges is hypothesized to be a critical factor in amplifying the structural complexity and computational demands of the problem.*

An examination of the solver times with respect to the reload costs relative to the average edge weights has been conducted, see Appendix C. The boxplot analysis reveals a noteworthy consistency in solver performance across the examined constraints, particularly SECs (2.11), (2.14), (2.16) and (2.20).

As reload costs, relative to the average edge weights, increase, an exponential escalation in solver times is observed across all constraints. This trend is characterized by a more pronounced increase in solver times than would be expected under a linear model. The constraints mentioned earlier exhibit a marginal widening of their interquartile ranges in response to this growth. This pattern suggests that the solver times react disproportionately to increments in reload costs relative to the average edge weights, aligning with an exponential increase in computational complexity as input parameters scale.

The robust nature of these constraints in the face of escalating reload costs relative to the average edge weights is indicative of their efficiency. They demonstrate not only effective management of computational load but also a notable

consistency in solver times, particularly in lower reload costs categories relative to the average edge weights.

Hypothesis: *Observing the exponential rise in solver times alongside an increase in variance with rising reload costs relative to the average edge weights, the following hypothesis is proposed: The median and variance of solver times, as well as the number of SECs (see Appendix E) and solver runs (see Appendix G), grow exponentially as the reload costs increase relative to the average edge weights. This trend implies a direct link between the complexity introduced by increasing reload costs, relative to the average edge weights, and the computational efforts required for solving instances. The exponential pattern seen in the number of SECs and number of solver runs further corroborates the notion that higher reload costs, relative to the average edge weights, significantly amplify the structural and computational complexity of the problem.*

Overall Hypothesis: Interplay of Edge Balance and Reload Costs in Solver Complexity

Through the collective analysis of various graph characteristics and their impact on the solver’s performance, a comprehensive hypothesis emerges, encapsulating the intricate dynamics observed:

Comprehensive Hypothesis: *The operational complexity of the solver, as manifested in the number of SECs, the frequency of solver runs, and the resultant solver time, is significantly influenced by two pivotal factors in graph composition: the balance between flagged and unflagged edges, and the proportionality of the reload costs relative to the average edge weights. Firstly, a graph exhibiting a balanced distribution of flagged and unflagged edges tends to increase the intricacy of subtour challenges, leading to a higher count of SECs. This balance acts as a catalyst in the subtour elimination process, intensifying the solver’s computational effort. Secondly, when the reload costs bear a substantial relation to the average edge weight, it further escalates the complexity faced by the solver. This relationship amplifies the difficulty in determining efficient paths, thereby increasing the number of SECs encountered during the solution process. Consequently, these two factors, edge balance and reload costs to average edge weights proportionality, operate in tandem to heighten the overall solver complexity. This heightened complexity is sequentially reflected in an increased number of solver runs and, ultimately, extended solver times. The hypothesis underscores a direct correlation between the nuanced structural attributes of the graph and the operational demands placed on the solver, highlighting the intricate interdependencies that govern the solver’s performance.*

6.3 Evaluation of Heuristic Performances

In this section, we delve into the analysis of gap trends for the heuristic algorithms, which can be found in the Appendix H.

Gap Trends for Different Ratios of Flagged Edge to Unflagged Edges

In our initial analysis, we focus on evaluating the performance of various heuristics concerning the increasing percentages of flagged edges. This investigation encompasses three distinct heuristics: the Cheapest Insertion, the Nearest Neighbor, and a novel heuristic method proposed in this thesis. A key observation across these heuristics is that the most favorable gaps, in terms of solution quality, are evident in instances where the percentage of flagged edges deviates significantly from an even 50/50 distribution. This outcome aligns with the normal distribution-like pattern observed in constraint performances over a variety of percentages of flagged edges to unflagged edges within test instances.

Noteworthy within these findings is the superior efficacy of the Nearest Neighbor heuristic, which consistently outperforms others in terms of solution quality and computational efficiency. Following closely is the Cheapest Insertion heuristic, which also shows commendable performance under these parameters. In contrast, the heuristic approach advocated in this thesis exhibits a marked underperformance. It notably lags in all evaluated aspects, including both the quality of the solutions and computational efficiency, thereby indicating areas for potential refinement and further investigation.

Gap Trends for Different Reload Costs Relative to Average Edge Weights

When we shift focus to examine the heuristic gaps in relation to reload costs, our analysis uncovers a consistent trend across the different heuristics. We observe that for scenarios with minimal reload costs, the heuristics tend to yield lower gaps. Conversely, as reload costs intensify, there is a noticeable increase in these gaps. This pattern is coherent across all heuristics under study.

Among the evaluated strategies, the Nearest Neighbor heuristic continues to demonstrate its superiority, achieving the smallest gaps and thus indicating higher efficiency, even with increasing reload costs. This is closely followed by the Cheapest Insertion heuristic, which also exhibits commendable resilience against the escalation of reload costs, albeit with slightly less efficiency than the Nearest Neighbor heuristic.

In contrast, the heuristic proposed in this thesis shows a more concerning trend. It manifests a disproportionate increase in gaps across various scenarios, indicative of a potential scalability limitation within the heuristic's design. This trend is consistently observed, suggesting that the heuristic may not adapt well to changing operational conditions, particularly in the context of reload costs. These observations underscore the necessity for further refinement and optimization of the proposed heuristic. Emphasizing its performance enhance-

ment, especially in managing reload costs effectively, is essential to improve its applicability and efficiency in a broader range of scenarios.

Chapter 7

Discussion

In this chapter, we delve into a nuanced analysis of the findings from the study of the SQTSP with reload costs, integrating these insights within the broader scope of existing literature and their practical ramifications.

The research presented in this thesis highlights notable variations in the performance of SECs in response to different operational conditions, particularly reload costs relative to the average edge weight and the ratio of flagged edges relative to all edges. This revelation not only underscores the complexity inherent in the SQTSP but also challenges some of the conventional understandings within the field of operations research. The distinctive computational patterns observed in relation to these structural elements of the SQTSP open new avenues for exploring the subtleties of quadratic routing problems. When juxtaposed with existing literature, our findings reveal both alignments and deviations in terms of constraint performances. The fundamental principles of the SQTSP corroborate established theories, yet the nuanced behaviors of the heuristic approaches, especially the novel heuristic introduced in this study, provide fresh perspectives. These new insights contribute to a more refined understanding of routing problems characterized by complex cost structures. However, it is crucial to acknowledge the limitations of this research, particularly regarding the scalability of the proposed heuristic and the generalizability of the findings. Future research might focus on refining the heuristic for broader application and exploring the SQTSP in a wider array of contexts. Additionally, investigations into alternative SECs and their computational implications could further enrich our understanding of these complex routing problems.

In conclusion, the comprehensive evaluation conducted in this discussion not only augments our understanding of the SQTSP with reload costs but also lays a foundation for future explorations in operations research and related disciplines. The interplay between the structural nuances of the SQTSP and computational efficiency, as uncovered in this thesis, provides a fertile ground for continued academic inquiry and practical innovation.

Chapter 8

Conclusion

The research presented in this thesis offers an exhaustive exploration of the SQTSP with reload costs. Initiating with an in-depth review of pertinent literature, this work established a solid foundation for understanding linearizations and classical SECs within this context.

Venturing beyond basic methodologies, this study scrutinized alternative SECs under the hypothesis of enhanced performance. This led to the development of innovative, more robust SECs variants, coupled with the construction and rigorous evaluation of new test instances. These efforts provided a detailed examination of the SQTSP's versatility across diverse domains.

Furthermore, this thesis illuminates the practical applications of the SQTSP across various domains. The SQTSP's versatility is showcased in its applicability to real-world problems where costs are influenced by sequential choices and transitions between states or modes. These applications span from logistics and transportation planning to telecommunication networks, urban mobility, street networks, healthcare logistics, automated warehousing, and multimodal passenger transport. Each domain benefits from the SQTSP's ability to accurately model and optimize complex routing scenarios, emphasizing the model's relevance and utility in practical settings.

The scholarly contributions of this thesis include the formalization of the problem definition, the creation of a comprehensive suite of test instances, and the identification of computational time distribution patterns. These contributions, together with the insights on the dependency of heuristic success on problem parameters and the practical applications of the SQTSP, pave the way for future research to refine solution strategies and enhance solver efficiency in the context of SQTSP with reload costs.

Computational experiments conducted during this research revealed significant variations in the performance of different constraints, with some configurations distinctly outperforming others. Notably, computational times exhibited unique patterns in relation to reload costs relative to the average edge weight and the ratio of flagged edges relative to all edges, suggesting a complex interplay between graph composition and computational complexity, aligning with

both normal and exponential distributions.

The heuristic approach developed in this thesis, while innovative, fell short of anticipated benchmarks in solution quality and computational efficiency. However, it was observed that the performance gap for each constraint was consistently influenced by reload costs relative to the average edge weights and the ratio of flagged edges relative to all edges, underscoring the complex dependencies between problem structure and heuristic efficacy.

From these empirical observations, a comprehensive hypothesis was formulated:

The operational complexity of the solver, as manifested in the number of SECs, the frequency of solver runs, and the resultant solver time, is significantly influenced by two pivotal factors in graph composition: the balance between flagged and unflagged edges, and the proportionality of the reload costs relative to the average edge weights. Firstly, a graph exhibiting a balanced distribution of flagged and unflagged edges tends to increase the intricacy of subtour challenges, leading to a higher count of SECs. This balance acts as a catalyst in the subtour elimination process, intensifying the solver's computational effort. Secondly, when the reload costs bear a substantial relation to the average edge weight, it further escalates the complexity faced by the solver. This relationship amplifies the difficulty in determining efficient paths, thereby increasing the number of SECs encountered during the solution process. Consequently, these two factors, edge balance and reload costs to average edge weights proportionality, operate in tandem to heighten the overall solver complexity. This heightened complexity is sequentially reflected in an increased number of solver runs and, ultimately, extended solver times. The hypothesis underscores a direct correlation between the nuanced structural attributes of the graph and the operational demands placed on the solver, highlighting the intricate interdependencies that govern the solver's performance.

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Appendix A

AMPL Model

```
1 param NODES;  
2 set TRIPLES := {(i, j, k) in 1..NODES cross 1..NODES  
3   cross 1..NODES: i != j and j != k and i != k};  
4  
5 param cost {TRIPLES};  
6  
7 var x {1..NODES, 1..NODES} binary;  
8 var y {TRIPLES} binary;  
9  
10 minimize TotalCost: sum {(i,j,k) in TRIPLES} (cost[i,j,k  
11   ] * y[i,j,k])/2;  
12  
13 s.t. edgeSum {i in 1..NODES}:  
14 sum {j in 1..NODES: i != j} (x[i,j]) = 2;  
15  
16 s.t. flowConservation {i in 1..NODES, j in 1..NODES: i  
17   != j}:  
18 sum {k in 1..NODES: k != i and k != j} y[k,i,j] = x[i,j  
19   ];  
20  
21 s.t. flowConservation2 {i in 1..NODES, j in 1..NODES: i  
22   != j}:  
23 sum {k in 1..NODES: k != i and k != j} y[i,j,k] = x[i,j  
24   ];
```

Listing A.1: AMPL Model

Appendix B

Boxplots Solver Time over Flagged Edges

NOTE:

No outliers are shown due to readability!

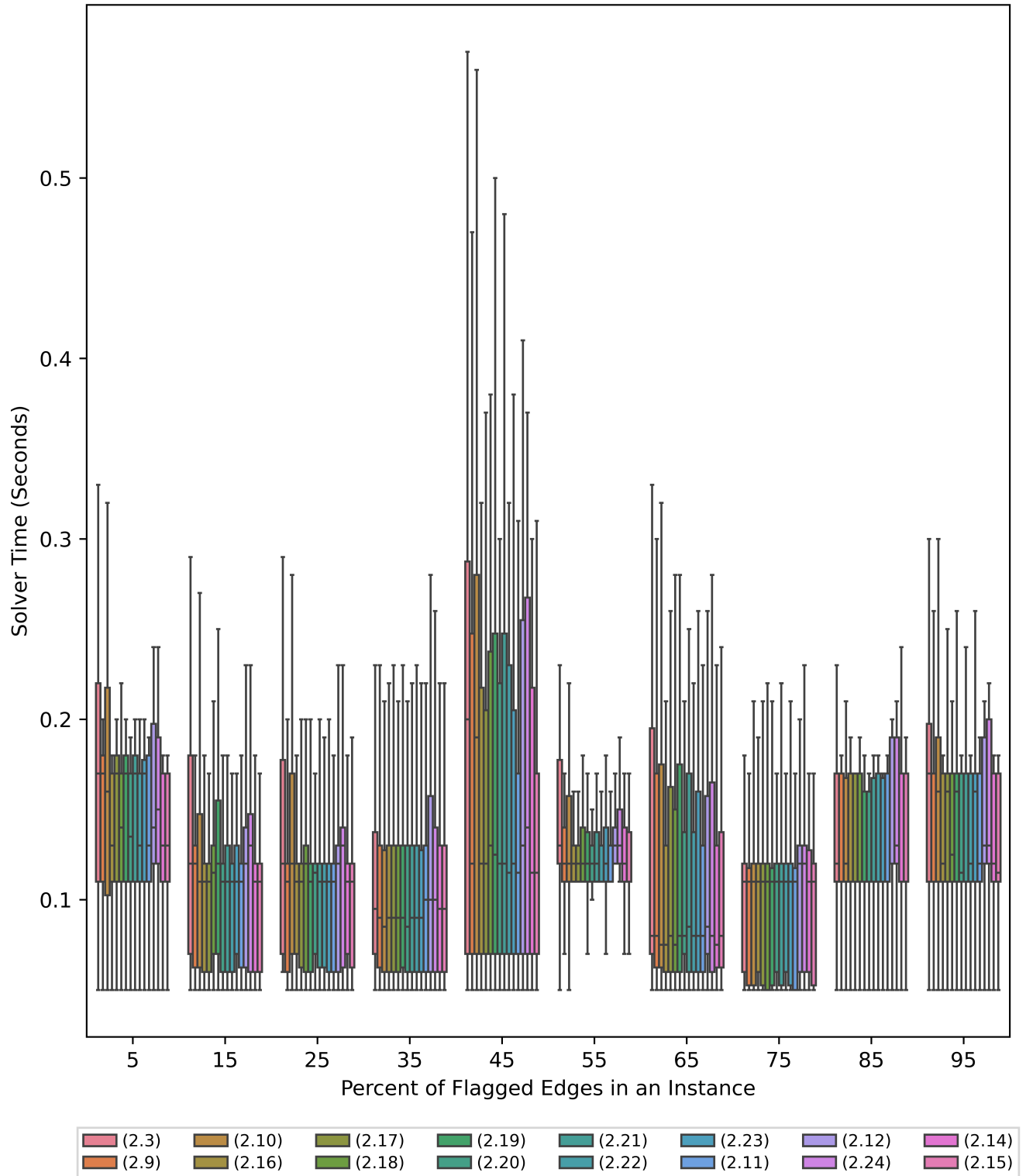


Figure B.1: Boxplot Time over Flagged Edges | $n = 10$

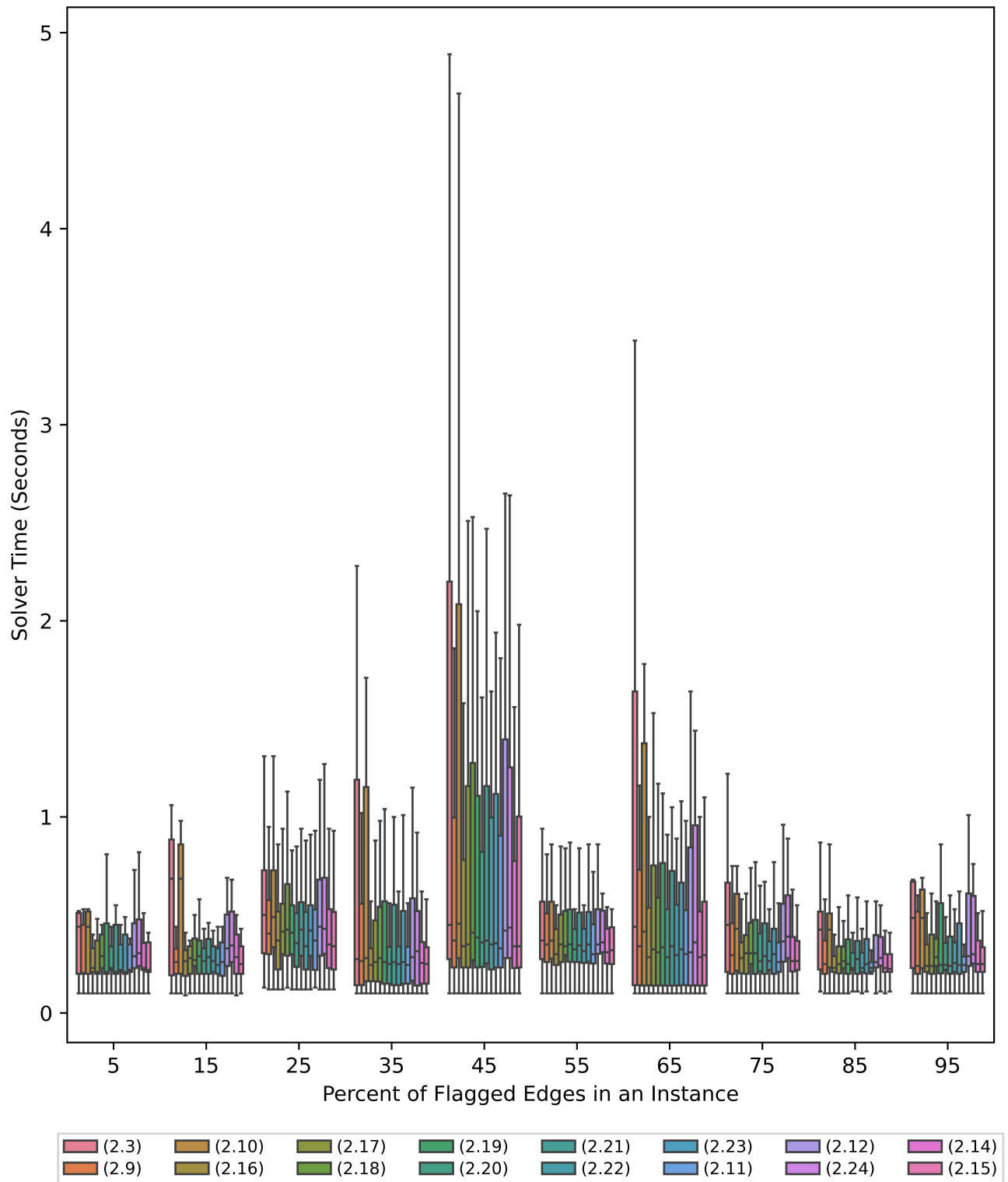


Figure B.2: Boxplot Time over Flagged Edges | $n = 15$

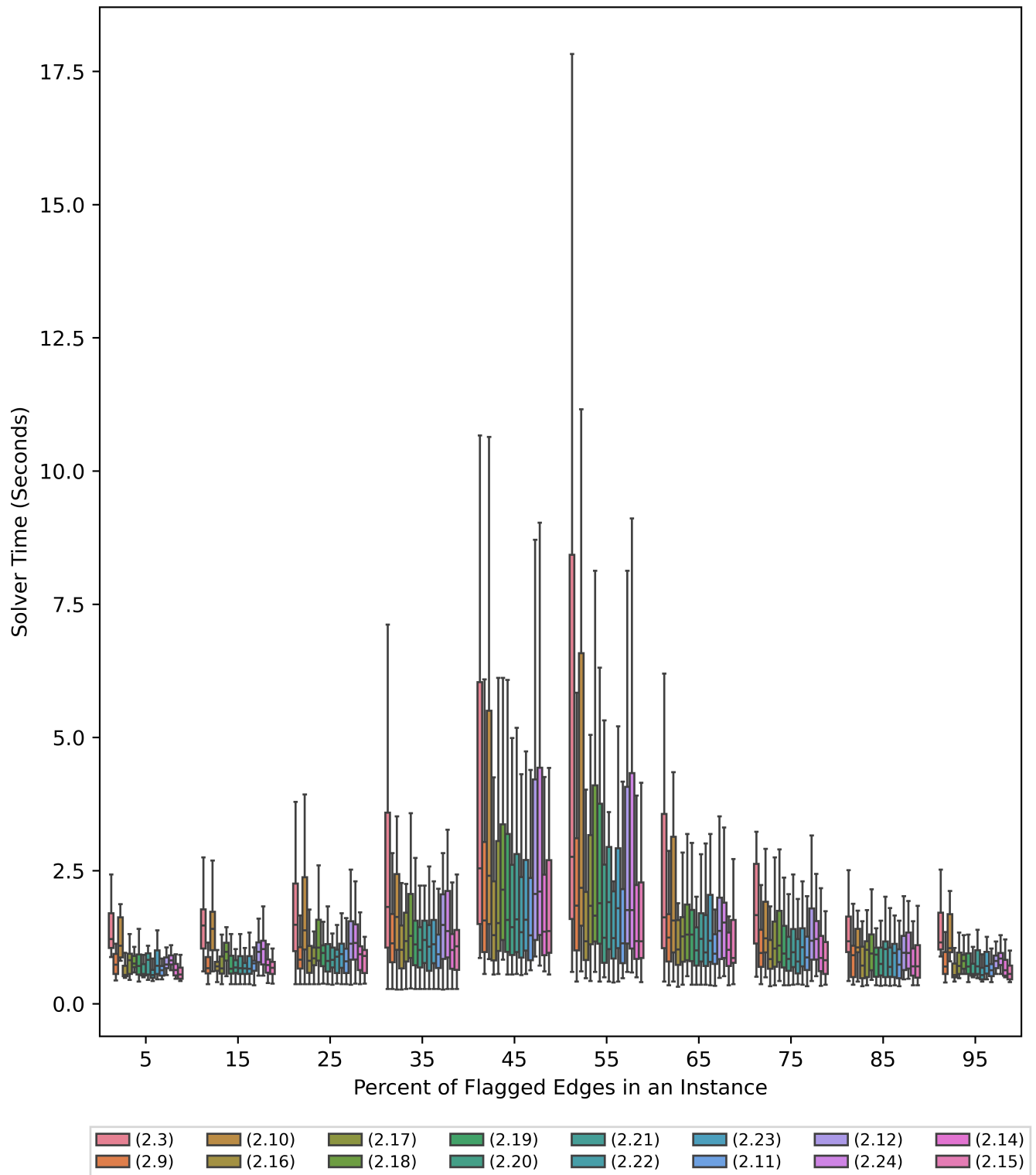


Figure B.3: Boxplot Time over Flagged Edges | $n = 20$

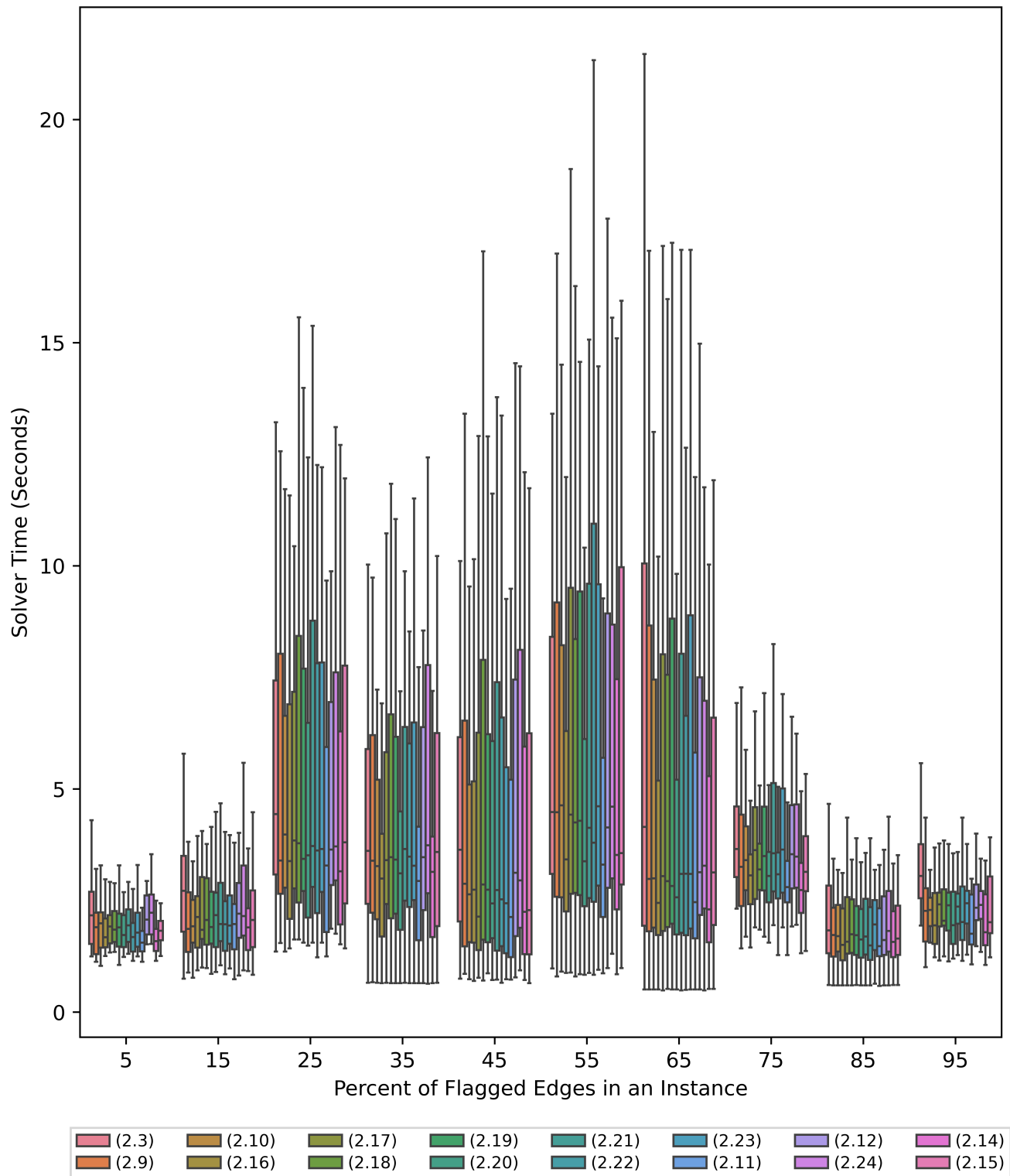


Figure B.4: Boxplot Time over Flagged Edges | $n = 25$

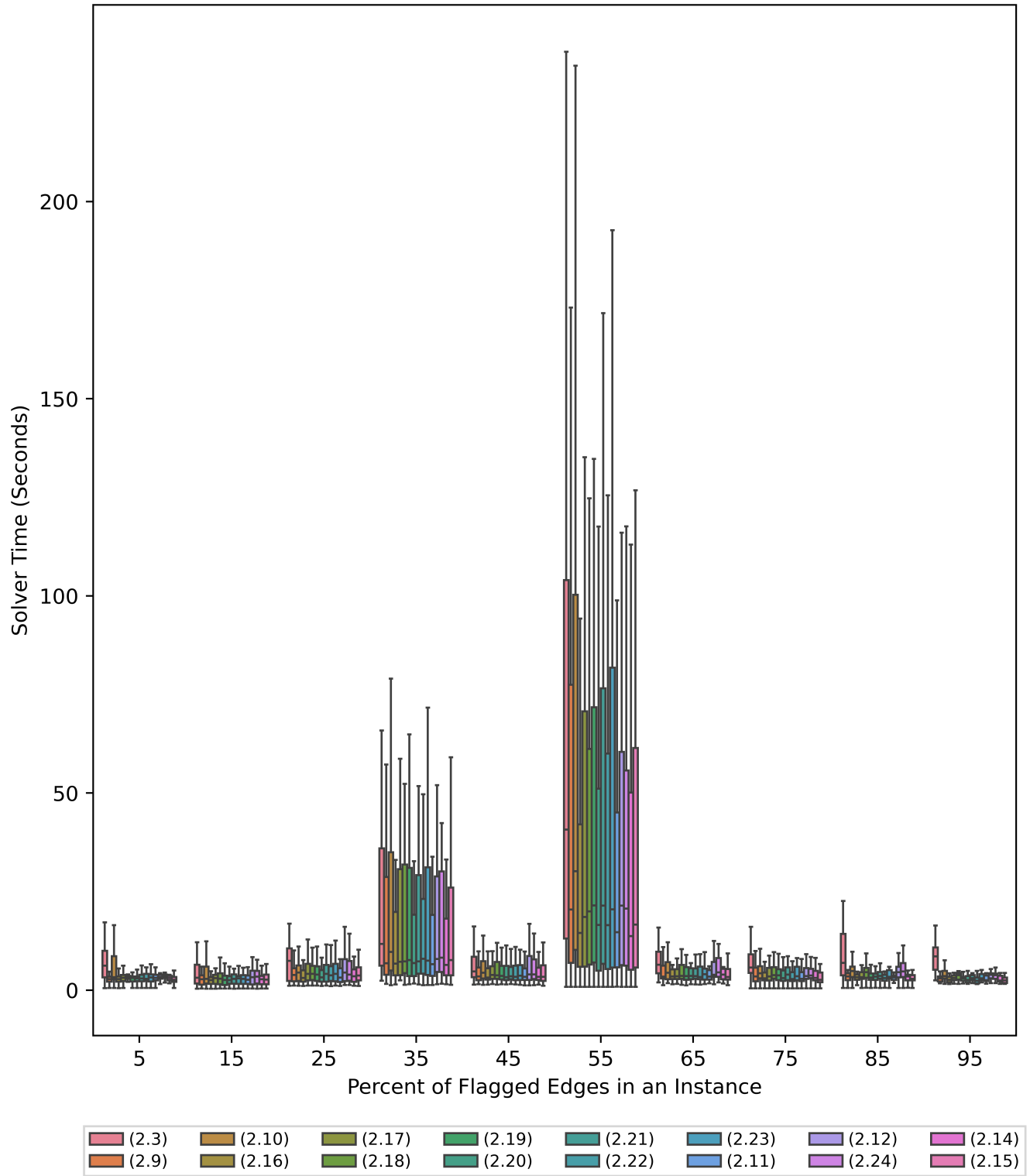


Figure B.5: Boxplot Time over Flagged Edges | $n = 30$

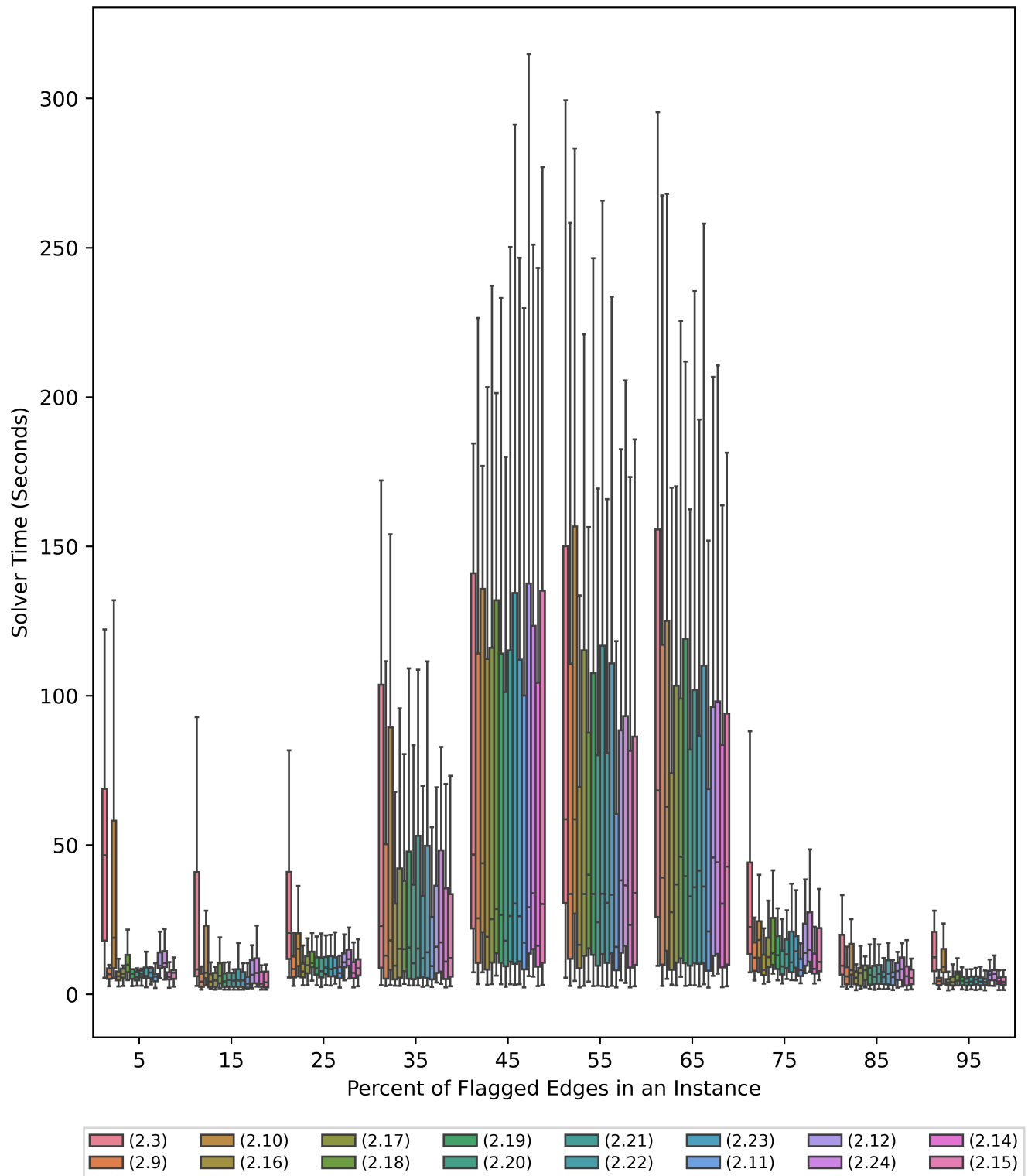


Figure B.6: Boxplot Time over Flagged Edges | $n = 35$

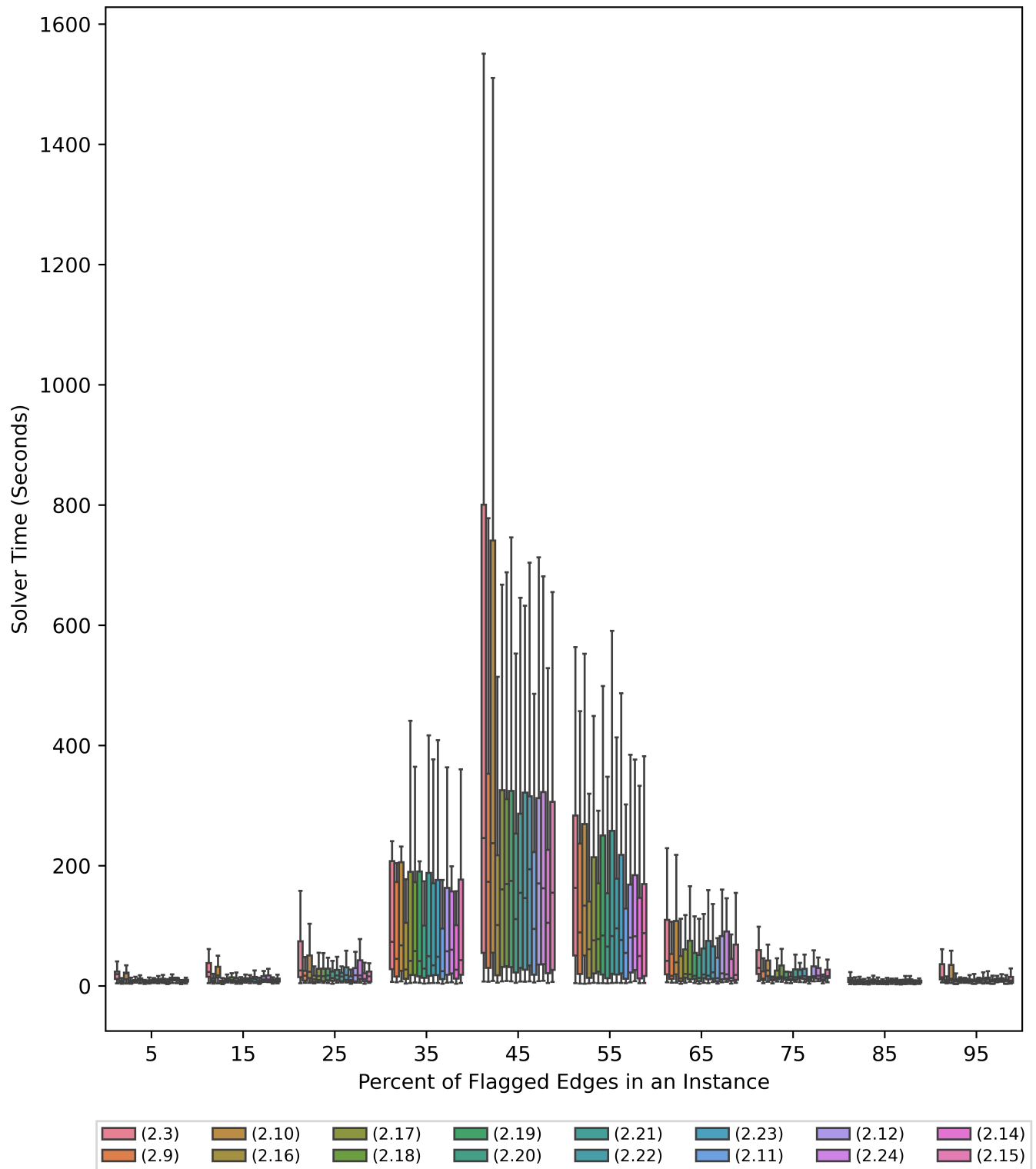


Figure B.7: Boxplot Time over Flagged Edges | $n = 40$

Appendix C

Boxplots Solver Time over Reload Costs

NOTE:

No outliers are shown due to readability!

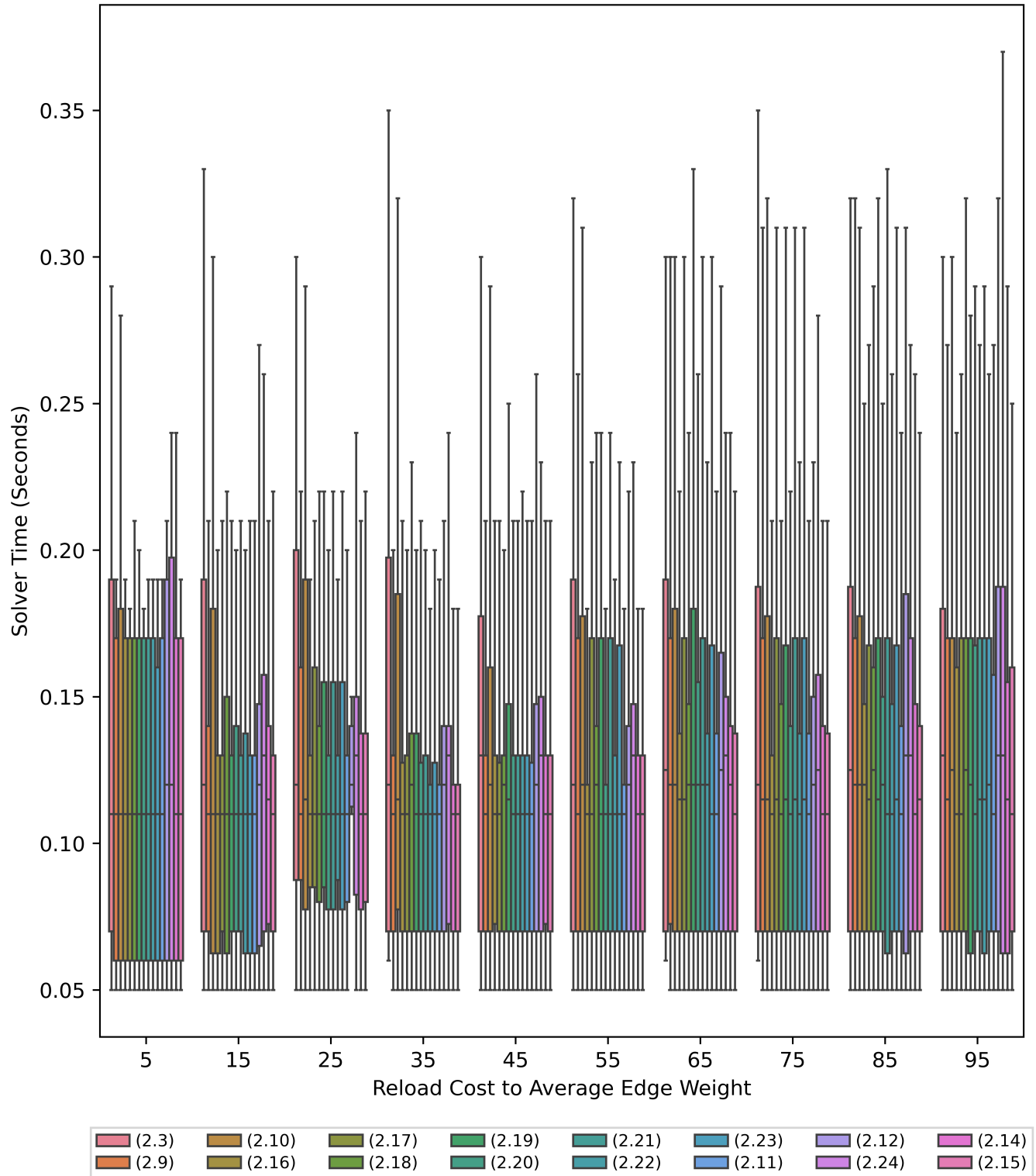


Figure C.1: Boxplot Solver Time over Relative Reload Costs | $n = 10$

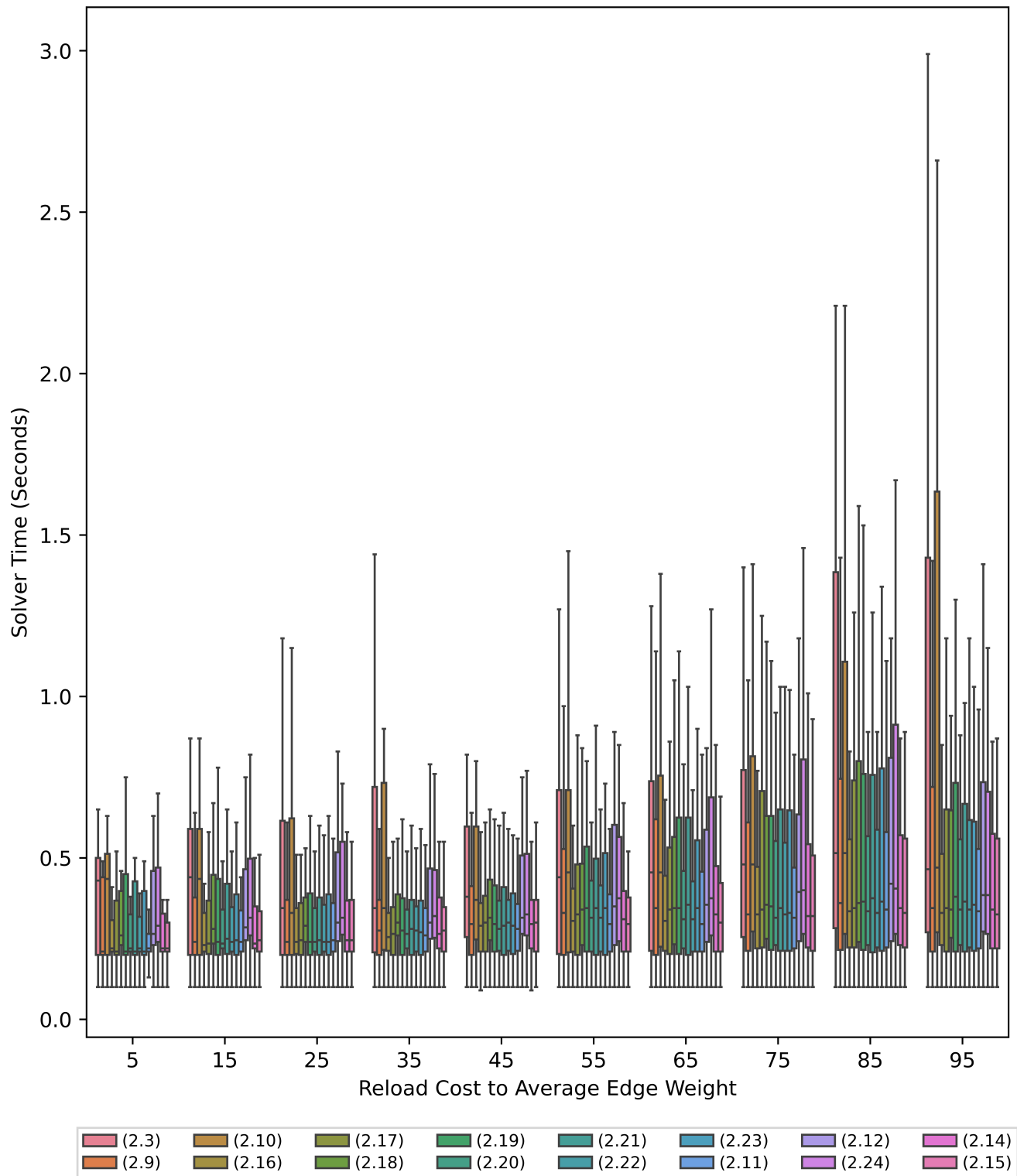


Figure C.2: Boxplot Solver Time over Relative Reload Costs | $n = 15$

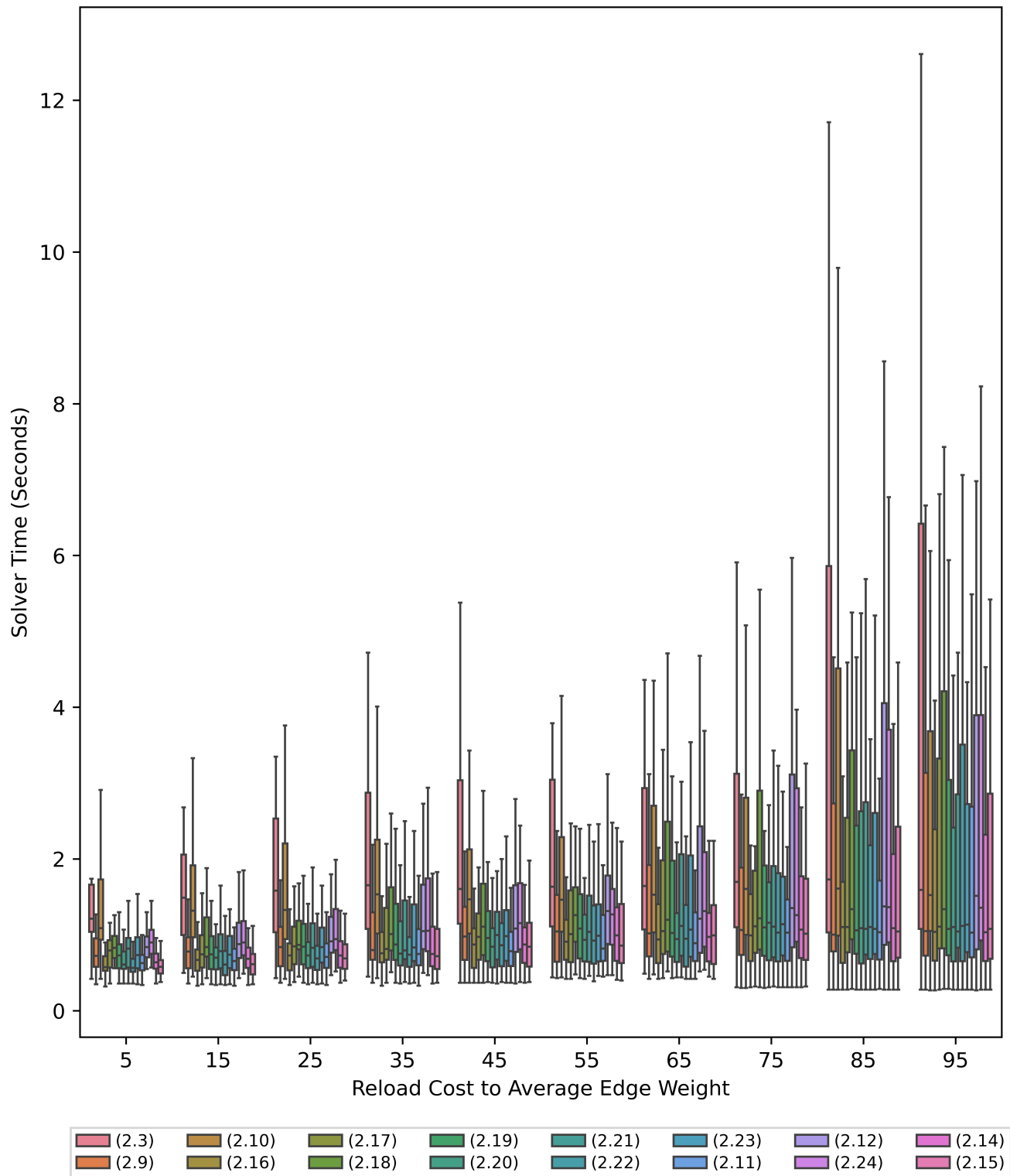


Figure C.3: Boxplot Solver Time over Relative Reload Costs | $n = 20$

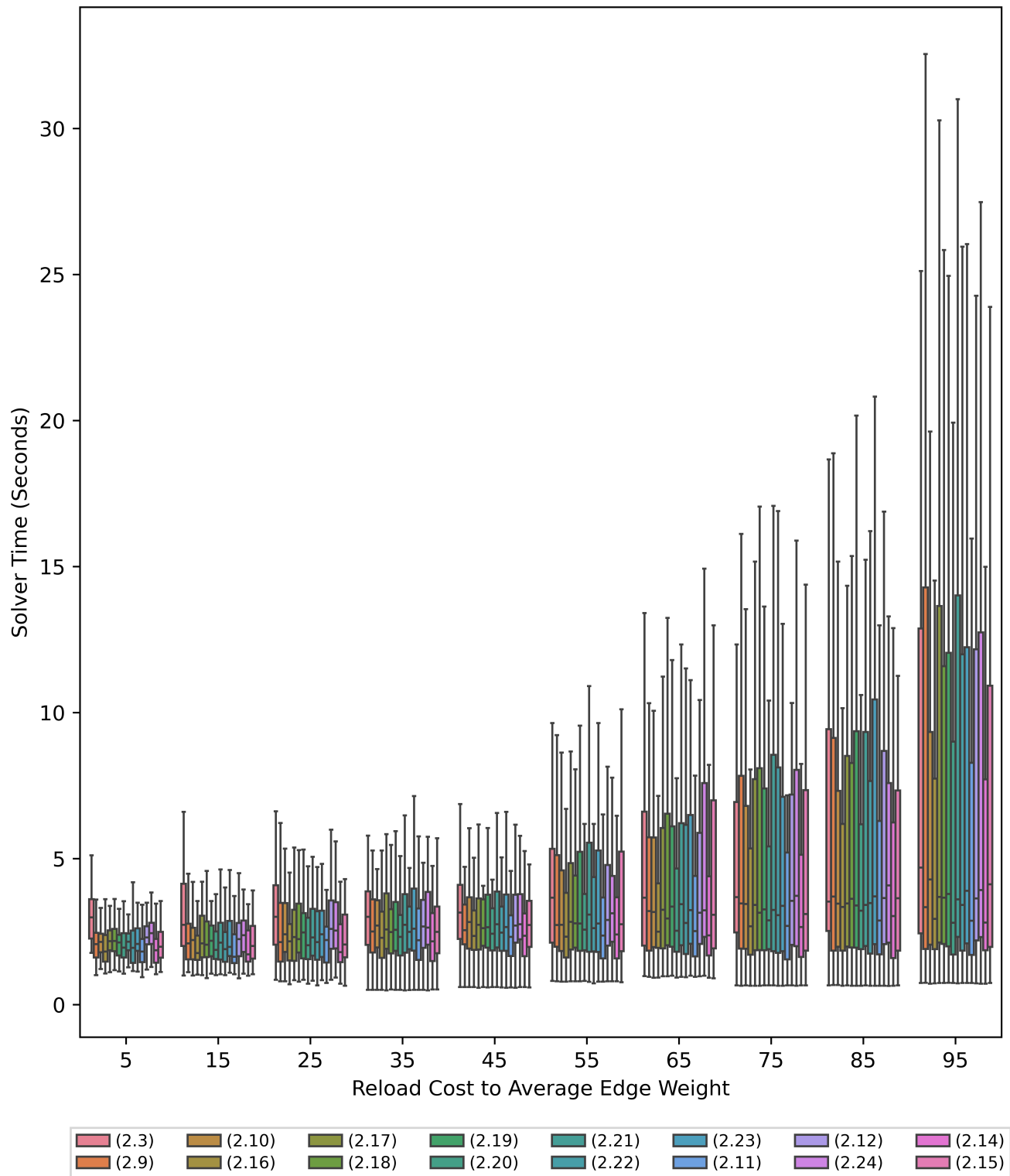


Figure C.4: Boxplot Solver Time over Relative Reload Costs | $n = 25$

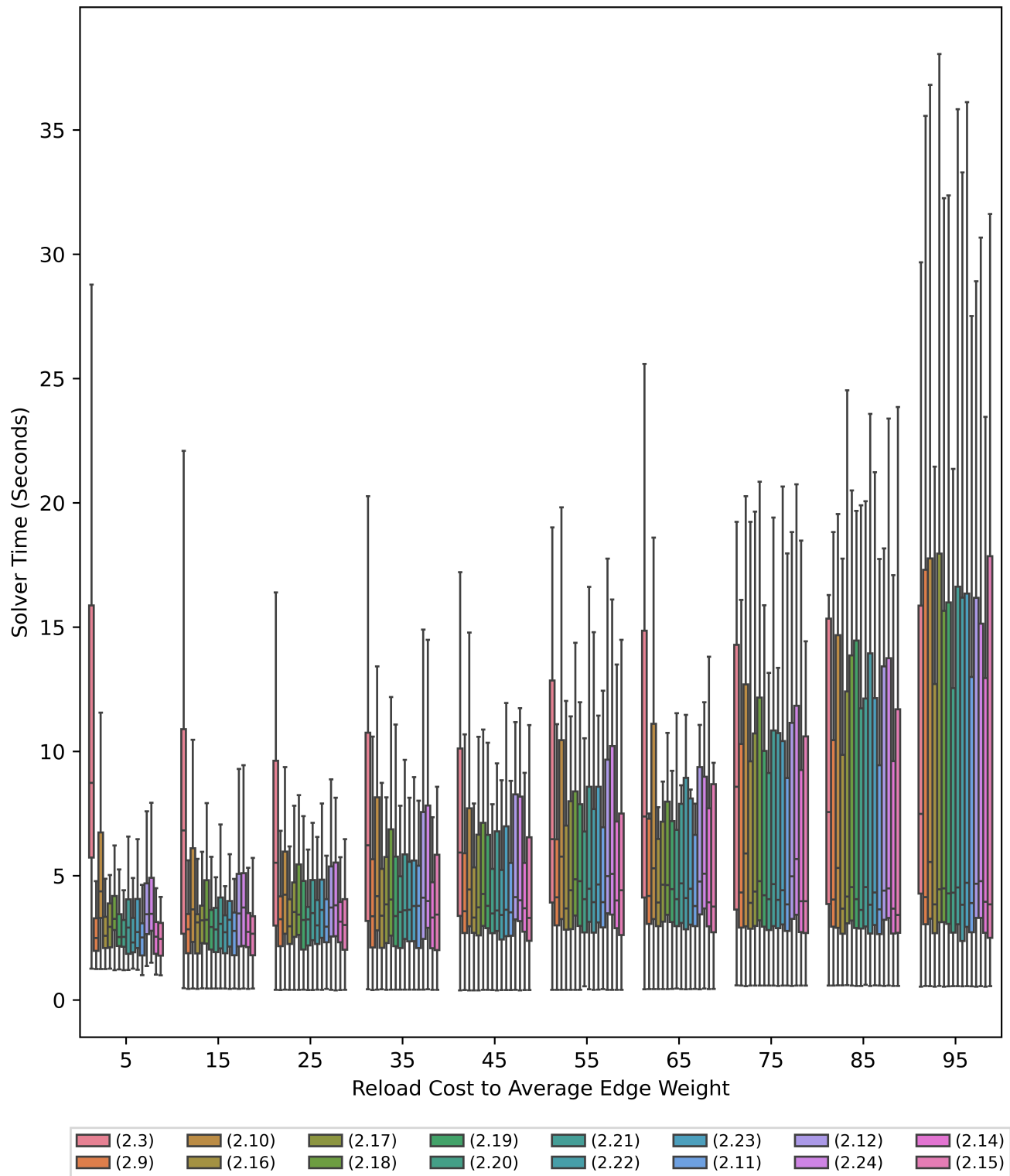


Figure C.5: Boxplot Solver Time over Relative Reload Costs | $n = 30$

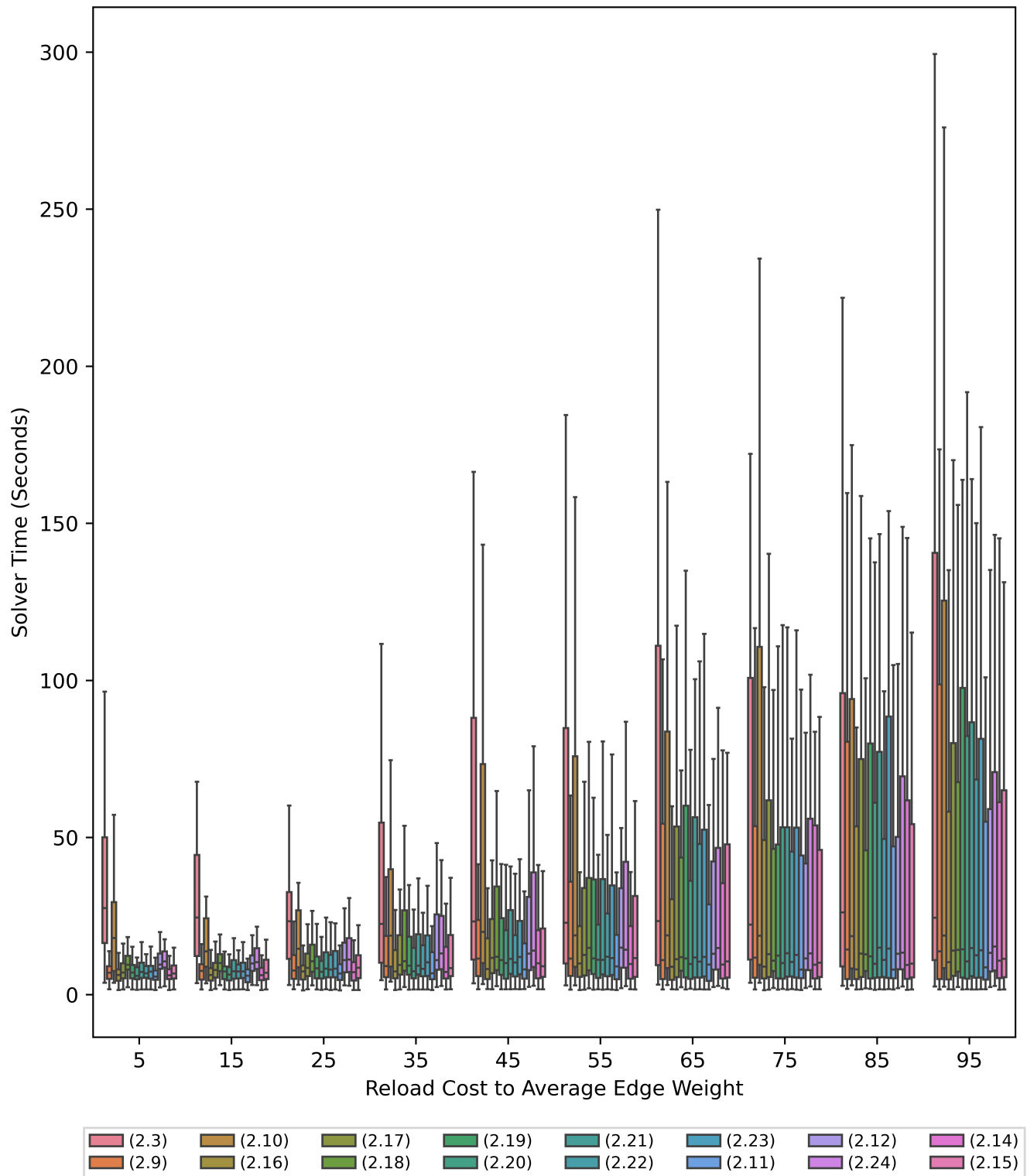


Figure C.6: Boxplot Solver Time over Relative Reload Costs | $n = 35$

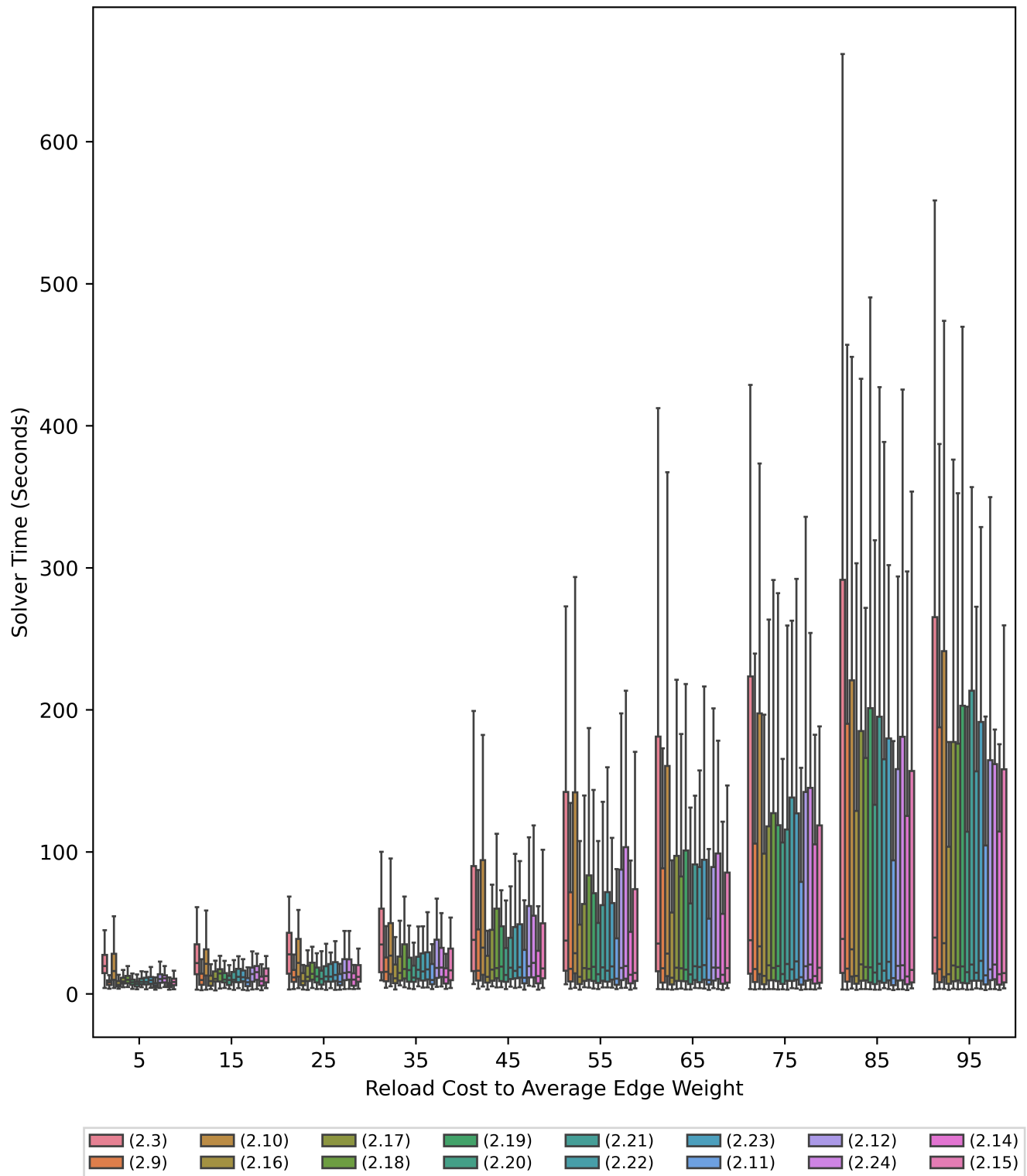


Figure C.7: Boxplot Solver Time over Relative Reload Costs | $n = 40$

Appendix D

Boxplots Number of SECs over Percentage of Flagged Edges

NOTE:

No outliers are shown due to readability!

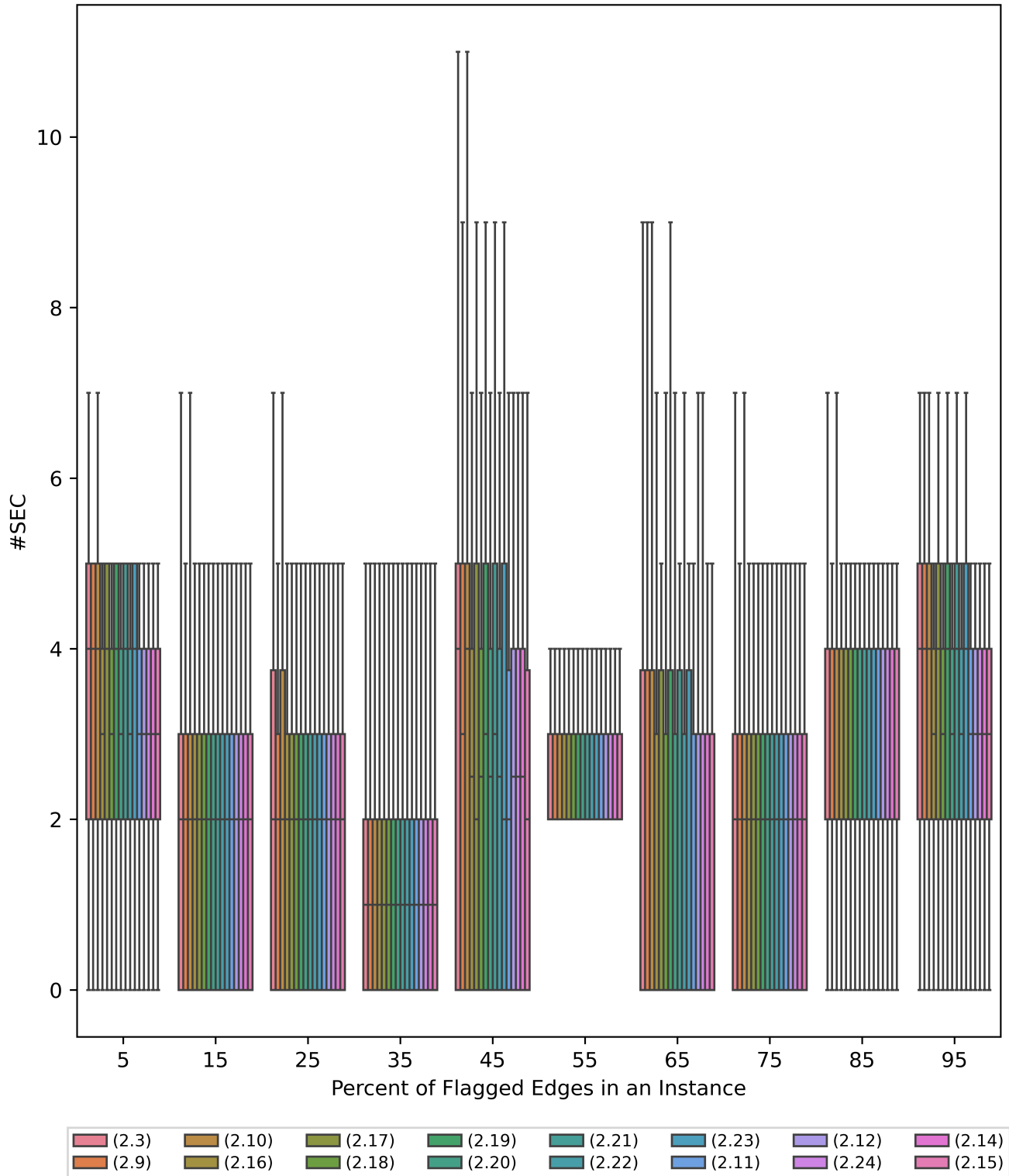


Figure D.1: Boxplot #SEC over Percentage of Flagged Edges | $n = 10$

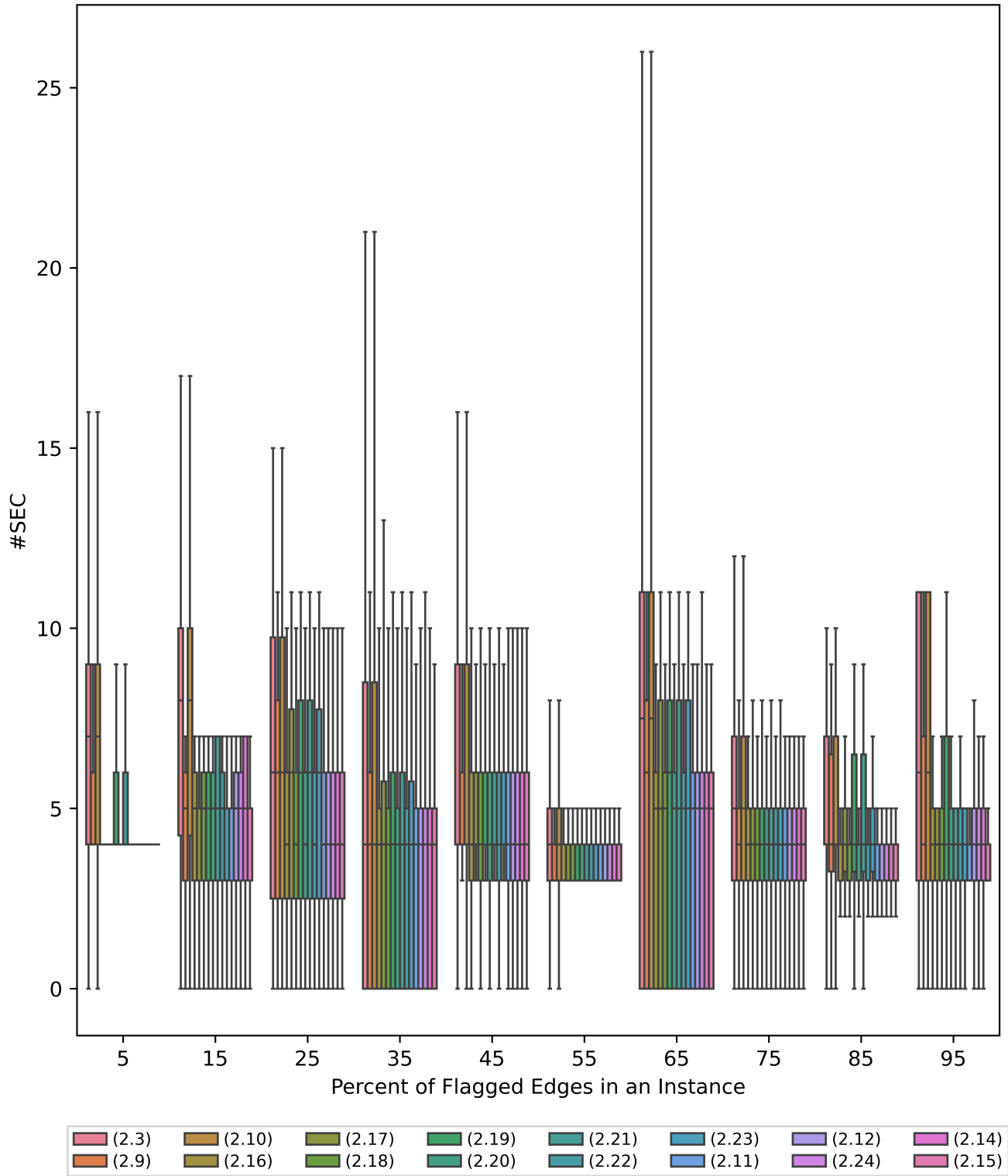


Figure D.2: Boxplot #SEC over Percentage of Flagged Edges | $n = 15$

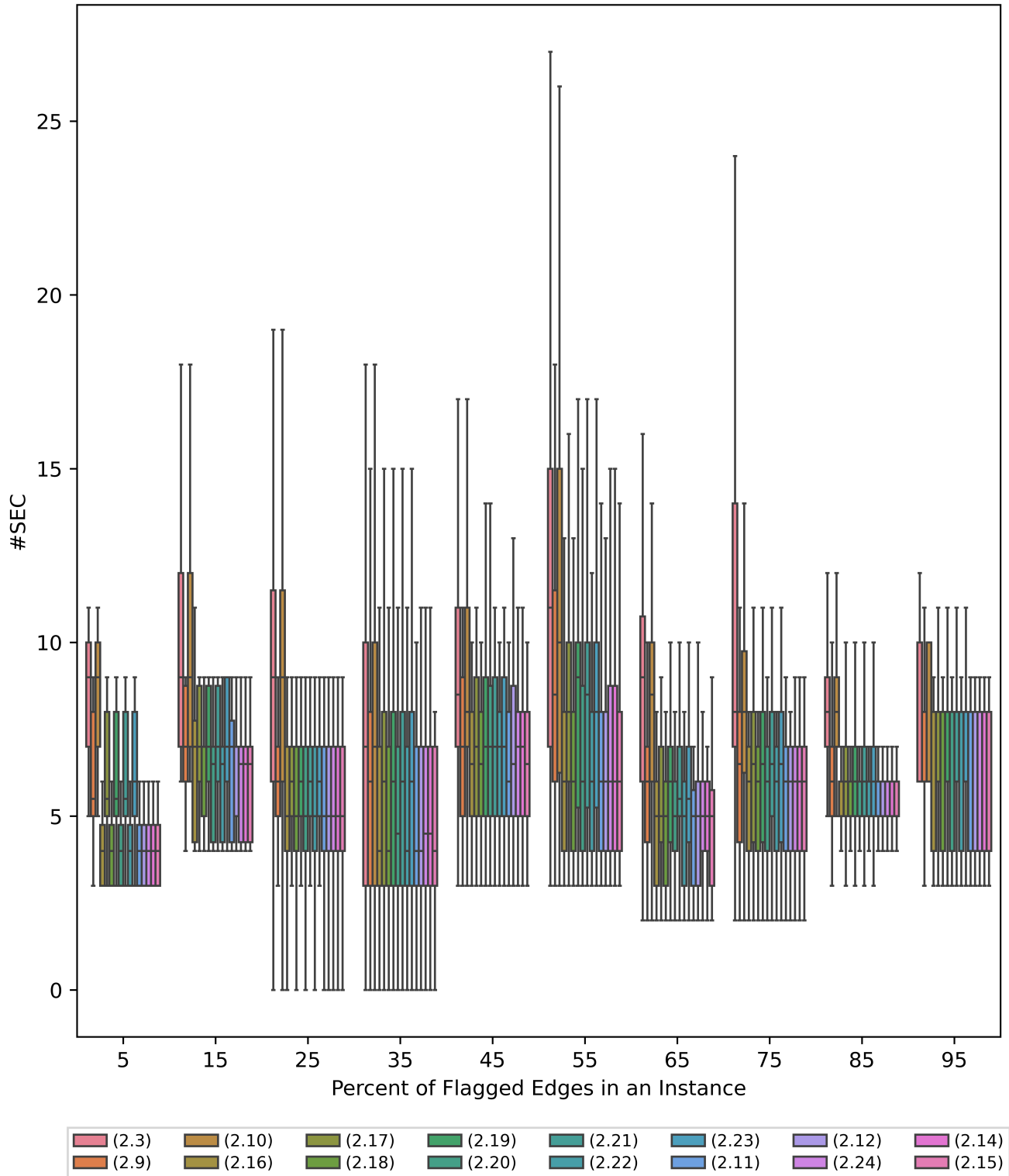


Figure D.3: Boxplot #SEC over Percentage of Flagged Edges | $n = 20$

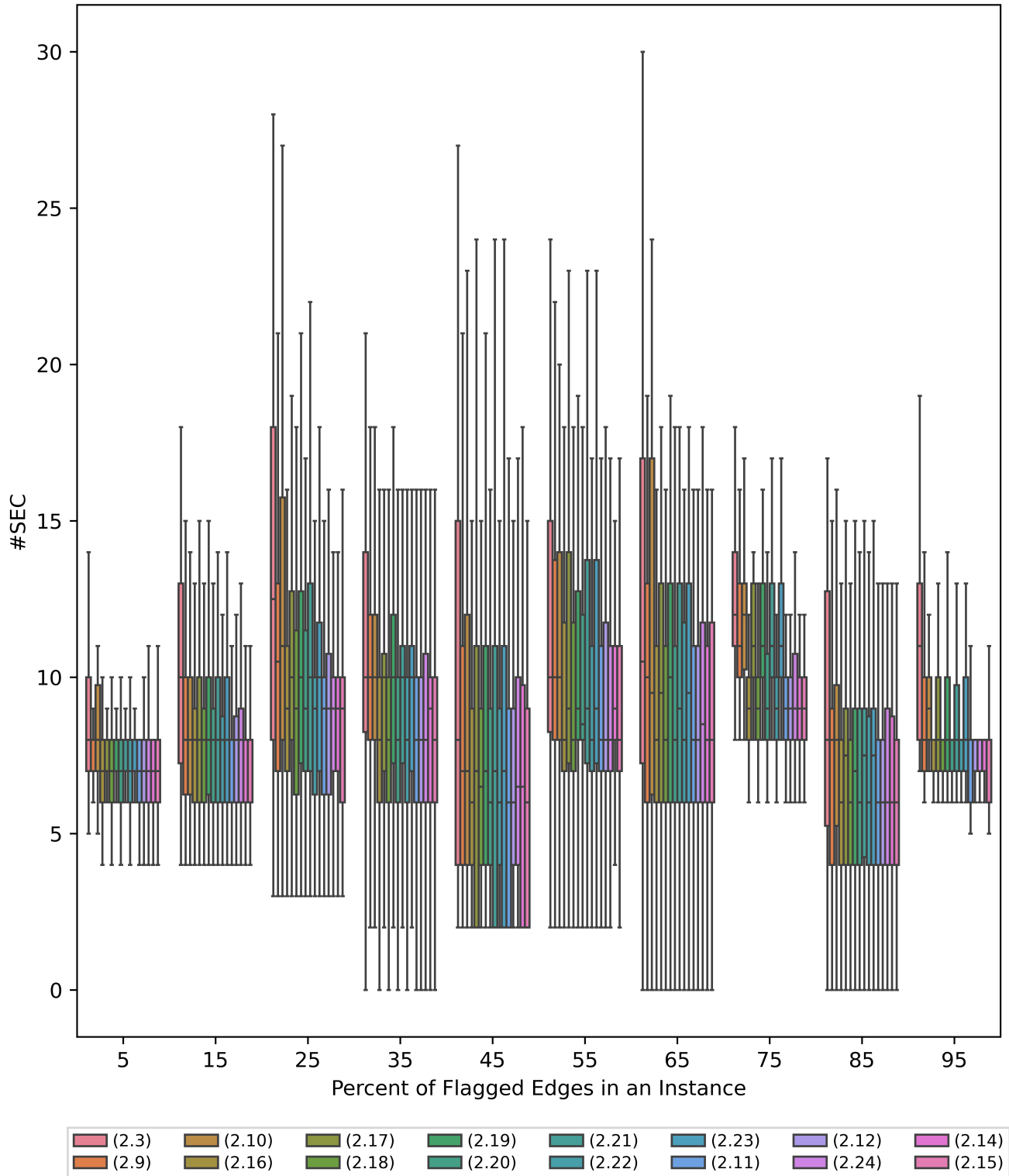


Figure D.4: Boxplot #SEC over Percentage of Flagged Edges | $n = 25$

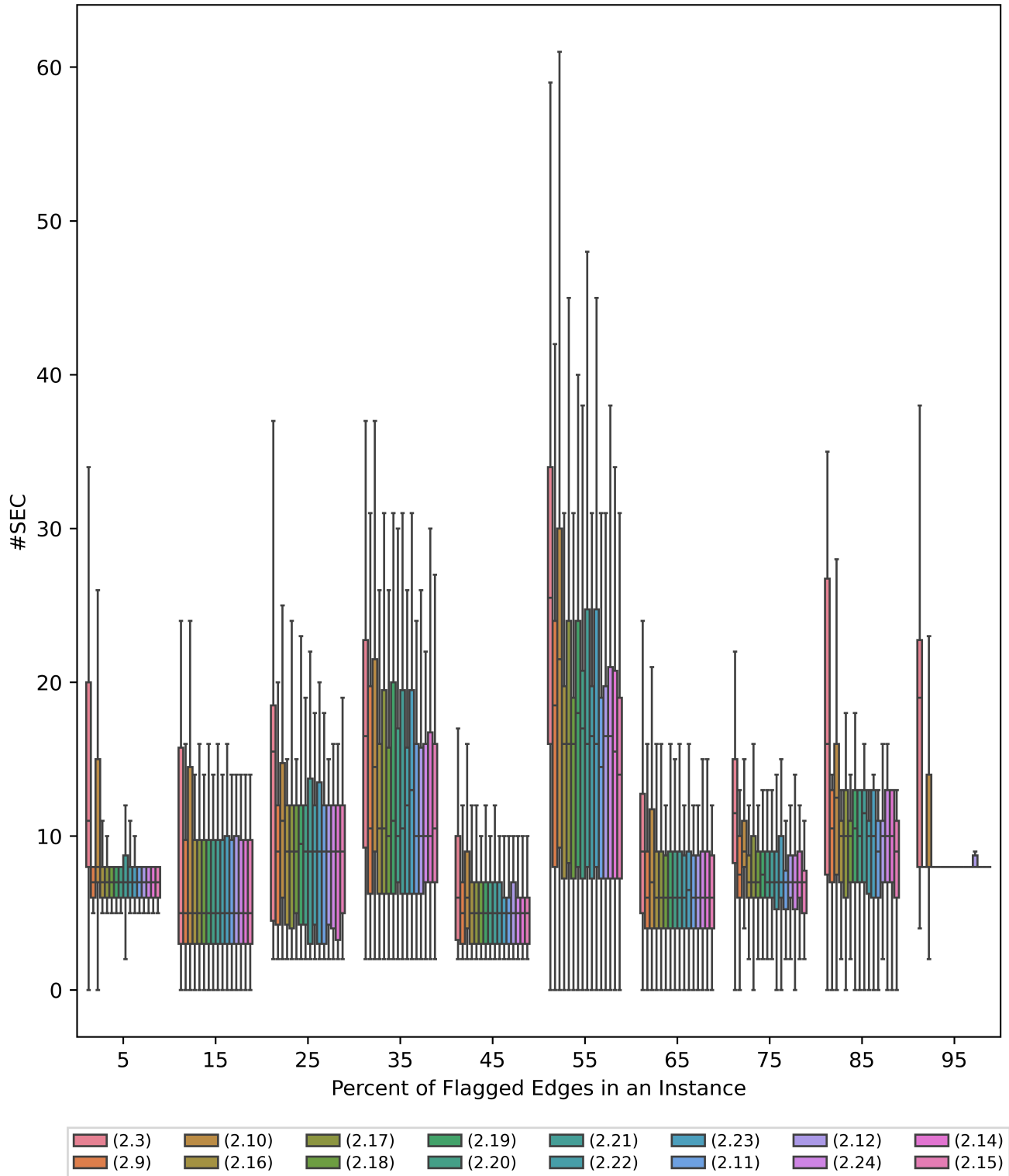


Figure D.5: Boxplot #SEC over Percentage of Flagged Edges | $n = 30$

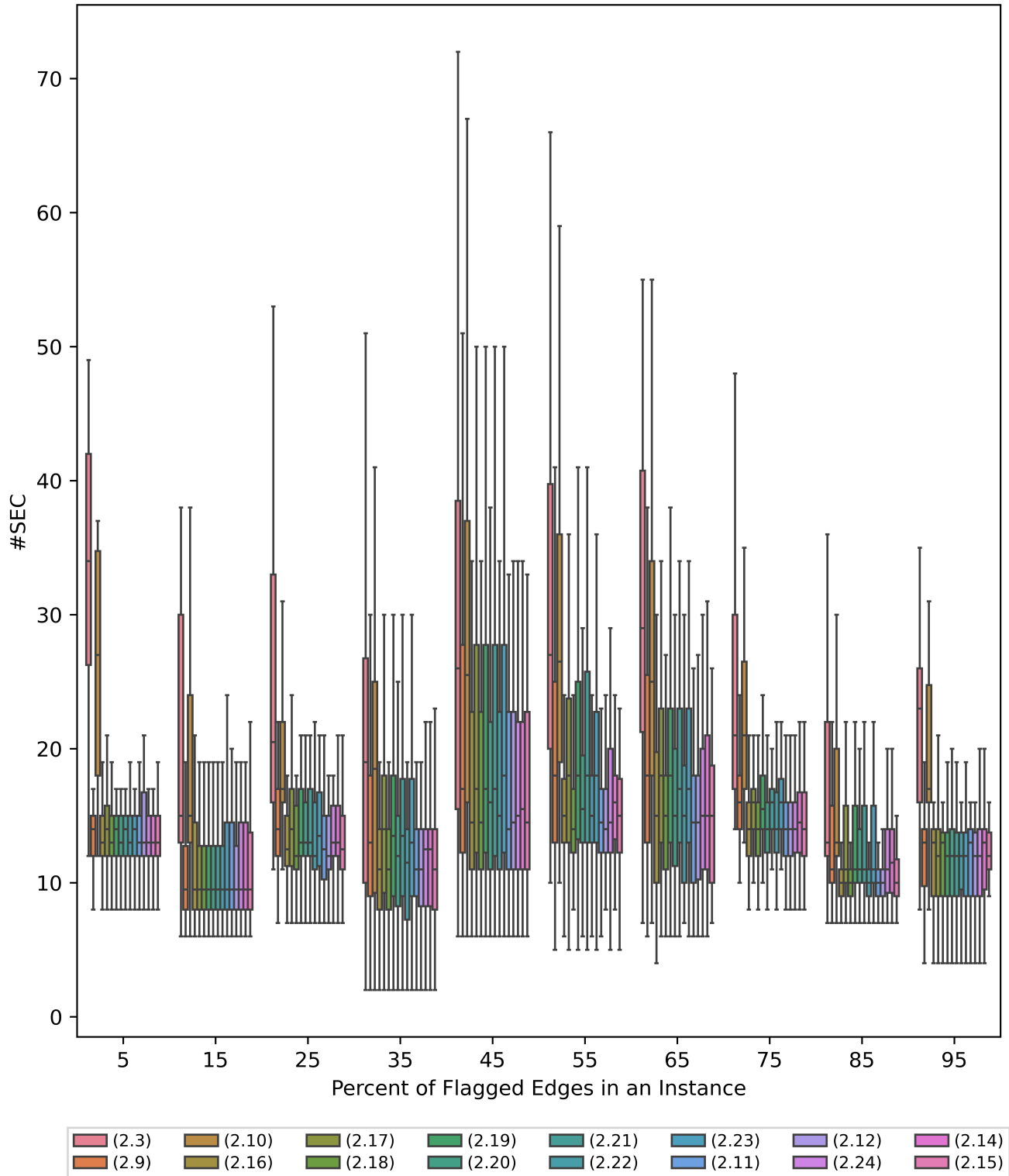


Figure D.6: Boxplot #SEC over Percentage of Flagged Edges | $n = 35$

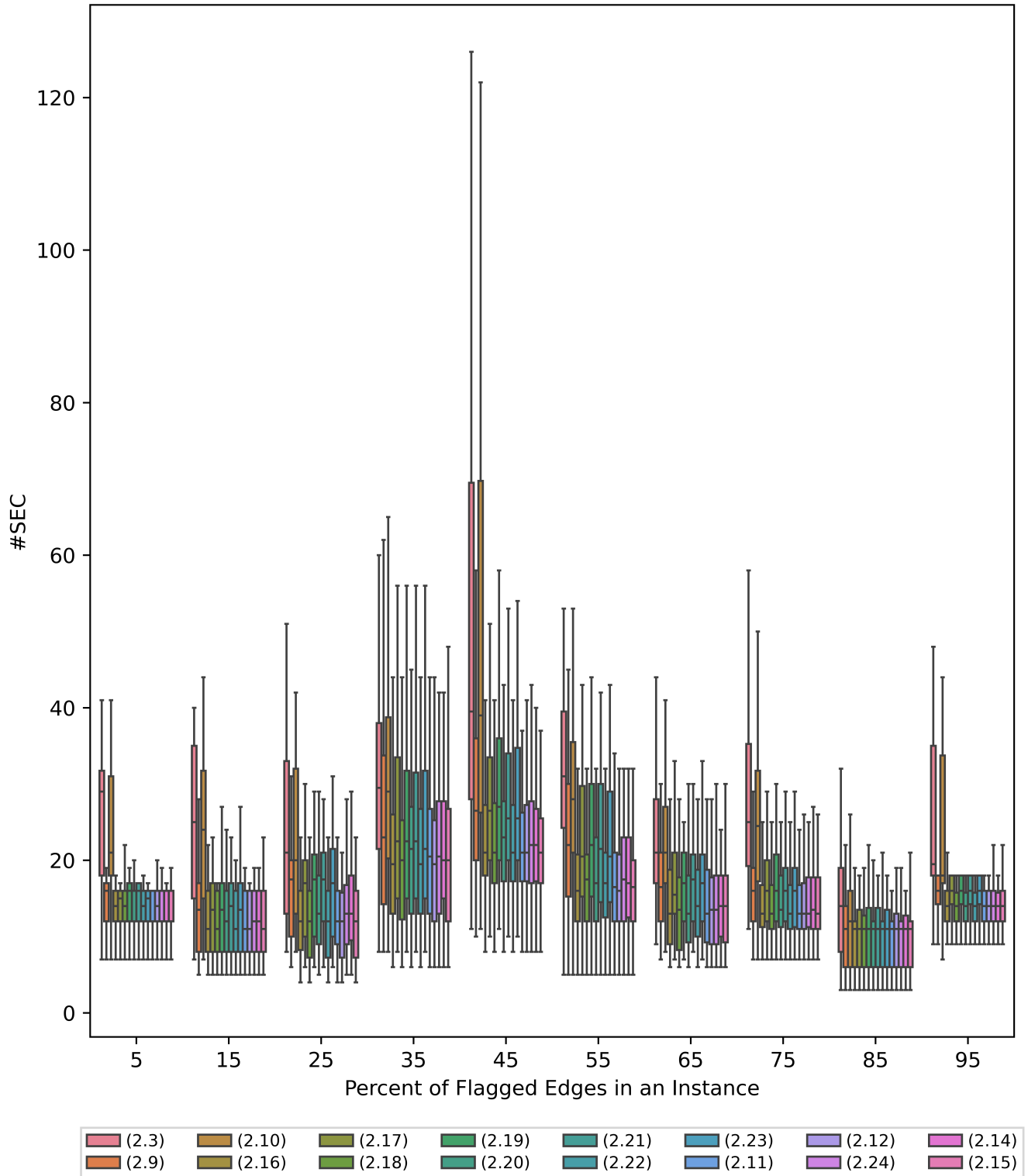


Figure D.7: Boxplot #SEC over Percentage of Flagged Edges | $n = 40$

Appendix E

Boxplots Number of SECs over Reload Costs

NOTE:

No outliers are shown due to readability!

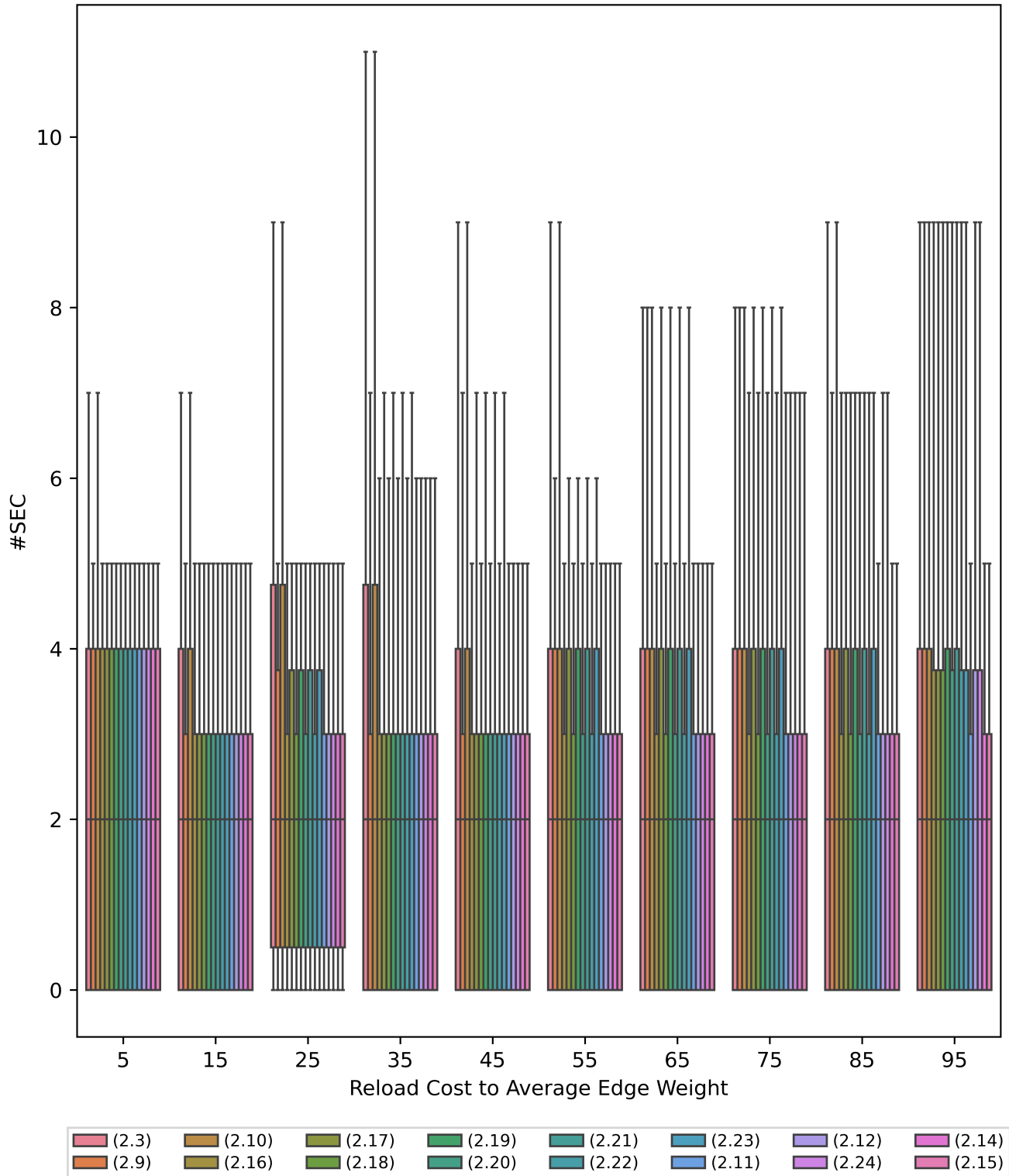


Figure E.1: Boxplot #SEC over Percent Flagged Edges | $n = 10$

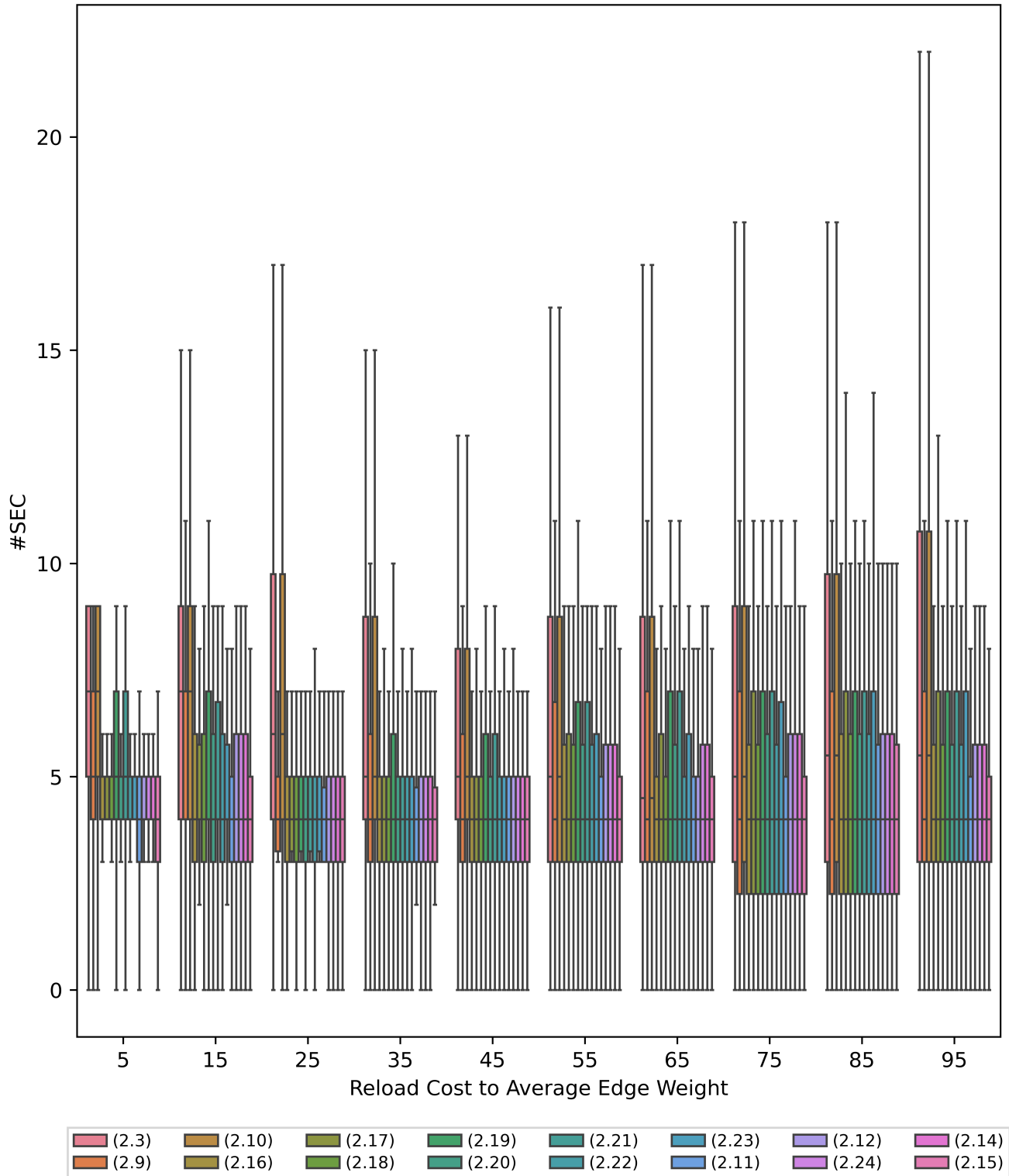


Figure E.2: Boxplot #SEC over Percent Flagged Edges | $n = 15$

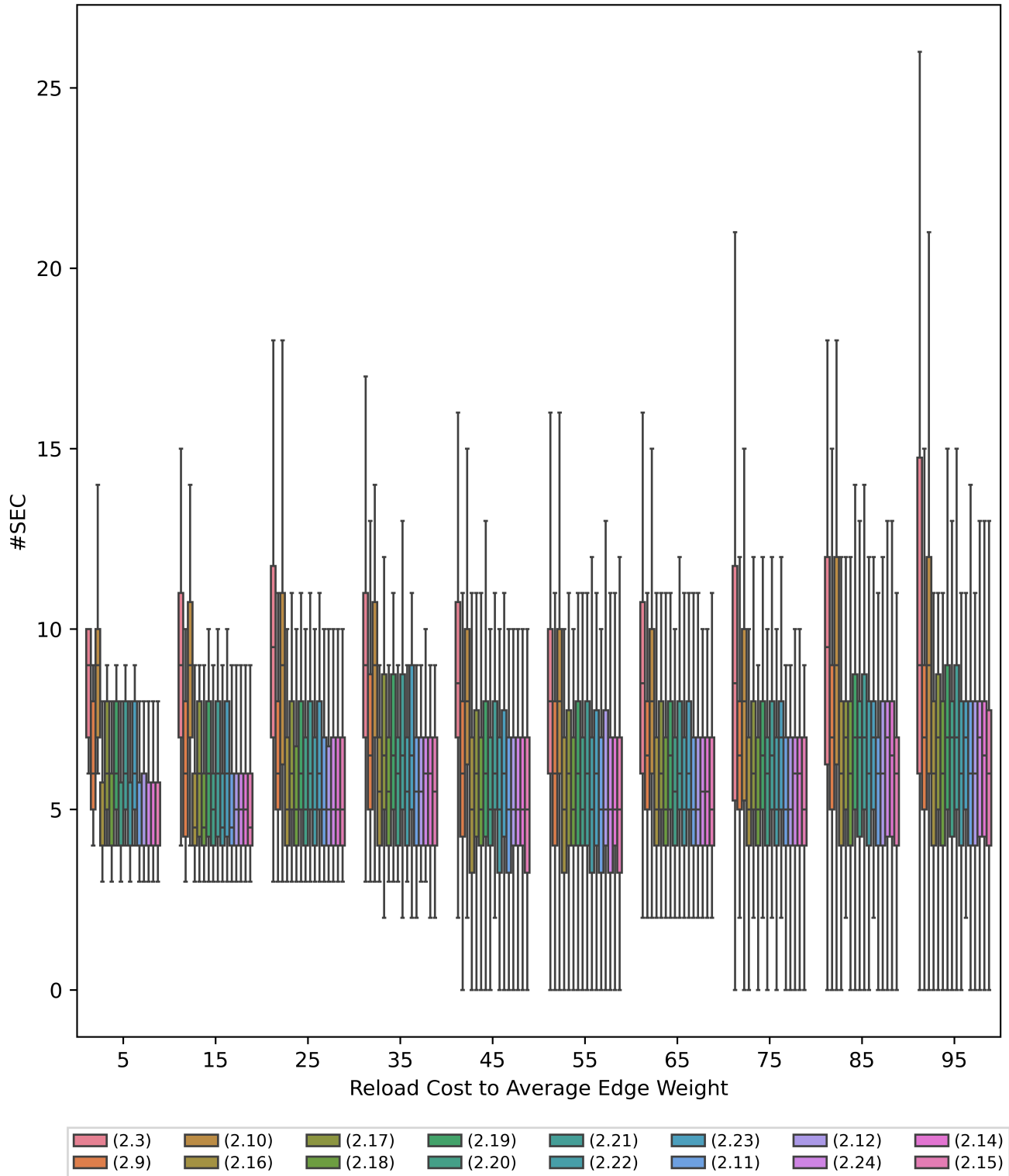


Figure E.3: Boxplot #SEC over Percent Flagged Edges | $n = 20$

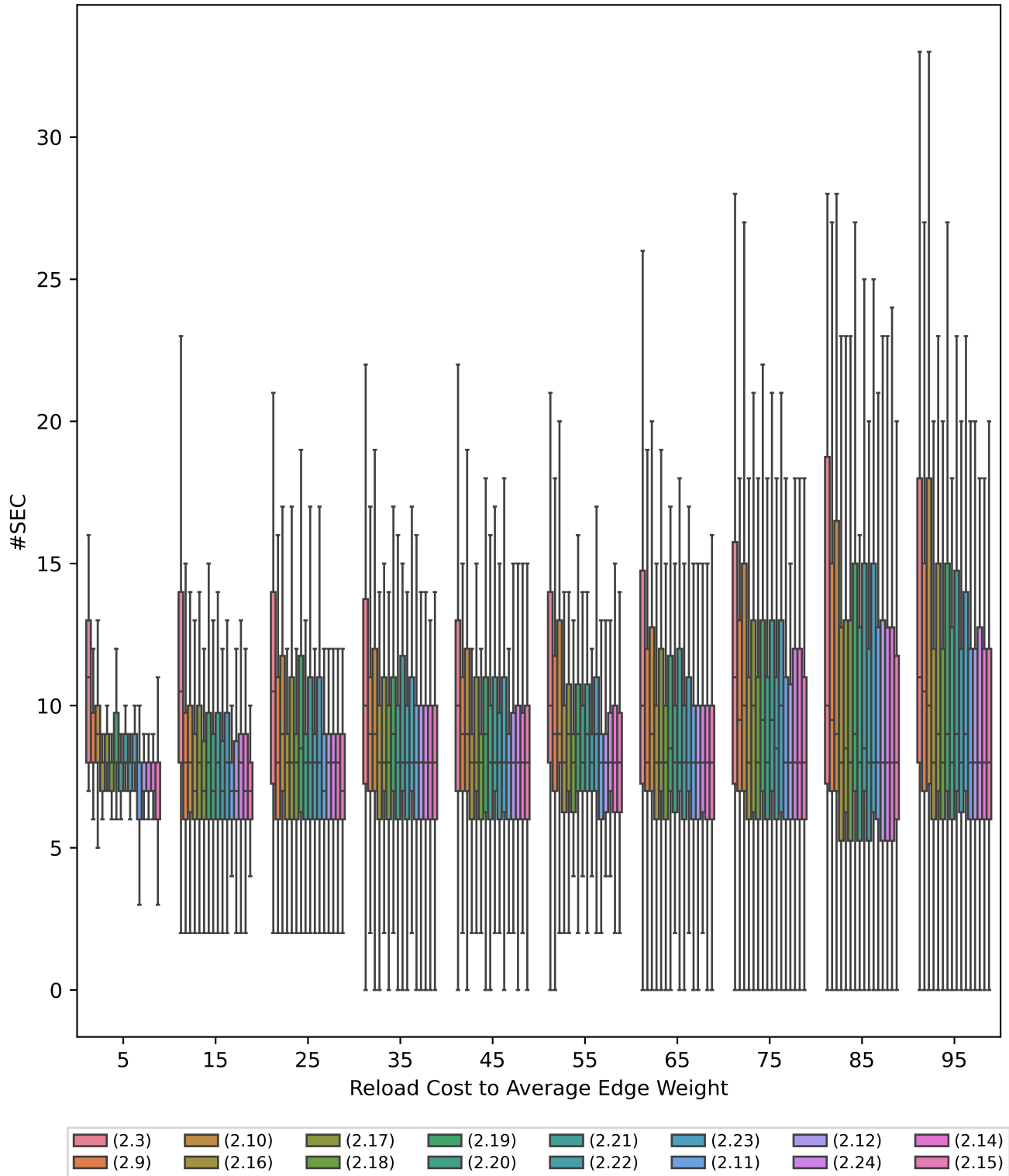


Figure E.4: Boxplot #SEC over Percent Flagged Edges | $n = 25$

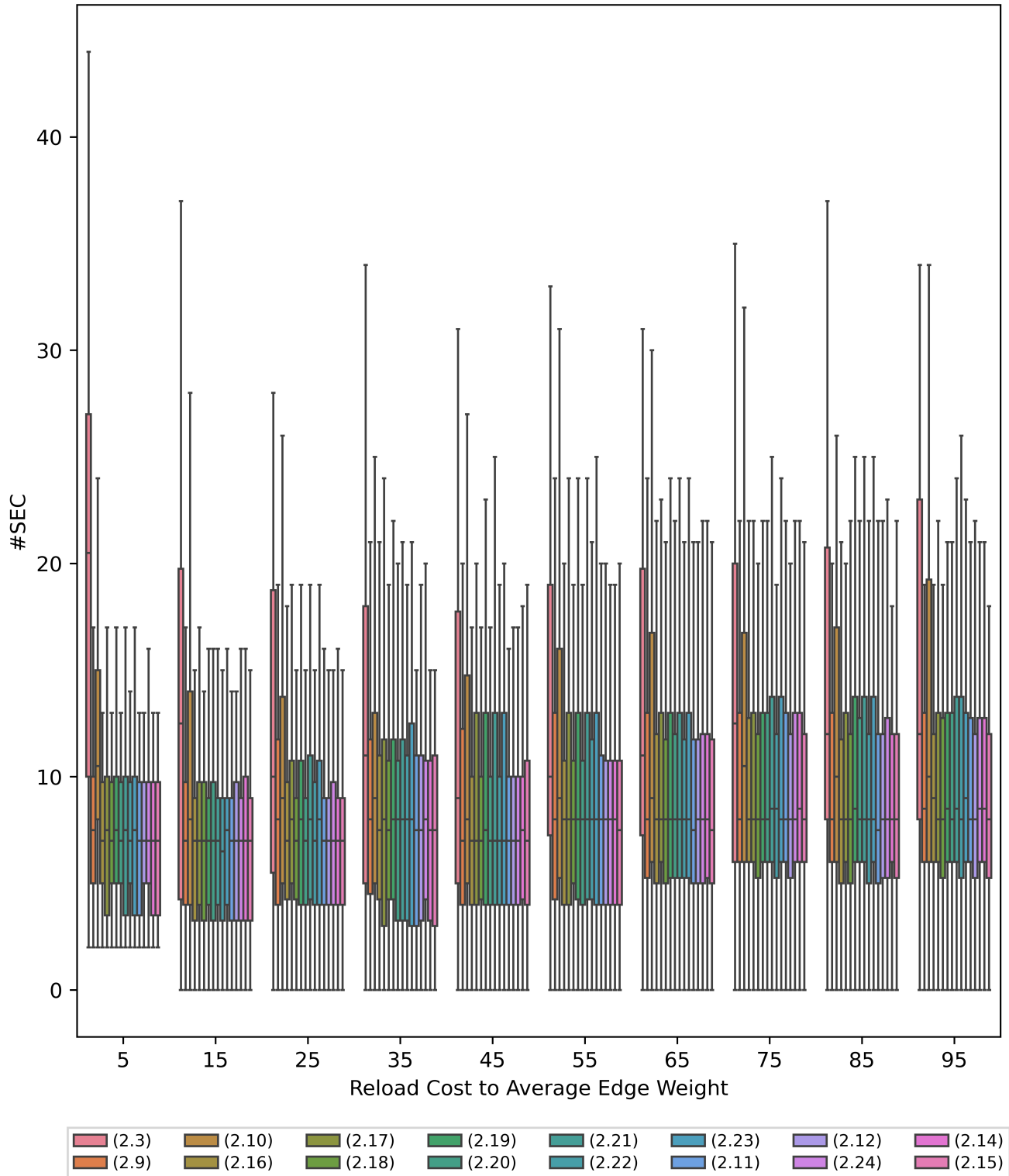


Figure E.5: Boxplot #SEC over Percent Flagged Edges | $n = 30$

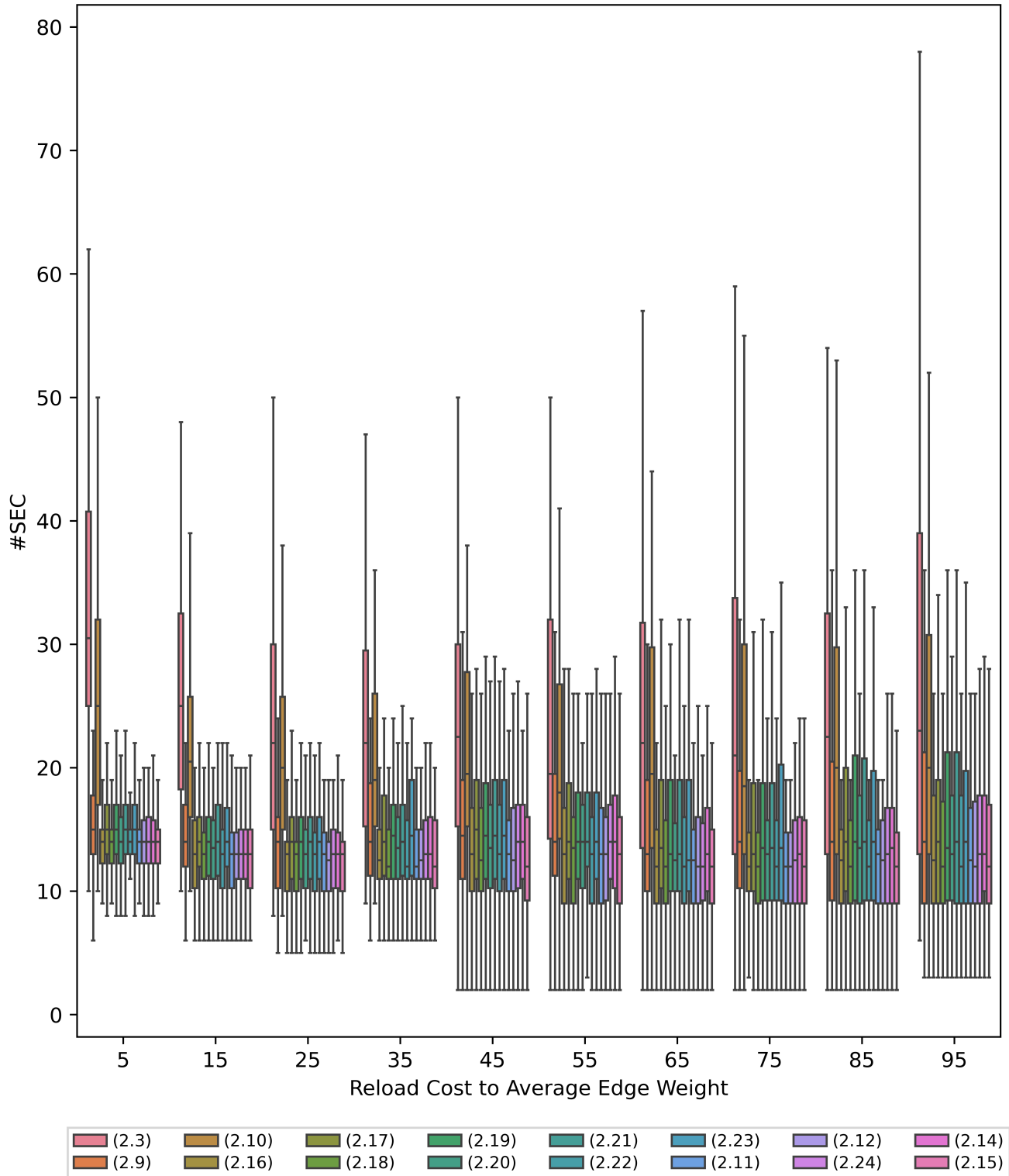


Figure E.6: Boxplot #SEC over Percent Flagged Edges | $n = 35$

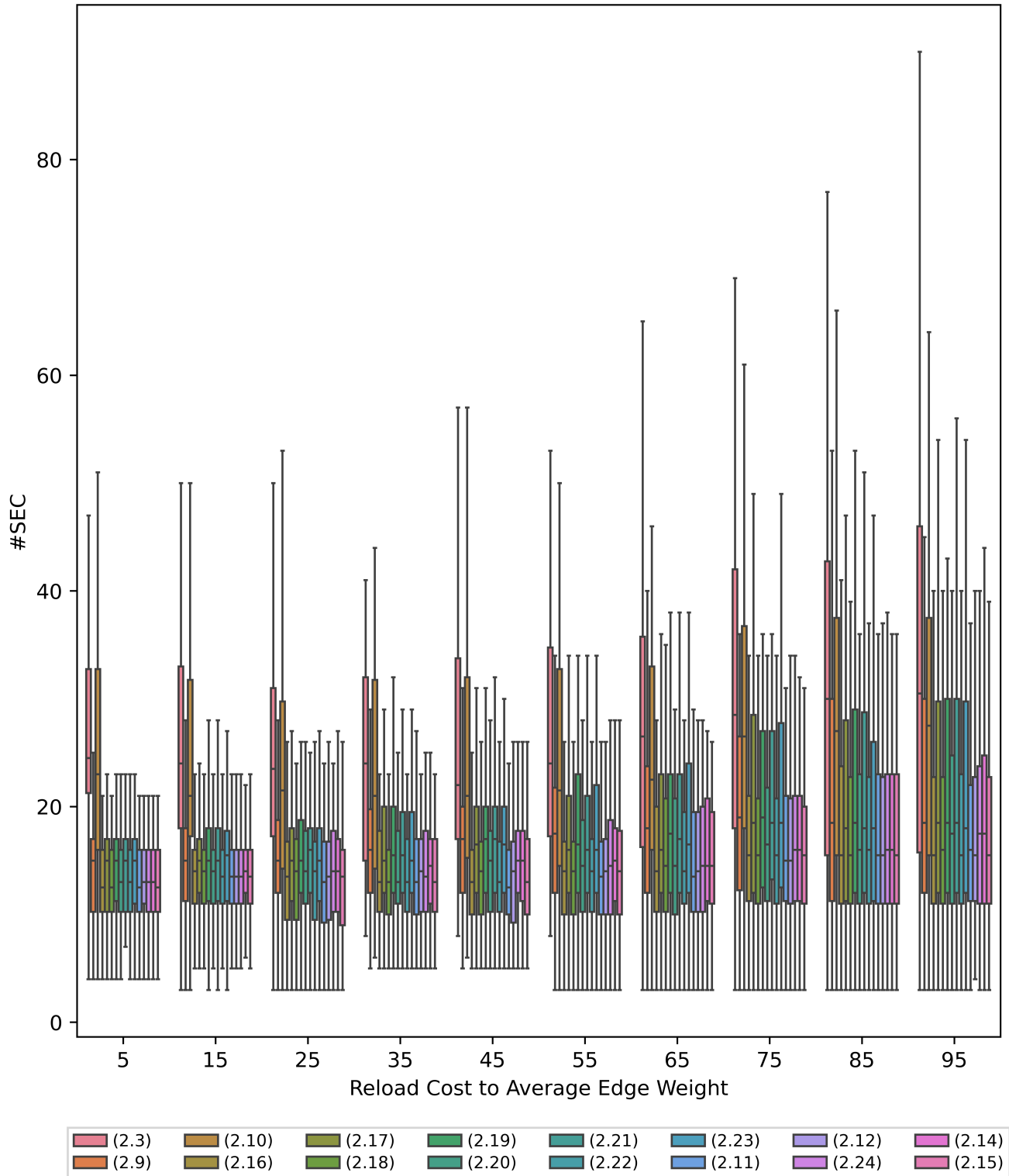


Figure E.7: Boxplot #SEC over Percent Flagged Edges | $n = 40$

Appendix F

Boxplots Number of Solver Runs over Percentage of Flagged Edges

NOTE:

No outliers are shown due to readability!

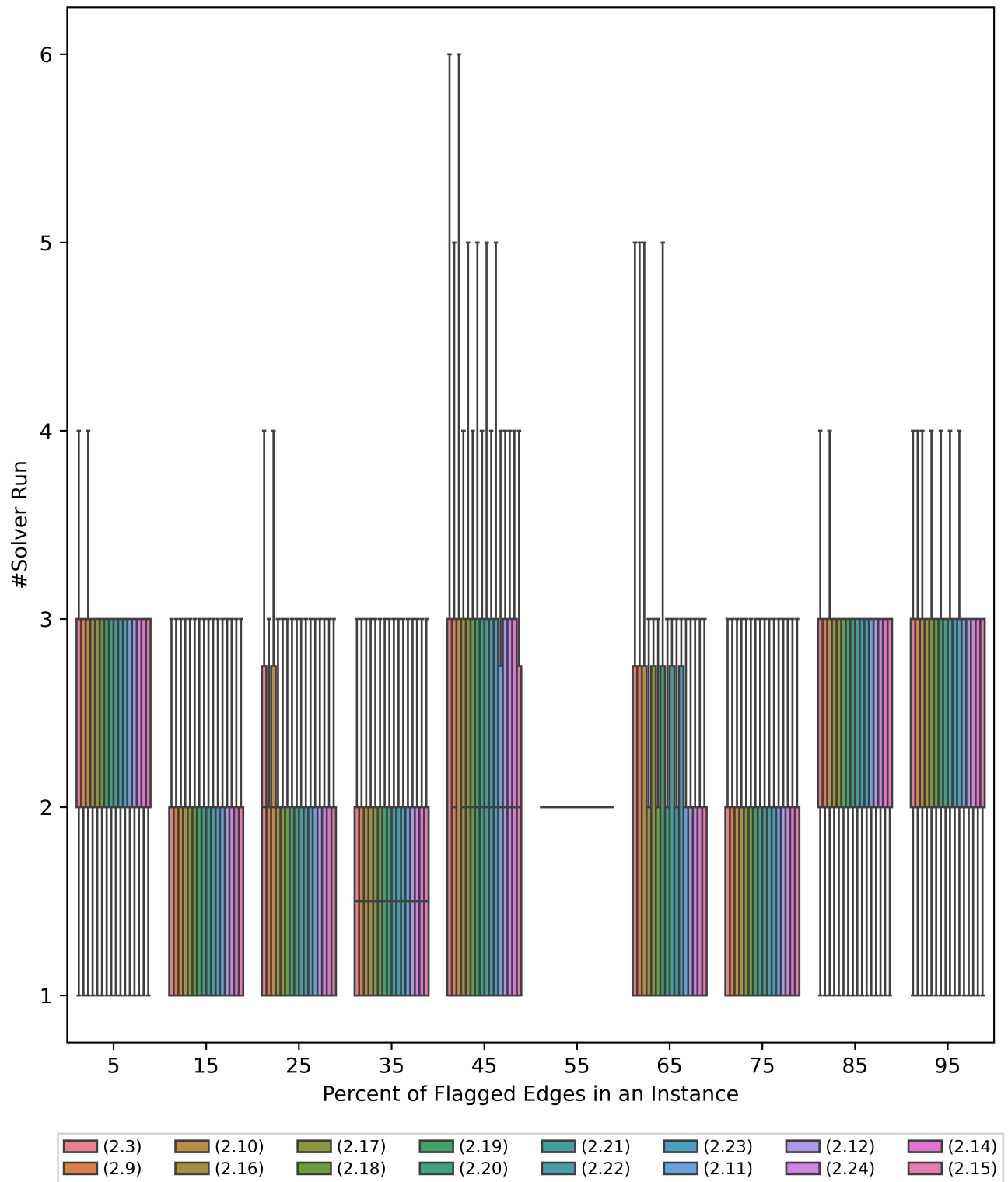


Figure F.1: Boxplot #Runs over Percent Flagged Edges | $n = 10$

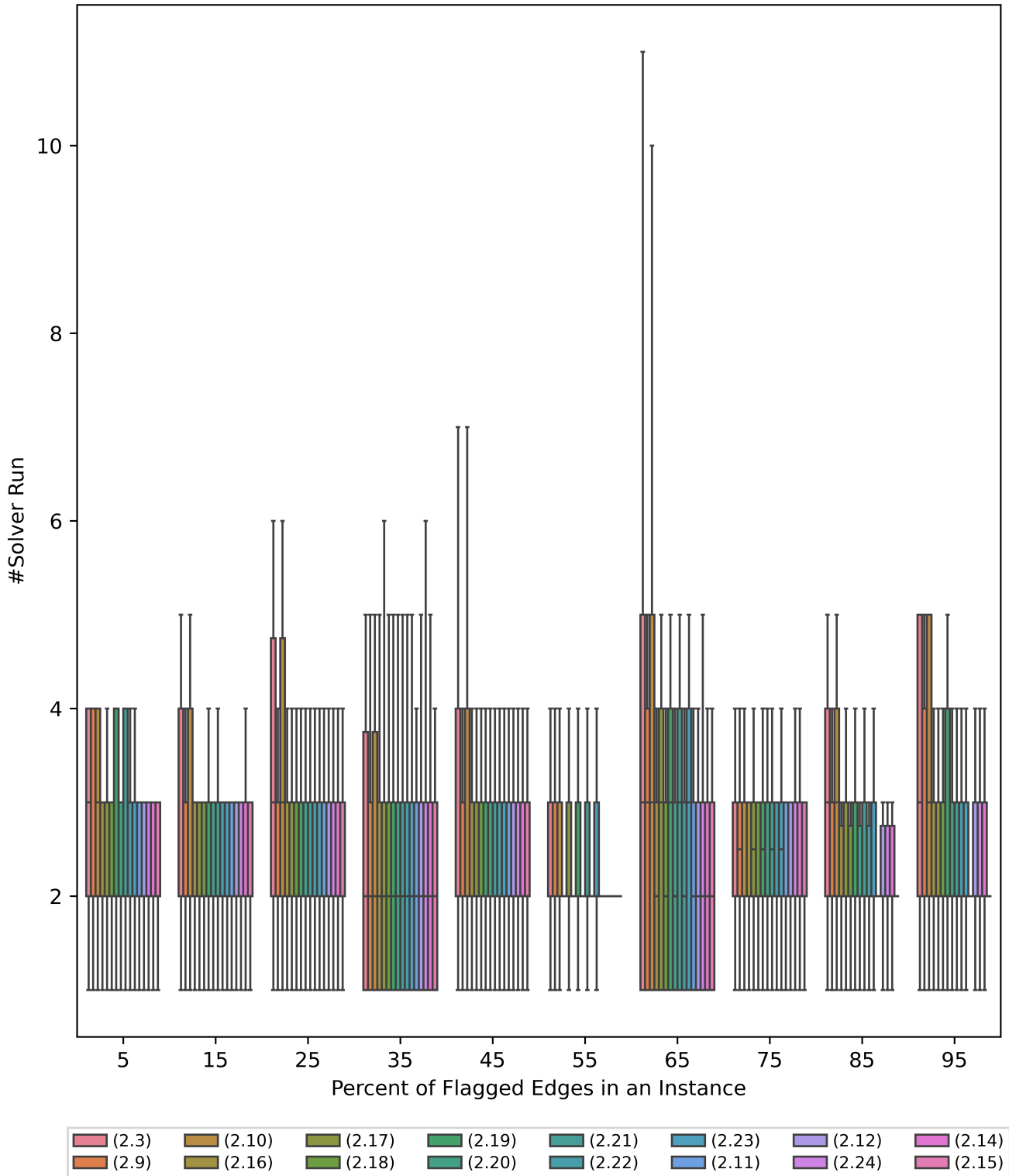


Figure F.2: Boxplot #Runs over Percent Flagged Edges | $n = 15$

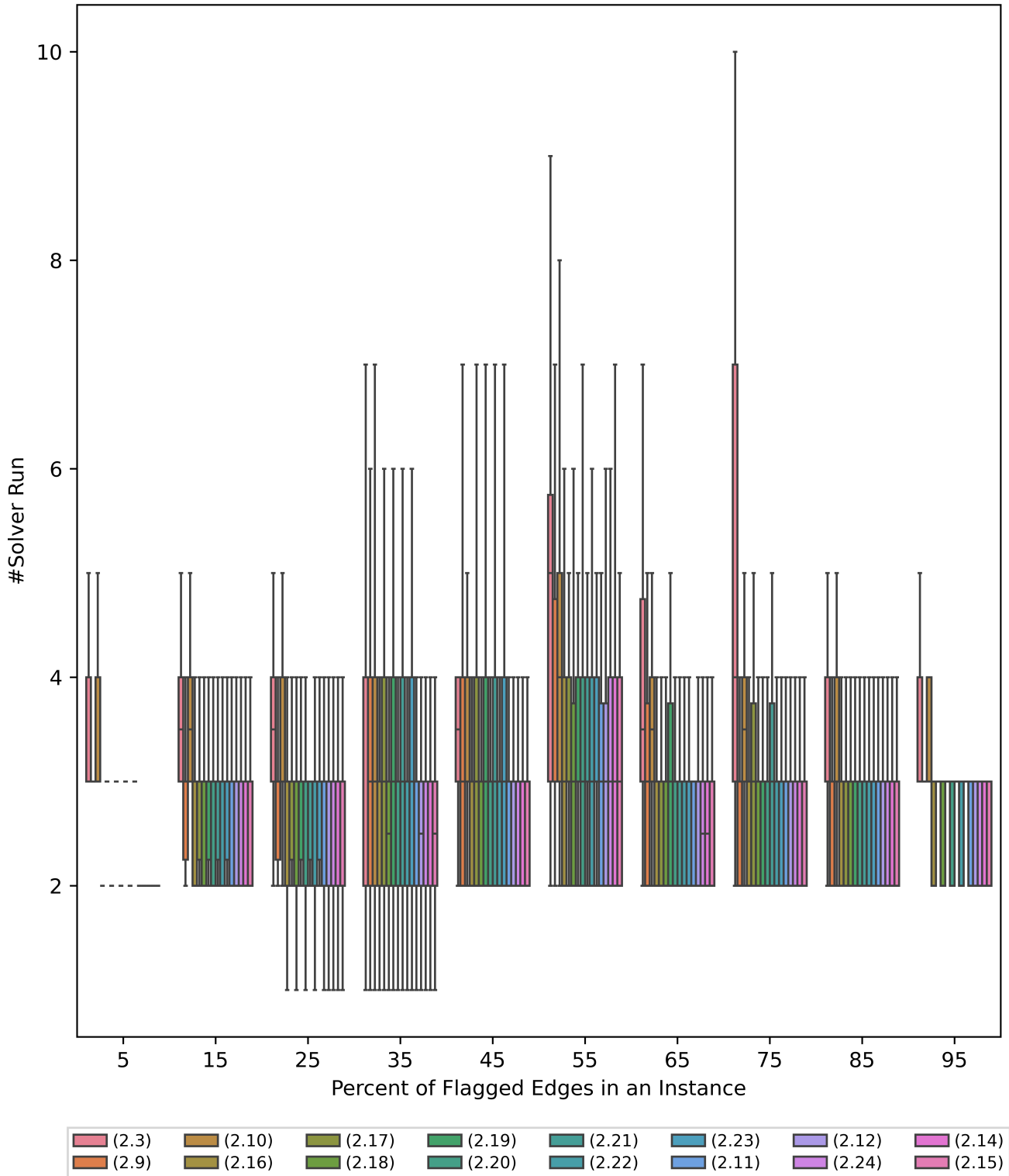


Figure F.3: Boxplot #Runs over Percent Flagged Edges | $n = 20$

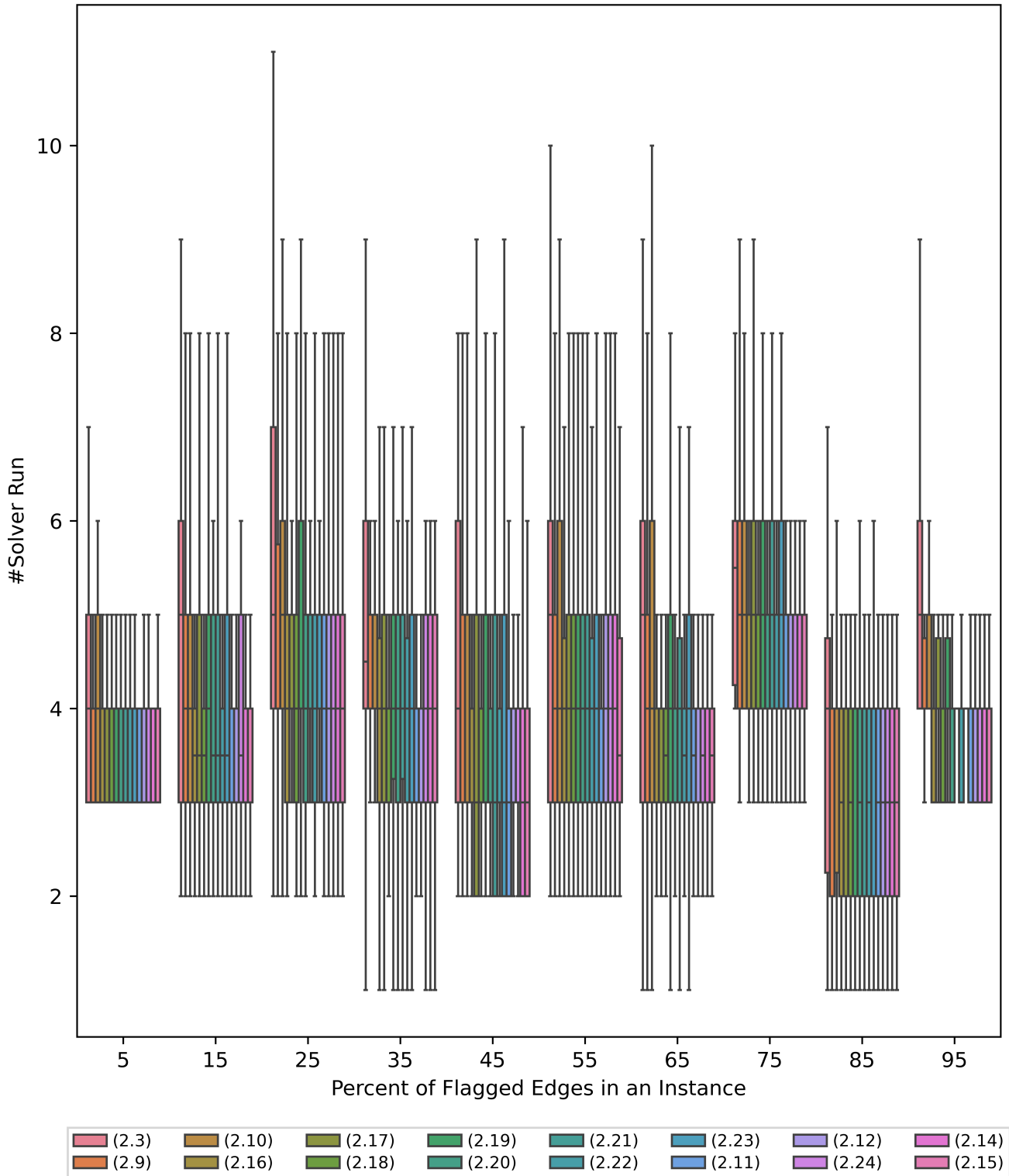


Figure F.4: Boxplot #Runs over Percent Flagged Edges | $n = 25$

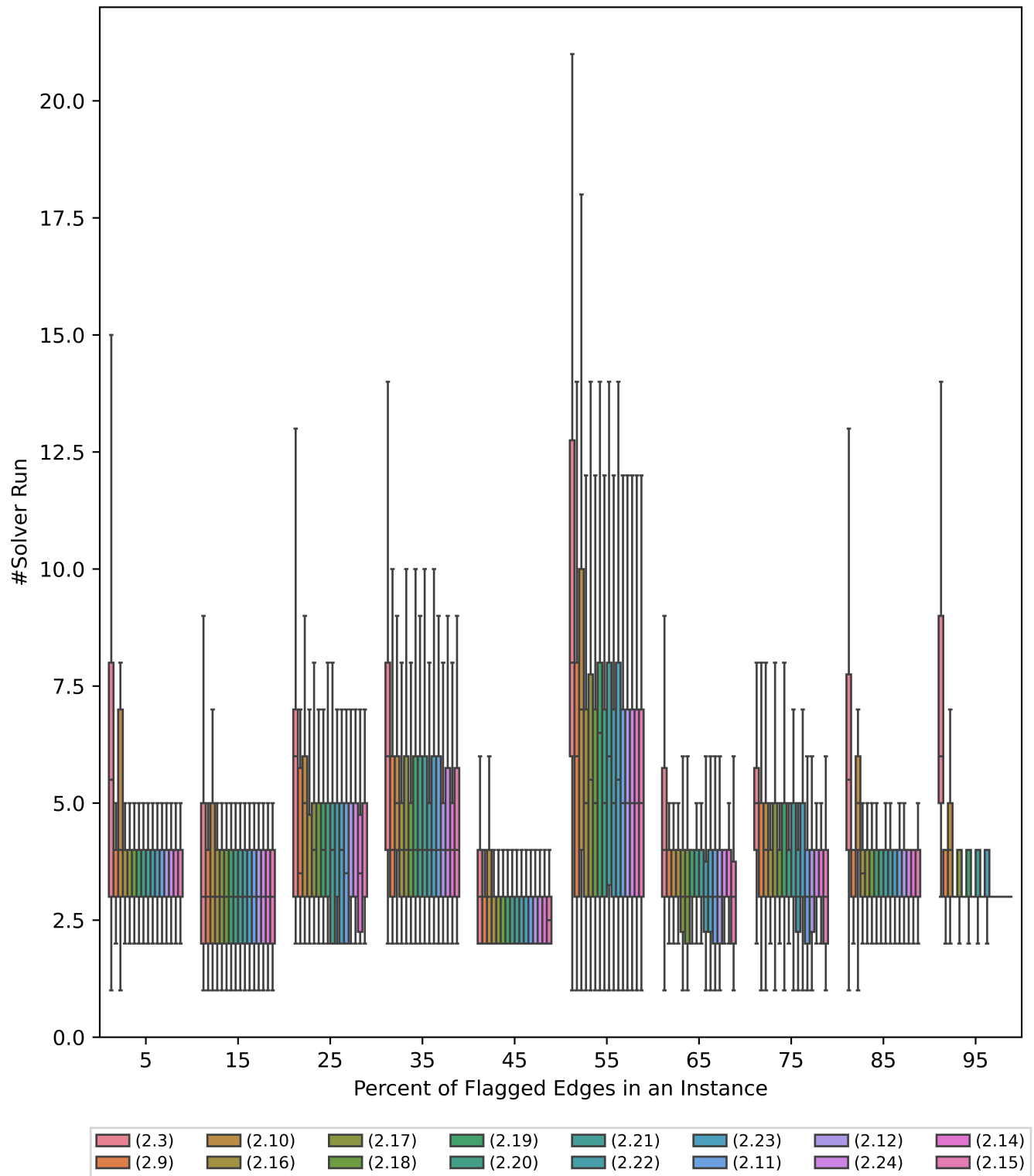


Figure F.5: Boxplot #Runs over Percent Flagged Edges | $n = 30$

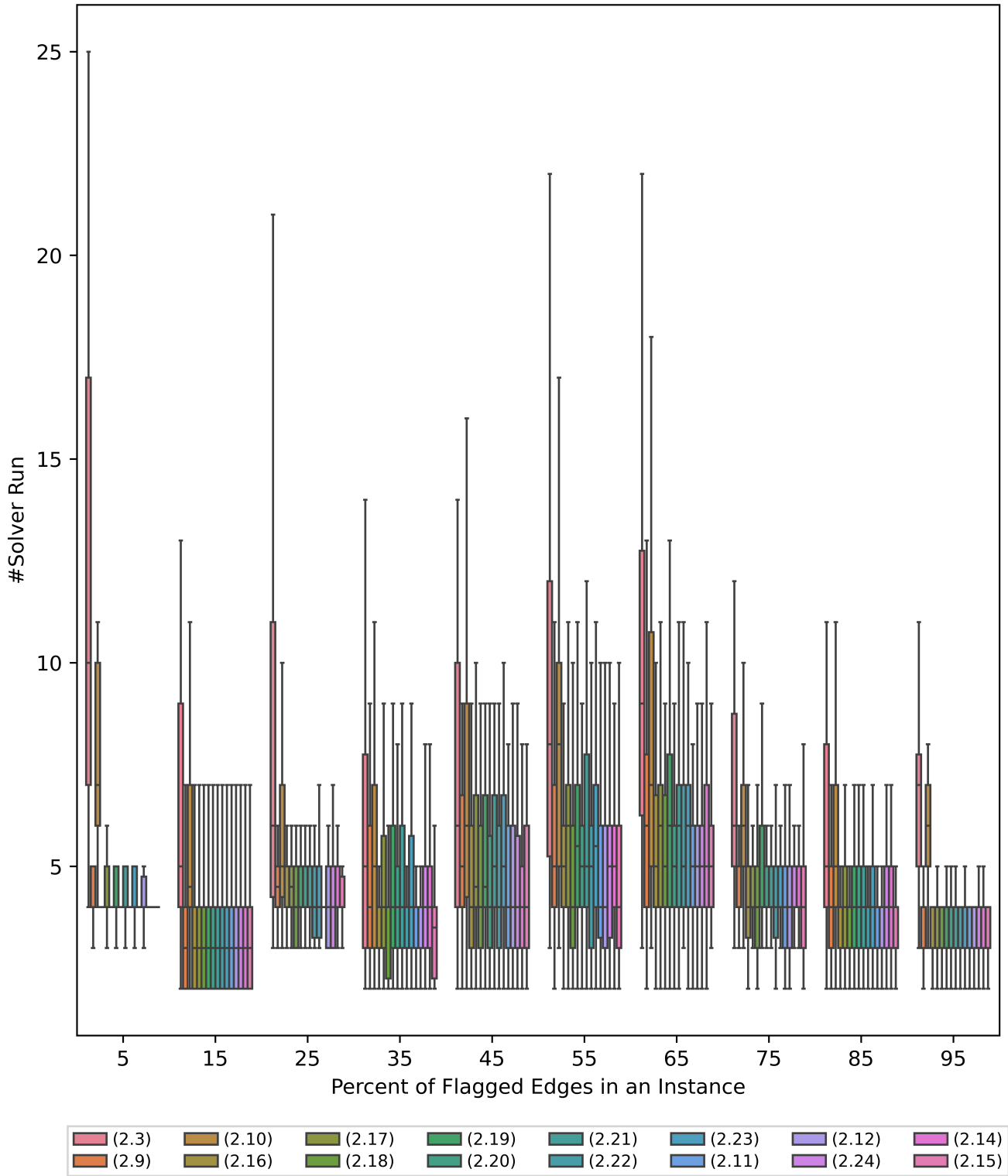


Figure F.6: Boxplot #Runs over Percent Flagged Edges | $n = 35$

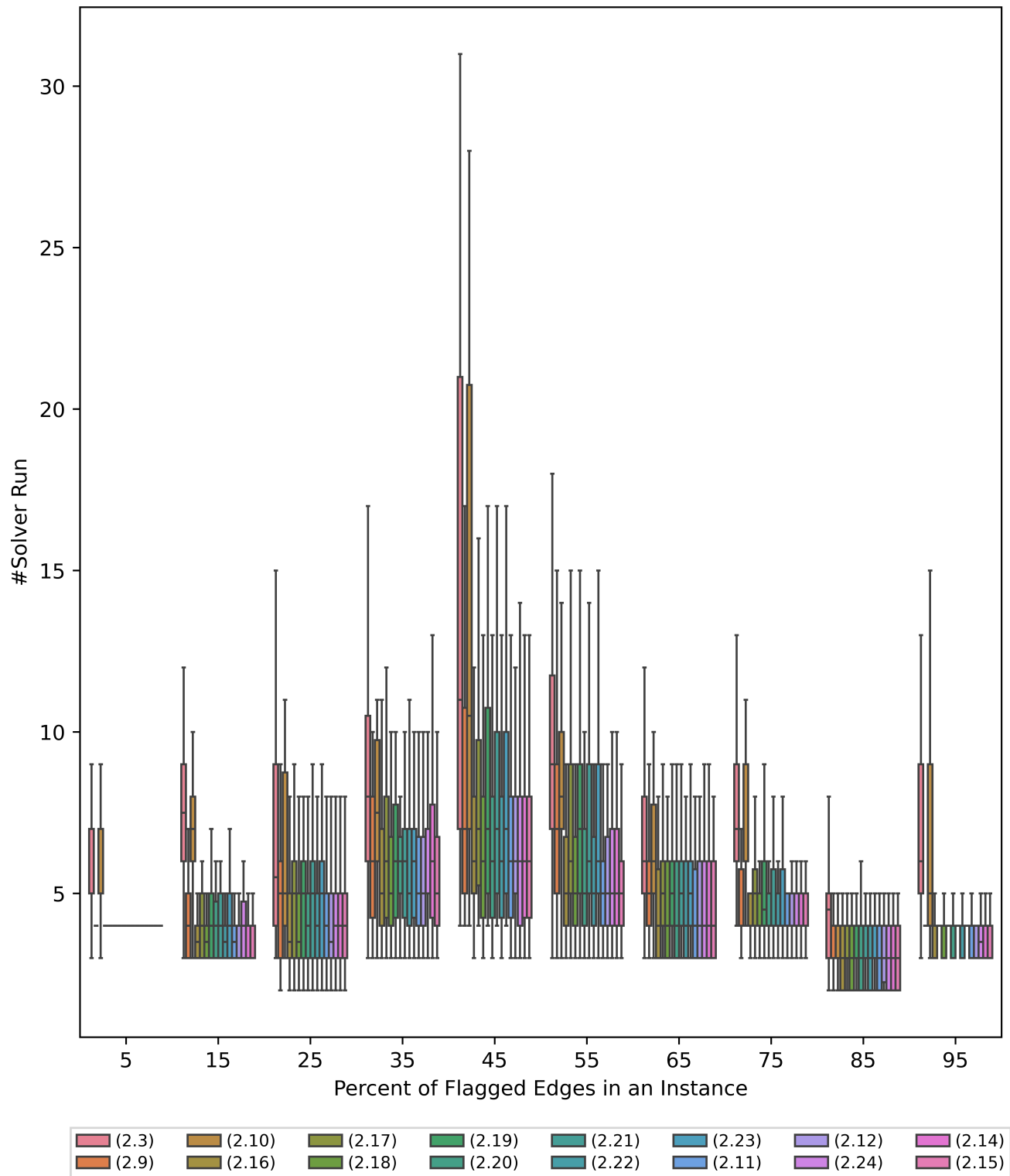


Figure F.7: Boxplot #Runs over Percent Flagged Edges | $n = 40$

Appendix G

Boxplots of Number Solver Runs over Relative Reload Costs

NOTE:

No outliers are shown due to readability!

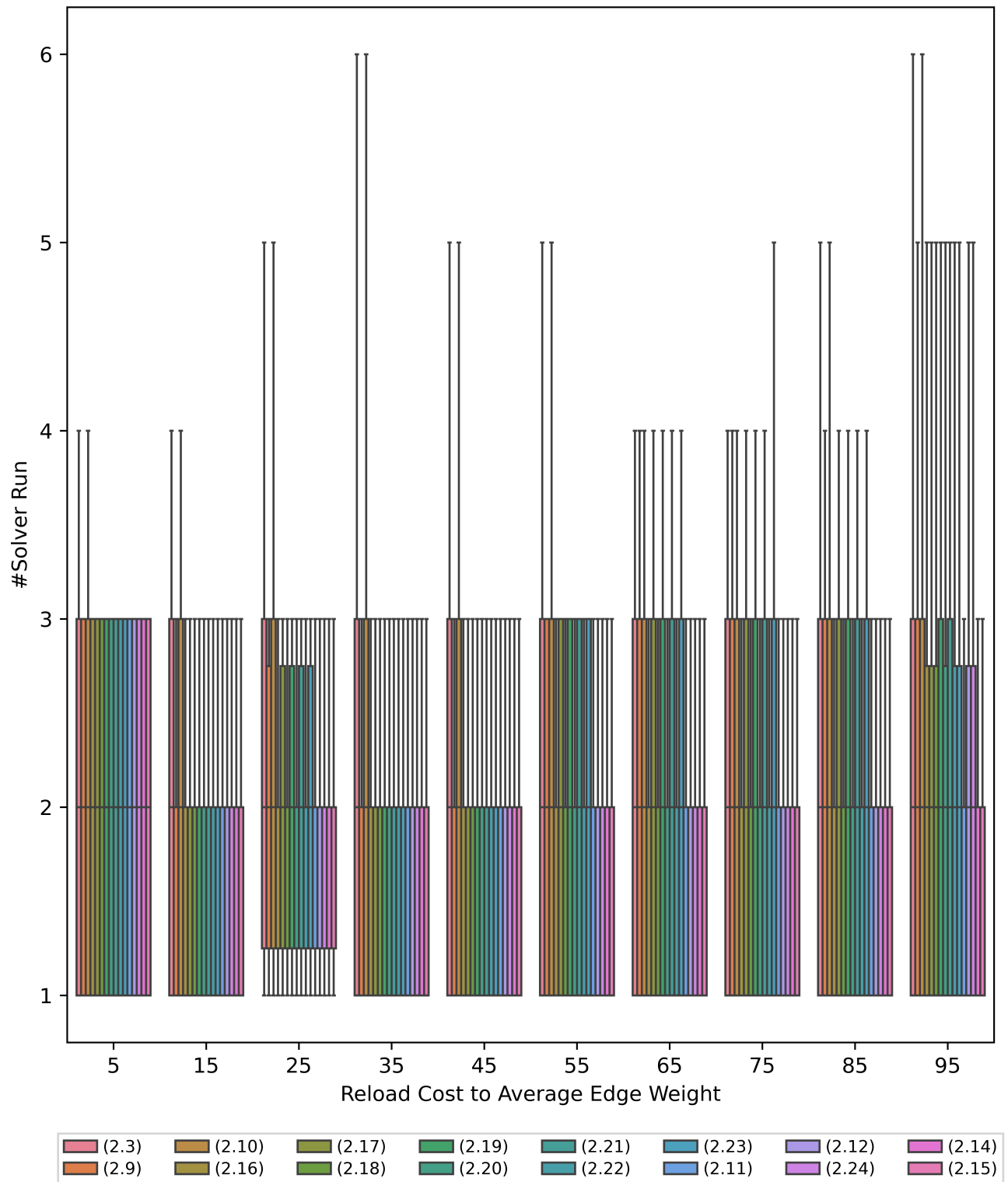


Figure G.1: Boxplot #Solver Run over Relative Reload Costs | $n = 10$

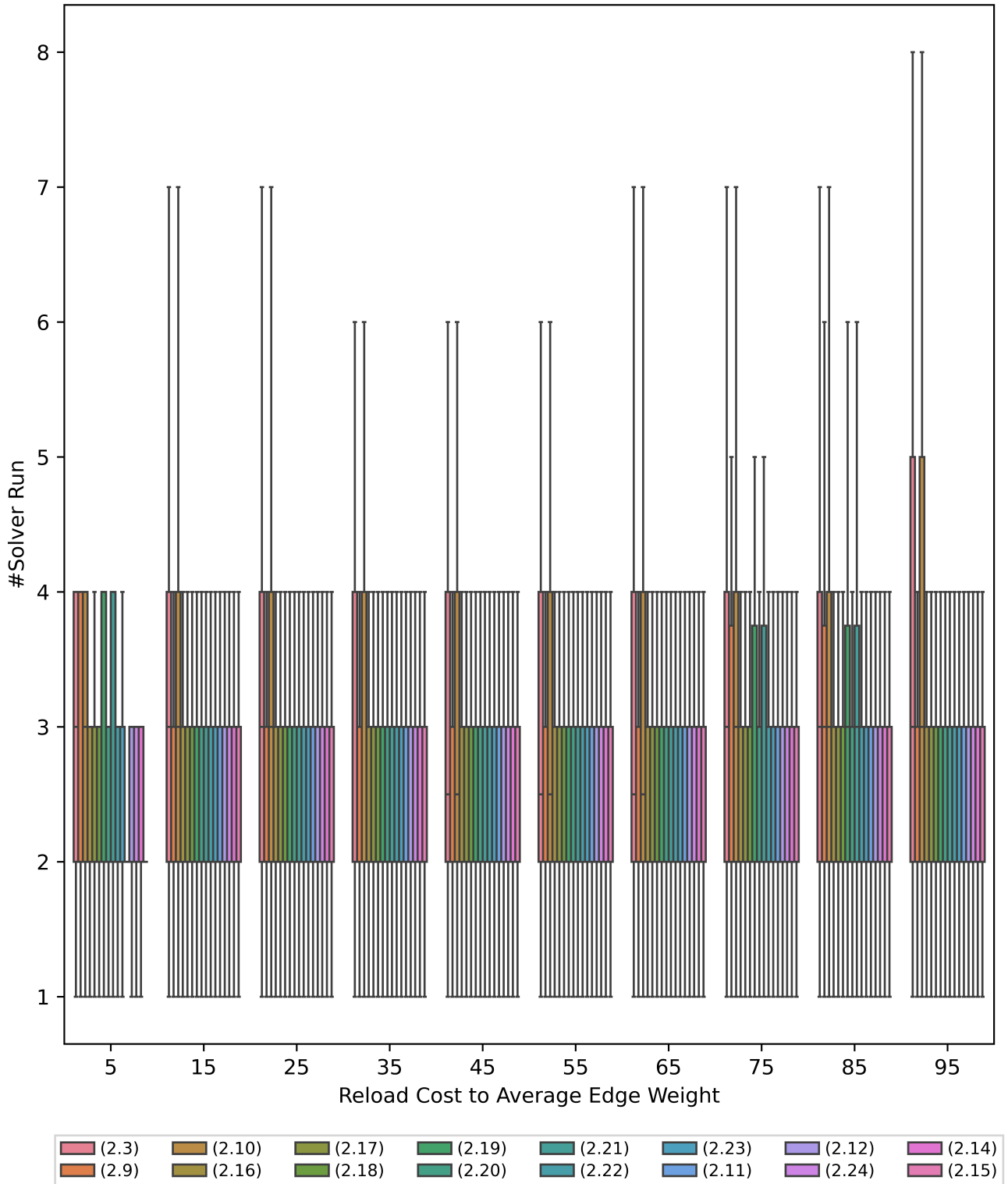


Figure G.2: Boxplot #Solver Run over Relative Reload Costs | $n = 15$

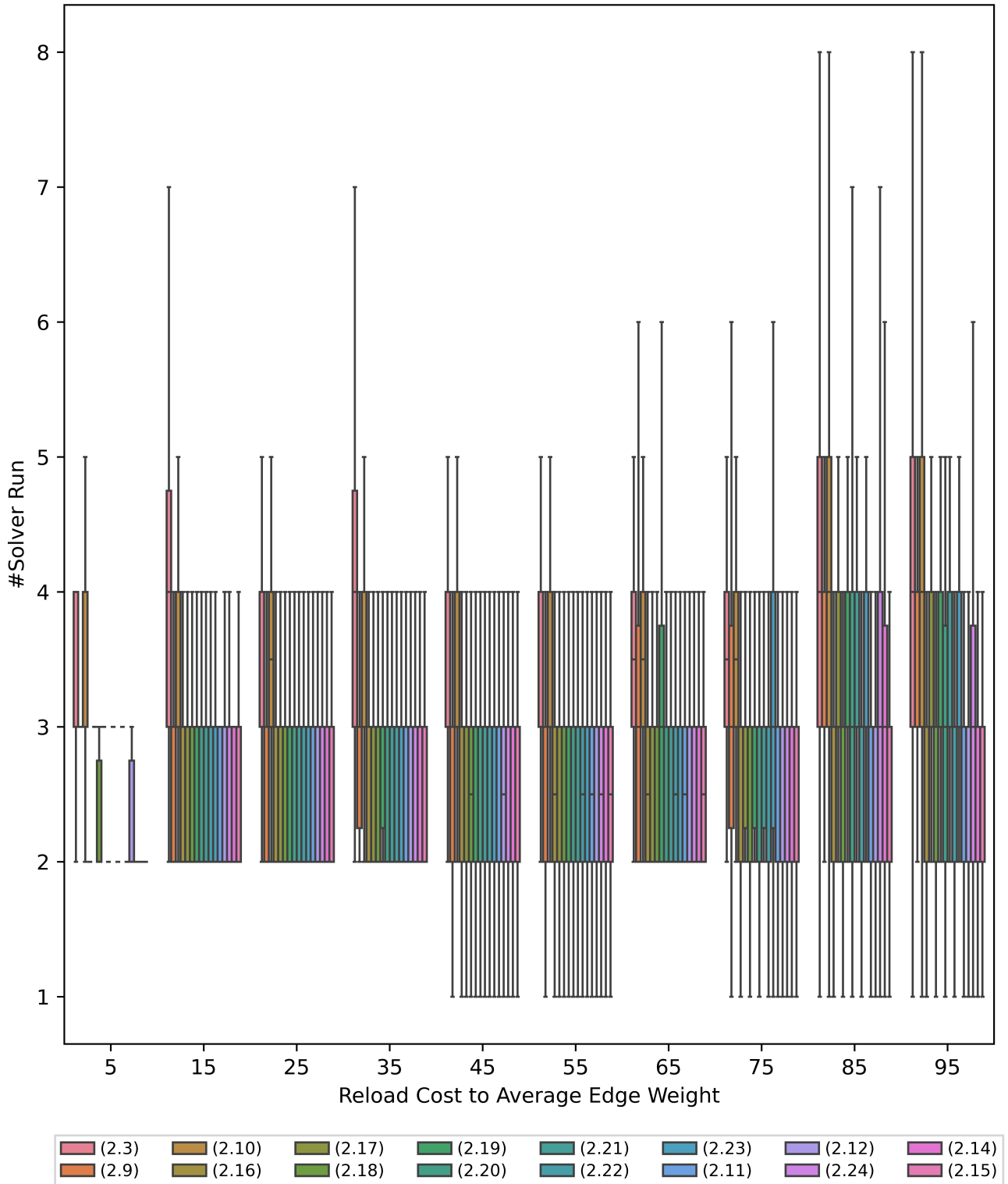


Figure G.3: Boxplot #Solver Run over Relative Reload Costs | $n = 20$

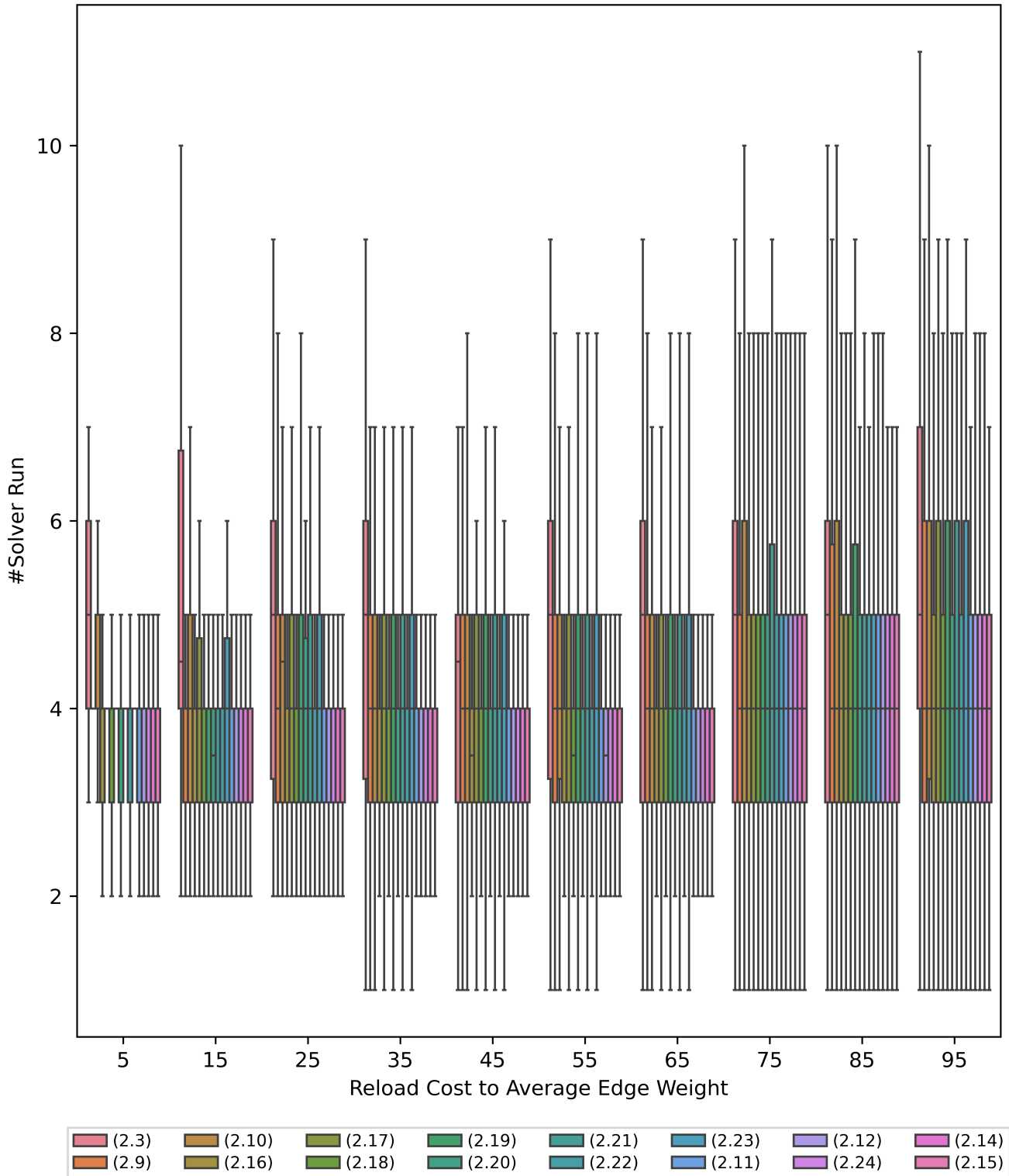


Figure G.4: Boxplot #Solver Run over Relative Reload Costs | $n = 25$

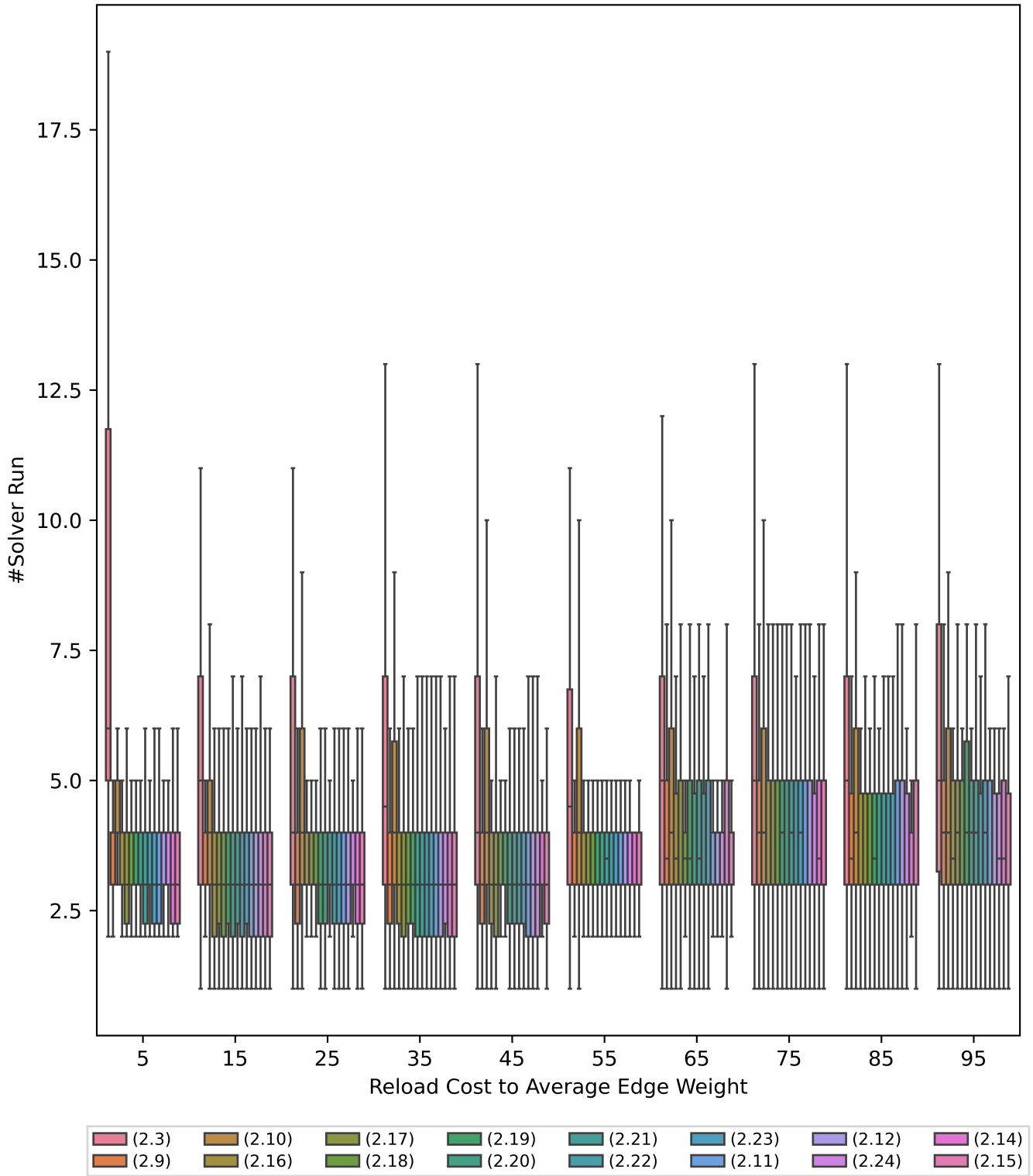


Figure G.5: Boxplot #Solver Run over Relative Reload Costs | $n = 30$

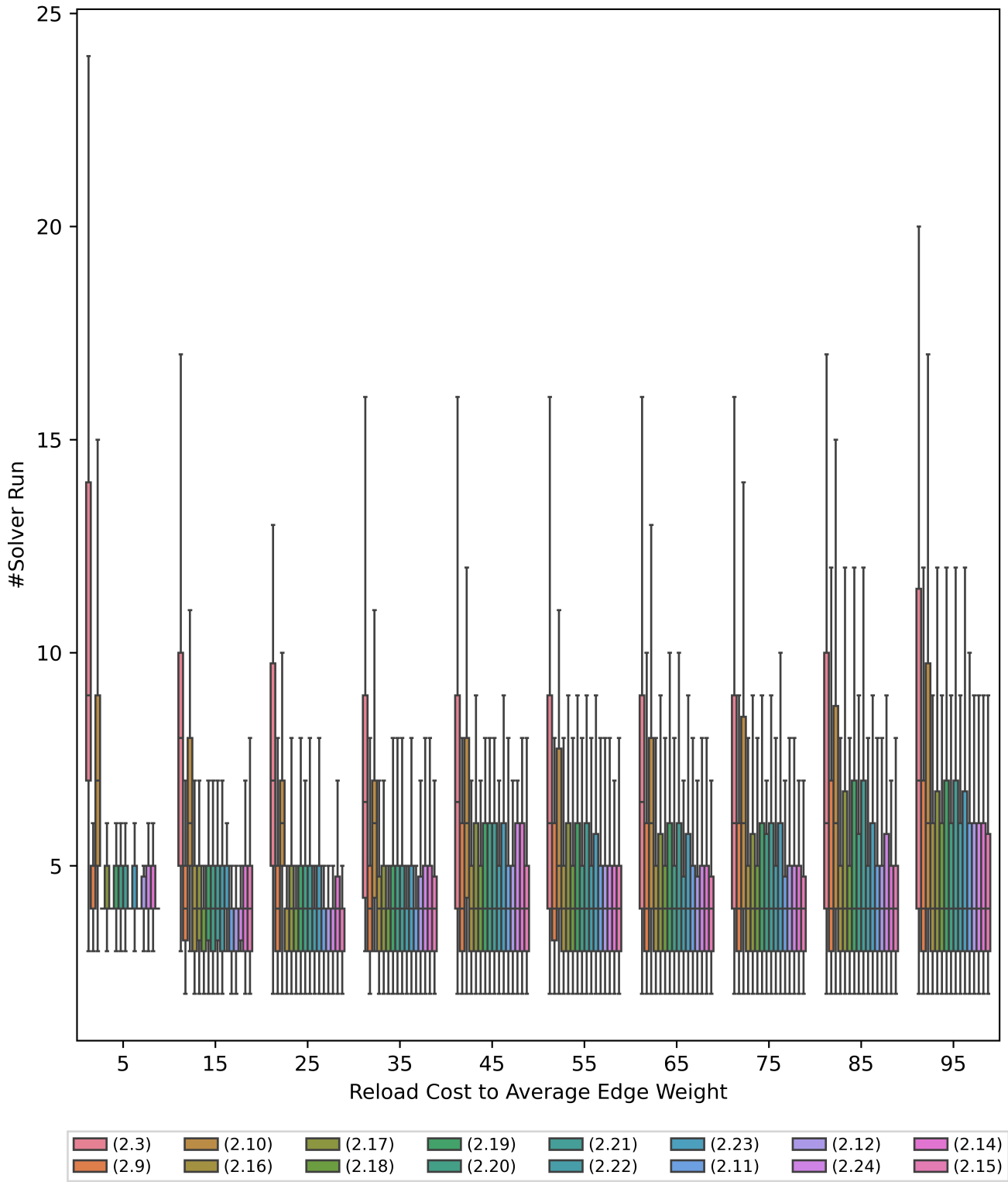


Figure G.6: Boxplot #Solver Run over Relative Reload Costs | $n = 35$

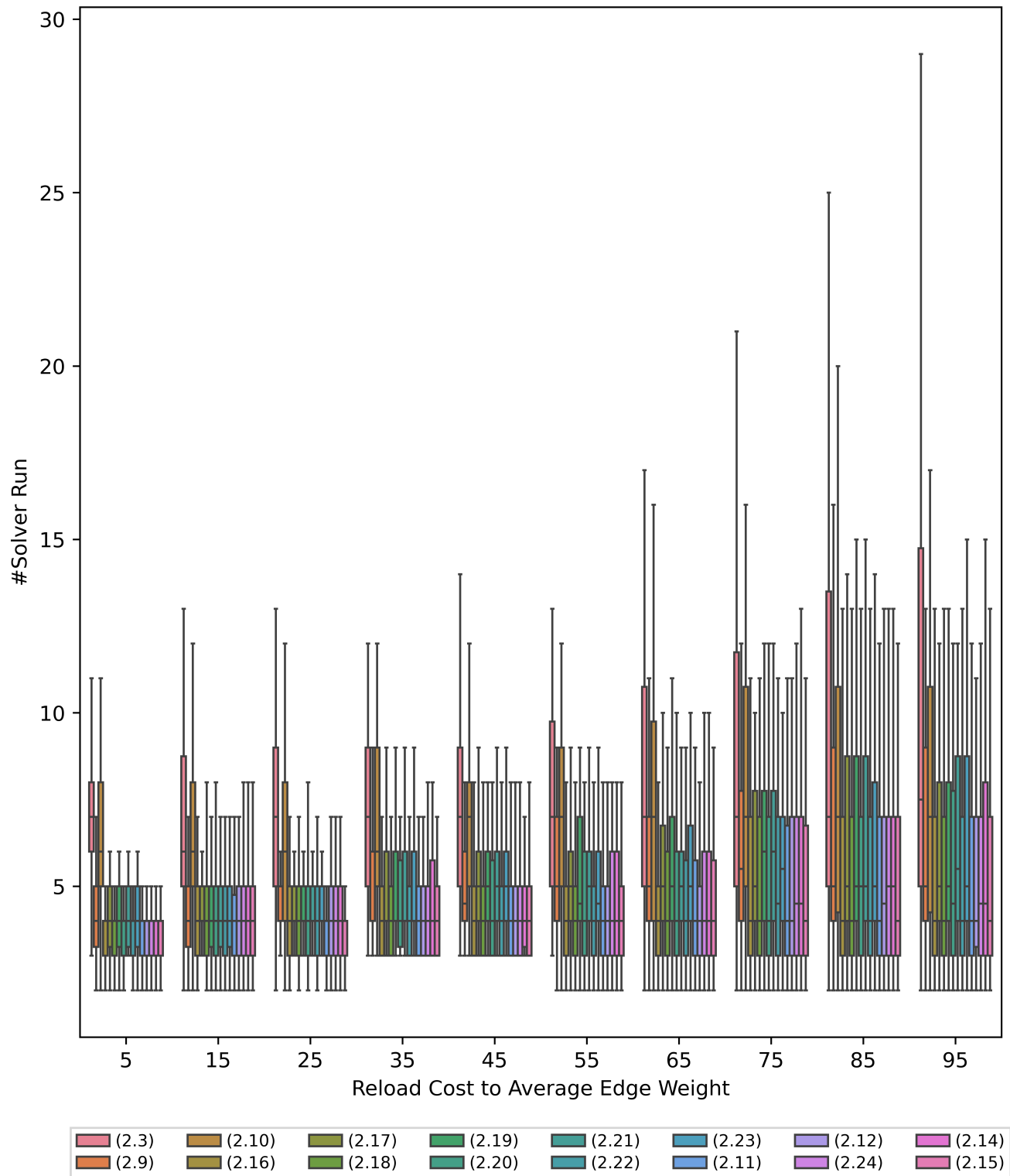


Figure G.7: Boxplot #Solver Run over Relative Reload Costs | $n = 40$

Appendix H

Gap Trendcharts for Tested Heuristics over Flagged Edges and Reload Costs

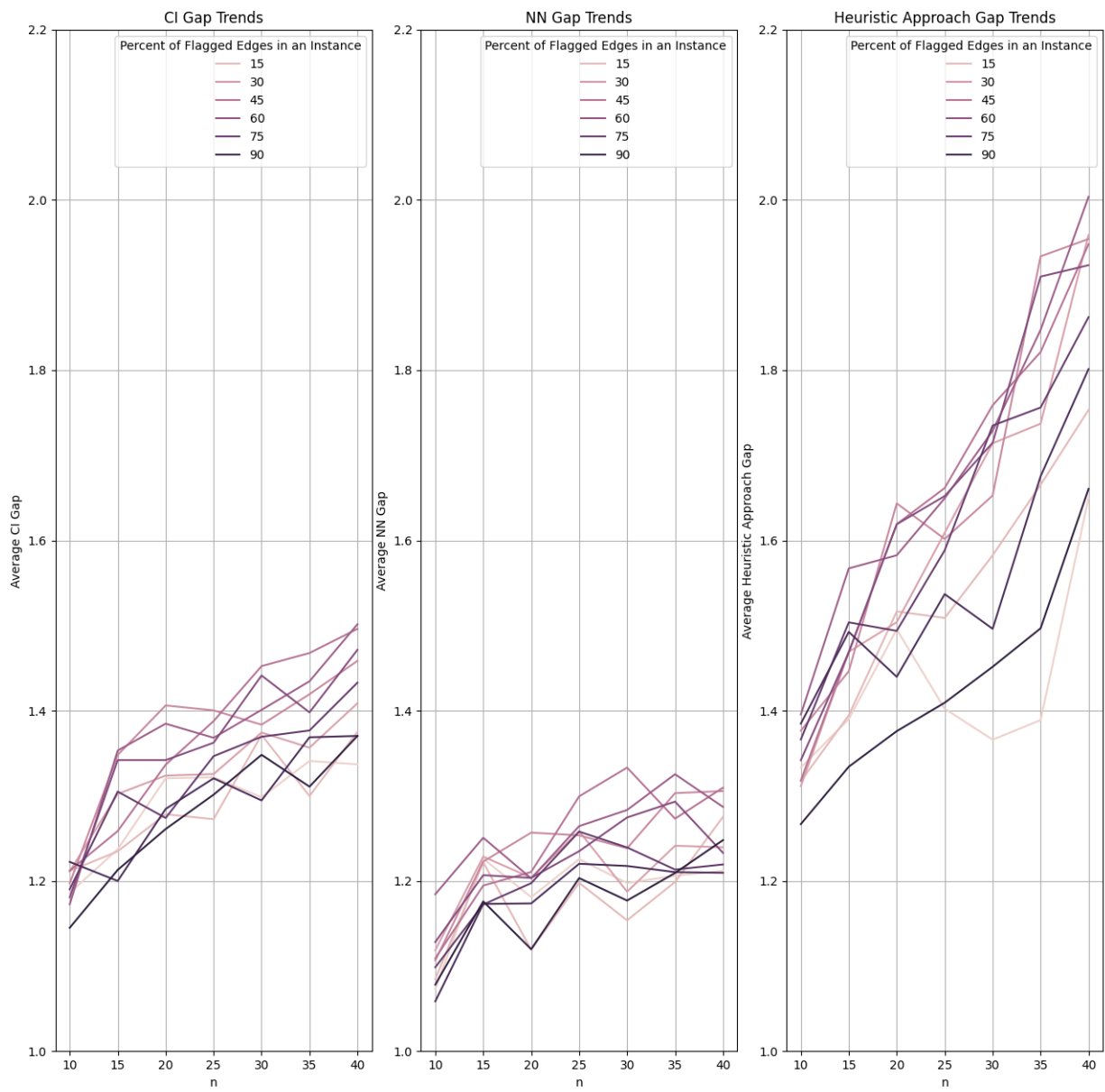


Figure H.1: Heuristic Solution-Gap Clustered over Changing Percentage of Flagged Edges

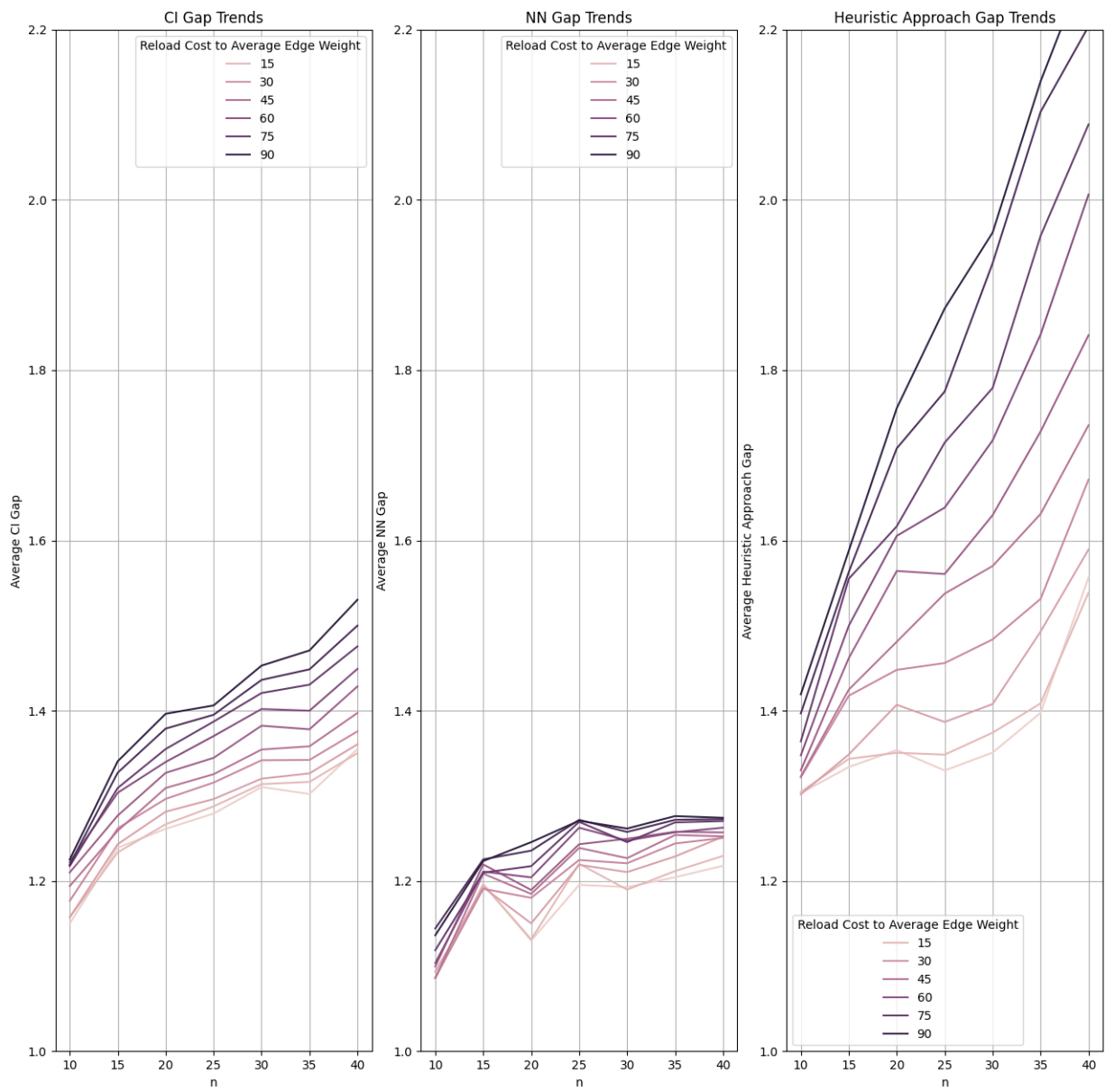


Figure H.2: Heuristic Solution-Gap Clustered over Changing Relative Reload Costs

Appendix I

Aggregated Computational Results for (2.3)

NOTE:

n - Number of nodes in the graph

f - Percentage of flagged edges in an instance

w - Reload costs relative to the average edge weight

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
10	5	5	58612,400	0,142	2,600	2,200
10	5	15	59401,600	0,150	3,200	2,400
10	5	25	59683,600	0,170	3,600	2,600
10	5	35	59880,000	0,168	3,600	2,600
10	5	45	60076,800	0,182	3,600	2,600
10	5	55	60186,000	0,168	3,600	2,600
10	5	65	60186,000	0,168	3,600	2,600
10	5	75	60186,000	0,176	3,600	2,600
10	5	85	60186,000	0,180	3,600	2,600
10	5	95	60186,000	0,170	3,600	2,600
10	15	5	58681,200	0,138	2,600	2,200
10	15	15	59530,000	0,172	2,600	2,200
10	15	25	60373,600	0,154	2,600	2,200
10	15	35	61046,400	0,156	3,200	2,400
10	15	45	61358,800	0,156	3,200	2,400
10	15	55	61515,600	0,150	2,400	2,000
10	15	65	61515,600	0,130	2,400	2,000
10	15	75	61515,600	0,114	1,800	1,800
10	15	85	61515,600	0,112	1,800	1,800
10	15	95	61515,600	0,112	1,800	1,800
10	25	5	58814,800	0,144	2,600	2,200
10	25	15	60075,600	0,124	2,400	2,000
10	25	25	61050,800	0,126	2,400	2,000
10	25	35	61916,800	0,110	2,000	1,800
10	25	45	62783,200	0,110	2,000	1,800
10	25	55	63650,400	0,112	2,000	1,800
10	25	65	64516,800	0,116	1,800	1,800
10	25	75	65169,200	0,132	2,200	2,000
10	25	85	65790,400	0,138	2,200	2,000
10	25	95	66218,400	0,128	1,800	1,800
10	35	5	59198,800	0,138	2,600	2,200
10	35	15	61180,400	0,136	2,200	2,000
10	35	25	63023,200	0,158	2,600	2,200
10	35	35	64766,000	0,388	3,000	2,400
10	35	45	66020,800	0,182	2,600	2,200
10	35	55	67124,400	0,162	2,200	2,000
10	35	65	68152,400	0,110	1,400	1,600
10	35	75	69004,800	0,118	1,400	1,600
10	35	85	69857,600	0,116	1,400	1,600
10	35	95	70710,000	0,112	1,400	1,600
10	45	5	59409,200	0,148	2,600	2,200
10	45	15	61826,800	0,148	2,800	2,200
10	45	25	63918,000	0,144	2,400	2,000

Table I.1 continued from previous page

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
10	45	35	65659,200	0,172	2,800	2,200
10	45	45	67042,400	0,186	3,200	2,400
10	45	55	68266,800	0,194	4,000	2,600
10	45	65	69403,200	0,214	4,400	2,800
10	45	75	70429,600	0,214	3,800	2,600
10	45	85	71456,400	0,222	4,000	2,800
10	45	95	72482,800	0,284	4,800	3,200
10	55	5	59409,200	0,136	2,600	2,200
10	55	15	61680,800	0,148	2,600	2,200
10	55	25	63603,200	0,156	3,200	2,400
10	55	35	65317,600	0,184	3,600	2,600
10	55	45	66599,200	0,144	2,800	2,200
10	55	55	67466,400	0,202	2,800	2,200
10	55	65	68332,800	0,146	2,800	2,200
10	55	75	69198,800	0,124	2,000	2,000
10	55	85	70065,200	0,128	1,600	1,800
10	55	95	70931,600	0,132	1,600	1,800
10	65	5	59534,800	0,148	2,600	2,200
10	65	15	61800,800	0,128	2,200	2,000
10	65	25	63858,400	0,134	2,200	2,000
10	65	35	65665,200	0,130	1,800	1,800
10	65	45	67362,400	0,126	1,800	1,800
10	65	55	68532,400	0,132	1,800	1,800
10	65	65	69349,200	0,158	2,800	2,200
10	65	75	69790,800	0,152	2,400	2,000
10	65	85	70232,800	0,130	2,000	1,800
10	65	95	70674,800	0,158	2,400	2,000
10	75	5	59115,600	0,142	2,600	2,200
10	75	15	60526,800	0,124	2,200	2,000
10	75	25	61730,000	0,116	1,800	1,800
10	75	35	62624,400	0,100	1,600	1,600
10	75	45	63400,400	0,096	1,600	1,600
10	75	55	63988,800	0,094	1,600	1,600
10	75	65	64519,600	0,098	1,400	1,600
10	75	75	65050,400	0,096	1,400	1,600
10	75	85	65581,600	0,118	1,800	1,800
10	75	95	66080,800	0,118	1,800	1,800
10	85	5	58724,800	0,140	2,600	2,200
10	85	15	59667,600	0,150	2,800	2,200
10	85	25	60271,600	0,150	3,200	2,400
10	85	35	60298,400	0,136	2,600	2,200
10	85	45	60298,400	0,126	2,200	2,000

Table I.1 continued from previous page

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
10	85	55	60298,400	0,120	2,200	2,000
10	85	65	60298,400	0,134	2,400	2,200
10	85	75	60298,400	0,128	2,400	2,200
10	85	85	60298,400	0,128	2,400	2,200
10	85	95	60298,400	0,128	2,400	2,200
10	95	5	58817,200	0,140	2,600	2,200
10	95	15	60094,000	0,144	2,800	2,200
10	95	25	61020,400	0,182	4,000	2,800
10	95	35	61352,000	0,184	4,000	2,800
10	95	45	61602,400	0,162	3,600	2,600
10	95	55	61852,800	0,160	3,600	2,600
10	95	65	62103,200	0,162	3,600	2,600
10	95	75	62353,600	0,148	3,200	2,400
10	95	85	62604,000	0,164	3,600	2,600
10	95	95	62854,400	0,166	3,600	2,600
15	5	5	68981,200	1,238	9,200	4,400
15	5	15	68981,200	0,980	8,400	4,000
15	5	25	68981,200	0,844	8,000	3,800
15	5	35	68981,200	0,840	8,000	3,800
15	5	45	68981,200	0,914	7,200	3,600
15	5	55	68981,200	0,866	7,200	3,600
15	5	65	68981,200	0,840	7,200	3,600
15	5	75	68981,200	0,884	7,200	3,600
15	5	85	68981,200	0,906	7,200	3,600
15	5	95	68981,200	0,840	7,200	3,600
15	15	5	69520,400	0,996	8,600	4,000
15	15	15	70577,600	1,278	9,000	4,200
15	15	25	71221,600	1,332	9,400	4,400
15	15	35	71586,000	1,360	9,800	4,600
15	15	45	71810,000	1,512	9,600	4,400
15	15	55	71834,000	0,930	8,400	4,000
15	15	65	71834,000	0,872	8,000	3,800
15	15	75	71834,000	0,824	8,000	4,000
15	15	85	71834,000	0,812	7,800	4,000
15	15	95	71834,000	0,920	8,200	4,200
15	25	5	70424,000	1,062	8,600	4,000
15	25	15	72768,000	0,612	7,200	3,400
15	25	25	74780,000	0,548	6,800	3,200
15	25	35	76731,600	0,536	6,000	3,000
15	25	45	78443,200	0,484	5,800	2,800
15	25	55	79616,000	0,668	7,200	3,400
15	25	65	80510,800	0,698	6,800	3,200

Table I.1 continued from previous page

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
15	25	75	81204,400	0,650	6,400	3,200
15	25	85	81480,000	0,684	6,400	3,200
15	25	95	81700,800	0,730	7,200	3,600
15	35	5	70352,000	1,454	9,400	4,400
15	35	15	72622,400	1,236	7,800	3,800
15	35	25	74395,600	1,160	6,200	3,200
15	35	35	76109,200	1,556	6,200	3,400
15	35	45	77566,400	1,332	6,200	3,400
15	35	55	78808,400	1,660	6,000	3,400
15	35	65	79852,000	1,298	6,400	3,400
15	35	75	80896,000	1,870	7,000	3,600
15	35	85	81694,000	2,138	7,800	4,000
15	35	95	82201,200	2,204	7,800	4,000
15	45	5	70855,200	0,938	8,600	4,000
15	45	15	74553,600	0,760	7,000	3,400
15	45	25	77595,200	0,862	6,400	3,000
15	45	35	79926,000	0,958	5,200	2,600
15	45	45	82132,400	1,378	6,600	3,200
15	45	55	84223,600	1,572	7,000	3,400
15	45	65	86060,000	1,348	6,400	3,200
15	45	75	87630,000	1,500	6,600	3,200
15	45	85	89071,600	2,026	7,800	3,800
15	45	95	90246,800	2,982	9,800	4,600
15	55	5	70464,800	0,886	8,200	3,800
15	55	15	73422,400	0,556	5,800	3,000
15	55	25	75783,600	0,420	4,600	2,400
15	55	35	77486,000	0,248	3,000	1,800
15	55	45	79160,000	0,310	3,200	1,800
15	55	55	80556,800	0,368	2,800	1,800
15	55	65	81822,000	0,448	2,800	2,000
15	55	75	82970,400	0,588	3,800	2,400
15	55	85	84040,000	0,752	3,800	2,400
15	55	95	85110,000	0,670	4,000	2,400
15	65	5	70371,200	1,382	9,600	4,600
15	65	15	72890,400	1,432	8,200	4,000
15	65	25	75096,400	1,488	7,200	3,600
15	65	35	76812,000	1,908	7,800	3,800
15	65	45	77934,400	1,538	7,600	3,800
15	65	55	78800,000	1,224	6,000	3,200
15	65	65	79493,600	1,342	6,600	3,400
15	65	75	80136,000	1,244	6,400	3,400
15	65	85	80710,000	1,576	7,400	3,800

Table I.1 continued from previous page

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
15	65	95	80933,200	1,706	7,400	3,800
15	75	5	70362,400	1,302	9,800	4,600
15	75	15	72444,800	0,742	7,400	3,600
15	75	25	73830,000	0,686	6,800	3,400
15	75	35	74681,200	0,582	6,000	3,200
15	75	45	75532,800	0,598	6,000	3,200
15	75	55	76146,000	0,586	5,200	3,000
15	75	65	76593,200	0,702	5,400	3,000
15	75	75	77040,400	0,842	6,000	3,200
15	75	85	77318,800	0,872	6,000	3,200
15	75	95	77490,400	0,544	5,200	2,800
15	85	5	70061,600	1,008	8,800	4,200
15	85	15	71992,000	0,600	7,800	3,800
15	85	25	73488,000	0,588	7,800	3,800
15	85	35	74196,800	0,534	7,400	3,600
15	85	45	74616,000	0,420	6,000	3,000
15	85	55	75034,800	0,394	5,600	3,000
15	85	65	75453,600	0,402	5,600	3,000
15	85	75	75677,600	0,392	5,600	3,000
15	85	85	75901,200	0,424	6,200	3,200
15	85	95	76125,200	0,406	6,200	3,200
15	95	5	69367,200	1,342	10,200	4,800
15	95	15	70080,800	1,636	10,400	5,000
15	95	25	70587,600	2,388	11,800	5,600
15	95	35	70819,600	2,162	11,800	5,600
15	95	45	70862,400	2,486	11,600	5,600
15	95	55	70862,400	2,236	11,600	5,600
15	95	65	70862,400	2,436	11,800	5,800
15	95	75	70862,400	2,194	11,400	5,600
15	95	85	70862,400	2,042	12,000	5,800
15	95	95	70862,400	2,116	11,400	5,600
20	5	5	77616,400	2,714	11,600	4,400
20	5	15	78036,400	2,680	11,800	4,600
20	5	25	78182,000	2,844	12,000	4,600
20	5	35	78182,000	2,352	12,200	4,800
20	5	45	78182,000	2,382	11,400	4,400
20	5	55	78182,000	2,268	11,400	4,400
20	5	65	78182,800	2,872	11,400	4,400
20	5	75	78182,000	2,362	11,400	4,400
20	5	85	78182,000	2,442	11,600	4,600
20	5	95	78182,000	2,526	11,400	4,400
20	15	5	78996,000	2,888	11,800	4,400

Table I.1 continued from previous page

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
20	15	15	81477,200	2,832	12,400	4,200
20	15	25	82715,200	1,632	11,200	3,800
20	15	35	83676,000	1,652	10,600	3,800
20	15	45	84209,600	1,662	9,800	3,800
20	15	55	84633,200	1,610	10,200	4,000
20	15	65	85057,600	1,550	9,400	3,800
20	15	75	85481,600	1,632	9,800	4,000
20	15	85	85666,800	1,534	9,600	4,000
20	15	95	85666,800	1,270	8,200	3,400
20	25	5	79737,600	2,290	11,200	4,200
20	25	15	83402,800	2,654	11,200	4,000
20	25	25	85614,000	2,044	10,000	3,600
20	25	35	86938,400	2,218	9,800	3,600
20	25	45	87973,600	1,856	8,800	3,400
20	25	55	88948,000	2,014	8,600	3,400
20	25	65	89627,200	1,938	9,400	3,800
20	25	75	89926,000	1,922	9,000	3,800
20	25	85	90120,400	1,794	9,000	3,800
20	25	95	90314,800	1,748	9,000	3,800
20	35	5	79652,000	2,422	10,600	4,400
20	35	15	83384,800	2,384	9,200	4,000
20	35	25	85944,000	2,800	9,400	4,200
20	35	35	87934,000	2,640	9,000	4,000
20	35	45	89523,200	2,238	7,000	3,400
20	35	55	90986,400	1,520	5,000	2,600
20	35	65	92261,200	1,910	4,200	2,600
20	35	75	93536,800	2,456	3,800	2,400
20	35	85	94811,600	6,062	8,400	4,000
20	35	95	95818,800	9,328	10,000	4,600
20	45	5	80114,000	2,498	10,800	4,200
20	45	15	84936,400	3,460	12,800	4,800
20	45	25	87948,800	2,366	9,400	3,400
20	45	35	89986,400	2,540	8,200	3,200
20	45	45	91486,400	3,656	8,400	3,400
20	45	55	92985,600	5,032	8,200	3,600
20	45	65	94335,200	7,902	10,000	4,200
20	45	75	95646,000	8,144	10,800	4,600
20	45	85	96956,000	10,150	12,800	5,400
20	45	95	98047,200	11,556	13,600	5,800
20	55	5	80342,800	2,656	11,200	4,200
20	55	15	84831,200	4,178	12,000	4,400
20	55	25	88413,600	2,418	10,200	3,800

Table I.1 continued from previous page

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
20	55	35	91303,600	3,422	10,800	4,200
20	55	45	93238,400	3,316	10,200	4,400
20	55	55	94768,400	4,576	10,800	4,600
20	55	65	96101,600	7,986	12,800	5,200
20	55	75	97038,000	9,426	13,000	5,200
20	55	85	97723,200	10,018	12,800	5,200
20	55	95	98409,200	9,928	14,000	5,400
20	65	5	79040,800	2,044	10,200	3,800
20	65	15	82184,400	1,810	7,400	3,400
20	65	25	84787,600	1,538	8,200	3,400
20	65	35	86868,800	1,826	8,400	3,600
20	65	45	88640,800	1,872	7,400	3,400
20	65	55	90127,200	2,682	7,600	3,600
20	65	65	91340,800	3,898	8,200	3,800
20	65	75	92462,400	4,544	8,200	3,800
20	65	85	93583,200	5,804	9,400	4,000
20	65	95	94704,400	5,924	10,200	4,400
20	75	5	79266,000	3,480	12,200	4,600
20	75	15	82122,000	3,808	11,800	4,400
20	75	25	84197,200	3,574	11,200	4,600
20	75	35	85687,600	2,882	10,000	4,400
20	75	45	86813,600	3,034	9,600	4,400
20	75	55	87874,000	5,002	10,600	4,800
20	75	65	88658,400	4,418	12,200	5,000
20	75	75	89308,000	4,272	10,800	4,400
20	75	85	89924,800	3,682	11,400	4,800
20	75	95	90186,400	5,078	12,200	5,000
20	85	5	78686,400	2,114	11,200	4,200
20	85	15	80469,200	2,098	11,000	4,200
20	85	25	81708,400	1,442	9,000	3,400
20	85	35	82597,600	1,654	9,800	3,800
20	85	45	83244,000	1,542	8,800	3,600
20	85	55	83768,800	1,236	7,400	3,200
20	85	65	84183,600	1,200	7,400	3,200
20	85	75	84598,400	1,092	7,400	3,200
20	85	85	85012,800	1,114	7,600	3,200
20	85	95	85204,800	1,358	9,000	3,800
20	95	5	77804,400	3,684	13,000	4,800
20	95	15	78502,800	2,892	11,800	4,400
20	95	25	79036,400	2,946	11,400	4,600
20	95	35	79230,800	2,772	11,400	4,400
20	95	45	79425,200	2,602	11,000	4,400

Table I.1 continued from previous page

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
20	95	55	79620,000	2,628	11,000	4,400
20	95	65	79814,400	2,354	11,000	4,400
20	95	75	80008,800	2,482	11,000	4,400
20	95	85	80203,200	3,074	11,000	4,400
20	95	95	80397,600	2,330	11,000	4,400
25	5	5	86719,600	2,798	10,600	4,800
25	5	15	87838,800	2,460	9,000	4,200
25	5	25	88577,600	2,732	9,600	4,600
25	5	35	89113,600	2,200	8,800	4,200
25	5	45	89180,800	2,424	8,600	4,400
25	5	55	89182,400	2,358	8,600	4,400
25	5	65	89182,400	2,356	8,600	4,400
25	5	75	89180,800	2,214	8,200	4,200
25	5	85	89182,400	2,332	8,400	4,400
25	5	95	89180,800	2,300	8,800	4,400
25	15	5	87114,800	2,700	10,400	4,800
25	15	15	88891,200	2,832	10,400	4,800
25	15	25	90223,200	2,930	11,200	5,200
25	15	35	90848,800	2,976	11,400	5,200
25	15	45	91457,200	3,150	11,400	5,200
25	15	55	91870,800	3,984	13,000	5,800
25	15	65	92081,600	3,826	12,600	5,600
25	15	75	92255,600	3,878	12,600	5,600
25	15	85	92255,600	3,856	11,400	5,000
25	15	95	92255,600	3,256	10,800	4,800
25	25	5	88960,800	3,160	11,800	5,200
25	25	15	94004,400	3,448	12,200	5,200
25	25	25	97360,000	2,968	10,200	4,400
25	25	35	99734,800	3,150	10,600	4,400
25	25	45	101866,800	5,268	11,600	5,000
25	25	55	103810,000	9,172	14,600	6,000
25	25	65	105382,000	12,282	15,400	6,400
25	25	75	106406,400	14,864	16,600	7,000
25	25	85	106881,600	14,264	15,400	6,200
25	25	95	107183,200	14,740	16,200	6,400
25	35	5	89073,200	3,042	11,400	5,200
25	35	15	94555,600	3,838	12,200	5,600
25	35	25	98357,200	5,262	13,400	6,200
25	35	35	100642,000	4,458	11,200	5,000
25	35	45	101998,800	3,448	9,000	4,000
25	35	55	103240,000	3,312	9,400	4,000
25	35	65	104336,800	4,982	9,000	4,000

Table I.1 continued from previous page

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
25	35	75	105375,600	7,482	11,400	4,600
25	35	85	106272,000	16,912	15,800	6,000
25	35	95	106692,400	17,084	14,400	5,600
25	45	5	89022,400	2,368	9,400	4,200
25	45	15	93934,800	2,050	7,000	3,600
25	45	25	98053,600	2,282	7,400	3,600
25	45	35	101226,800	4,350	9,800	4,400
25	45	45	103153,600	7,004	11,800	5,200
25	45	55	104513,600	7,314	9,400	4,400
25	45	65	105594,400	8,232	9,000	4,200
25	45	75	106621,600	12,408	11,200	5,200
25	45	85	107647,600	11,838	12,000	5,600
25	45	95	108640,400	19,714	15,000	6,600
25	55	5	89101,200	3,458	12,200	5,600
25	55	15	94080,000	3,696	12,200	5,400
25	55	25	98106,000	4,072	11,800	5,400
25	55	35	101216,000	4,202	10,200	4,400
25	55	45	103572,400	4,156	10,000	3,800
25	55	55	105502,800	4,570	9,200	4,000
25	55	65	107356,000	7,332	9,600	3,800
25	55	75	109116,800	15,460	12,400	4,600
25	55	85	110671,600	29,166	17,000	6,400
25	55	95	111909,200	39,806	21,000	7,600
25	65	5	88461,600	3,324	11,000	5,200
25	65	15	92612,800	4,288	11,800	5,400
25	65	25	96258,800	9,672	14,200	6,400
25	65	35	98594,400	9,382	12,600	5,200
25	65	45	100316,800	6,948	10,800	4,200
25	65	55	101686,000	8,116	11,600	4,200
25	65	65	102815,200	7,084	11,000	4,000
25	65	75	103719,200	10,696	12,000	4,400
25	65	85	104533,200	12,922	12,600	4,600
25	65	95	105348,000	14,358	14,400	5,600
25	75	5	87989,600	3,528	12,200	5,600
25	75	15	91098,000	4,328	14,800	6,400
25	75	25	93412,400	4,128	14,400	6,000
25	75	35	94789,600	3,488	12,400	5,400
25	75	45	95808,400	3,488	11,600	5,000
25	75	55	96689,200	4,250	12,800	5,600
25	75	65	97426,000	5,136	14,000	6,000
25	75	75	97881,600	4,086	12,200	5,400
25	75	85	98304,000	4,488	12,200	5,600

Table I.1 continued from previous page

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
25	75	95	98726,800	4,372	12,600	5,400
25	85	5	87396,400	2,696	11,000	4,800
25	85	15	89539,600	2,898	9,400	4,200
25	85	25	91002,800	1,956	8,400	3,400
25	85	35	92160,400	1,780	7,800	3,200
25	85	45	92963,600	1,690	6,600	3,000
25	85	55	93680,000	1,940	7,600	3,400
25	85	65	94237,600	2,370	8,200	3,800
25	85	75	94540,800	2,184	8,200	3,800
25	85	85	94751,200	2,074	8,600	3,800
25	85	95	94846,400	2,702	9,400	4,200
25	95	5	86609,600	3,294	11,400	5,200
25	95	15	87406,000	3,482	11,800	5,600
25	95	25	87731,200	3,502	12,000	5,800
25	95	35	87926,000	3,156	11,600	5,400
25	95	45	88120,800	3,462	11,400	5,200
25	95	55	88315,600	3,328	11,600	5,200
25	95	65	88492,400	3,302	12,200	5,400
25	95	75	88492,400	3,128	11,600	5,200
25	95	85	88493,200	3,208	11,600	5,200
25	95	95	88492,400	3,232	11,600	5,200
30	5	5	93701,600	10,912	18,800	8,000
30	5	15	94705,200	7,588	13,600	5,800
30	5	25	95485,600	8,300	15,800	6,200
30	5	35	95812,000	8,338	16,200	6,200
30	5	45	95812,000	7,100	13,400	5,200
30	5	55	95812,000	6,318	11,800	4,600
30	5	65	95812,000	6,288	11,800	4,600
30	5	75	95812,000	6,810	11,800	4,600
30	5	85	95812,000	6,406	11,800	4,600
30	5	95	95812,000	6,202	11,800	4,600
30	15	5	94617,200	13,374	20,000	8,400
30	15	15	96140,400	5,056	9,000	4,000
30	15	25	97567,200	4,298	7,800	3,400
30	15	35	98606,000	3,418	7,200	3,200
30	15	45	99230,800	3,016	6,400	2,800
30	15	55	99738,800	3,432	7,600	3,200
30	15	65	100153,600	3,826	8,400	3,400
30	15	75	100558,800	4,192	8,000	3,400
30	15	85	100763,600	3,686	7,400	3,200
30	15	95	100968,400	3,858	8,600	3,600
30	25	5	95349,200	12,190	20,400	8,600

Table I.1 continued from previous page

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
30	25	15	98255,200	7,082	12,800	5,400
30	25	25	100536,000	6,104	11,200	4,600
30	25	35	102718,800	9,244	13,400	5,600
30	25	45	104272,800	7,984	13,000	5,400
30	25	55	105132,800	8,066	13,600	5,600
30	25	65	105522,000	7,594	12,400	5,400
30	25	75	105679,200	6,952	11,600	5,000
30	25	85	105679,200	5,868	10,800	4,600
30	25	95	105679,200	5,582	10,800	4,600
30	35	5	96636,400	10,730	18,400	7,800
30	35	15	102326,400	6,698	11,800	5,000
30	35	25	106858,800	6,488	12,200	4,400
30	35	35	110126,000	10,964	11,800	5,000
30	35	45	112367,600	21,626	14,000	5,600
30	35	55	113822,000	31,034	15,600	5,800
30	35	65	114988,000	45,762	19,200	7,000
30	35	75	115538,800	50,784	20,600	7,400
30	35	85	115938,400	47,098	20,600	7,200
30	35	95	116338,000	63,782	25,000	8,200
30	45	5	96461,600	9,896	17,000	7,400
30	45	15	101183,600	4,668	9,000	4,400
30	45	25	104369,600	3,260	6,200	3,000
30	45	35	107136,400	3,908	4,800	2,600
30	45	45	109194,000	3,820	4,000	2,400
30	45	55	110570,400	5,548	5,800	3,000
30	45	65	111660,800	6,236	5,800	2,800
30	45	75	112603,200	8,898	6,400	3,000
30	45	85	113221,600	10,176	8,200	3,400
30	45	95	113826,000	11,618	8,200	3,600
30	55	5	96509,200	10,250	18,600	7,600
30	55	15	102474,000	21,094	19,400	8,000
30	55	25	106990,800	19,784	16,600	6,600
30	55	35	109925,600	21,272	17,600	7,000
30	55	45	112236,800	44,574	21,000	8,200
30	55	55	114247,200	97,990	28,600	10,400
30	55	65	115854,400	69,620	23,600	8,200
30	55	75	117129,600	98,356	30,800	10,200
30	55	85	118306,800	168,220	39,200	13,600
30	55	95	119332,800	272,216	52,000	18,600
30	65	5	95694,800	9,738	16,800	7,600
30	65	15	99647,600	7,150	11,000	5,400
30	65	25	102088,800	6,648	11,400	5,200

Table I.1 continued from previous page

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
30	65	35	104266,800	5,624	8,600	4,000
30	65	45	106116,800	5,522	7,600	3,600
30	65	55	107696,400	6,084	7,800	3,400
30	65	65	109038,400	11,956	10,200	4,200
30	65	75	110087,200	8,770	8,800	3,800
30	65	85	111108,000	14,072	9,600	4,000
30	65	95	111947,200	26,356	11,000	4,800
30	75	5	95262,800	11,846	19,400	8,200
30	75	15	98718,800	10,336	15,800	7,200
30	75	25	101038,800	5,346	10,600	5,000
30	75	35	102692,000	4,938	10,000	4,600
30	75	45	104224,400	5,482	10,600	4,800
30	75	55	105520,400	7,956	11,200	5,400
30	75	65	106008,400	8,544	10,800	5,000
30	75	75	106213,200	7,476	12,200	5,200
30	75	85	106234,400	6,798	10,800	4,800
30	75	95	106234,400	7,056	12,600	5,400
30	85	5	94707,200	11,498	21,600	8,800
30	85	15	97117,200	6,306	13,000	5,400
30	85	25	98956,400	6,988	14,000	5,400
30	85	35	100216,800	9,424	16,000	6,200
30	85	45	100566,400	8,090	15,400	5,800
30	85	55	100631,200	8,142	16,000	6,000
30	85	65	100631,200	8,224	16,600	6,400
30	85	75	100631,200	7,070	15,200	6,000
30	85	85	100631,200	7,586	15,800	6,200
30	85	95	100631,200	7,216	15,200	6,000
30	95	5	93411,600	11,588	19,200	8,000
30	95	15	93984,800	10,466	19,000	7,600
30	95	25	94098,800	9,352	17,000	7,000
30	95	35	94098,800	8,440	16,200	6,600
30	95	45	94098,800	8,052	16,200	6,600
30	95	55	94098,800	7,804	16,200	6,600
30	95	65	94098,800	8,242	16,000	6,600
30	95	75	94098,800	8,680	16,600	6,800
30	95	85	94098,800	8,098	16,200	6,600
30	95	95	94098,800	8,578	16,600	6,800
35	5	5	98675,600	50,458	38,400	12,600
35	5	15	99544,000	57,272	37,600	12,400
35	5	25	100151,600	53,978	37,000	12,200
35	5	35	100461,600	54,432	37,000	12,200
35	5	45	100687,600	64,984	37,800	12,600

Table I.1 continued from previous page

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
35	5	55	100739,600	61,052	36,600	12,200
35	5	65	100740,400	59,064	37,200	12,400
35	5	75	100739,600	59,332	36,800	12,400
35	5	85	100739,600	55,970	36,000	12,200
35	5	95	100739,600	57,954	36,000	12,200
35	15	5	99746,000	24,862	26,200	8,200
35	15	15	102252,000	38,028	23,200	7,000
35	15	25	103764,800	55,136	22,800	7,000
35	15	35	104478,400	32,810	19,600	5,800
35	15	45	105034,000	37,244	19,400	5,800
35	15	55	105171,600	39,820	18,800	6,000
35	15	65	105171,600	29,590	16,600	5,200
35	15	75	105171,600	27,410	16,600	5,200
35	15	85	105171,600	27,508	16,600	5,200
35	15	95	105171,600	25,374	16,600	5,200
35	25	5	100551,200	41,318	32,000	10,400
35	25	15	105044,000	80,502	31,200	10,600
35	25	25	107792,800	43,346	29,200	10,200
35	25	35	109744,800	37,728	27,800	9,800
35	25	45	111197,600	38,054	27,800	9,600
35	25	55	111755,600	33,448	24,800	8,600
35	25	65	111796,000	22,892	22,000	7,400
35	25	75	111796,000	20,140	20,600	7,400
35	25	85	111796,000	16,212	18,800	6,600
35	25	95	111796,000	16,756	20,600	6,800
35	35	5	101486,400	39,178	32,600	10,400
35	35	15	106066,000	13,420	17,000	4,800
35	35	25	109384,000	12,138	15,200	4,200
35	35	35	112406,800	20,768	14,800	4,400
35	35	45	114962,800	47,596	17,000	5,800
35	35	55	116525,200	46,130	14,800	5,400
35	35	65	117909,600	75,198	18,200	6,200
35	35	75	118972,400	92,300	18,800	6,400
35	35	85	120034,800	143,896	26,600	8,400
35	35	95	121097,200	239,468	33,600	10,600
35	45	5	102471,600	44,588	36,200	11,600
35	45	15	109890,800	26,466	26,200	8,000
35	45	25	115498,000	24,286	20,200	5,800
35	45	35	119562,800	33,904	21,000	5,200
35	45	45	122289,600	60,554	20,800	5,000
35	45	55	124603,600	93,348	25,800	6,000
35	45	65	126456,000	223,956	32,400	8,600

Table I.1 continued from previous page

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
35	45	75	127807,200	376,376	40,000	10,800
35	45	85	128958,400	433,778	43,000	11,800
35	45	95	130038,400	482,836	51,000	13,800
35	55	5	102169,200	53,734	35,000	12,000
35	55	15	108203,600	41,304	25,200	7,800
35	55	25	112600,800	32,234	23,000	7,200
35	55	35	115730,800	56,412	22,200	7,400
35	55	45	118274,000	78,964	24,000	7,600
35	55	55	120474,000	146,542	28,400	8,800
35	55	65	122100,800	205,328	34,200	10,200
35	55	75	123299,200	252,994	34,800	10,600
35	55	85	124268,400	422,416	44,000	13,200
35	55	95	124956,000	527,130	47,800	14,000
35	65	5	101548,400	32,814	31,200	10,000
35	65	15	107674,800	35,124	28,800	9,000
35	65	25	112016,000	45,116	27,600	8,600
35	65	35	115441,200	76,574	28,000	9,400
35	65	45	117901,200	129,224	31,200	10,800
35	65	55	119184,400	134,330	30,800	10,200
35	65	65	120211,600	171,586	33,200	11,200
35	65	75	120863,600	176,496	30,600	10,600
35	65	85	121516,000	224,856	36,400	12,800
35	65	95	122168,000	364,910	43,800	16,200
35	75	5	101243,600	47,818	38,400	12,800
35	75	15	106428,400	53,782	34,400	11,600
35	75	25	109234,000	52,342	30,400	10,000
35	75	35	111009,600	45,026	27,400	8,800
35	75	45	112369,600	32,886	23,800	7,400
35	75	55	113450,000	27,946	22,200	6,600
35	75	65	114283,600	34,646	23,400	7,000
35	75	75	114461,200	22,930	20,400	5,600
35	75	85	114461,200	21,730	20,200	5,800
35	75	95	114461,200	20,976	19,200	5,800
35	85	5	99603,200	45,964	35,400	11,600
35	85	15	101445,600	18,986	21,600	7,000
35	85	25	102422,400	14,774	19,200	6,400
35	85	35	102988,400	14,338	19,200	6,400
35	85	45	103309,200	12,618	17,200	5,800
35	85	55	103538,800	11,544	15,000	5,200
35	85	65	103768,800	10,756	14,200	5,000
35	85	75	103882,800	10,590	14,200	5,000
35	85	85	103882,800	8,620	13,200	4,200

Table I.1 continued from previous page

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
35	85	95	103882,800	8,412	13,200	4,200
35	95	5	98501,600	24,722	27,600	8,600
35	95	15	99199,600	18,902	23,400	7,400
35	95	25	99619,200	15,288	21,200	6,600
35	95	35	99839,200	12,880	19,600	5,800
35	95	45	100026,800	14,030	19,800	6,200
35	95	55	100026,800	14,142	18,800	6,000
35	95	65	100026,800	14,400	20,200	6,400
35	95	75	100026,800	13,562	19,000	6,000
35	95	85	100026,800	13,878	18,800	6,200
35	95	95	100026,800	13,218	18,400	6,000
40	5	5	101450,400	18,632	25,200	6,600
40	5	15	102622,400	24,632	26,600	7,400
40	5	25	102925,600	20,234	24,200	6,800
40	5	35	103108,800	20,476	24,800	6,800
40	5	45	103108,800	20,276	24,200	6,800
40	5	55	103108,800	20,644	24,200	6,800
40	5	65	103108,800	20,802	24,200	6,800
40	5	75	103108,800	21,174	25,400	7,000
40	5	85	103108,800	20,320	24,200	6,800
40	5	95	103108,800	22,386	24,200	6,800
40	15	5	102628,800	19,196	23,000	6,200
40	15	15	105530,800	26,204	25,400	7,600
40	15	25	106924,000	30,816	29,000	8,800
40	15	35	107803,200	35,600	30,000	9,000
40	15	45	108187,200	34,780	28,000	8,200
40	15	55	108187,200	29,694	27,000	7,800
40	15	65	108187,200	28,004	24,200	7,200
40	15	75	108187,200	25,844	23,200	7,000
40	15	85	108187,200	25,264	22,400	6,800
40	15	95	108187,200	23,960	23,000	6,800
40	25	5	104170,800	19,194	25,800	6,400
40	25	15	109474,400	30,192	22,200	6,200
40	25	25	113094,800	33,944	23,200	6,600
40	25	35	115766,800	43,278	25,000	7,000
40	25	45	116908,400	52,478	24,800	6,800
40	25	55	117529,600	55,950	21,200	6,000
40	25	65	117932,400	65,238	21,200	6,000
40	25	75	118298,000	92,028	24,400	7,200
40	25	85	118406,000	105,244	26,000	8,000
40	25	95	118406,000	90,342	24,600	7,600
40	35	5	104749,600	19,654	25,200	6,400

Table I.1 continued from previous page

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
40	35	15	111768,000	30,044	24,000	6,800
40	35	25	116855,600	56,572	26,400	7,400
40	35	35	119957,200	73,026	26,400	6,800
40	35	45	122343,200	188,500	32,200	8,800
40	35	55	123949,200	278,592	36,600	9,600
40	35	65	125376,000	664,214	51,400	14,000
40	35	75	126208,800	923,224	57,800	16,400
40	35	85	126712,400	1455,432	66,000	19,400
40	35	95	127124,400	2002,200	74,000	22,000
40	45	5	105140,800	27,416	28,200	7,400
40	45	15	112582,800	305,096	37,600	10,400
40	45	25	117552,000	240,504	35,400	10,600
40	45	35	121029,200	266,606	33,000	10,000
40	45	45	123472,400	287,442	39,000	11,400
40	45	55	125388,400	384,078	43,800	13,000
40	45	65	126738,800	441,098	50,800	14,000
40	45	75	127855,600	799,952	62,400	18,600
40	45	85	128820,000	1751,388	91,000	31,000
40	45	95	129635,600	3402,080	123,600	43,800
40	55	5	105267,200	26,416	27,800	7,200
40	55	15	112162,000	48,812	26,400	7,400
40	55	25	116634,400	55,576	21,400	6,400
40	55	35	119890,800	107,258	22,200	6,800
40	55	45	122401,200	138,776	25,400	7,800
40	55	55	124249,600	207,586	30,800	9,600
40	55	65	125595,200	297,970	36,000	11,600
40	55	75	126533,200	352,014	42,600	13,200
40	55	85	127341,200	500,928	47,400	15,000
40	55	95	128103,600	791,934	56,200	17,600
40	65	5	104628,800	21,526	26,200	6,600
40	65	15	110976,000	37,122	23,600	6,800
40	65	25	114637,600	36,968	20,400	5,600
40	65	35	117437,200	69,538	21,200	6,400
40	65	45	118516,400	57,074	20,800	6,200
40	65	55	119332,400	54,330	19,000	6,200
40	65	65	120148,000	78,986	22,400	7,400
40	65	75	120782,400	107,860	26,000	8,400
40	65	85	121392,800	157,806	30,200	9,400
40	65	95	122003,600	195,430	35,600	10,400
40	75	5	104701,600	25,070	29,000	7,400
40	75	15	110739,200	28,570	28,400	7,600
40	75	25	114254,800	64,486	29,400	9,400

Table I.1 continued from previous page

n	f	w	(2.3) o	(2.3) t	(2.3) s	(2.3) r
40	75	35	116106,800	41,000	24,200	7,400
40	75	45	117264,000	35,554	22,200	6,800
40	75	55	118297,600	47,912	24,000	7,800
40	75	65	119316,000	97,862	32,200	10,200
40	75	75	120141,200	151,370	36,000	11,600
40	75	85	120947,600	227,862	38,800	13,400
40	75	95	121496,000	228,192	38,800	13,200
40	85	5	103066,800	17,994	22,600	6,400
40	85	15	106631,200	16,282	20,400	6,000
40	85	25	108374,400	11,492	15,000	5,000
40	85	35	109519,600	11,220	13,400	4,600
40	85	45	110178,800	10,384	13,000	4,400
40	85	55	110611,600	10,146	12,800	4,400
40	85	65	110819,600	7,772	11,200	3,800
40	85	75	110920,800	7,584	10,800	3,600
40	85	85	110920,800	6,954	10,200	3,400
40	85	95	110920,800	6,904	10,200	3,400
40	95	5	101428,000	21,238	25,800	6,800
40	95	15	102655,600	27,910	29,800	8,400
40	95	25	103002,400	23,452	27,000	7,400
40	95	35	103190,800	22,636	24,400	7,200
40	95	45	103379,200	22,590	24,800	7,200
40	95	55	103478,000	22,646	24,800	7,200
40	95	65	103478,000	22,882	25,200	7,200
40	95	75	103478,000	22,356	24,600	7,200
40	95	85	103478,000	22,896	24,600	7,200
40	95	95	103478,000	22,876	24,600	7,200

Table I.1: Aggregated Computational Results for (2.3)

Appendix J

Aggregated Computational Results for (2.9)

NOTE:

n - Number of nodes in the graph

f - Percentage of flagged edges in an instance

w - Reload costs relative to the average edge weight

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
10	5	5	58612,400	0,114	2,200	2,000
10	5	15	59401,600	0,128	2,800	2,200
10	5	25	59683,600	0,140	3,200	2,400
10	5	35	59880,000	0,138	3,200	2,400
10	5	45	60076,800	0,144	3,200	2,400
10	5	55	60186,000	0,140	3,200	2,400
10	5	65	60186,000	0,142	3,200	2,400
10	5	75	60186,000	0,138	3,200	2,400
10	5	85	60186,000	0,144	3,200	2,400
10	5	95	60186,000	0,140	3,200	2,400
10	15	5	58681,200	0,114	2,200	2,000
10	15	15	59530,000	0,114	2,200	2,000
10	15	25	60373,600	0,104	1,800	1,800
10	15	35	61046,400	0,114	2,400	2,000
10	15	45	61358,800	0,114	2,400	2,000
10	15	55	61515,600	0,120	2,400	2,000
10	15	65	61515,600	0,118	2,400	2,000
10	15	75	61515,600	0,106	1,800	1,800
10	15	85	61515,600	0,108	1,800	1,800
10	15	95	61515,600	0,102	1,800	1,800
10	25	5	58814,800	0,114	2,200	2,000
10	25	15	60075,600	0,108	2,000	1,800
10	25	25	61050,800	0,110	2,000	1,800
10	25	35	61916,800	0,090	1,600	1,600
10	25	45	62783,200	0,090	1,600	1,600
10	25	55	63650,400	0,104	2,000	1,800
10	25	65	64516,800	0,112	1,800	1,800
10	25	75	65169,200	0,108	1,800	1,800
10	25	85	65790,400	0,108	1,800	1,800
10	25	95	66218,400	0,104	1,400	1,600
10	35	5	59198,800	0,116	2,200	2,000
10	35	15	61180,400	0,102	1,800	1,800
10	35	25	63023,200	0,116	1,800	1,800
10	35	35	64766,000	0,144	2,200	2,000
10	35	45	66020,800	0,118	1,800	1,800
10	35	55	67124,400	0,112	1,400	1,600
10	35	65	68152,400	0,110	1,400	1,600
10	35	75	69004,800	0,110	1,400	1,600
10	35	85	69857,600	0,118	1,400	1,600
10	35	95	70710,000	0,114	1,400	1,600
10	45	5	59409,200	0,116	2,200	2,000
10	45	15	61826,800	0,124	2,400	2,000
10	45	25	63918,000	0,110	2,000	1,800

Table J.1 continued from previous page

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
10	45	35	65659,200	0,136	2,400	2,000
10	45	45	67042,400	0,158	2,800	2,200
10	45	55	68266,800	0,166	3,400	2,400
10	45	65	69403,200	0,200	4,400	2,800
10	45	75	70429,600	0,198	3,800	2,600
10	45	85	71456,400	0,204	3,600	2,600
10	45	95	72482,800	0,266	4,400	3,000
10	55	5	59409,200	0,114	2,200	2,000
10	55	15	61680,800	0,120	2,200	2,000
10	55	25	63603,200	0,130	2,800	2,200
10	55	35	65317,600	0,150	3,200	2,400
10	55	45	66599,200	0,122	2,400	2,000
10	55	55	67466,400	0,310	2,600	2,200
10	55	65	68332,800	0,122	2,200	2,000
10	55	75	69198,800	0,122	2,000	2,000
10	55	85	70065,200	0,120	1,600	1,800
10	55	95	70931,600	0,128	1,600	1,800
10	65	5	59534,800	0,116	2,200	2,000
10	65	15	61800,800	0,106	1,800	1,800
10	65	25	63858,400	0,106	1,800	1,800
10	65	35	65665,200	0,104	1,400	1,600
10	65	45	67362,400	0,104	1,400	1,600
10	65	55	68532,400	0,108	1,400	1,600
10	65	65	69349,200	0,156	2,800	2,200
10	65	75	69790,800	0,144	2,400	2,000
10	65	85	70232,800	0,122	2,000	1,800
10	65	95	70674,800	0,138	2,400	2,000
10	75	5	59115,600	0,112	2,200	2,000
10	75	15	60526,800	0,102	1,800	1,800
10	75	25	61730,000	0,088	1,400	1,600
10	75	35	62624,400	0,090	1,600	1,600
10	75	45	63400,400	0,088	1,600	1,600
10	75	55	63988,800	0,088	1,600	1,600
10	75	65	64519,600	0,092	1,400	1,600
10	75	75	65050,400	0,096	1,400	1,600
10	75	85	65581,600	0,112	1,800	1,800
10	75	95	66080,800	0,114	1,800	1,800
10	85	5	58724,800	0,114	2,200	2,000
10	85	15	59667,600	0,116	2,400	2,000
10	85	25	60271,600	0,124	2,800	2,200
10	85	35	60298,400	0,114	2,200	2,000
10	85	45	60298,400	0,114	2,200	2,000

Table J.1 continued from previous page

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
10	85	55	60298,400	0,114	2,200	2,000
10	85	65	60298,400	0,128	2,400	2,200
10	85	75	60298,400	0,124	2,400	2,200
10	85	85	60298,400	0,122	2,400	2,200
10	85	95	60298,400	0,122	2,400	2,200
10	95	5	58817,200	0,112	2,200	2,000
10	95	15	60094,000	0,114	2,400	2,000
10	95	25	61020,400	0,148	3,600	2,600
10	95	35	61352,000	0,150	3,600	2,600
10	95	45	61602,400	0,134	3,200	2,400
10	95	55	61852,800	0,136	3,200	2,400
10	95	65	62103,200	0,138	3,200	2,400
10	95	75	62353,600	0,138	3,200	2,400
10	95	85	62604,000	0,158	3,600	2,600
10	95	95	62854,400	0,152	3,600	2,600
15	5	5	68981,200	0,306	4,800	2,600
15	5	15	68981,200	0,284	4,800	2,600
15	5	25	68981,200	0,294	4,600	2,600
15	5	35	68981,200	0,294	4,600	2,600
15	5	45	68981,200	0,290	4,600	2,600
15	5	55	68981,200	0,296	4,600	2,600
15	5	65	68981,200	0,292	4,600	2,600
15	5	75	68981,200	0,298	4,600	2,600
15	5	85	68981,200	0,288	4,600	2,600
15	5	95	68981,200	0,292	4,600	2,600
15	15	5	69520,400	0,258	4,600	2,400
15	15	15	70577,600	0,246	4,200	2,200
15	15	25	71221,600	0,250	4,200	2,200
15	15	35	71586,000	0,244	4,200	2,200
15	15	45	71810,000	0,244	4,200	2,200
15	15	55	71834,000	0,248	4,200	2,200
15	15	65	71834,000	0,244	4,200	2,200
15	15	75	71834,000	0,264	4,200	2,400
15	15	85	71834,000	0,266	4,000	2,400
15	15	95	71834,000	0,272	4,000	2,400
15	25	5	70424,000	0,302	5,200	2,600
15	25	15	72768,000	0,338	5,600	2,800
15	25	25	74780,000	0,348	5,400	2,600
15	25	35	76731,600	0,490	6,000	3,000
15	25	45	78443,200	0,374	4,800	2,400
15	25	55	79616,000	0,554	6,000	3,000
15	25	65	80510,800	0,550	5,600	2,800

Table J.1 continued from previous page

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
15	25	75	81204,400	0,582	5,200	2,800
15	25	85	81480,000	0,496	5,200	2,800
15	25	95	81700,800	0,488	5,200	2,800
15	35	5	70352,000	0,254	4,600	2,400
15	35	15	72622,400	0,236	3,600	2,000
15	35	25	74395,600	0,256	2,400	1,800
15	35	35	76109,200	0,272	2,400	1,800
15	35	45	77566,400	0,336	3,000	2,000
15	35	55	78808,400	0,428	3,400	2,200
15	35	65	79852,000	0,464	4,200	2,400
15	35	75	80896,000	0,738	4,800	2,600
15	35	85	81694,000	1,252	5,600	3,000
15	35	95	82201,200	1,294	5,600	3,000
15	45	5	70855,200	0,254	4,600	2,400
15	45	15	74553,600	0,260	4,000	2,200
15	45	25	77595,200	0,284	3,000	2,000
15	45	35	79926,000	0,348	3,400	2,000
15	45	45	82132,400	0,468	4,200	2,400
15	45	55	84223,600	0,762	4,600	2,600
15	45	65	86060,000	1,036	5,000	2,600
15	45	75	87630,000	1,244	5,600	2,800
15	45	85	89071,600	2,262	6,800	3,400
15	45	95	90246,800	2,328	9,000	4,200
15	55	5	70464,800	0,262	4,600	2,400
15	55	15	73422,400	0,310	4,200	2,400
15	55	25	75783,600	0,286	3,200	2,000
15	55	35	77486,000	0,234	3,000	1,800
15	55	45	79160,000	0,296	3,200	1,800
15	55	55	80556,800	0,354	2,800	1,800
15	55	65	81822,000	0,506	2,800	2,000
15	55	75	82970,400	0,604	3,800	2,400
15	55	85	84040,000	0,770	3,800	2,400
15	55	95	85110,000	0,986	4,000	2,400
15	65	5	70371,200	0,284	5,200	2,600
15	65	15	72890,400	0,286	5,000	2,600
15	65	25	75096,400	0,288	4,400	2,400
15	65	35	76812,000	0,344	4,400	2,400
15	65	45	77934,400	0,460	5,200	2,800
15	65	55	78800,000	0,528	4,600	2,600
15	65	65	79493,600	0,716	5,600	3,000
15	65	75	80136,000	1,010	5,600	3,000
15	65	85	80710,000	1,020	5,600	3,000

Table J.1 continued from previous page

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
15	65	95	80933,200	0,800	5,200	2,800
15	75	5	70362,400	0,292	5,000	2,600
15	75	15	72444,800	0,310	4,800	2,600
15	75	25	73830,000	0,276	4,000	2,400
15	75	35	74681,200	0,298	3,800	2,400
15	75	45	75532,800	0,306	3,800	2,400
15	75	55	76146,000	0,316	3,800	2,400
15	75	65	76593,200	0,376	4,000	2,400
15	75	75	77040,400	0,336	3,400	2,200
15	75	85	77318,800	0,376	3,800	2,400
15	75	95	77490,400	0,314	3,000	2,000
15	85	5	70061,600	0,280	4,800	2,600
15	85	15	71992,000	0,298	4,800	2,600
15	85	25	73488,000	0,298	4,600	2,600
15	85	35	74196,800	0,292	4,600	2,600
15	85	45	74616,000	0,266	4,200	2,400
15	85	55	75034,800	0,308	4,400	2,600
15	85	65	75453,600	0,302	4,400	2,600
15	85	75	75677,600	0,296	4,400	2,600
15	85	85	75901,200	0,346	5,000	2,800
15	85	95	76125,200	0,334	5,000	2,800
15	95	5	69367,200	0,288	5,000	2,600
15	95	15	70080,800	0,300	4,800	2,600
15	95	25	70587,600	0,332	5,000	2,800
15	95	35	70819,600	0,324	5,000	2,800
15	95	45	70862,400	0,330	5,000	2,800
15	95	55	70862,400	0,324	5,000	2,800
15	95	65	70862,400	0,320	4,800	2,800
15	95	75	70862,400	0,322	4,800	2,800
15	95	85	70862,400	0,322	4,800	2,800
15	95	95	70862,400	0,510	4,800	2,800
20	5	5	77616,400	0,746	6,400	2,800
20	5	15	78036,400	0,748	6,400	2,800
20	5	25	78182,000	0,804	6,400	3,000
20	5	35	78182,000	0,844	6,400	3,000
20	5	45	78182,000	0,742	5,800	2,800
20	5	55	78182,000	0,728	5,800	2,800
20	5	65	78182,000	0,706	5,800	2,800
20	5	75	78182,000	0,728	5,800	2,800
20	5	85	78182,000	0,730	5,800	2,800
20	5	95	78182,000	0,778	5,800	2,800
20	15	5	78996,000	0,778	7,000	3,000

Table J.1 continued from previous page

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
20	15	15	81477,200	0,718	5,800	2,400
20	15	25	82715,200	0,680	6,600	2,800
20	15	35	83676,000	0,686	7,200	2,800
20	15	45	84209,600	0,678	7,000	2,800
20	15	55	84633,200	0,720	6,600	2,800
20	15	65	85057,600	0,672	6,200	2,600
20	15	75	85481,600	0,716	6,600	2,800
20	15	85	85666,800	0,752	7,200	3,000
20	15	95	85666,800	0,690	6,600	2,800
20	25	5	79738,400	0,758	6,200	2,800
20	25	15	83402,800	0,682	5,400	2,400
20	25	25	85614,000	0,762	5,400	2,400
20	25	35	86938,400	0,816	5,800	2,600
20	25	45	87973,600	0,788	5,000	2,400
20	25	55	88945,200	0,816	5,000	2,400
20	25	65	89627,200	1,274	7,000	3,200
20	25	75	89926,000	1,096	6,200	3,000
20	25	85	90120,400	1,012	6,200	3,000
20	25	95	90314,800	1,246	6,400	3,000
20	35	5	79652,000	0,760	6,200	2,800
20	35	15	83384,800	0,888	6,800	3,200
20	35	25	85944,000	1,078	7,000	3,200
20	35	35	87934,000	1,170	7,800	3,400
20	35	45	89523,200	1,084	5,000	2,600
20	35	55	90986,400	1,322	4,600	2,600
20	35	65	92261,200	1,542	4,600	2,800
20	35	75	93536,800	2,410	4,000	2,600
20	35	85	94811,600	4,916	6,200	3,400
20	35	95	95818,800	6,580	7,000	3,600
20	45	5	80114,000	0,792	6,200	2,800
20	45	15	84936,400	0,894	7,000	3,000
20	45	25	87948,800	1,286	7,000	3,200
20	45	35	89986,400	1,666	7,800	3,200
20	45	45	91486,400	1,732	7,200	3,000
20	45	55	92985,600	2,152	6,200	2,800
20	45	65	94335,200	4,206	8,000	3,400
20	45	75	95646,000	4,660	8,800	3,600
20	45	85	96956,000	6,596	9,600	4,200
20	45	95	98047,200	6,960	10,000	4,200
20	55	5	80342,800	0,748	6,400	2,800
20	55	15	84831,200	0,854	7,000	2,800
20	55	25	88413,600	1,076	7,600	3,200

Table J.1 continued from previous page

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
20	55	35	91303,600	1,698	7,600	3,600
20	55	45	93238,400	2,172	7,200	3,600
20	55	55	94768,400	3,052	7,000	3,400
20	55	65	96101,600	3,986	9,000	3,800
20	55	75	97038,000	6,602	11,800	4,600
20	55	85	97723,200	5,882	11,600	4,800
20	55	95	98409,200	7,402	11,800	4,600
20	65	5	79040,800	0,766	5,600	2,600
20	65	15	82184,400	0,828	5,600	2,600
20	65	25	84787,600	0,852	5,600	2,600
20	65	35	86868,800	0,972	5,600	2,800
20	65	45	88640,800	1,612	5,400	2,800
20	65	55	90127,200	1,914	7,000	3,400
20	65	65	91340,800	2,940	6,200	3,200
20	65	75	92462,400	3,664	5,600	3,000
20	65	85	93583,200	3,680	5,800	3,000
20	65	95	94704,400	3,878	7,400	3,400
20	75	5	79266,000	0,804	7,000	3,000
20	75	15	82122,000	0,944	5,800	2,600
20	75	25	84197,200	0,830	6,200	2,800
20	75	35	85687,600	0,884	5,400	2,800
20	75	45	86813,600	1,074	5,800	3,000
20	75	55	87874,000	1,228	6,000	2,800
20	75	65	88658,400	1,318	7,000	3,200
20	75	75	89308,000	1,356	6,800	3,000
20	75	85	89924,800	1,628	7,600	3,200
20	75	95	90186,400	1,998	7,200	3,400
20	85	5	78686,400	0,780	6,600	2,800
20	85	15	80469,200	0,752	6,000	2,600
20	85	25	81708,400	0,736	6,000	2,600
20	85	35	82597,600	1,042	7,400	3,200
20	85	45	83244,000	0,872	6,600	3,000
20	85	55	83768,800	0,884	6,000	2,800
20	85	65	84183,600	0,928	6,000	2,800
20	85	75	84598,400	0,884	6,000	2,800
20	85	85	85012,800	1,022	6,400	3,000
20	85	95	85204,800	0,906	6,600	3,000
20	95	5	77804,400	0,762	6,600	2,800
20	95	15	78502,800	0,696	6,400	2,800
20	95	25	79036,400	0,796	7,200	3,200
20	95	35	79230,800	0,758	6,600	3,000
20	95	45	79425,200	0,804	6,800	3,000

Table J.1 continued from previous page

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
20	95	55	79620,000	0,812	6,800	3,000
20	95	65	79814,400	0,766	6,800	3,000
20	95	75	80008,800	0,774	6,800	3,000
20	95	85	80203,200	0,760	6,800	3,000
20	95	95	80397,600	0,770	6,800	3,000
25	5	5	86719,600	2,054	8,600	4,000
25	5	15	87838,800	1,630	7,400	3,600
25	5	25	88576,000	1,730	7,600	3,800
25	5	35	89113,600	1,750	7,600	3,800
25	5	45	89182,400	2,074	7,400	4,000
25	5	55	89182,400	1,908	7,400	4,000
25	5	65	89182,400	1,932	7,400	4,000
25	5	75	89180,800	1,722	7,000	3,800
25	5	85	89182,400	1,760	7,000	3,800
25	5	95	89182,400	1,718	7,000	3,800
25	15	5	87114,800	1,828	7,600	3,600
25	15	15	88891,200	1,778	7,800	3,800
25	15	25	90223,200	2,246	9,400	4,400
25	15	35	90848,800	2,342	9,600	4,400
25	15	45	91457,200	2,450	9,600	4,400
25	15	55	91870,800	2,990	10,400	4,800
25	15	65	92081,600	2,762	10,000	4,600
25	15	75	92255,600	2,724	9,600	4,400
25	15	85	92255,600	2,330	8,800	4,000
25	15	95	92255,600	2,126	8,200	3,800
25	25	5	88959,200	2,460	8,800	4,200
25	25	15	94004,400	2,330	7,600	3,800
25	25	25	97360,000	2,918	9,400	4,200
25	25	35	99734,800	2,932	8,200	3,800
25	25	45	101866,800	4,768	9,600	4,200
25	25	55	103811,600	8,138	11,600	5,200
25	25	65	105383,600	11,554	13,400	5,400
25	25	75	106406,400	14,878	13,800	6,000
25	25	85	106881,600	15,318	14,400	6,000
25	25	95	107183,200	13,532	13,400	5,400
25	35	5	89073,200	2,286	8,800	4,200
25	35	15	94555,600	2,746	9,400	4,400
25	35	25	98357,200	3,572	9,000	4,600
25	35	35	100642,000	4,592	10,800	4,800
25	35	45	101998,800	3,716	8,800	4,000
25	35	55	103240,000	3,924	8,200	3,800
25	35	65	104336,800	5,128	7,600	3,600

Table J.1 continued from previous page

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
25	35	75	105375,600	7,630	9,000	3,600
25	35	85	106272,000	15,032	10,600	4,400
25	35	95	106692,400	15,214	11,200	4,400
25	45	5	89022,400	1,630	6,800	3,400
25	45	15	93934,800	1,682	5,200	3,000
25	45	25	98053,600	2,192	7,000	3,400
25	45	35	101226,800	4,578	9,600	4,400
25	45	45	103153,600	6,362	10,000	4,400
25	45	55	104513,600	7,146	8,600	4,000
25	45	65	105594,400	8,338	8,200	3,800
25	45	75	106621,600	11,774	10,800	4,800
25	45	85	107647,600	13,020	10,400	4,800
25	45	95	108640,400	15,318	13,000	5,800
25	55	5	89101,200	2,044	9,200	4,200
25	55	15	94080,000	2,706	10,000	4,600
25	55	25	98106,000	3,194	9,800	4,400
25	55	35	101216,000	3,904	9,600	4,200
25	55	45	103572,400	3,846	10,000	3,800
25	55	55	105502,800	5,144	9,400	4,000
25	55	65	107356,000	8,160	9,200	3,600
25	55	75	109116,800	13,684	11,600	4,400
25	55	85	110671,600	28,158	18,000	6,600
25	55	95	111909,200	33,556	20,800	7,200
25	65	5	88461,600	2,040	9,000	4,200
25	65	15	92612,800	2,390	8,200	3,800
25	65	25	96258,800	3,156	8,200	4,000
25	65	35	98594,400	3,714	8,600	3,600
25	65	45	100316,800	2,760	7,400	3,000
25	65	55	101686,000	4,306	9,000	3,200
25	65	65	102815,200	6,428	9,600	3,600
25	65	75	103719,200	7,656	9,600	3,600
25	65	85	104533,200	11,726	11,200	4,400
25	65	95	105348,000	15,230	13,400	5,000
25	75	5	87989,600	2,452	9,800	4,600
25	75	15	91098,000	2,690	10,600	4,800
25	75	25	93412,400	3,088	11,200	5,000
25	75	35	94789,600	3,256	11,200	5,000
25	75	45	95808,400	3,150	10,800	4,600
25	75	55	96689,200	4,094	12,000	5,200
25	75	65	97426,000	4,710	13,800	6,000
25	75	75	97881,600	4,130	11,800	5,400
25	75	85	98304,000	4,418	12,400	5,600

Table J.1 continued from previous page

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
25	75	95	98726,800	4,486	12,000	5,400
25	85	5	87396,400	1,858	8,000	3,800
25	85	15	89539,600	1,914	6,600	3,200
25	85	25	91002,800	1,546	7,000	3,000
25	85	35	92160,400	1,732	7,200	3,200
25	85	45	92963,600	1,630	6,600	3,000
25	85	55	93680,000	1,816	7,000	3,200
25	85	65	94237,600	1,980	7,200	3,400
25	85	75	94540,800	1,870	7,200	3,400
25	85	85	94751,200	1,880	7,600	3,400
25	85	95	94846,400	2,130	8,400	3,800
25	95	5	86609,600	1,978	8,200	3,800
25	95	15	87406,000	2,664	8,800	4,200
25	95	25	87731,200	2,506	9,000	4,400
25	95	35	87926,000	2,380	9,200	4,400
25	95	45	88120,800	2,288	9,600	4,400
25	95	55	88315,600	2,178	8,600	4,200
25	95	65	88492,400	2,464	9,000	4,200
25	95	75	88492,400	2,284	9,000	4,200
25	95	85	88492,400	2,290	9,000	4,200
25	95	95	88492,400	2,318	9,000	4,200
30	5	5	93701,600	2,696	7,800	3,400
30	5	15	94705,200	2,784	7,400	3,400
30	5	25	95485,600	3,632	9,400	3,800
30	5	35	95812,000	3,788	9,600	3,800
30	5	45	95812,000	3,320	9,600	3,800
30	5	55	95812,000	2,862	8,000	3,200
30	5	65	95812,000	2,992	8,000	3,200
30	5	75	95812,000	2,922	8,000	3,200
30	5	85	95812,000	3,000	8,000	3,200
30	5	95	95812,000	2,772	8,000	3,200
30	15	5	94617,200	2,940	7,600	3,400
30	15	15	96140,400	2,302	5,200	2,600
30	15	25	97567,200	2,340	5,000	2,400
30	15	35	98606,000	2,096	5,000	2,400
30	15	45	99230,800	2,214	4,800	2,400
30	15	55	99738,800	2,534	6,200	2,800
30	15	65	100153,600	2,388	6,200	2,800
30	15	75	100558,800	3,054	6,800	3,000
30	15	85	100763,600	2,842	6,000	2,800
30	15	95	100968,400	2,948	7,200	3,200
30	25	5	95349,200	2,856	9,000	3,800

Table J.1 continued from previous page

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
30	25	15	98255,200	3,716	8,800	3,800
30	25	25	100536,000	4,210	9,600	4,000
30	25	35	102718,800	5,200	10,400	4,400
30	25	45	104031,600	3,852	7,800	3,400
30	25	55	105132,800	5,634	11,400	4,600
30	25	65	105522,000	4,820	8,400	4,000
30	25	75	105679,200	4,632	8,800	4,000
30	25	85	105679,200	4,036	8,400	3,800
30	25	95	105679,200	3,782	8,800	3,800
30	35	5	96636,400	2,942	7,600	3,400
30	35	15	102326,400	2,886	7,000	3,200
30	35	25	106858,800	4,368	8,200	3,400
30	35	35	110126,000	7,418	9,600	4,000
30	35	45	112367,600	14,982	12,000	4,800
30	35	55	113822,000	25,574	13,600	5,000
30	35	65	114988,000	34,888	16,600	5,800
30	35	75	115538,800	41,684	17,000	6,200
30	35	85	115938,400	40,954	18,800	6,400
30	35	95	116338,000	47,084	20,600	7,000
30	45	5	96461,600	2,898	7,800	3,200
30	45	15	101183,600	2,508	5,800	3,000
30	45	25	104369,600	2,576	4,400	2,400
30	45	35	107136,400	3,422	6,000	2,800
30	45	45	109194,000	2,996	3,400	2,200
30	45	55	110570,400	4,292	4,400	2,600
30	45	65	111660,800	4,916	4,800	2,400
30	45	75	112603,200	6,774	5,400	2,600
30	45	85	113221,600	7,346	5,200	2,600
30	45	95	113826,000	11,574	7,000	3,200
30	55	5	96509,200	2,586	7,400	3,200
30	55	15	102474,000	4,894	9,600	3,800
30	55	25	106990,800	5,846	9,800	4,000
30	55	35	109925,600	9,816	12,400	4,600
30	55	45	112236,800	19,976	13,600	5,200
30	55	55	114247,200	42,638	16,600	6,000
30	55	65	115854,400	59,302	19,600	6,800
30	55	75	117129,600	66,490	22,800	7,800
30	55	85	118306,800	112,622	31,400	10,400
30	55	95	119332,800	142,968	35,200	12,200
30	65	5	95694,800	2,856	7,000	3,400
30	65	15	99647,600	3,070	6,200	3,400
30	65	25	102088,800	3,776	7,200	3,600

Table J.1 continued from previous page

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
30	65	35	104266,800	4,274	8,400	3,400
30	65	45	106116,800	4,256	6,200	3,000
30	65	55	107696,400	5,106	6,800	3,000
30	65	65	109038,400	7,442	7,000	3,000
30	65	75	110087,200	10,426	7,200	3,200
30	65	85	111108,000	9,564	7,800	3,200
30	65	95	111947,200	27,530	9,600	4,200
30	75	5	95262,800	2,590	7,200	3,400
30	75	15	98718,800	4,048	8,000	3,800
30	75	25	101038,800	2,764	6,800	3,200
30	75	35	102692,000	3,078	6,400	3,000
30	75	45	104224,400	3,974	6,800	3,400
30	75	55	105518,800	6,670	7,600	4,000
30	75	65	106008,400	10,450	10,400	4,800
30	75	75	106213,200	6,694	8,600	3,800
30	75	85	106234,400	6,168	8,200	3,600
30	75	95	106234,400	7,446	8,600	3,800
30	85	5	94707,200	2,784	8,200	3,400
30	85	15	97117,200	2,298	7,200	3,000
30	85	25	98956,400	3,172	8,200	3,400
30	85	35	100216,800	3,020	8,400	3,400
30	85	45	100566,400	3,558	9,400	3,600
30	85	55	100631,200	3,522	10,000	3,800
30	85	65	100631,200	3,296	10,000	3,800
30	85	75	100631,200	3,412	10,000	3,800
30	85	85	100631,200	3,400	10,000	3,800
30	85	95	100631,200	3,444	10,000	3,800
30	95	5	93411,600	2,828	7,400	3,200
30	95	15	93984,800	2,872	8,600	3,400
30	95	25	94098,800	2,900	8,400	3,400
30	95	35	94098,800	2,920	8,200	3,400
30	95	45	94098,800	2,828	8,200	3,400
30	95	55	94098,800	2,934	8,200	3,400
30	95	65	94098,800	2,868	8,200	3,400
30	95	75	94098,800	2,930	8,200	3,400
30	95	85	94098,800	2,954	8,800	3,600
30	95	95	94098,800	2,922	8,200	3,400
35	5	5	98675,600	8,912	15,000	4,800
35	5	15	99544,000	9,480	14,400	4,800
35	5	25	100151,600	9,154	14,600	4,800
35	5	35	100461,600	8,758	14,400	4,800
35	5	45	100687,600	8,712	14,800	5,000

Table J.1 continued from previous page

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
35	5	55	100739,600	8,238	14,200	4,800
35	5	65	100739,600	8,752	14,200	4,800
35	5	75	100739,600	8,530	14,200	4,800
35	5	85	100739,600	9,000	15,000	5,000
35	5	95	100739,600	9,094	14,200	4,800
35	15	5	99746,000	5,768	12,800	3,800
35	15	15	102252,000	8,134	13,600	4,200
35	15	25	103764,800	7,600	11,400	3,800
35	15	35	104478,400	6,808	11,200	3,600
35	15	45	105034,000	6,194	10,800	3,400
35	15	55	105171,600	7,450	11,800	3,800
35	15	65	105171,600	5,972	10,600	3,400
35	15	75	105171,600	5,600	10,600	3,400
35	15	85	105171,600	5,384	10,600	3,400
35	15	95	105171,600	5,490	10,600	3,400
35	25	5	100551,200	7,300	15,600	4,600
35	25	15	105044,000	13,386	18,800	5,800
35	25	25	107792,800	9,070	14,600	4,600
35	25	35	109744,800	10,156	15,800	5,000
35	25	45	111197,600	13,530	17,200	5,400
35	25	55	111755,600	11,980	17,200	5,200
35	25	65	111796,000	9,064	12,400	4,400
35	25	75	111796,000	8,312	11,200	4,000
35	25	85	111796,000	7,812	10,800	4,000
35	25	95	111796,000	7,886	11,600	4,000
35	35	5	101486,400	6,382	14,400	4,400
35	35	15	106066,000	6,284	12,400	3,800
35	35	25	109384,000	6,244	11,400	3,200
35	35	35	112406,800	11,668	14,200	4,000
35	35	45	114962,800	26,236	14,000	4,600
35	35	55	116525,200	29,858	10,400	3,800
35	35	65	117909,600	45,524	12,000	4,200
35	35	75	118972,400	57,184	14,000	4,600
35	35	85	120034,800	66,368	16,400	5,200
35	35	95	121097,200	93,690	18,200	5,800
35	45	5	102471,600	6,354	14,000	4,000
35	45	15	109890,800	8,184	14,600	4,400
35	45	25	115498,000	11,320	14,200	4,000
35	45	35	119562,800	23,494	15,000	4,000
35	45	45	122289,600	55,880	17,600	4,600
35	45	55	124603,600	72,336	19,800	4,800
35	45	65	126456,000	174,156	23,600	6,200

Table J.1 continued from previous page

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
35	45	75	127807,200	241,460	28,000	7,200
35	45	85	128958,400	305,458	30,200	7,800
35	45	95	130038,400	417,580	36,800	9,600
35	55	5	102169,200	10,370	16,800	5,600
35	55	15	108203,600	11,062	15,000	4,800
35	55	25	112600,800	11,160	13,000	4,200
35	55	35	115730,800	26,042	15,400	4,800
35	55	45	118274,000	46,070	16,000	5,000
35	55	55	120474,000	77,074	19,800	5,600
35	55	65	122100,800	109,306	21,600	6,000
35	55	75	123299,200	136,524	23,000	6,600
35	55	85	124268,400	211,718	27,800	8,000
35	55	95	124956,000	284,656	32,000	9,000
35	65	5	101548,400	7,552	14,600	4,400
35	65	15	107674,800	8,482	13,200	4,200
35	65	25	112016,000	18,030	16,800	5,400
35	65	35	115441,200	35,380	18,600	5,800
35	65	45	117901,200	93,370	22,000	7,400
35	65	55	119184,400	91,246	21,400	7,600
35	65	65	120211,600	117,214	24,600	8,200
35	65	75	120863,600	137,804	26,000	9,000
35	65	85	121516,000	152,824	26,200	9,000
35	65	95	122168,000	249,328	32,400	11,800
35	75	5	101243,600	7,870	16,800	5,000
35	75	15	106428,400	10,684	17,600	5,000
35	75	25	109234,000	11,960	17,000	5,000
35	75	35	111009,600	14,652	17,200	5,200
35	75	45	112369,600	14,752	16,200	5,000
35	75	55	113450,000	13,996	17,000	4,600
35	75	65	114283,600	15,788	16,600	4,600
35	75	75	114461,200	14,216	15,200	4,200
35	75	85	114461,200	15,466	15,200	4,400
35	75	95	114461,200	14,650	14,400	4,400
35	85	5	99603,200	8,816	16,200	5,000
35	85	15	101445,600	7,000	14,000	4,200
35	85	25	102422,400	6,604	12,600	4,000
35	85	35	102988,400	7,042	13,600	4,400
35	85	45	103309,200	6,768	12,000	4,200
35	85	55	103538,800	6,506	12,000	4,200
35	85	65	103768,800	6,686	11,200	4,000
35	85	75	103882,800	6,584	11,800	4,200
35	85	85	103882,800	6,090	11,800	3,600

Table J.1 continued from previous page

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
35	85	95	103882,800	5,256	10,600	3,400
35	95	5	98501,600	5,964	13,600	4,000
35	95	15	99199,600	5,138	13,000	3,800
35	95	25	99619,200	4,732	12,000	3,600
35	95	35	99839,200	4,536	11,600	3,400
35	95	45	100026,800	4,750	11,200	3,400
35	95	55	100026,800	4,778	11,200	3,400
35	95	65	100028,000	3,852	10,400	3,200
35	95	75	100026,800	4,340	11,400	3,400
35	95	85	100028,000	3,886	10,400	3,200
35	95	95	100026,800	3,900	10,400	3,200
40	5	5	101450,400	7,634	13,600	4,000
40	5	15	102622,400	7,624	13,600	4,200
40	5	25	102925,600	8,258	14,200	4,400
40	5	35	103108,800	8,532	14,400	4,400
40	5	45	103108,800	8,128	14,400	4,400
40	5	55	103108,800	8,152	14,400	4,400
40	5	65	103108,800	8,332	14,400	4,400
40	5	75	103108,800	8,034	14,400	4,400
40	5	85	103108,800	8,180	14,400	4,400
40	5	95	103108,800	8,638	14,400	4,400
40	15	5	102628,800	7,118	13,200	3,800
40	15	15	105530,800	9,700	14,200	4,400
40	15	25	106924,000	12,294	14,000	4,600
40	15	35	107803,200	11,436	13,600	4,400
40	15	45	108187,200	11,888	14,600	4,600
40	15	55	108187,200	10,044	12,400	4,000
40	15	65	108187,200	9,308	12,400	4,000
40	15	75	108187,200	11,010	13,400	4,200
40	15	85	108187,200	10,234	13,600	4,200
40	15	95	108187,200	8,566	11,600	3,800
40	25	5	104170,800	7,622	13,600	3,800
40	25	15	109474,400	13,314	17,000	4,600
40	25	25	113094,800	14,200	16,400	4,800
40	25	35	115766,800	19,728	17,200	5,200
40	25	45	116908,400	21,268	17,400	5,000
40	25	55	117529,600	23,742	16,400	4,600
40	25	65	117932,400	22,374	16,200	4,600
40	25	75	118298,000	24,646	17,200	5,200
40	25	85	118406,000	23,740	18,400	5,000
40	25	95	118406,000	21,416	17,200	5,200
40	35	5	104749,600	10,280	14,800	4,400

Table J.1 continued from previous page

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
40	35	15	111768,000	18,074	17,800	5,600
40	35	25	116855,600	31,848	18,800	5,400
40	35	35	119957,200	44,404	20,000	5,200
40	35	45	122343,200	118,618	26,000	7,200
40	35	55	123949,200	204,288	29,600	7,800
40	35	65	125376,000	346,848	37,000	9,600
40	35	75	126208,800	519,874	43,000	11,000
40	35	85	126712,400	622,670	44,800	11,800
40	35	95	127124,400	941,824	47,400	12,800
40	45	5	105140,800	8,988	15,000	4,400
40	45	15	112582,800	17,894	19,000	5,000
40	45	25	117552,000	38,050	20,800	6,200
40	45	35	121029,200	91,014	21,400	6,200
40	45	45	123472,400	147,812	23,000	6,800
40	45	55	125388,400	170,558	26,200	7,800
40	45	65	126738,800	309,534	34,200	9,400
40	45	75	127855,600	509,584	43,800	13,600
40	45	85	128820,000	929,842	59,400	20,200
40	45	95	129635,600	1124,228	67,400	22,800
40	55	5	105267,200	8,896	14,800	4,200
40	55	15	112162,000	13,444	14,400	4,400
40	55	25	116634,400	21,916	14,600	4,800
40	55	35	119890,800	38,860	15,400	5,000
40	55	45	122401,200	77,370	19,400	6,200
40	55	55	124249,600	149,178	23,800	7,800
40	55	65	125595,200	203,006	26,000	8,600
40	55	75	126533,200	230,142	30,400	9,600
40	55	85	127341,200	305,468	32,600	10,400
40	55	95	128103,600	454,758	39,200	12,200
40	65	5	104628,800	7,624	13,000	4,000
40	65	15	110976,000	9,450	12,200	4,000
40	65	25	114637,600	12,372	11,200	3,800
40	65	35	117437,200	21,892	14,600	4,600
40	65	45	118516,400	27,018	17,400	5,400
40	65	55	119332,400	38,708	16,800	5,400
40	65	65	120148,000	57,962	17,600	5,600
40	65	75	120782,400	61,894	19,800	6,200
40	65	85	121392,800	102,372	22,800	6,800
40	65	95	122003,600	131,720	26,200	8,000
40	75	5	104701,600	9,160	15,600	4,400
40	75	15	110739,200	11,174	15,000	4,600
40	75	25	114254,800	22,238	17,800	5,600

Table J.1 continued from previous page

n	f	w	(2.9) o	(2.9) t	(2.9) s	(2.9) r
40	75	35	116106,800	18,816	15,800	4,800
40	75	45	117264,000	20,700	14,200	4,400
40	75	55	118297,600	21,484	12,600	4,200
40	75	65	119316,000	30,842	16,400	5,000
40	75	75	120141,200	41,006	16,800	5,400
40	75	85	120947,600	62,194	17,000	5,600
40	75	95	121496,000	62,518	20,200	6,000
40	85	5	103066,800	6,544	12,600	3,600
40	85	15	106631,200	8,660	13,000	4,000
40	85	25	108374,400	6,488	11,600	3,400
40	85	35	109519,600	9,804	11,800	4,000
40	85	45	110178,800	8,634	12,000	3,800
40	85	55	110611,600	7,362	10,400	3,600
40	85	65	110819,600	5,932	9,000	3,000
40	85	75	110920,800	5,642	8,600	2,800
40	85	85	110920,800	5,594	8,200	2,800
40	85	95	110920,800	5,878	8,200	2,800
40	95	5	101428,000	6,834	14,000	3,800
40	95	15	102655,600	8,768	14,400	4,200
40	95	25	103002,400	9,228	14,200	4,400
40	95	35	103190,800	9,012	14,200	4,400
40	95	45	103379,200	9,512	14,200	4,400
40	95	55	103478,000	9,898	14,400	4,400
40	95	65	103478,000	9,618	14,400	4,400
40	95	75	103478,000	9,552	14,400	4,400
40	95	85	103478,000	9,518	14,400	4,400
40	95	95	103478,000	9,486	14,400	4,400

Table J.1: Aggregated Computational Results for (2.9)

Appendix K

Aggregated Computational Results for (2.10)

NOTE:

n - Number of nodes in the graph

f - Percentage of flagged edges in an instance

w - Reload costs relative to the average edge weight

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
10	5	5	58612,400	0,136	2,600	2,200
10	5	15	59401,600	0,148	3,200	2,400
10	5	25	59683,600	0,164	3,600	2,600
10	5	35	59880,000	0,158	3,600	2,600
10	5	45	60076,800	0,170	3,600	2,600
10	5	55	60186,000	0,164	3,600	2,600
10	5	65	60186,000	0,166	3,600	2,600
10	5	75	60186,000	0,166	3,600	2,600
10	5	85	60186,000	0,170	3,600	2,600
10	5	95	60186,000	0,164	3,600	2,600
10	15	5	58681,200	0,136	2,600	2,200
10	15	15	59530,000	0,134	2,600	2,200
10	15	25	60373,600	0,148	2,600	2,200
10	15	35	61046,400	0,150	3,200	2,400
10	15	45	61358,800	0,150	3,200	2,400
10	15	55	61515,600	0,126	2,400	2,000
10	15	65	61515,600	0,122	2,400	2,000
10	15	75	61515,600	0,106	1,800	1,800
10	15	85	61515,600	0,106	1,800	1,800
10	15	95	61515,600	0,104	1,800	1,800
10	25	5	58814,800	0,140	2,600	2,200
10	25	15	60075,600	0,122	2,400	2,000
10	25	25	61050,800	0,120	2,400	2,000
10	25	35	61916,800	0,104	2,000	1,800
10	25	45	62783,200	0,108	2,000	1,800
10	25	55	63650,400	0,108	2,000	1,800
10	25	65	64516,800	0,112	1,800	1,800
10	25	75	65169,200	0,126	2,200	2,000
10	25	85	65790,400	0,132	2,200	2,000
10	25	95	66218,400	0,114	1,800	1,800
10	35	5	59198,800	0,132	2,600	2,200
10	35	15	61180,400	0,126	2,200	2,000
10	35	25	63023,200	0,154	2,600	2,200
10	35	35	64766,000	0,196	3,000	2,400
10	35	45	66020,800	0,176	2,600	2,200
10	35	55	67124,400	0,152	2,200	2,000
10	35	65	68152,400	0,106	1,400	1,600
10	35	75	69004,800	0,110	1,400	1,600
10	35	85	69857,600	0,108	1,400	1,600
10	35	95	70710,000	0,106	1,400	1,600
10	45	5	59409,200	0,140	2,600	2,200
10	45	15	61826,800	0,144	2,800	2,200
10	45	25	63918,000	0,136	2,400	2,000

Table K.1 continued from previous page

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
10	45	35	65659,200	0,164	2,800	2,200
10	45	45	67042,400	0,176	3,200	2,400
10	45	55	68266,800	0,186	4,000	2,600
10	45	65	69403,200	0,208	4,400	2,800
10	45	75	70429,600	0,202	3,800	2,600
10	45	85	71456,400	0,222	4,000	2,800
10	45	95	72482,800	0,276	4,800	3,200
10	55	5	59409,200	0,132	2,600	2,200
10	55	15	61680,800	0,140	2,600	2,200
10	55	25	63603,200	0,150	3,200	2,400
10	55	35	65317,600	0,174	3,600	2,600
10	55	45	66599,200	0,138	2,800	2,200
10	55	55	67466,400	0,138	2,800	2,200
10	55	65	68332,800	0,140	2,800	2,200
10	55	75	69198,800	0,118	2,000	2,000
10	55	85	70065,200	0,122	1,600	1,800
10	55	95	70931,600	0,126	1,600	1,800
10	65	5	59534,800	0,136	2,600	2,200
10	65	15	61800,800	0,122	2,200	2,000
10	65	25	63858,400	0,128	2,200	2,000
10	65	35	65665,200	0,128	1,800	1,800
10	65	45	67362,400	0,120	1,800	1,800
10	65	55	68532,400	0,126	1,800	1,800
10	65	65	69349,200	0,158	2,800	2,200
10	65	75	69790,800	0,146	2,400	2,000
10	65	85	70232,800	0,128	2,000	1,800
10	65	95	70674,800	0,154	2,400	2,000
10	75	5	59115,600	0,128	2,600	2,200
10	75	15	60526,800	0,124	2,200	2,000
10	75	25	61730,000	0,112	1,800	1,800
10	75	35	62624,400	0,090	1,600	1,600
10	75	45	63400,400	0,092	1,600	1,600
10	75	55	63988,800	0,088	1,600	1,600
10	75	65	64519,600	0,092	1,400	1,600
10	75	75	65050,400	0,090	1,400	1,600
10	75	85	65581,600	0,108	1,800	1,800
10	75	95	66080,800	0,112	1,800	1,800
10	85	5	58724,800	0,138	2,600	2,200
10	85	15	59667,600	0,138	2,800	2,200
10	85	25	60271,600	0,144	3,200	2,400
10	85	35	60298,400	0,138	2,600	2,200
10	85	45	60298,400	0,118	2,200	2,000

Table K.1 continued from previous page

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
10	85	55	60298,400	0,116	2,200	2,000
10	85	65	60298,400	0,126	2,400	2,200
10	85	75	60298,400	0,124	2,400	2,200
10	85	85	60298,400	0,124	2,400	2,200
10	85	95	60298,400	0,120	2,400	2,200
10	95	5	58817,200	0,138	2,600	2,200
10	95	15	60094,000	0,142	2,800	2,200
10	95	25	61020,400	0,172	4,000	2,800
10	95	35	61352,000	0,176	4,000	2,800
10	95	45	61602,400	0,156	3,600	2,600
10	95	55	61852,800	0,156	3,600	2,600
10	95	65	62103,200	0,152	3,600	2,600
10	95	75	62353,600	0,142	3,200	2,400
10	95	85	62604,000	0,160	3,600	2,600
10	95	95	62854,400	0,162	3,600	2,600
15	5	5	68981,200	1,134	9,200	4,400
15	5	15	68981,200	0,876	8,400	4,000
15	5	25	68981,200	0,780	8,000	3,800
15	5	35	68981,200	0,828	8,000	3,800
15	5	45	68981,200	0,752	7,200	3,600
15	5	55	68981,200	0,726	7,200	3,600
15	5	65	68981,200	0,806	7,200	3,600
15	5	75	68981,200	0,772	7,200	3,600
15	5	85	68981,200	0,740	7,200	3,600
15	5	95	68981,200	0,774	7,200	3,600
15	15	5	69520,400	0,970	8,600	4,000
15	15	15	70577,600	1,270	9,000	4,200
15	15	25	71221,600	1,322	9,400	4,400
15	15	35	71586,000	1,360	9,800	4,600
15	15	45	71810,000	1,304	9,600	4,400
15	15	55	71834,000	0,930	8,400	4,000
15	15	65	71834,000	0,810	8,000	3,800
15	15	75	71834,000	0,824	8,000	4,000
15	15	85	71834,000	0,814	7,800	4,000
15	15	95	71834,000	0,900	8,200	4,200
15	25	5	70424,000	1,008	8,600	4,000
15	25	15	72768,000	0,576	7,200	3,400
15	25	25	74780,000	0,542	6,800	3,200
15	25	35	76731,600	0,518	6,000	3,000
15	25	45	78443,200	0,480	5,800	2,800
15	25	55	79616,000	0,706	7,200	3,400
15	25	65	80510,800	0,730	6,800	3,200

Table K.1 continued from previous page

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
15	25	75	81204,400	0,678	6,400	3,200
15	25	85	81480,000	0,620	6,400	3,200
15	25	95	81700,800	0,764	7,200	3,600
15	35	5	70352,000	1,442	9,400	4,400
15	35	15	72622,400	1,222	7,800	3,800
15	35	25	74395,600	1,154	6,200	3,200
15	35	35	76109,200	1,548	6,200	3,400
15	35	45	77566,400	1,320	6,200	3,400
15	35	55	78808,400	1,640	6,000	3,400
15	35	65	79852,000	1,284	6,400	3,400
15	35	75	80896,000	1,896	7,000	3,600
15	35	85	81694,000	2,110	7,800	4,000
15	35	95	82201,200	2,052	7,800	4,000
15	45	5	70855,200	0,944	8,600	4,000
15	45	15	74553,600	0,780	7,000	3,400
15	45	25	77595,200	0,862	6,400	3,000
15	45	35	79926,000	0,918	5,200	2,600
15	45	45	82132,400	1,202	6,600	3,200
15	45	55	84223,600	1,826	7,000	3,400
15	45	65	86060,000	1,346	6,400	3,200
15	45	75	87630,000	1,490	6,600	3,200
15	45	85	89071,600	2,000	7,800	3,800
15	45	95	90246,800	2,916	9,800	4,600
15	55	5	70464,800	0,816	8,200	3,800
15	55	15	73422,400	0,558	5,800	3,000
15	55	25	75783,600	0,412	4,600	2,400
15	55	35	77486,000	0,250	3,000	1,800
15	55	45	79160,000	0,302	3,200	1,800
15	55	55	80556,800	0,362	2,800	1,800
15	55	65	81822,000	0,436	2,800	2,000
15	55	75	82970,400	0,572	3,800	2,400
15	55	85	84040,000	0,696	3,800	2,400
15	55	95	85110,000	0,820	4,000	2,400
15	65	5	70371,200	1,362	9,600	4,600
15	65	15	72890,400	1,286	8,200	4,000
15	65	25	75096,400	1,382	7,200	3,600
15	65	35	76812,000	1,776	7,200	3,600
15	65	45	77934,400	1,450	7,600	3,800
15	65	55	78800,000	1,238	6,000	3,200
15	65	65	79493,600	1,370	6,600	3,400
15	65	75	80136,000	1,164	6,400	3,400
15	65	85	80710,000	1,580	7,400	3,800

Table K.1 continued from previous page

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
15	65	95	80933,200	1,570	7,400	3,800
15	75	5	70362,400	1,216	9,400	4,400
15	75	15	72444,800	0,696	7,400	3,600
15	75	25	73830,000	0,700	6,800	3,400
15	75	35	74681,200	0,632	6,000	3,200
15	75	45	75532,800	0,584	6,000	3,200
15	75	55	76146,000	0,582	5,200	3,000
15	75	65	76593,200	0,684	5,400	3,000
15	75	75	77040,400	0,762	6,000	3,200
15	75	85	77318,800	0,660	6,000	3,200
15	75	95	77490,400	0,548	5,200	2,800
15	85	5	70061,600	0,882	8,800	4,200
15	85	15	71992,000	0,578	7,800	3,800
15	85	25	73488,000	0,566	7,800	3,800
15	85	35	74196,800	0,528	7,400	3,600
15	85	45	74616,000	0,412	6,000	3,000
15	85	55	75034,800	0,398	5,600	3,000
15	85	65	75453,600	0,416	5,600	3,000
15	85	75	75677,600	0,396	5,600	3,000
15	85	85	75901,200	0,422	6,200	3,200
15	85	95	76125,200	0,408	6,200	3,200
15	95	5	69367,200	1,476	10,200	4,800
15	95	15	70080,800	1,628	10,400	5,000
15	95	25	70587,600	2,342	11,800	5,600
15	95	35	70819,600	2,162	11,800	5,600
15	95	45	70862,400	2,358	11,600	5,600
15	95	55	70862,400	2,280	11,600	5,600
15	95	65	70862,400	2,524	11,800	5,800
15	95	75	70862,400	2,206	11,400	5,600
15	95	85	70862,400	2,032	12,000	5,800
15	95	95	70862,400	2,092	11,400	5,600
20	5	5	77616,400	1,590	10,800	4,200
20	5	15	78036,400	1,518	10,600	4,200
20	5	25	78182,000	1,724	11,200	4,400
20	5	35	78182,000	1,604	11,200	4,400
20	5	45	78182,000	1,610	10,600	4,200
20	5	55	78182,000	1,582	10,600	4,200
20	5	65	78182,000	1,618	10,600	4,200
20	5	75	78182,000	1,626	10,600	4,200
20	5	85	78182,000	1,614	10,800	4,400
20	5	95	78182,000	1,540	10,600	4,200
20	15	5	78996,000	1,912	11,800	4,400

Table K.1 continued from previous page

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
20	15	15	81477,200	1,806	11,600	4,000
20	15	25	82715,200	1,594	11,200	3,800
20	15	35	83676,000	1,630	10,600	3,800
20	15	45	84209,600	1,660	9,800	3,800
20	15	55	84633,200	1,578	10,200	4,000
20	15	65	85057,600	1,544	9,400	3,800
20	15	75	85481,600	1,636	9,800	4,000
20	15	85	85666,800	1,546	9,600	4,000
20	15	95	85666,800	1,210	8,200	3,400
20	25	5	79737,600	1,850	11,200	4,200
20	25	15	83402,800	2,624	11,800	4,400
20	25	25	85614,000	2,014	10,000	3,600
20	25	35	86938,400	2,136	9,800	3,600
20	25	45	87973,600	1,830	8,800	3,400
20	25	55	88948,000	2,032	8,600	3,400
20	25	65	89627,200	1,974	9,400	3,800
20	25	75	89926,000	2,014	9,000	3,800
20	25	85	90120,400	1,794	9,000	3,800
20	25	95	90314,800	2,072	9,400	4,000
20	35	5	79652,000	1,416	9,200	3,800
20	35	15	83384,800	1,316	8,000	3,400
20	35	25	85944,000	1,614	8,200	3,600
20	35	35	87934,000	1,932	8,400	3,800
20	35	45	89523,200	1,972	6,600	3,200
20	35	55	90986,400	1,486	5,000	2,600
20	35	65	92261,200	1,804	4,200	2,600
20	35	75	93536,800	2,390	3,800	2,400
20	35	85	94811,600	6,266	8,400	4,000
20	35	95	95818,800	8,642	9,800	4,400
20	45	5	80114,000	1,734	10,000	4,000
20	45	15	84936,400	3,274	12,400	4,600
20	45	25	87948,800	2,330	9,400	3,400
20	45	35	89986,400	2,522	8,200	3,200
20	45	45	91486,400	3,506	8,600	3,400
20	45	55	92985,600	5,144	8,200	3,600
20	45	65	94335,200	7,196	10,000	4,200
20	45	75	95646,000	7,376	10,800	4,600
20	45	85	96956,000	10,280	12,200	5,200
20	45	95	98047,200	11,456	13,400	5,600
20	55	5	80342,800	1,668	10,800	4,000
20	55	15	84831,200	2,604	11,600	4,400
20	55	25	88413,600	2,256	9,800	3,600

Table K.1 continued from previous page

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
20	55	35	91303,600	2,902	9,400	3,600
20	55	45	93238,400	2,736	9,000	3,800
20	55	55	94768,400	3,684	8,600	3,800
20	55	65	96101,600	7,200	12,000	4,800
20	55	75	97038,000	7,980	12,600	5,000
20	55	85	97723,200	9,506	12,400	5,000
20	55	95	98409,200	9,886	13,600	5,200
20	65	5	79040,800	1,560	9,400	3,600
20	65	15	82184,400	1,604	8,000	3,600
20	65	25	84787,600	1,472	8,200	3,400
20	65	35	86868,800	1,828	8,400	3,600
20	65	45	88640,800	1,898	7,400	3,400
20	65	55	90127,200	2,992	7,800	3,600
20	65	65	91340,800	3,742	7,800	3,600
20	65	75	92462,400	4,412	7,400	3,400
20	65	85	93583,200	5,502	9,000	3,800
20	65	95	94704,400	5,180	9,000	3,800
20	75	5	79266,000	1,478	10,400	4,000
20	75	15	82122,000	1,632	10,200	3,800
20	75	25	84197,200	1,436	8,800	3,600
20	75	35	85687,600	1,252	7,400	3,400
20	75	45	86813,600	1,312	7,200	3,400
20	75	55	87874,000	1,864	7,800	3,600
20	75	65	88658,400	2,478	10,000	4,000
20	75	75	89308,000	3,852	9,600	3,800
20	75	85	89924,800	3,432	10,200	4,200
20	75	95	90186,400	4,570	11,000	4,400
20	85	5	78686,400	1,762	11,200	4,200
20	85	15	80469,200	1,532	9,800	3,800
20	85	25	81708,400	1,372	9,000	3,400
20	85	35	82597,600	1,572	9,800	3,800
20	85	45	83244,000	1,408	8,800	3,600
20	85	55	83768,800	1,136	7,400	3,200
20	85	65	84183,600	1,126	7,400	3,200
20	85	75	84598,400	1,078	7,400	3,200
20	85	85	85012,800	1,094	7,600	3,200
20	85	95	85204,800	1,364	9,000	3,800
20	95	5	77804,400	1,912	11,600	4,400
20	95	15	78502,800	1,706	11,000	4,200
20	95	25	79036,400	1,766	10,600	4,200
20	95	35	79230,800	1,744	10,800	4,200
20	95	45	79425,200	1,720	10,600	4,200

Table K.1 continued from previous page

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
20	95	55	79620,000	1,732	10,600	4,200
20	95	65	79814,400	1,680	10,600	4,200
20	95	75	80008,800	1,630	10,600	4,200
20	95	85	80203,200	1,922	10,600	4,200
20	95	95	80397,600	1,586	10,600	4,200
25	5	5	86719,600	1,932	9,000	4,200
25	5	15	87838,800	1,608	7,800	3,800
25	5	25	88576,000	1,902	8,400	4,200
25	5	35	89112,000	2,032	8,200	4,000
25	5	45	89180,800	2,098	8,000	4,200
25	5	55	89180,800	2,046	8,000	4,200
25	5	65	89180,800	2,078	8,000	4,200
25	5	75	89180,800	1,892	7,600	4,000
25	5	85	89180,800	2,002	7,800	4,200
25	5	95	89180,800	2,036	8,200	4,200
25	15	5	87114,800	2,008	8,400	4,000
25	15	15	88891,200	2,014	7,800	3,800
25	15	25	90223,200	2,224	9,400	4,400
25	15	35	90848,800	2,410	10,000	4,600
25	15	45	91457,200	2,772	10,600	4,800
25	15	55	91870,800	3,306	11,600	5,200
25	15	65	92081,600	3,338	11,200	5,000
25	15	75	92255,600	3,320	11,200	5,000
25	15	85	92255,600	2,904	10,000	4,400
25	15	95	92255,600	2,698	9,400	4,200
25	25	5	88959,200	2,282	9,800	4,400
25	25	15	94004,400	2,510	9,400	4,200
25	25	25	97360,000	3,050	10,200	4,400
25	25	35	99734,800	3,068	10,000	4,200
25	25	45	101866,800	4,770	10,400	4,400
25	25	55	103810,000	8,280	13,200	5,600
25	25	65	105382,000	11,574	14,600	6,000
25	25	75	106408,000	13,600	15,000	6,400
25	25	85	106881,600	15,430	15,000	6,000
25	25	95	107183,200	14,204	14,800	6,000
25	35	5	89073,200	2,368	9,600	4,400
25	35	15	94555,600	2,742	9,800	4,600
25	35	25	98357,200	3,342	9,400	4,800
25	35	35	100642,000	4,002	10,200	4,600
25	35	45	101998,800	3,296	9,000	4,000
25	35	55	103240,000	3,210	8,800	3,800
25	35	65	104336,800	4,048	7,600	3,600

Table K.1 continued from previous page

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
25	35	75	105375,600	6,436	9,800	4,000
25	35	85	106272,000	11,702	11,200	4,800
25	35	95	106692,400	13,112	11,600	4,600
25	45	5	89022,400	1,942	7,400	3,400
25	45	15	93934,800	1,678	6,000	3,200
25	45	25	98053,600	2,170	7,000	3,400
25	45	35	101226,800	4,018	8,800	4,000
25	45	45	103153,600	7,184	10,400	4,600
25	45	55	104513,600	6,954	9,400	4,200
25	45	65	105594,400	8,018	8,200	3,800
25	45	75	106621,600	11,040	11,000	5,000
25	45	85	107647,600	11,268	10,400	4,800
25	45	95	108640,400	15,424	12,600	5,600
25	55	5	89101,200	2,338	9,800	4,600
25	55	15	94080,000	2,938	10,800	4,800
25	55	25	98106,000	3,316	10,400	4,600
25	55	35	101216,000	4,712	10,800	4,800
25	55	45	103572,400	4,332	10,200	4,000
25	55	55	105502,800	4,402	9,000	3,800
25	55	65	107356,000	6,910	9,800	3,600
25	55	75	109116,800	15,422	12,200	4,600
25	55	85	110671,600	31,744	17,000	6,400
25	55	95	111909,200	40,050	20,600	7,400
25	65	5	88461,600	2,244	8,800	4,200
25	65	15	92612,800	2,414	8,600	4,000
25	65	25	96258,800	4,016	9,400	4,600
25	65	35	98594,400	5,340	11,000	4,400
25	65	45	100316,800	5,842	10,800	4,200
25	65	55	101686,000	7,198	11,200	4,000
25	65	65	102815,200	6,638	11,000	4,000
25	65	75	103719,200	9,526	11,600	4,200
25	65	85	104533,200	12,108	12,600	4,600
25	65	95	105348,000	13,918	14,200	5,600
25	75	5	87989,600	2,546	10,200	4,800
25	75	15	91098,000	2,896	11,600	5,000
25	75	25	93412,400	3,484	12,400	5,200
25	75	35	94789,600	3,054	11,000	4,800
25	75	45	95808,400	3,216	11,600	5,000
25	75	55	96689,200	3,722	12,400	5,400
25	75	65	97426,000	4,632	13,400	5,800
25	75	75	97881,600	3,868	13,000	5,600
25	75	85	98304,000	4,038	12,200	5,400

Table K.1 continued from previous page

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
25	75	95	98726,800	4,166	12,400	5,400
25	85	5	87396,400	1,886	8,600	3,800
25	85	15	89539,600	1,828	7,600	3,400
25	85	25	91002,800	1,884	8,400	3,400
25	85	35	92160,400	1,844	8,200	3,400
25	85	45	92963,600	2,002	7,200	3,200
25	85	55	93680,000	1,714	7,000	3,200
25	85	65	94237,600	2,190	7,600	3,600
25	85	75	94540,800	2,218	7,600	3,600
25	85	85	94751,200	2,166	8,000	3,600
25	85	95	94846,400	2,480	8,800	4,000
25	95	5	86609,600	2,048	9,000	4,200
25	95	15	87406,000	2,522	9,600	4,600
25	95	25	87731,200	2,512	9,800	4,800
25	95	35	87926,000	2,734	10,000	4,800
25	95	45	88120,800	2,520	10,000	4,600
25	95	55	88315,600	2,384	9,400	4,400
25	95	65	88492,400	2,580	10,200	4,600
25	95	75	88492,400	2,932	10,200	4,600
25	95	85	88492,400	2,738	10,200	4,600
25	95	95	88492,400	2,718	10,200	4,600
30	5	5	93701,600	5,524	11,000	4,600
30	5	15	94705,200	5,820	10,400	4,400
30	5	25	95485,600	7,014	12,200	4,800
30	5	35	95812,000	8,174	14,200	5,400
30	5	45	95812,000	7,182	12,800	5,000
30	5	55	95812,000	6,982	11,200	4,400
30	5	65	95812,000	6,830	11,200	4,400
30	5	75	95812,000	6,598	11,200	4,400
30	5	85	95812,000	6,728	11,200	4,400
30	5	95	95812,000	6,760	11,200	4,400
30	15	5	94617,200	5,984	12,600	4,800
30	15	15	96140,400	3,892	7,200	3,200
30	15	25	97567,200	3,478	7,000	3,000
30	15	35	98606,000	3,580	7,200	3,200
30	15	45	99230,800	2,942	6,400	2,800
30	15	55	99738,800	3,476	7,600	3,200
30	15	65	100153,600	3,714	8,200	3,400
30	15	75	100558,800	4,236	8,000	3,400
30	15	85	100763,600	3,630	7,400	3,200
30	15	95	100968,400	4,044	9,600	3,800
30	25	5	95349,200	5,746	12,000	4,800

Table K.1 continued from previous page

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
30	25	15	98255,200	4,788	10,200	4,200
30	25	25	100536,000	4,860	10,400	4,200
30	25	35	102718,800	6,824	11,800	5,000
30	25	45	104272,800	6,546	12,200	4,800
30	25	55	105132,800	6,354	11,600	4,800
30	25	65	105522,000	5,792	11,000	4,600
30	25	75	105679,200	5,412	10,600	4,400
30	25	85	105679,200	4,638	9,400	4,000
30	25	95	105679,200	4,324	9,400	4,000
30	35	5	96636,400	5,162	11,200	4,600
30	35	15	102326,400	4,760	9,800	4,200
30	35	25	106858,800	6,970	12,800	4,400
30	35	35	110126,000	9,278	11,400	4,600
30	35	45	112367,600	16,446	12,600	5,000
30	35	55	113822,000	27,924	16,800	6,200
30	35	65	114988,000	46,814	19,200	6,800
30	35	75	115538,800	54,704	19,400	7,000
30	35	85	115938,400	48,018	20,000	7,000
30	35	95	116338,000	63,894	23,400	7,800
30	45	5	96461,600	4,344	10,000	4,200
30	45	15	101183,600	3,500	7,800	3,800
30	45	25	104369,600	3,308	6,200	3,000
30	45	35	107136,400	3,862	5,400	2,800
30	45	45	109194,000	3,558	4,000	2,400
30	45	55	110570,400	5,500	6,000	3,000
30	45	65	111660,800	6,444	5,800	2,800
30	45	75	112603,200	9,142	6,400	3,000
30	45	85	113221,600	9,748	7,800	3,200
30	45	95	113826,000	11,168	7,000	3,200
30	55	5	96509,200	5,584	12,000	4,600
30	55	15	102474,000	14,946	12,400	4,800
30	55	25	106990,800	15,294	12,000	4,800
30	55	35	109925,600	15,738	14,000	5,400
30	55	45	112236,800	32,478	17,000	6,400
30	55	55	114247,200	79,154	25,400	9,200
30	55	65	115854,400	69,828	21,800	7,800
30	55	75	117129,600	92,494	28,400	9,600
30	55	85	118306,800	137,978	36,800	12,400
30	55	95	119332,800	207,478	46,800	16,200
30	65	5	95694,800	5,058	10,800	4,800
30	65	15	99647,600	4,332	8,400	4,000
30	65	25	102088,800	4,898	8,800	4,200

Table K.1 continued from previous page

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
30	65	35	104266,800	4,352	7,000	3,200
30	65	45	106116,800	4,430	6,200	3,000
30	65	55	107696,400	5,586	7,800	3,200
30	65	65	109038,400	10,392	8,400	3,400
30	65	75	110087,200	7,580	7,600	3,200
30	65	85	111108,000	13,234	8,000	3,200
30	65	95	111947,200	25,294	9,800	4,200
30	75	5	95262,800	4,430	10,800	4,600
30	75	15	98718,800	5,306	10,000	4,600
30	75	25	101038,800	3,484	8,400	4,000
30	75	35	102692,000	3,642	8,400	4,000
30	75	45	104224,400	4,144	8,400	4,000
30	75	55	105518,800	6,720	9,000	4,600
30	75	65	106008,400	7,926	10,600	5,000
30	75	75	106213,200	6,146	9,800	4,200
30	75	85	106234,400	5,228	8,600	3,800
30	75	95	106234,400	5,590	9,800	4,200
30	85	5	94707,200	4,888	11,800	4,600
30	85	15	97117,200	4,168	9,800	3,800
30	85	25	98956,400	5,272	12,400	4,400
30	85	35	100216,800	6,202	12,200	4,400
30	85	45	100566,400	5,218	13,000	4,600
30	85	55	100631,200	5,250	13,200	4,600
30	85	65	100631,200	4,672	12,600	4,600
30	85	75	100631,200	4,636	12,000	4,400
30	85	85	100631,200	4,576	12,200	4,600
30	85	95	100631,200	4,522	12,000	4,400
30	95	5	93411,600	4,250	10,600	4,200
30	95	15	93984,800	4,528	12,000	4,400
30	95	25	94098,800	4,530	11,600	4,400
30	95	35	94098,800	4,444	11,200	4,200
30	95	45	94098,800	4,154	11,200	4,200
30	95	55	94098,800	4,530	12,000	4,400
30	95	65	94098,800	4,126	11,000	4,200
30	95	75	94098,800	4,206	11,200	4,200
30	95	85	94098,800	4,244	11,200	4,200
30	95	95	94098,800	4,166	11,200	4,200
35	5	5	98675,600	37,294	32,000	9,600
35	5	15	99544,000	40,154	32,000	9,800
35	5	25	100151,600	43,544	31,800	9,800
35	5	35	100461,600	43,784	31,800	9,800
35	5	45	100687,600	51,508	32,600	10,200

Table K.1 continued from previous page

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
35	5	55	100739,600	47,716	31,400	9,800
35	5	65	100739,600	45,844	31,400	10,000
35	5	75	100739,600	45,416	31,600	10,000
35	5	85	100739,600	41,876	30,800	9,800
35	5	95	100740,400	43,526	30,800	9,800
35	15	5	99746,000	17,036	21,600	6,200
35	15	15	102252,000	34,746	21,400	6,200
35	15	25	103764,800	40,508	20,400	6,000
35	15	35	104478,400	25,964	18,600	5,400
35	15	45	105034,000	25,788	17,800	5,000
35	15	55	105171,600	24,072	16,800	5,200
35	15	65	105171,600	24,524	17,200	5,200
35	15	75	105171,600	24,322	16,200	5,000
35	15	85	105171,600	23,310	16,200	5,000
35	15	95	105171,600	22,782	16,600	5,200
35	25	5	100551,200	21,814	23,800	6,800
35	25	15	105044,000	60,370	24,600	7,800
35	25	25	107792,800	27,126	21,800	6,800
35	25	35	109744,800	19,684	21,000	6,600
35	25	45	111197,600	22,686	21,800	6,800
35	25	55	111755,600	19,700	20,000	6,400
35	25	65	111796,000	18,012	18,000	5,600
35	25	75	111796,000	15,358	16,800	5,600
35	25	85	111796,000	12,300	15,800	5,000
35	25	95	111796,000	11,596	15,200	4,800
35	35	5	101486,400	27,300	27,000	7,800
35	35	15	106066,000	12,612	17,000	4,800
35	35	25	109384,000	12,008	15,400	4,200
35	35	35	112406,800	20,226	14,800	4,400
35	35	45	114962,800	43,890	16,000	5,400
35	35	55	116525,200	36,730	12,600	4,600
35	35	65	117909,600	60,790	17,200	5,600
35	35	75	118972,400	85,028	17,800	6,000
35	35	85	120034,800	148,188	25,600	8,200
35	35	95	121097,200	218,770	30,600	9,800
35	45	5	102471,600	23,500	27,400	7,800
35	45	15	109890,800	21,632	24,000	7,000
35	45	25	115498,000	23,626	20,200	5,800
35	45	35	119562,800	35,200	22,000	5,400
35	45	45	122289,600	59,732	20,800	5,000
35	45	55	124603,600	83,056	24,600	5,600
35	45	65	126456,000	186,614	30,600	7,600

Table K.1 continued from previous page

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
35	45	75	127807,200	224,730	34,000	8,200
35	45	85	128958,400	290,188	37,000	9,200
35	45	95	130038,400	419,468	46,600	11,600
35	55	5	102169,200	32,240	27,400	8,400
35	55	15	108203,600	38,918	23,600	7,000
35	55	25	112600,800	31,150	21,400	6,600
35	55	35	115730,800	50,272	21,000	6,800
35	55	45	118274,000	76,600	24,600	7,800
35	55	55	120474,000	147,664	28,400	8,800
35	55	65	122100,800	208,654	34,200	10,200
35	55	75	123299,200	249,544	34,200	10,400
35	55	85	124268,400	401,984	43,800	13,000
35	55	95	124956,000	510,238	46,600	13,600
35	65	5	101548,400	21,856	25,600	7,600
35	65	15	107674,800	24,150	24,000	7,000
35	65	25	112016,000	34,662	23,200	6,600
35	65	35	115441,200	43,144	20,400	6,400
35	65	45	117901,200	93,778	27,400	8,600
35	65	55	119184,400	111,248	28,600	8,800
35	65	65	120211,600	163,268	31,800	10,000
35	65	75	120863,600	149,426	29,000	9,800
35	65	85	121516,000	201,386	33,600	11,400
35	65	95	122168,000	327,114	40,800	14,600
35	75	5	101243,600	23,564	28,600	8,200
35	75	15	106428,400	34,482	29,000	9,000
35	75	25	109234,000	34,398	25,600	7,800
35	75	35	111009,600	31,516	24,600	7,400
35	75	45	112369,600	20,004	20,000	6,000
35	75	55	113450,000	20,104	20,600	5,800
35	75	65	114283,600	25,180	20,400	5,800
35	75	75	114461,200	20,830	19,000	5,200
35	75	85	114461,200	18,888	18,200	5,400
35	75	95	114461,200	17,474	17,800	5,400
35	85	5	99603,200	29,462	28,800	8,400
35	85	15	101445,600	12,366	17,800	5,400
35	85	25	102422,400	11,398	17,200	5,400
35	85	35	102988,400	11,806	17,400	5,600
35	85	45	103309,200	11,288	16,400	5,400
35	85	55	103538,800	9,562	14,200	4,800
35	85	65	103768,800	9,146	13,800	4,600
35	85	75	103882,800	8,976	13,400	4,600
35	85	85	103882,800	8,482	12,800	4,000

Table K.1 continued from previous page

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
35	85	95	103882,800	7,886	12,800	4,000
35	95	5	98501,600	18,278	24,000	6,800
35	95	15	99199,600	12,048	20,600	6,000
35	95	25	99619,200	11,562	19,600	5,800
35	95	35	99839,200	10,532	18,200	5,400
35	95	45	100026,800	11,610	18,600	5,600
35	95	55	100026,800	11,200	17,600	5,400
35	95	65	100026,800	10,198	18,400	5,600
35	95	75	100026,800	10,804	17,200	5,400
35	95	85	100026,800	10,592	17,200	5,400
35	95	95	100026,800	10,206	16,800	5,200
40	5	5	101450,400	18,484	24,000	6,200
40	5	15	102622,400	19,792	24,400	6,600
40	5	25	102925,600	17,182	22,600	6,200
40	5	35	103108,800	16,482	22,600	6,200
40	5	45	103108,800	17,406	22,600	6,200
40	5	55	103108,800	16,536	22,600	6,200
40	5	65	103108,800	17,576	22,600	6,200
40	5	75	103108,800	17,152	22,600	6,200
40	5	85	103108,800	18,164	22,600	6,200
40	5	95	103108,800	17,176	22,600	6,200
40	15	5	102628,800	18,100	21,800	5,800
40	15	15	105530,800	25,052	25,200	7,600
40	15	25	106924,000	27,822	25,400	8,000
40	15	35	107803,200	34,496	29,400	8,800
40	15	45	108187,200	25,340	23,800	7,000
40	15	55	108187,200	22,626	24,000	7,000
40	15	65	108187,200	21,634	22,800	6,600
40	15	75	108187,200	20,560	21,800	6,400
40	15	85	108187,200	19,164	21,000	6,200
40	15	95	108187,200	19,066	21,000	6,200
40	25	5	104170,800	16,462	23,600	5,600
40	25	15	109474,400	22,668	20,600	5,600
40	25	25	113094,800	28,840	22,200	6,200
40	25	35	115766,800	36,826	24,800	7,000
40	25	45	116908,400	47,810	24,600	6,800
40	25	55	117529,600	58,904	22,600	6,200
40	25	65	117932,400	64,440	21,200	6,000
40	25	75	118298,000	68,898	22,600	6,400
40	25	85	118406,000	50,096	21,200	5,800
40	25	95	118406,000	43,290	20,200	5,600
40	35	5	104749,600	18,240	23,000	5,800

Table K.1 continued from previous page

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
40	35	15	111768,000	28,332	24,400	6,800
40	35	25	116855,600	52,248	27,000	7,400
40	35	35	119957,200	74,226	26,600	6,800
40	35	45	122343,200	189,148	31,000	8,400
40	35	55	123949,200	264,876	34,600	9,000
40	35	65	125376,000	583,194	50,200	13,400
40	35	75	126208,800	865,164	55,600	15,200
40	35	85	126712,400	1091,008	60,400	17,000
40	35	95	127124,400	1324,002	65,600	18,000
40	45	5	105140,800	24,070	26,200	6,600
40	45	15	112582,800	319,466	38,400	10,400
40	45	25	117552,000	227,762	34,200	10,000
40	45	35	121029,200	258,782	32,600	9,600
40	45	45	123472,400	253,372	37,200	10,800
40	45	55	125388,400	360,060	43,000	12,400
40	45	65	126738,800	426,622	49,400	13,400
40	45	75	127855,600	761,272	60,400	17,600
40	45	85	128820,000	1534,490	85,200	28,000
40	45	95	129635,600	2854,658	112,400	37,800
40	55	5	105267,200	23,324	26,200	6,600
40	55	15	112162,000	43,696	25,000	7,200
40	55	25	116634,400	59,074	21,000	6,200
40	55	35	119890,800	80,650	20,400	6,200
40	55	45	122401,200	127,094	23,600	7,200
40	55	55	124249,600	202,188	26,800	8,400
40	55	65	125595,200	265,254	31,200	10,200
40	55	75	126533,200	312,360	37,200	11,600
40	55	85	127341,200	465,474	43,600	13,600
40	55	95	128103,600	813,950	55,000	17,000
40	65	5	104628,800	18,518	23,400	6,000
40	65	15	110976,000	33,060	22,800	6,600
40	65	25	114637,600	36,518	20,800	5,600
40	65	35	117437,200	71,328	20,800	6,200
40	65	45	118516,400	53,356	20,000	6,000
40	65	55	119332,400	53,534	18,800	6,200
40	65	65	120148,000	72,678	20,800	6,800
40	65	75	120782,400	95,786	25,800	8,200
40	65	85	121392,800	155,106	28,600	8,800
40	65	95	122003,600	181,348	34,000	9,800
40	75	5	104701,600	24,144	27,800	7,000
40	75	15	110739,200	23,704	26,000	7,000
40	75	25	114254,800	51,388	25,400	7,600

Table K.1 continued from previous page

n	f	w	(2.10) o	(2.10) t	(2.10) s	(2.10) r
40	75	35	116106,800	31,158	21,600	6,400
40	75	45	117264,000	30,786	21,200	6,200
40	75	55	118297,600	35,922	21,400	6,600
40	75	65	119316,000	58,878	27,600	8,000
40	75	75	120141,200	91,218	30,400	9,000
40	75	85	120947,600	116,644	29,400	8,800
40	75	95	121496,000	125,644	28,600	8,600
40	85	5	103066,800	16,876	20,600	5,600
40	85	15	106631,200	13,096	16,200	5,000
40	85	25	108374,400	9,652	13,200	4,200
40	85	35	109519,600	9,820	12,400	4,200
40	85	45	110178,800	9,018	11,400	3,800
40	85	55	110611,600	7,350	9,600	3,400
40	85	65	110819,600	6,750	9,600	3,200
40	85	75	110920,800	6,856	9,800	3,200
40	85	85	110920,800	6,250	9,200	3,000
40	85	95	110920,800	6,060	9,200	3,000
40	95	5	101428,000	20,544	24,600	6,400
40	95	15	102655,600	26,084	27,400	7,600
40	95	25	103002,400	20,702	22,400	6,400
40	95	35	103190,800	19,926	22,400	6,400
40	95	45	103379,200	19,570	23,400	6,600
40	95	55	103478,000	19,404	22,800	6,400
40	95	65	103478,000	19,564	22,600	6,400
40	95	75	103478,000	21,092	23,600	6,600
40	95	85	103478,000	20,214	22,600	6,400
40	95	95	103478,000	20,208	22,600	6,400

Table K.1: Aggregated Computational Results for (2.10)

Appendix L

Aggregated Computational Results for (2.11)

NOTE:

n - Number of nodes in the graph

f - Percentage of flagged edges in an instance

w - Reload costs relative to the average edge weight

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
10	5	5	58612,400	0,116	2,200	2,000
10	5	15	59401,600	0,128	2,800	2,200
10	5	25	59683,600	0,132	2,800	2,200
10	5	35	59880,000	0,128	2,800	2,200
10	5	45	60076,800	0,134	2,800	2,200
10	5	55	60186,000	0,128	2,800	2,200
10	5	65	60186,000	0,132	2,800	2,200
10	5	75	60186,000	0,132	2,800	2,200
10	5	85	60186,000	0,130	2,800	2,200
10	5	95	60186,000	0,130	2,800	2,200
10	15	5	58681,200	0,116	2,200	2,000
10	15	15	59530,000	0,112	2,200	2,000
10	15	25	60373,600	0,104	1,800	1,800
10	15	35	61046,400	0,112	2,400	2,000
10	15	45	61358,800	0,112	2,400	2,000
10	15	55	61515,600	0,104	2,000	1,800
10	15	65	61515,600	0,100	2,000	1,800
10	15	75	61515,600	0,092	1,400	1,600
10	15	85	61515,600	0,092	1,400	1,600
10	15	95	61515,600	0,090	1,400	1,600
10	25	5	58814,800	0,114	2,200	2,000
10	25	15	60075,600	0,104	2,000	1,800
10	25	25	61050,800	0,108	2,000	1,800
10	25	35	61916,800	0,090	1,600	1,600
10	25	45	62783,200	0,090	1,600	1,600
10	25	55	63650,400	0,090	1,600	1,600
10	25	65	64516,800	0,096	1,400	1,600
10	25	75	65169,200	0,096	1,400	1,600
10	25	85	65790,400	0,094	1,400	1,600
10	25	95	66218,400	0,092	1,400	1,600
10	35	5	59198,800	0,118	2,200	2,000
10	35	15	61180,400	0,104	1,800	1,800
10	35	25	63023,200	0,110	1,800	1,800
10	35	35	64766,000	0,118	1,800	1,800
10	35	45	66020,800	0,108	1,400	1,600
10	35	55	67124,400	0,090	1,000	1,400
10	35	65	68152,400	0,088	1,000	1,400
10	35	75	69004,800	0,090	1,000	1,400
10	35	85	69857,600	0,094	1,000	1,400
10	35	95	70710,000	0,110	1,400	1,600
10	45	5	59409,200	0,116	2,200	2,000
10	45	15	61826,800	0,120	2,400	2,000
10	45	25	63918,000	0,098	1,600	1,600

Table L.1 continued from previous page

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
10	45	35	65659,200	0,112	2,000	1,800
10	45	45	67042,400	0,132	2,400	2,000
10	45	55	68266,800	0,122	1,800	1,800
10	45	65	69403,200	0,148	2,800	2,200
10	45	75	70429,600	0,162	2,800	2,200
10	45	85	71456,400	0,150	2,400	2,000
10	45	95	72482,800	0,162	2,400	2,000
10	55	5	59409,200	0,114	2,200	2,000
10	55	15	61680,800	0,120	2,200	2,000
10	55	25	63603,200	0,134	2,800	2,200
10	55	35	65317,600	0,162	3,200	2,400
10	55	45	66599,200	0,118	2,400	2,000
10	55	55	67466,400	0,124	2,600	2,200
10	55	65	68332,800	0,118	2,200	2,000
10	55	75	69198,800	0,124	2,000	2,000
10	55	85	70065,200	0,114	1,600	1,800
10	55	95	70931,600	0,122	1,600	1,800
10	65	5	59534,800	0,116	2,200	2,000
10	65	15	61800,800	0,104	1,800	1,800
10	65	25	63858,400	0,108	1,800	1,800
10	65	35	65665,200	0,102	1,400	1,600
10	65	45	67362,400	0,102	1,400	1,600
10	65	55	68532,400	0,088	1,000	1,400
10	65	65	69349,200	0,116	1,800	1,800
10	65	75	69790,800	0,106	1,400	1,600
10	65	85	70232,800	0,108	1,400	1,600
10	65	95	70674,800	0,108	1,400	1,600
10	75	5	59115,600	0,112	2,200	2,000
10	75	15	60526,800	0,102	1,800	1,800
10	75	25	61730,000	0,088	1,400	1,600
10	75	35	62624,400	0,090	1,600	1,600
10	75	45	63400,400	0,086	1,600	1,600
10	75	55	63988,800	0,088	1,600	1,600
10	75	65	64519,600	0,092	1,400	1,600
10	75	75	65050,400	0,090	1,400	1,600
10	75	85	65581,600	0,096	1,400	1,600
10	75	95	66080,800	0,096	1,400	1,600
10	85	5	58724,800	0,114	2,200	2,000
10	85	15	59667,600	0,114	2,400	2,000
10	85	25	60271,600	0,126	2,800	2,200
10	85	35	60298,400	0,114	2,200	2,000
10	85	45	60298,400	0,116	2,200	2,000

Table L.1 continued from previous page

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
10	85	55	60298,400	0,112	2,200	2,000
10	85	65	60298,400	0,126	2,400	2,200
10	85	75	60298,400	0,124	2,400	2,200
10	85	85	60298,400	0,122	2,400	2,200
10	85	95	60298,400	0,126	2,400	2,200
10	95	5	58817,200	0,114	2,200	2,000
10	95	15	60094,000	0,116	2,400	2,000
10	95	25	61020,400	0,136	3,200	2,400
10	95	35	61352,000	0,142	3,200	2,400
10	95	45	61602,400	0,126	2,800	2,200
10	95	55	61852,800	0,124	2,800	2,200
10	95	65	62103,200	0,122	2,800	2,200
10	95	75	62353,600	0,122	2,800	2,200
10	95	85	62604,000	0,138	3,200	2,400
10	95	95	62854,400	0,134	3,200	2,400
15	5	5	68981,200	0,218	3,600	2,000
15	5	15	68981,200	0,232	3,600	2,000
15	5	25	68981,200	0,252	3,800	2,200
15	5	35	68981,200	0,250	3,800	2,200
15	5	45	68981,200	0,244	3,800	2,200
15	5	55	68981,200	0,248	3,800	2,200
15	5	65	68981,200	0,260	3,800	2,200
15	5	75	68981,200	0,250	3,800	2,200
15	5	85	68981,200	0,246	3,800	2,200
15	5	95	68981,200	0,250	3,800	2,200
15	15	5	69520,400	0,220	3,800	2,000
15	15	15	70577,600	0,258	4,000	2,200
15	15	25	71221,600	0,266	4,000	2,200
15	15	35	71586,000	0,272	4,000	2,200
15	15	45	71810,000	0,260	4,000	2,200
15	15	55	71834,000	0,260	4,000	2,200
15	15	65	71834,000	0,258	4,000	2,200
15	15	75	71834,000	0,272	4,000	2,400
15	15	85	71834,000	0,280	3,800	2,400
15	15	95	71834,000	0,290	3,800	2,400
15	25	5	70424,000	0,254	4,400	2,200
15	25	15	72768,000	0,334	5,200	2,600
15	25	25	74780,000	0,334	5,000	2,400
15	25	35	76731,600	0,442	5,400	2,800
15	25	45	78443,200	0,418	4,600	2,400
15	25	55	79616,000	0,440	5,000	2,600
15	25	65	80510,800	0,664	4,600	2,400

Table L.1 continued from previous page

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
15	25	75	81204,400	0,486	4,600	2,600
15	25	85	81480,000	0,428	3,800	2,400
15	25	95	81700,800	0,424	3,800	2,400
15	35	5	70352,000	0,220	3,800	2,000
15	35	15	72622,400	0,242	3,600	2,000
15	35	25	74395,600	0,246	2,400	1,800
15	35	35	76109,200	0,258	2,400	1,800
15	35	45	77566,400	0,322	3,000	2,000
15	35	55	78808,400	0,406	3,000	2,000
15	35	65	79852,000	0,444	4,000	2,400
15	35	75	80896,000	0,560	4,400	2,600
15	35	85	81694,000	0,672	4,600	2,600
15	35	95	82201,200	0,902	4,400	2,600
15	45	5	70855,200	0,216	3,800	2,000
15	45	15	74553,600	0,262	4,000	2,200
15	45	25	77595,200	0,264	3,000	2,000
15	45	35	79926,000	0,308	2,600	1,800
15	45	45	82132,400	0,474	4,200	2,400
15	45	55	84223,600	0,654	4,200	2,400
15	45	65	86060,000	0,772	4,400	2,400
15	45	75	87630,000	0,914	4,400	2,400
15	45	85	89071,600	1,540	5,200	3,000
15	45	95	90246,800	1,888	6,600	3,400
15	55	5	70464,800	0,230	3,800	2,000
15	55	15	73422,400	0,266	3,400	2,000
15	55	25	75783,600	0,270	3,200	2,000
15	55	35	77486,000	0,230	3,000	1,800
15	55	45	79160,000	0,304	3,200	1,800
15	55	55	80556,800	0,324	2,800	1,800
15	55	65	81822,000	0,402	2,800	2,000
15	55	75	82970,400	0,514	3,200	2,200
15	55	85	84040,000	0,724	3,800	2,400
15	55	95	85110,000	0,734	4,000	2,400
15	65	5	70371,200	0,260	4,200	2,200
15	65	15	72890,400	0,266	4,000	2,200
15	65	25	75096,400	0,244	3,600	2,000
15	65	35	76812,000	0,276	3,600	2,000
15	65	45	77934,400	0,330	3,800	2,200
15	65	55	78800,000	0,388	4,200	2,400
15	65	65	79493,600	0,480	4,400	2,400
15	65	75	80136,000	0,510	4,400	2,400
15	65	85	80710,000	0,686	4,400	2,400

Table L.1 continued from previous page

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
15	65	95	80933,200	0,694	4,200	2,400
15	75	5	70362,400	0,230	3,800	2,000
15	75	15	72444,800	0,264	4,000	2,200
15	75	25	73830,000	0,346	3,600	2,200
15	75	35	74681,200	0,304	3,800	2,400
15	75	45	75532,800	0,314	3,800	2,400
15	75	55	76146,000	0,326	3,800	2,400
15	75	65	76593,200	0,310	3,400	2,200
15	75	75	77040,400	0,334	3,200	2,200
15	75	85	77318,800	0,382	3,600	2,400
15	75	95	77490,400	0,284	2,800	2,000
15	85	5	70061,600	0,224	3,600	2,000
15	85	15	71992,000	0,264	4,000	2,200
15	85	25	73488,000	0,274	4,200	2,400
15	85	35	74196,800	0,264	4,200	2,400
15	85	45	74616,000	0,248	3,800	2,200
15	85	55	75034,800	0,246	3,600	2,200
15	85	65	75453,600	0,248	3,600	2,200
15	85	75	75677,600	0,250	3,600	2,200
15	85	85	75901,200	0,250	3,600	2,200
15	85	95	76125,200	0,260	3,600	2,200
15	95	5	69367,200	0,228	3,800	2,000
15	95	15	70080,800	0,232	3,600	2,000
15	95	25	70587,600	0,266	3,800	2,200
15	95	35	70819,600	0,262	3,800	2,200
15	95	45	70862,400	0,264	3,800	2,200
15	95	55	70862,400	0,270	3,800	2,200
15	95	65	70862,400	0,266	3,600	2,200
15	95	75	70862,400	0,270	3,600	2,200
15	95	85	70862,400	0,264	3,600	2,200
15	95	95	70862,400	0,270	3,600	2,200
20	5	5	77616,400	0,594	4,800	2,200
20	5	15	78036,400	0,636	4,800	2,200
20	5	25	78182,000	0,672	4,800	2,400
20	5	35	78182,000	0,688	4,800	2,400
20	5	45	78182,000	0,570	4,200	2,200
20	5	55	78182,000	0,614	4,200	2,200
20	5	65	78182,000	0,620	4,200	2,200
20	5	75	78182,000	0,624	4,200	2,200
20	5	85	78182,000	0,650	4,200	2,200
20	5	95	78182,000	0,644	4,200	2,200
20	15	5	78996,000	0,688	5,400	2,400

Table L.1 continued from previous page

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
20	15	15	81477,200	0,668	5,000	2,200
20	15	25	82715,200	0,682	6,000	2,600
20	15	35	83676,000	0,668	7,400	2,800
20	15	45	84209,600	0,712	6,800	2,800
20	15	55	84633,200	0,728	6,600	2,800
20	15	65	85057,600	0,690	6,200	2,600
20	15	75	85481,600	0,766	6,600	2,800
20	15	85	85666,800	0,794	7,200	3,000
20	15	95	85666,800	0,754	6,600	2,800
20	25	5	79737,600	0,570	5,000	2,200
20	25	15	83402,800	0,618	5,000	2,200
20	25	25	85614,000	0,576	5,000	2,200
20	25	35	86938,400	0,706	5,400	2,400
20	25	45	87973,600	0,650	4,600	2,200
20	25	55	88948,000	0,812	5,000	2,400
20	25	65	89627,200	0,960	6,000	2,800
20	25	75	89926,000	1,050	6,400	3,200
20	25	85	90120,400	1,052	6,400	3,200
20	25	95	90314,800	1,134	6,400	3,200
20	35	5	79652,000	0,576	4,600	2,200
20	35	15	83384,800	0,668	4,600	2,200
20	35	25	85944,000	0,888	6,200	2,800
20	35	35	87934,000	0,968	6,200	2,800
20	35	45	89523,200	0,866	4,600	2,400
20	35	55	90986,400	1,116	4,600	2,400
20	35	65	92261,200	1,214	3,800	2,400
20	35	75	93536,800	1,968	3,400	2,400
20	35	85	94811,600	2,002	4,200	2,600
20	35	95	95818,800	3,518	4,800	2,800
20	45	5	80114,000	0,786	5,400	2,400
20	45	15	84936,400	0,836	6,200	2,600
20	45	25	87948,800	1,056	6,200	2,800
20	45	35	89752,800	1,170	6,200	2,800
20	45	45	91486,400	1,498	6,200	2,800
20	45	55	92985,600	1,708	6,000	2,800
20	45	65	94335,200	2,378	6,800	3,000
20	45	75	95646,000	2,788	7,800	3,600
20	45	85	96956,000	4,128	8,600	3,800
20	45	95	98047,200	4,090	8,600	3,800
20	55	5	80342,800	0,640	4,800	2,200
20	55	15	84831,200	0,782	5,400	2,400
20	55	25	88413,600	0,770	5,600	2,600

Table L.1 continued from previous page

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
20	55	35	91303,600	1,068	5,000	2,600
20	55	45	93238,400	1,296	5,400	2,800
20	55	55	94768,400	1,712	5,600	2,800
20	55	65	96101,600	2,188	6,600	3,000
20	55	75	97038,000	2,888	7,200	3,200
20	55	85	97723,200	3,676	8,200	3,600
20	55	95	98409,200	6,802	9,000	3,800
20	65	5	79040,800	0,618	4,400	2,000
20	65	15	82184,400	0,766	4,600	2,400
20	65	25	84787,600	0,718	5,000	2,400
20	65	35	86868,800	0,956	5,200	2,600
20	65	45	88640,800	1,164	5,000	2,600
20	65	55	90127,200	1,320	5,200	2,800
20	65	65	91340,800	1,492	4,200	2,400
20	65	75	92462,400	1,342	3,600	2,200
20	65	85	93583,200	1,784	3,800	2,200
20	65	95	94704,400	2,562	4,200	2,400
20	75	5	79266,000	0,682	5,400	2,400
20	75	15	82122,000	0,632	4,600	2,200
20	75	25	84197,200	1,044	5,200	2,600
20	75	35	85687,600	0,778	5,000	2,600
20	75	45	86813,600	0,866	4,600	2,600
20	75	55	87874,000	1,132	5,600	3,000
20	75	65	88658,400	1,060	5,400	2,800
20	75	75	89308,000	1,212	5,400	2,800
20	75	85	89924,800	1,478	6,200	3,000
20	75	95	90186,400	1,846	6,200	3,200
20	85	5	78686,400	0,632	5,000	2,200
20	85	15	80469,200	0,672	4,800	2,200
20	85	25	81708,400	0,672	4,800	2,200
20	85	35	82597,600	0,830	6,600	2,800
20	85	45	83244,000	0,802	5,600	2,600
20	85	55	83768,800	0,852	5,600	2,600
20	85	65	84183,600	0,814	5,600	2,600
20	85	75	84598,400	0,800	5,600	2,600
20	85	85	85012,800	0,860	6,000	2,800
20	85	95	85204,800	0,868	6,200	2,800
20	95	5	77804,400	0,636	5,000	2,200
20	95	15	78502,800	0,626	4,800	2,200
20	95	25	79036,400	0,688	5,600	2,400
20	95	35	79230,800	0,626	4,600	2,200
20	95	45	79425,200	0,652	5,600	2,400

Table L.1 continued from previous page

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
20	95	55	79620,000	0,704	5,600	2,400
20	95	65	79814,400	0,666	5,600	2,400
20	95	75	80008,800	0,650	5,600	2,400
20	95	85	80203,200	0,634	5,600	2,400
20	95	95	80397,600	0,612	5,600	2,400
25	5	5	86719,600	1,782	7,600	3,600
25	5	15	87838,800	1,472	7,000	3,400
25	5	25	88576,000	1,460	6,800	3,400
25	5	35	89112,000	1,412	6,800	3,400
25	5	45	89180,800	1,664	6,600	3,600
25	5	55	89180,800	1,850	6,600	3,600
25	5	65	89180,800	1,746	6,600	3,600
25	5	75	89180,800	1,522	6,200	3,400
25	5	85	89180,800	1,534	6,200	3,400
25	5	95	89180,800	1,546	6,200	3,400
25	15	5	87114,800	1,930	7,000	3,400
25	15	15	88891,200	1,574	7,000	3,400
25	15	25	90223,200	2,276	7,600	3,600
25	15	35	90848,800	2,196	8,200	3,800
25	15	45	91457,200	2,208	8,200	3,800
25	15	55	91870,800	2,476	8,600	4,000
25	15	65	92081,600	2,324	8,400	3,800
25	15	75	92255,600	2,518	8,600	3,800
25	15	85	92255,600	1,974	7,800	3,400
25	15	95	92255,600	1,822	7,200	3,200
25	25	5	88960,800	2,060	7,800	3,800
25	25	15	94004,400	2,268	7,200	3,600
25	25	25	97360,000	2,642	8,200	3,800
25	25	35	99734,800	2,478	7,400	3,400
25	25	45	101866,800	3,090	7,800	3,400
25	25	55	103810,000	5,198	9,600	4,200
25	25	65	105382,000	5,578	9,200	4,000
25	25	75	106406,400	9,468	11,000	5,000
25	25	85	106881,600	10,790	9,800	4,400
25	25	95	107183,200	8,734	9,400	4,200
25	35	5	89073,200	2,058	7,600	3,600
25	35	15	94555,600	1,848	7,400	3,400
25	35	25	98357,200	2,322	6,400	3,400
25	35	35	100642,000	3,528	8,000	4,000
25	35	45	101998,800	3,016	7,800	3,800
25	35	55	103240,000	2,786	6,800	3,400
25	35	65	104336,800	3,190	6,400	3,200

Table L.1 continued from previous page

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
25	35	75	105375,600	5,432	7,800	3,600
25	35	85	106272,000	11,036	9,200	4,200
25	35	95	106692,400	12,748	9,400	4,200
25	45	5	89022,400	1,620	6,400	3,200
25	45	15	93934,800	1,554	4,800	2,800
25	45	25	98053,600	1,748	5,400	3,000
25	45	35	101226,800	2,394	6,600	3,200
25	45	45	103153,600	4,294	7,200	3,400
25	45	55	104513,600	3,090	6,000	3,000
25	45	65	105594,400	4,060	6,600	3,000
25	45	75	106621,600	5,286	6,800	3,200
25	45	85	107647,600	8,048	7,200	3,400
25	45	95	108640,400	8,730	8,000	3,600
25	55	5	89101,200	1,978	7,600	3,600
25	55	15	94080,000	1,912	8,200	3,800
25	55	25	98106,000	2,166	7,800	3,600
25	55	35	101216,000	3,162	9,000	4,000
25	55	45	103572,400	3,184	7,200	3,000
25	55	55	105502,800	3,860	7,400	3,200
25	55	65	107356,000	7,448	9,000	3,800
25	55	75	109116,800	16,412	11,200	4,400
25	55	85	110671,600	21,778	15,000	5,400
25	55	95	111909,200	25,214	15,600	5,400
25	65	5	88461,600	1,950	7,800	3,800
25	65	15	92612,800	1,940	7,000	3,400
25	65	25	96258,800	2,792	7,200	3,600
25	65	35	98594,400	2,870	7,800	3,400
25	65	45	100316,800	2,560	6,800	2,800
25	65	55	101686,000	3,002	8,400	3,000
25	65	65	102815,200	4,396	8,600	3,000
25	65	75	103719,200	6,122	9,200	3,200
25	65	85	104533,200	10,496	10,600	4,000
25	65	95	105348,000	13,460	10,000	4,000
25	75	5	87989,600	1,988	8,200	3,800
25	75	15	91098,000	2,074	8,400	3,800
25	75	25	93412,400	2,582	9,000	4,200
25	75	35	94789,600	2,924	9,200	4,400
25	75	45	95808,400	2,996	9,200	4,400
25	75	55	96689,200	3,000	9,200	4,400
25	75	65	97426,000	3,468	9,400	4,600
25	75	75	97881,600	3,388	9,200	4,600
25	75	85	98304,000	3,954	10,000	5,000

Table L.1 continued from previous page

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
25	75	95	98726,800	3,420	9,200	4,600
25	85	5	87396,400	1,872	7,000	3,400
25	85	15	89539,600	1,688	5,800	2,800
25	85	25	91002,800	1,518	5,200	2,600
25	85	35	92160,400	1,886	6,200	3,000
25	85	45	92963,600	1,634	5,800	2,600
25	85	55	93680,000	1,738	6,200	2,800
25	85	65	94237,600	1,728	6,400	3,000
25	85	75	94540,800	1,762	6,400	3,000
25	85	85	94751,200	1,734	6,800	3,000
25	85	95	94846,400	2,002	7,600	3,400
25	95	5	86609,600	1,804	7,000	3,400
25	95	15	87406,000	2,174	7,400	3,600
25	95	25	87731,200	2,024	8,000	4,000
25	95	35	87926,000	2,200	8,200	4,000
25	95	45	88122,400	2,148	8,200	4,000
25	95	55	88315,600	2,020	7,600	3,800
25	95	65	88492,400	1,996	8,000	3,800
25	95	75	88492,400	1,992	8,000	3,800
25	95	85	88492,400	2,048	8,000	3,800
25	95	95	88492,400	2,054	8,000	3,800
30	5	5	93701,600	2,806	7,000	3,200
30	5	15	94705,200	3,066	6,600	3,200
30	5	25	95485,600	3,504	8,600	3,600
30	5	35	95812,000	4,242	8,800	3,600
30	5	45	95812,000	3,582	8,800	3,600
30	5	55	95812,000	3,036	7,200	3,000
30	5	65	95812,000	3,060	7,200	3,000
30	5	75	95812,000	2,978	7,200	3,000
30	5	85	95812,000	2,862	7,200	3,000
30	5	95	95812,000	3,210	7,200	3,000
30	15	5	94617,200	3,008	6,800	3,200
30	15	15	96140,400	2,142	5,000	2,600
30	15	25	97567,200	2,386	4,800	2,400
30	15	35	98606,000	2,430	4,600	2,400
30	15	45	99230,800	2,114	4,600	2,400
30	15	55	99738,800	2,692	6,000	2,800
30	15	65	100153,600	2,680	6,000	2,800
30	15	75	100558,800	3,194	6,600	3,000
30	15	85	100763,600	3,192	5,800	2,800
30	15	95	100968,400	2,960	6,600	3,000
30	25	5	95349,200	2,384	7,200	3,200

Table L.1 continued from previous page

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
30	25	15	98255,200	3,190	7,800	3,400
30	25	25	100536,000	3,194	7,800	3,400
30	25	35	102718,800	4,130	9,400	4,000
30	25	45	104272,800	3,952	8,200	3,600
30	25	55	105132,800	4,702	9,600	4,200
30	25	65	105522,000	4,600	8,600	4,000
30	25	75	105679,200	4,352	9,000	4,000
30	25	85	105679,200	3,850	8,600	3,800
30	25	95	105679,200	3,592	9,200	3,800
30	35	5	96636,400	2,726	7,200	3,400
30	35	15	102326,400	2,836	6,400	3,000
30	35	25	106858,800	3,398	7,800	3,200
30	35	35	110126,000	7,470	10,800	4,200
30	35	45	112367,600	10,850	10,200	4,400
30	35	55	113822,000	18,526	11,800	4,600
30	35	65	114988,000	26,866	14,400	5,200
30	35	75	115538,800	28,140	15,000	5,400
30	35	85	115938,400	34,916	15,800	5,600
30	35	95	116338,000	35,336	15,600	5,400
30	45	5	96461,600	2,674	6,200	2,800
30	45	15	101183,600	2,168	5,000	2,600
30	45	25	104369,600	2,786	4,400	2,400
30	45	35	107136,400	2,946	4,200	2,400
30	45	45	109194,000	2,996	3,400	2,200
30	45	55	110570,400	4,712	4,400	2,600
30	45	65	111660,800	4,646	4,800	2,400
30	45	75	112603,200	6,674	6,000	2,800
30	45	85	113221,600	6,558	5,200	2,600
30	45	95	113826,000	9,126	6,000	3,000
30	55	5	96509,200	2,424	6,200	2,800
30	55	15	102474,000	3,874	7,600	3,200
30	55	25	106990,800	5,010	9,000	3,800
30	55	35	109925,600	8,638	11,400	4,400
30	55	45	112236,800	13,050	12,000	4,600
30	55	55	114247,200	24,632	13,800	5,000
30	55	65	115854,400	33,912	15,800	5,600
30	55	75	117129,600	49,868	17,600	6,000
30	55	85	118306,800	69,422	22,000	7,200
30	55	95	119332,800	98,100	24,800	8,000
30	65	5	95694,800	2,938	6,600	3,200
30	65	15	99647,600	3,146	6,200	3,400
30	65	25	102088,800	3,346	6,200	3,400

Table L.1 continued from previous page

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
30	65	35	104266,800	3,764	6,200	3,000
30	65	45	106116,800	3,978	6,200	3,000
30	65	55	107696,400	4,920	5,800	3,000
30	65	65	109038,400	6,012	6,800	3,000
30	65	75	110087,200	7,312	6,800	3,000
30	65	85	111108,000	10,778	5,800	2,600
30	65	95	111947,200	27,012	8,600	3,800
30	75	5	95262,800	2,670	7,200	3,400
30	75	15	98718,800	3,120	6,200	3,000
30	75	25	101038,800	2,336	5,400	2,600
30	75	35	102692,000	2,780	5,200	2,600
30	75	45	104224,400	3,424	5,400	2,800
30	75	55	105518,800	5,232	6,600	3,600
30	75	65	106008,400	6,470	8,000	3,800
30	75	75	106213,200	5,882	8,400	3,600
30	75	85	106234,400	4,712	7,200	3,200
30	75	95	106234,400	5,562	7,800	3,600
30	85	5	94707,200	2,686	6,600	3,000
30	85	15	97117,200	2,538	7,000	3,000
30	85	25	98956,400	2,990	7,800	3,200
30	85	35	100216,800	2,958	8,000	3,200
30	85	45	100566,400	3,172	8,200	3,200
30	85	55	100631,200	2,974	8,000	3,200
30	85	65	100631,200	2,868	8,000	3,200
30	85	75	100631,200	3,290	8,600	3,400
30	85	85	100631,200	2,842	8,000	3,200
30	85	95	100631,200	2,784	8,000	3,200
30	95	5	93411,600	2,344	6,600	3,000
30	95	15	93984,800	2,898	7,800	3,200
30	95	25	94098,800	2,876	7,800	3,200
30	95	35	94098,800	3,014	7,600	3,200
30	95	45	94098,800	2,914	7,600	3,200
30	95	55	94098,800	3,178	7,600	3,200
30	95	65	94098,800	2,980	7,600	3,200
30	95	75	94098,800	2,876	7,600	3,200
30	95	85	94098,800	2,888	7,600	3,200
30	95	95	94098,800	2,970	7,600	3,200
35	5	5	98675,600	7,646	14,000	4,600
35	5	15	99544,000	6,248	13,000	4,200
35	5	25	100151,600	5,948	13,200	4,200
35	5	35	100461,600	6,094	13,000	4,200
35	5	45	100687,600	6,112	13,400	4,400

Table L.1 continued from previous page

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
35	5	55	100739,600	5,672	12,800	4,200
35	5	65	100739,600	5,768	12,800	4,200
35	5	75	100739,600	5,660	12,800	4,200
35	5	85	100739,600	5,642	12,800	4,200
35	5	95	100739,600	6,048	12,800	4,200
35	15	5	99746,000	5,116	12,200	3,600
35	15	15	102252,000	5,686	11,800	3,800
35	15	25	103764,800	5,916	10,800	3,600
35	15	35	104478,400	6,148	11,200	3,600
35	15	45	105034,000	5,940	10,800	3,400
35	15	55	105171,600	7,048	11,600	3,800
35	15	65	105171,600	4,482	9,800	3,000
35	15	75	105171,600	5,832	10,600	3,400
35	15	85	105171,600	6,070	11,200	3,600
35	15	95	105171,600	5,562	10,600	3,400
35	25	5	100551,200	5,430	13,200	3,800
35	25	15	105044,000	7,932	14,600	4,600
35	25	25	107792,800	7,144	14,000	4,400
35	25	35	109744,800	7,190	14,000	4,400
35	25	45	111197,600	9,216	14,000	4,600
35	25	55	111755,600	10,320	15,600	4,600
35	25	65	111796,000	8,256	11,600	4,000
35	25	75	111796,000	7,420	9,600	3,600
35	25	85	111796,000	6,638	9,800	3,600
35	25	95	111796,000	6,884	10,000	3,800
35	35	5	101486,400	6,242	12,800	4,000
35	35	15	106066,000	5,388	11,800	3,600
35	35	25	109384,000	5,330	10,400	3,200
35	35	35	112406,800	7,556	10,200	3,200
35	35	45	114962,800	12,518	10,200	3,600
35	35	55	116525,200	16,722	8,600	3,400
35	35	65	117909,600	30,262	10,600	3,600
35	35	75	118972,400	35,688	10,800	3,600
35	35	85	120034,800	41,686	11,600	3,800
35	35	95	121097,200	55,284	13,600	4,200
35	45	5	102471,600	4,514	13,000	3,600
35	45	15	109890,800	6,016	12,800	4,000
35	45	25	115498,000	9,284	12,200	3,600
35	45	35	119562,800	16,298	13,000	3,800
35	45	45	122289,600	30,606	14,400	4,000
35	45	55	124603,600	69,020	17,200	4,600
35	45	65	126456,000	81,768	19,000	4,600

Table L.1 continued from previous page

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
35	45	75	127807,200	99,106	21,600	5,200
35	45	85	128958,400	112,860	22,200	5,600
35	45	95	130038,400	150,936	25,400	6,600
35	55	5	102169,200	7,416	14,600	4,800
35	55	15	108203,600	7,284	12,200	4,000
35	55	25	112600,800	7,762	10,200	3,600
35	55	35	115730,800	14,790	14,800	4,600
35	55	45	118274,000	22,782	13,200	4,200
35	55	55	120474,000	40,368	14,400	4,400
35	55	65	122100,800	49,878	14,800	4,400
35	55	75	123299,200	80,298	17,200	5,400
35	55	85	124268,400	105,774	19,800	6,200
35	55	95	124956,000	128,678	21,200	6,600
35	65	5	101548,400	6,148	14,000	4,200
35	65	15	107674,800	6,888	11,200	3,600
35	65	25	112016,000	11,270	13,400	4,400
35	65	35	115441,200	17,074	13,800	4,600
35	65	45	117901,200	44,316	17,600	5,800
35	65	55	119184,400	61,432	15,600	5,400
35	65	65	120211,600	61,980	16,200	5,400
35	65	75	120863,600	78,852	17,600	5,800
35	65	85	121516,000	93,432	17,200	5,800
35	65	95	122168,000	115,400	19,200	6,600
35	75	5	101243,600	6,866	14,800	4,400
35	75	15	106428,400	8,320	15,600	4,600
35	75	25	109234,000	8,702	15,800	4,800
35	75	35	111009,600	10,894	15,600	4,800
35	75	45	112369,600	10,014	14,400	4,400
35	75	55	113450,000	9,210	14,600	4,000
35	75	65	114283,600	10,336	13,800	4,000
35	75	75	114461,200	9,566	12,000	3,600
35	75	85	114461,200	9,250	12,000	3,600
35	75	95	114461,200	9,440	14,000	4,200
35	85	5	99603,200	7,246	14,400	4,400
35	85	15	101445,600	4,992	11,200	3,400
35	85	25	102422,400	6,236	11,400	3,800
35	85	35	102988,400	6,196	10,600	3,600
35	85	45	103309,200	5,518	10,000	3,600
35	85	55	103538,800	5,402	10,400	3,800
35	85	65	103768,800	5,458	9,800	3,600
35	85	75	103882,800	5,090	9,800	3,600
35	85	85	103882,800	4,214	9,400	3,000

Table L.1 continued from previous page

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
35	85	95	103882,800	4,056	9,400	3,000
35	95	5	98501,600	4,870	13,200	3,600
35	95	15	99199,600	4,670	12,000	3,600
35	95	25	99619,200	4,584	12,000	3,600
35	95	35	99839,200	4,462	11,600	3,400
35	95	45	100026,800	4,534	11,200	3,400
35	95	55	100026,800	4,934	11,200	3,400
35	95	65	100026,800	3,796	10,400	3,200
35	95	75	100026,800	4,212	10,400	3,200
35	95	85	100026,800	4,054	10,400	3,200
35	95	95	100026,800	4,082	10,400	3,200
40	5	5	101450,400	6,050	13,000	3,800
40	5	15	102622,400	6,456	13,000	4,000
40	5	25	102925,600	5,344	12,600	3,800
40	5	35	103108,800	5,972	12,800	3,800
40	5	45	103108,800	5,800	12,800	3,800
40	5	55	103108,800	5,630	12,800	3,800
40	5	65	103108,800	5,438	12,800	3,800
40	5	75	103108,800	5,484	12,800	3,800
40	5	85	103108,800	5,462	12,800	3,800
40	5	95	103108,800	6,194	12,800	3,800
40	15	5	102628,800	5,438	12,000	3,400
40	15	15	105530,800	7,652	13,400	4,000
40	15	25	106924,000	9,700	14,200	4,200
40	15	35	107803,200	8,614	11,600	4,000
40	15	45	108187,200	8,384	11,400	3,800
40	15	55	108187,200	6,858	10,000	3,400
40	15	65	108187,200	6,676	10,000	3,400
40	15	75	108187,200	6,590	10,000	3,400
40	15	85	108187,200	6,536	10,000	3,400
40	15	95	108187,200	6,564	10,000	3,400
40	25	5	104170,800	7,190	12,400	3,400
40	25	15	109474,400	7,480	11,800	3,200
40	25	25	113094,800	10,636	13,600	4,200
40	25	35	115766,800	15,350	15,000	4,800
40	25	45	116908,400	13,448	13,000	4,000
40	25	55	117529,600	13,338	10,800	3,400
40	25	65	117932,400	13,392	11,400	3,600
40	25	75	118298,000	15,792	11,800	4,000
40	25	85	118406,000	14,768	11,200	3,800
40	25	95	118406,000	14,696	11,800	3,800
40	35	5	104749,600	6,914	13,000	3,800

Table L.1 continued from previous page

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
40	35	15	111768,000	15,412	16,400	5,200
40	35	25	116855,600	29,974	17,400	5,200
40	35	35	119957,200	28,028	18,200	5,000
40	35	45	122343,200	59,748	20,000	5,800
40	35	55	123949,200	96,256	21,800	5,800
40	35	65	125376,000	207,504	27,800	7,200
40	35	75	126208,800	308,228	30,000	8,400
40	35	85	126712,400	310,556	32,200	8,400
40	35	95	127124,400	374,522	34,200	9,200
40	45	5	105140,800	7,602	13,800	4,000
40	45	15	112582,800	12,370	16,200	4,400
40	45	25	117552,000	26,610	18,000	5,600
40	45	35	121029,200	53,130	17,600	5,600
40	45	45	123472,400	92,386	18,800	6,000
40	45	55	125388,400	110,160	19,800	5,800
40	45	65	126738,800	173,118	23,000	7,000
40	45	75	127855,600	274,768	29,000	8,800
40	45	85	128820,000	449,986	38,000	12,200
40	45	95	129635,600	505,230	39,600	12,800
40	55	5	105267,200	7,520	13,800	4,000
40	55	15	112162,000	10,132	10,800	3,600
40	55	25	116634,400	13,932	12,400	4,000
40	55	35	119890,800	20,952	12,000	4,000
40	55	45	122401,200	48,302	15,200	4,800
40	55	55	124249,600	88,428	17,600	5,800
40	55	65	125595,200	139,520	20,600	6,600
40	55	75	126533,200	144,782	20,000	6,200
40	55	85	127341,200	199,582	22,600	7,000
40	55	95	128103,600	271,590	26,200	7,800
40	65	5	104628,800	5,944	12,400	3,800
40	65	15	110976,000	8,568	11,000	3,600
40	65	25	114637,600	8,730	9,800	3,400
40	65	35	117437,200	17,562	12,200	4,000
40	65	45	118516,400	22,474	11,000	4,000
40	65	55	119332,400	35,374	13,400	4,800
40	65	65	120148,000	29,718	13,000	4,400
40	65	75	120782,400	44,462	18,000	5,800
40	65	85	121392,800	68,548	21,600	6,600
40	65	95	122003,600	91,634	20,000	6,600
40	75	5	104701,600	6,914	13,400	3,800
40	75	15	110739,200	9,060	14,200	4,200
40	75	25	114254,800	14,376	15,000	4,600

Table L.1 continued from previous page

n	f	w	(2.11) o	(2.11) t	(2.11) s	(2.11) r
40	75	35	116106,800	13,202	13,600	4,400
40	75	45	117264,000	10,482	12,400	4,000
40	75	55	118297,600	10,856	11,400	3,800
40	75	65	119316,000	18,870	14,600	4,600
40	75	75	120141,200	24,392	15,000	4,600
40	75	85	120947,600	31,796	14,800	4,600
40	75	95	121496,000	40,844	15,800	5,000
40	85	5	103066,800	4,730	11,200	3,000
40	85	15	106631,200	6,232	10,400	3,200
40	85	25	108374,400	4,612	9,200	2,800
40	85	35	109519,600	7,148	10,200	3,400
40	85	45	110178,800	7,056	10,800	3,600
40	85	55	110611,600	5,442	8,200	3,000
40	85	65	110819,600	5,236	8,400	2,800
40	85	75	110920,800	4,850	8,200	2,800
40	85	85	110920,800	4,836	8,200	2,800
40	85	95	110920,800	4,908	8,200	2,800
40	95	5	101428,000	5,798	13,200	3,600
40	95	15	102655,600	7,896	13,600	4,000
40	95	25	103002,400	8,382	13,600	4,200
40	95	35	103190,800	8,518	13,600	4,200
40	95	45	103379,200	8,424	13,600	4,200
40	95	55	103478,000	8,330	13,600	4,200
40	95	65	103478,000	8,412	12,800	4,000
40	95	75	103478,000	8,130	12,800	4,000
40	95	85	103478,000	8,732	12,800	4,000
40	95	95	103478,000	8,536	12,800	4,000

Table L.1: Aggregated Computational Results for (2.11)

Appendix M

Aggregated Computational Results for (2.12)

NOTE:

n - Number of nodes in the graph

f - Percentage of flagged edges in an instance

w - Reload costs relative to the average edge weight

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
10	5	5	58612,400	0,130	2,200	2,000
10	5	15	59401,600	0,142	2,800	2,200
10	5	25	59683,600	0,146	2,800	2,200
10	5	35	59880,000	0,140	2,800	2,200
10	5	45	60076,800	0,154	2,800	2,200
10	5	55	60186,000	0,144	2,800	2,200
10	5	65	60186,000	0,140	2,800	2,200
10	5	75	60186,000	0,142	2,800	2,200
10	5	85	60186,000	0,150	2,800	2,200
10	5	95	60186,000	0,144	2,800	2,200
10	15	5	58681,200	0,128	2,200	2,000
10	15	15	59530,000	0,122	2,200	2,000
10	15	25	60373,600	0,120	1,800	1,800
10	15	35	61046,400	0,128	2,400	2,000
10	15	45	61358,800	0,130	2,400	2,000
10	15	55	61515,600	0,122	2,000	1,800
10	15	65	61515,600	0,114	2,000	1,800
10	15	75	61515,600	0,098	1,400	1,600
10	15	85	61515,600	0,100	1,400	1,600
10	15	95	61515,600	0,100	1,400	1,600
10	25	5	58814,800	0,124	2,200	2,000
10	25	15	60075,600	0,112	2,000	1,800
10	25	25	61050,800	0,110	2,000	1,800
10	25	35	61916,800	0,098	1,600	1,600
10	25	45	62783,200	0,094	1,600	1,600
10	25	55	63650,400	0,104	1,600	1,600
10	25	65	64516,800	0,104	1,400	1,600
10	25	75	65169,200	0,106	1,400	1,600
10	25	85	65790,400	0,118	1,800	1,800
10	25	95	66218,400	0,104	1,400	1,600
10	35	5	59198,800	0,124	2,200	2,000
10	35	15	61180,400	0,126	1,800	1,800
10	35	25	63023,200	0,126	1,800	1,800
10	35	35	64766,000	0,148	1,800	1,800

Table M.1 continued from previous page

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
10	35	45	66020,800	0,154	1,400	1,600
10	35	55	67124,400	0,102	1,000	1,400
10	35	65	68152,400	0,112	1,000	1,400
10	35	75	69004,800	0,106	1,000	1,400
10	35	85	69857,600	0,102	1,000	1,400
10	35	95	70710,000	0,122	1,400	1,600
10	45	5	59409,200	0,126	2,200	2,000
10	45	15	61826,800	0,130	2,400	2,000
10	45	25	63918,000	0,104	1,600	1,600
10	45	35	65659,200	0,140	2,000	1,800
10	45	45	67042,400	0,152	2,400	2,000
10	45	55	68266,800	0,158	2,200	2,000
10	45	65	69403,200	0,194	3,200	2,400
10	45	75	70429,600	0,212	3,200	2,400
10	45	85	71456,400	0,186	2,800	2,200
10	45	95	72482,800	0,226	2,800	2,200
10	55	5	59409,200	0,128	2,200	2,000
10	55	15	61680,800	0,128	2,200	2,000
10	55	25	63603,200	0,144	2,800	2,200
10	55	35	65317,600	0,180	3,200	2,400
10	55	45	66599,200	0,136	2,400	2,000
10	55	55	67466,400	0,144	2,600	2,200
10	55	65	68332,800	0,126	2,200	2,000
10	55	75	69198,800	0,132	2,000	2,000
10	55	85	70065,200	0,124	1,600	1,800
10	55	95	70931,600	0,128	1,600	1,800
10	65	5	59534,800	0,124	2,200	2,000
10	65	15	61800,800	0,116	1,800	1,800
10	65	25	63858,400	0,118	1,800	1,800
10	65	35	65665,200	0,122	1,400	1,600
10	65	45	67362,400	0,122	1,400	1,600
10	65	55	68532,400	0,098	1,000	1,400
10	65	65	69349,200	0,130	1,800	1,800
10	65	75	69790,800	0,124	1,400	1,600
10	65	85	70232,800	0,138	2,000	1,800
10	65	95	70674,800	0,150	2,400	2,000
10	75	5	59115,600	0,124	2,200	2,000
10	75	15	60526,800	0,112	1,800	1,800
10	75	25	61730,000	0,110	1,400	1,600
10	75	35	62624,400	0,098	1,600	1,600
10	75	45	63400,400	0,096	1,600	1,600
10	75	55	63988,800	0,094	1,600	1,600

Table M.1 continued from previous page

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
10	75	65	64519,600	0,098	1,400	1,600
10	75	75	65050,400	0,098	1,400	1,600
10	75	85	65581,600	0,096	1,400	1,600
10	75	95	66080,800	0,128	1,800	1,800
10	85	5	58724,800	0,124	2,200	2,000
10	85	15	59667,600	0,126	2,400	2,000
10	85	25	60271,600	0,140	2,800	2,200
10	85	35	60298,400	0,124	2,200	2,000
10	85	45	60298,400	0,126	2,200	2,000
10	85	55	60298,400	0,126	2,200	2,000
10	85	65	60298,400	0,140	2,400	2,200
10	85	75	60298,400	0,136	2,400	2,200
10	85	85	60298,400	0,138	2,400	2,200
10	85	95	60298,400	0,136	2,400	2,200
10	95	5	58817,200	0,126	2,200	2,000
10	95	15	60094,000	0,128	2,400	2,000
10	95	25	61020,400	0,154	3,200	2,400
10	95	35	61352,000	0,158	3,200	2,400
10	95	45	61602,400	0,136	2,800	2,200
10	95	55	61852,800	0,136	2,800	2,200
10	95	65	62103,200	0,138	2,800	2,200
10	95	75	62353,600	0,134	2,800	2,200
10	95	85	62604,000	0,152	3,200	2,400
10	95	95	62854,400	0,154	3,200	2,400
15	5	5	68981,200	0,366	4,000	2,200
15	5	15	68981,200	0,352	4,000	2,200
15	5	25	68981,200	0,356	3,800	2,200
15	5	35	68981,200	0,386	3,800	2,200
15	5	45	68981,200	0,338	3,800	2,200
15	5	55	68981,200	0,354	3,800	2,200
15	5	65	68981,200	0,360	3,800	2,200
15	5	75	68981,200	0,366	3,800	2,200
15	5	85	68981,200	0,364	3,800	2,200
15	5	95	68981,200	0,348	3,800	2,200
15	15	5	69520,400	0,338	4,200	2,200
15	15	15	70577,600	0,354	4,200	2,200
15	15	25	71221,600	0,354	4,200	2,200
15	15	35	71586,000	0,390	4,200	2,200
15	15	45	71810,000	0,340	4,200	2,200
15	15	55	71834,000	0,324	4,200	2,200
15	15	65	71834,000	0,326	4,200	2,200
15	15	75	71834,000	0,348	4,200	2,400

Table M.1 continued from previous page

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
15	15	85	71834,000	0,350	4,000	2,400
15	15	95	71834,000	0,342	4,000	2,400
15	25	5	70424,000	0,352	4,400	2,200
15	25	15	72768,000	0,444	5,200	2,600
15	25	25	74780,000	0,428	5,000	2,400
15	25	35	76731,600	0,558	5,400	2,800
15	25	45	78443,200	0,500	4,600	2,400
15	25	55	79616,000	0,570	5,000	2,600
15	25	65	80510,800	0,572	4,600	2,400
15	25	75	81204,400	0,694	4,600	2,600
15	25	85	81480,000	0,516	3,800	2,400
15	25	95	81700,800	0,480	3,800	2,400
15	35	5	70352,000	0,332	4,200	2,200
15	35	15	72622,400	0,290	3,600	2,000
15	35	25	74395,600	0,318	2,400	1,800
15	35	35	76109,200	0,398	2,400	1,800
15	35	45	77566,400	0,608	3,000	2,000
15	35	55	78808,400	0,920	3,000	2,000
15	35	65	79852,000	0,932	4,000	2,400
15	35	75	80896,000	1,278	4,400	2,600
15	35	85	81694,000	1,238	4,600	2,600
15	35	95	82201,200	1,484	5,000	2,800
15	45	5	70855,200	0,278	3,800	2,000
15	45	15	74553,600	0,364	4,000	2,200
15	45	25	77595,200	0,452	3,000	2,000
15	45	35	79926,000	0,432	2,600	1,800
15	45	45	82132,400	0,704	4,600	2,600
15	45	55	84223,600	0,906	4,200	2,400
15	45	65	86060,000	1,190	4,400	2,400
15	45	75	87630,000	1,216	4,400	2,400
15	45	85	89071,600	1,904	5,200	3,000
15	45	95	90246,800	2,084	6,600	3,400
15	55	5	70464,800	0,290	3,800	2,000
15	55	15	73422,400	0,336	3,400	2,000
15	55	25	75783,600	0,326	3,200	2,000
15	55	35	77486,000	0,272	3,000	1,800
15	55	45	79160,000	0,332	3,200	1,800
15	55	55	80556,800	0,384	2,800	1,800
15	55	65	81822,000	0,462	2,800	2,000
15	55	75	82970,400	0,624	3,200	2,200
15	55	85	84040,000	0,864	3,800	2,400
15	55	95	85110,000	0,878	4,000	2,400

Table M.1 continued from previous page

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
15	65	5	70371,200	0,404	4,400	2,200
15	65	15	72890,400	0,412	4,200	2,200
15	65	25	75096,400	0,348	3,600	2,000
15	65	35	76812,000	0,406	3,600	2,000
15	65	45	77934,400	0,584	3,800	2,200
15	65	55	78800,000	0,892	4,200	2,400
15	65	65	79493,600	0,888	4,400	2,400
15	65	75	80136,000	0,930	4,400	2,400
15	65	85	80710,000	1,278	4,400	2,400
15	65	95	80933,200	1,344	4,200	2,400
15	75	5	70362,400	0,336	4,200	2,200
15	75	15	72444,800	0,336	4,000	2,200
15	75	25	73830,000	0,448	3,600	2,200
15	75	35	74681,200	0,386	3,800	2,400
15	75	45	75532,800	0,416	3,800	2,400
15	75	55	76146,000	0,430	3,800	2,400
15	75	65	76593,200	0,390	3,400	2,200
15	75	75	77040,400	0,424	3,200	2,200
15	75	85	77318,800	0,506	3,600	2,400
15	75	95	77490,400	0,376	2,800	2,000
15	85	5	70061,600	0,326	4,000	2,200
15	85	15	71992,000	0,316	4,000	2,200
15	85	25	73488,000	0,332	4,200	2,400
15	85	35	74196,800	0,326	4,200	2,400
15	85	45	74616,000	0,290	3,800	2,200
15	85	55	75034,800	0,276	3,600	2,200
15	85	65	75453,600	0,284	3,600	2,200
15	85	75	75677,600	0,296	3,600	2,200
15	85	85	75901,200	0,298	3,600	2,200
15	85	95	76125,200	0,296	3,600	2,200
15	95	5	69367,200	0,322	4,200	2,200
15	95	15	70080,800	0,364	4,000	2,200
15	95	25	70587,600	0,402	4,200	2,400
15	95	35	70819,600	0,412	4,200	2,400
15	95	45	70862,400	0,408	4,200	2,400
15	95	55	70862,400	0,418	4,200	2,400
15	95	65	70862,400	0,390	4,000	2,400
15	95	75	70862,400	0,450	4,600	2,600
15	95	85	70862,400	0,376	4,000	2,400
15	95	95	70862,400	0,410	4,000	2,400
20	5	5	77616,400	0,832	4,800	2,200
20	5	15	78036,400	0,758	4,800	2,200

Table M.1 continued from previous page

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
20	5	25	78182,800	0,832	4,800	2,400
20	5	35	78182,000	0,874	4,800	2,400
20	5	45	78182,000	0,744	4,200	2,200
20	5	55	78182,000	0,872	4,200	2,200
20	5	65	78182,000	0,768	4,200	2,200
20	5	75	78182,000	0,850	4,200	2,200
20	5	85	78182,000	0,794	4,200	2,200
20	5	95	78182,000	0,804	4,200	2,200
20	15	5	78996,000	0,918	6,000	2,600
20	15	15	81477,200	0,862	5,000	2,200
20	15	25	82715,200	0,876	6,000	2,600
20	15	35	83676,000	0,998	6,600	2,600
20	15	45	84209,600	0,974	6,800	2,800
20	15	55	84633,200	1,024	6,600	2,800
20	15	65	85057,600	0,912	6,200	2,600
20	15	75	85481,600	1,084	6,600	2,800
20	15	85	85666,800	1,150	7,200	3,000
20	15	95	85666,800	0,980	6,600	2,800
20	25	5	79737,600	0,778	5,000	2,200
20	25	15	83402,800	0,798	5,000	2,200
20	25	25	85614,000	0,936	5,000	2,200
20	25	35	86938,400	1,210	5,400	2,400
20	25	45	87973,600	1,168	5,000	2,400
20	25	55	88948,000	1,358	5,000	2,400
20	25	65	89627,200	1,410	6,800	3,000
20	25	75	89926,000	1,478	6,400	3,200
20	25	85	90120,400	1,624	6,400	3,200
20	25	95	90314,800	1,694	6,400	3,200
20	35	5	79652,000	0,814	4,600	2,200
20	35	15	83384,800	0,990	4,600	2,200
20	35	25	85944,000	1,316	6,200	2,800
20	35	35	87934,000	1,620	6,200	2,800
20	35	45	89523,200	1,296	4,600	2,400
20	35	55	90986,400	1,638	4,800	2,600
20	35	65	92261,200	1,814	3,800	2,400
20	35	75	93536,800	2,896	3,600	2,400
20	35	85	94811,600	3,188	4,200	2,600
20	35	95	95818,800	4,256	4,800	2,800
20	45	5	80114,000	1,042	5,400	2,400
20	45	15	84936,400	1,390	6,600	2,800
20	45	25	87948,800	1,768	7,000	3,200
20	45	35	89986,400	2,156	6,600	2,800

Table M.1 continued from previous page

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
20	45	45	91486,400	2,884	6,200	2,800
20	45	55	92985,600	3,390	6,000	2,800
20	45	65	94335,200	5,272	7,800	3,400
20	45	75	95646,000	5,804	7,400	3,400
20	45	85	96956,000	7,442	8,800	3,800
20	45	95	98047,200	7,546	8,800	3,800
20	55	5	80342,800	0,980	4,800	2,200
20	55	15	84831,200	1,124	5,400	2,400
20	55	25	88413,600	1,028	5,600	2,600
20	55	35	91303,600	1,348	5,000	2,600
20	55	45	93238,400	2,194	5,800	3,000
20	55	55	94768,400	3,434	5,800	3,000
20	55	65	96101,600	3,904	6,600	3,000
20	55	75	97038,000	4,796	7,400	3,200
20	55	85	97723,200	7,676	9,000	4,000
20	55	95	98409,200	7,634	9,600	4,000
20	65	5	79040,800	0,808	4,400	2,000
20	65	15	82184,400	1,148	4,600	2,400
20	65	25	84787,600	1,080	5,000	2,400
20	65	35	86868,800	1,228	5,200	2,600
20	65	45	88640,800	1,536	5,000	2,600
20	65	55	90127,200	3,158	6,800	3,400
20	65	65	91340,800	2,380	4,400	2,600
20	65	75	92462,400	2,188	3,600	2,200
20	65	85	93583,200	2,636	4,200	2,400
20	65	95	94704,400	4,014	4,600	2,600
20	75	5	79266,000	1,050	5,400	2,400
20	75	15	82122,000	0,964	4,600	2,200
20	75	25	84197,200	1,104	5,000	2,400
20	75	35	85687,600	1,228	5,400	2,800
20	75	45	86813,600	1,408	4,800	2,600
20	75	55	87874,000	1,612	5,600	2,800
20	75	65	88658,400	1,878	5,800	2,800
20	75	75	89308,000	1,834	5,800	2,800
20	75	85	89924,800	2,382	6,600	3,000
20	75	95	90186,400	2,580	6,400	3,200
20	85	5	78686,400	0,756	5,000	2,200
20	85	15	80469,200	0,916	5,200	2,400
20	85	25	81708,400	0,832	4,800	2,200
20	85	35	82597,600	1,212	6,600	2,800
20	85	45	83244,000	1,100	6,200	2,800
20	85	55	83768,800	0,996	5,600	2,600

Table M.1 continued from previous page

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
20	85	65	84183,600	1,066	5,600	2,600
20	85	75	84598,400	1,082	5,600	2,600
20	85	85	85012,800	1,364	6,000	2,800
20	85	95	85204,800	1,208	6,200	2,800
20	95	5	77804,400	0,792	5,000	2,200
20	95	15	78502,800	0,834	4,800	2,200
20	95	25	79036,400	1,038	5,600	2,400
20	95	35	79230,800	0,890	4,600	2,200
20	95	45	79425,200	0,946	5,600	2,400
20	95	55	79620,000	0,960	5,600	2,400
20	95	65	79814,400	0,940	5,600	2,400
20	95	75	80008,800	0,858	5,600	2,400
20	95	85	80203,200	0,904	5,600	2,400
20	95	95	80397,600	0,828	5,600	2,400
25	5	5	86719,600	2,246	7,600	3,600
25	5	15	87838,800	2,000	7,000	3,400
25	5	25	88576,000	2,252	8,200	3,800
25	5	35	89112,000	2,044	7,200	3,600
25	5	45	89180,800	2,220	7,000	3,800
25	5	55	89180,800	2,354	7,000	3,800
25	5	65	89180,800	2,406	7,000	3,800
25	5	75	89180,800	2,116	6,600	3,600
25	5	85	89180,800	2,140	6,600	3,600
25	5	95	89180,800	2,272	6,600	3,600
25	15	5	87114,800	2,226	7,200	3,400
25	15	15	88891,200	2,124	7,200	3,400
25	15	25	90223,200	2,670	8,400	4,000
25	15	35	90848,800	2,438	8,400	3,800
25	15	45	91457,200	2,604	8,400	3,800
25	15	55	91870,800	2,740	8,400	3,800
25	15	65	92081,600	2,702	8,400	3,800
25	15	75	92255,600	3,134	8,400	3,800
25	15	85	92255,600	2,618	7,600	3,400
25	15	95	92255,600	2,386	7,000	3,200
25	25	5	88959,200	2,532	7,800	3,800
25	25	15	94004,400	2,726	7,200	3,600
25	25	25	97360,000	3,558	8,800	4,000
25	25	35	99734,800	3,566	7,400	3,400
25	25	45	101866,800	4,368	8,600	3,600
25	25	55	103811,600	9,418	10,400	4,600
25	25	65	105382,000	8,498	9,600	4,200
25	25	75	106406,400	13,270	11,400	5,200

Table M.1 continued from previous page

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
25	25	85	106881,600	11,712	10,400	4,600
25	25	95	107183,200	11,808	10,000	4,400
25	35	5	89073,200	2,342	8,000	3,800
25	35	15	94555,600	2,660	8,200	3,800
25	35	25	98358,800	3,254	7,200	3,800
25	35	35	100642,000	4,016	8,000	4,000
25	35	45	101998,800	3,962	7,600	3,600
25	35	55	103240,000	3,806	6,600	3,200
25	35	65	104336,800	4,704	6,400	3,200
25	35	75	105375,600	8,550	7,200	3,400
25	35	85	106272,000	16,796	9,200	4,200
25	35	95	106692,400	16,024	9,800	4,400
25	45	5	89022,400	2,054	6,800	3,400
25	45	15	93934,800	1,750	4,800	2,800
25	45	25	98053,600	2,066	5,600	3,000
25	45	35	101226,800	3,888	7,000	3,400
25	45	45	103153,600	5,794	7,600	3,600
25	45	55	104513,600	4,254	6,400	3,200
25	45	65	105594,400	6,222	7,000	3,200
25	45	75	106621,600	9,258	7,600	3,600
25	45	85	107647,600	12,470	8,400	4,000
25	45	95	108640,400	10,702	9,200	4,200
25	55	5	89101,200	2,626	8,200	3,800
25	55	15	94080,000	2,966	9,600	4,400
25	55	25	98106,000	2,940	7,800	3,600
25	55	35	101216,000	4,124	8,000	3,600
25	55	45	103572,400	4,176	8,600	3,200
25	55	55	105502,800	4,962	7,400	3,200
25	55	65	107356,000	9,568	8,400	3,400
25	55	75	109116,800	18,736	11,200	4,400
25	55	85	110671,600	24,276	14,600	5,400
25	55	95	111909,200	23,782	15,200	5,200
25	65	5	88461,600	2,536	8,000	3,800
25	65	15	92612,800	2,626	8,000	3,600
25	65	25	96258,800	4,408	7,200	3,600
25	65	35	98594,400	4,480	7,800	3,400
25	65	45	100316,800	3,668	7,400	3,000
25	65	55	101686,000	4,560	8,000	2,800
25	65	65	102815,200	6,942	8,200	3,000
25	65	75	103719,200	6,690	8,200	3,000
25	65	85	104533,200	10,742	10,000	3,800
25	65	95	105348,000	13,350	10,000	4,000

Table M.1 continued from previous page

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
25	75	5	87989,600	2,806	8,600	4,000
25	75	15	91098,000	2,568	8,400	3,800
25	75	25	93412,400	3,486	9,000	4,200
25	75	35	94789,600	3,602	9,200	4,200
25	75	45	95808,400	3,790	9,200	4,400
25	75	55	96689,200	3,892	9,200	4,400
25	75	65	97426,000	4,578	10,000	4,800
25	75	75	97881,600	4,404	9,200	4,600
25	75	85	98304,000	4,238	10,000	4,800
25	75	95	98726,800	4,320	9,200	4,600
25	85	5	87396,400	2,034	7,000	3,400
25	85	15	89539,600	1,770	5,800	2,800
25	85	25	91002,800	1,750	5,200	2,600
25	85	35	92160,400	1,884	6,000	3,000
25	85	45	92963,600	1,562	5,400	2,400
25	85	55	93680,000	1,822	6,200	2,800
25	85	65	94237,600	2,088	6,400	3,000
25	85	75	94540,800	1,972	6,400	3,000
25	85	85	94751,200	2,006	6,800	3,000
25	85	95	94846,400	2,404	7,600	3,400
25	95	5	86609,600	2,318	7,600	3,600
25	95	15	87406,000	2,788	8,400	4,000
25	95	25	87731,200	3,082	8,600	4,200
25	95	35	87926,000	2,816	8,400	4,000
25	95	45	88120,800	2,670	8,400	4,000
25	95	55	88315,600	2,380	7,800	3,800
25	95	65	88492,400	2,388	8,200	3,800
25	95	75	88492,400	2,576	8,800	4,000
25	95	85	88492,400	2,538	8,200	3,800
25	95	95	88492,400	2,486	8,200	3,800
30	5	5	93701,600	3,758	7,000	3,200
30	5	15	94705,200	4,300	6,600	3,200
30	5	25	95485,600	4,904	8,600	3,600
30	5	35	95812,000	4,766	8,800	3,600
30	5	45	95812,000	4,702	8,800	3,600
30	5	55	95812,000	4,210	7,200	3,000
30	5	65	95812,000	4,370	7,200	3,000
30	5	75	95812,000	4,014	7,200	3,000
30	5	85	95812,000	3,924	7,200	3,000
30	5	95	95812,000	3,876	7,200	3,000
30	15	5	94617,200	4,228	6,800	3,200
30	15	15	96140,400	3,182	5,000	2,600

Table M.1 continued from previous page

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
30	15	25	97567,200	3,018	4,800	2,400
30	15	35	98606,000	2,818	4,600	2,400
30	15	45	99230,800	2,950	5,400	2,600
30	15	55	99738,800	3,568	6,000	2,800
30	15	65	100153,600	3,320	6,000	2,800
30	15	75	100558,800	3,934	6,600	3,000
30	15	85	100763,600	3,630	6,400	3,000
30	15	95	100968,400	3,762	6,600	3,000
30	25	5	95349,200	3,766	7,600	3,400
30	25	15	98255,200	4,192	7,800	3,400
30	25	25	100536,000	4,358	7,800	3,400
30	25	35	102718,800	7,172	10,200	4,200
30	25	45	104272,800	5,510	8,200	3,600
30	25	55	105132,800	6,316	9,400	4,200
30	25	65	105522,000	5,614	8,600	4,000
30	25	75	105679,200	5,872	8,800	4,000
30	25	85	105679,200	5,126	8,800	3,800
30	25	95	105679,200	5,006	8,000	3,600
30	35	5	96636,400	4,408	7,200	3,400
30	35	15	102326,400	3,920	6,400	3,000
30	35	25	106858,800	4,654	7,800	3,200
30	35	35	110126,000	9,000	9,600	4,000
30	35	45	112367,600	16,740	10,200	4,400
30	35	55	113822,000	27,078	11,800	4,600
30	35	65	114988,000	36,864	14,600	5,200
30	35	75	115538,800	38,848	13,800	5,000
30	35	85	115938,400	45,982	15,800	5,600
30	35	95	116338,000	43,514	15,000	5,200
30	45	5	96461,600	3,782	7,400	3,200
30	45	15	101183,600	2,480	5,000	2,600
30	45	25	104369,600	2,716	4,400	2,400
30	45	35	107136,400	3,270	4,200	2,400
30	45	45	109194,000	3,308	3,400	2,200
30	45	55	110570,400	5,772	5,200	2,600
30	45	65	111660,800	5,598	4,800	2,400
30	45	75	112603,200	8,332	5,400	2,600
30	45	85	113221,600	9,698	5,800	2,800
30	45	95	113826,000	11,436	5,600	3,000
30	55	5	96509,200	3,500	6,600	3,000
30	55	15	102474,000	5,232	7,600	3,200
30	55	25	106990,800	7,744	8,800	3,800
30	55	35	109925,600	11,006	10,800	4,200

Table M.1 continued from previous page

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
30	55	45	112236,800	22,576	12,400	4,800
30	55	55	114247,200	39,610	14,200	5,200
30	55	65	115854,400	46,188	15,800	5,600
30	55	75	117129,600	59,664	17,600	6,000
30	55	85	118306,800	95,114	21,800	7,200
30	55	95	119332,800	132,404	25,600	8,400
30	65	5	95694,800	3,954	7,000	3,400
30	65	15	99647,600	4,314	6,200	3,400
30	65	25	102088,800	5,064	7,000	3,600
30	65	35	104266,800	4,996	6,400	3,000
30	65	45	106116,800	4,808	5,200	2,800
30	65	55	107696,400	6,654	5,000	2,800
30	65	65	109038,400	7,666	7,000	3,000
30	65	75	110087,200	8,372	6,000	2,800
30	65	85	111108,000	9,016	6,800	2,800
30	65	95	111947,200	24,276	7,600	3,600
30	75	5	95262,800	3,962	7,200	3,400
30	75	15	98718,800	4,726	6,600	3,200
30	75	25	101038,800	2,744	5,400	2,600
30	75	35	102692,000	3,244	6,000	2,800
30	75	45	104224,400	4,232	6,200	3,000
30	75	55	105518,800	6,396	7,000	3,600
30	75	65	106008,400	7,726	8,400	4,000
30	75	75	106213,200	8,762	7,400	3,400
30	75	85	106234,400	8,568	7,000	3,200
30	75	95	106234,400	7,848	7,600	3,400
30	85	5	94707,200	3,418	6,600	3,000
30	85	15	97117,200	3,706	7,000	3,000
30	85	25	98956,400	4,320	7,800	3,200
30	85	35	100216,800	4,440	8,000	3,200
30	85	45	100566,400	5,082	8,200	3,200
30	85	55	100631,200	6,014	9,400	3,600
30	85	65	100631,200	4,498	8,800	3,400
30	85	75	100631,200	4,608	8,800	3,400
30	85	85	100631,200	4,682	8,800	3,400
30	85	95	100631,200	4,556	8,800	3,400
30	95	5	93411,600	3,456	6,600	3,000
30	95	15	93984,800	3,764	8,800	3,400
30	95	25	94098,800	3,772	7,800	3,200
30	95	35	94098,800	3,796	8,800	3,400
30	95	45	94098,800	4,166	7,600	3,200
30	95	55	94098,800	3,584	7,600	3,200

Table M.1 continued from previous page

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
30	95	65	94098,800	3,666	7,600	3,200
30	95	75	94098,800	3,622	7,600	3,200
30	95	85	94098,800	3,422	7,600	3,200
30	95	95	94098,800	3,604	7,600	3,200
35	5	5	98675,600	13,586	14,800	4,800
35	5	15	99544,000	10,588	13,400	4,200
35	5	25	100151,600	10,598	13,600	4,200
35	5	35	100461,600	10,860	13,000	4,200
35	5	45	100687,600	11,230	13,400	4,400
35	5	55	100739,600	11,572	13,600	4,400
35	5	65	100739,600	10,954	13,400	4,200
35	5	75	100739,600	10,736	12,800	4,200
35	5	85	100739,600	10,458	12,800	4,200
35	5	95	100739,600	11,078	13,400	4,200
35	15	5	99746,000	9,614	12,200	3,600
35	15	15	102252,000	10,858	11,800	3,800
35	15	25	103764,800	11,702	10,800	3,600
35	15	35	104478,400	11,498	11,200	3,600
35	15	45	105034,000	11,222	10,800	3,400
35	15	55	105171,600	11,582	11,400	3,600
35	15	65	105171,600	10,386	11,000	3,400
35	15	75	105171,600	9,476	10,600	3,400
35	15	85	105171,600	9,382	10,600	3,400
35	15	95	105171,600	9,628	10,600	3,400
35	25	5	100551,200	9,138	13,200	3,800
35	25	15	105044,000	17,412	15,600	5,000
35	25	25	107792,800	12,430	14,000	4,400
35	25	35	109744,800	13,670	14,000	4,400
35	25	45	111197,600	16,908	14,800	4,800
35	25	55	111755,600	16,538	15,000	4,800
35	25	65	111796,000	12,190	11,000	3,800
35	25	75	111796,000	9,714	9,800	3,600
35	25	85	111796,000	9,688	10,200	3,800
35	25	95	111796,000	8,786	9,800	3,600
35	35	5	101486,400	10,524	12,800	4,000
35	35	15	106066,000	9,894	11,800	3,600
35	35	25	109384,000	7,994	9,400	3,000
35	35	35	112406,800	13,342	10,200	3,200
35	35	45	114962,800	23,310	9,600	3,600
35	35	55	116525,200	33,610	9,800	3,600
35	35	65	117909,600	34,144	8,800	3,200
35	35	75	118972,400	45,762	9,600	3,400

Table M.1 continued from previous page

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
35	35	85	120034,800	57,476	12,200	4,000
35	35	95	121097,200	73,462	14,200	4,400
35	45	5	102471,600	9,290	13,000	3,600
35	45	15	109890,800	11,794	13,400	4,000
35	45	25	115498,000	17,472	12,200	3,600
35	45	35	119562,800	29,470	12,600	3,600
35	45	45	122289,600	61,306	14,800	4,200
35	45	55	124603,600	87,730	17,200	4,600
35	45	65	126456,000	130,714	19,400	4,600
35	45	75	127807,200	193,788	21,600	5,200
35	45	85	128958,400	237,174	22,200	5,600
35	45	95	130038,400	308,436	25,800	6,600
35	55	5	102169,200	14,652	15,000	5,000
35	55	15	108203,600	14,058	13,600	4,200
35	55	25	112600,800	13,564	10,400	3,600
35	55	35	115730,800	29,302	14,000	4,400
35	55	45	118274,000	39,414	13,200	4,200
35	55	55	120474,000	72,028	14,200	4,400
35	55	65	122100,800	94,988	15,200	4,600
35	55	75	123299,200	160,682	18,200	5,800
35	55	85	124268,400	241,340	21,400	6,800
35	55	95	124956,000	262,440	22,200	6,600
35	65	5	101548,400	11,212	14,200	4,400
35	65	15	107674,800	11,836	11,200	3,600
35	65	25	112016,000	22,034	13,400	4,400
35	65	35	115441,200	39,728	15,200	4,800
35	65	45	117901,200	88,964	19,000	6,400
35	65	55	119184,400	82,308	16,600	6,000
35	65	65	120211,600	91,498	17,800	6,000
35	65	75	120863,600	92,702	18,000	6,000
35	65	85	121516,000	95,398	17,800	6,000
35	65	95	122168,000	183,484	21,200	7,600
35	75	5	101243,600	10,832	14,800	4,400
35	75	15	106428,400	13,632	15,600	4,400
35	75	25	109234,000	16,438	15,200	4,600
35	75	35	111009,600	19,706	15,600	4,800
35	75	45	112369,600	16,608	14,400	4,400
35	75	55	113450,000	16,774	14,800	4,000
35	75	65	114283,600	20,296	13,800	4,000
35	75	75	114461,200	19,450	12,000	3,600
35	75	85	114461,200	17,334	12,000	3,600
35	75	95	114461,200	15,976	12,200	3,800

Table M.1 continued from previous page

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
35	85	5	99603,200	10,486	14,400	4,400
35	85	15	101445,600	8,300	11,800	3,600
35	85	25	102422,400	7,904	11,000	3,600
35	85	35	102988,400	7,848	11,200	3,800
35	85	45	103309,200	7,698	10,000	3,600
35	85	55	103538,800	8,558	10,800	4,000
35	85	65	103768,800	7,244	9,800	3,600
35	85	75	103882,800	7,666	9,800	3,600
35	85	85	103882,800	6,690	10,600	3,400
35	85	95	103882,800	5,698	9,400	3,000
35	95	5	98501,600	7,868	12,600	3,600
35	95	15	99199,600	7,600	12,000	3,600
35	95	25	99619,200	6,854	11,600	3,400
35	95	35	99839,200	7,012	11,600	3,400
35	95	45	100026,800	6,188	10,800	3,200
35	95	55	100026,800	6,396	10,800	3,200
35	95	65	100026,800	6,058	10,400	3,200
35	95	75	100026,800	5,732	10,000	3,000
35	95	85	100026,800	5,390	10,000	3,000
35	95	95	100026,800	5,530	10,000	3,000
40	5	5	101450,400	11,250	13,400	3,800
40	5	15	102622,400	12,960	14,400	4,200
40	5	25	102925,600	11,682	13,600	4,200
40	5	35	103108,800	11,964	13,200	4,000
40	5	45	103108,800	11,938	13,200	4,000
40	5	55	103108,800	11,550	13,200	4,000
40	5	65	103108,800	11,606	13,200	4,000
40	5	75	103108,800	11,476	13,200	4,000
40	5	85	103108,800	12,074	14,000	4,200
40	5	95	103108,800	12,004	13,800	4,200
40	15	5	102628,800	9,898	12,000	3,400
40	15	15	105530,800	12,322	13,400	4,000
40	15	25	106924,000	14,768	13,400	4,400
40	15	35	107803,200	14,644	11,600	4,000
40	15	45	108187,200	15,278	12,000	4,000
40	15	55	108187,200	11,952	10,000	3,400
40	15	65	108187,200	11,284	10,000	3,400
40	15	75	108187,200	12,590	10,000	3,400
40	15	85	108187,200	12,064	10,000	3,400
40	15	95	108187,200	11,594	10,000	3,400
40	25	5	104170,800	9,466	12,400	3,400
40	25	15	109474,400	15,014	12,200	3,400

Table M.1 continued from previous page

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
40	25	25	113094,800	18,580	13,600	4,200
40	25	35	115766,800	25,874	14,600	4,600
40	25	45	116908,400	26,806	12,800	3,800
40	25	55	117529,600	31,786	10,800	3,400
40	25	65	117932,400	31,706	10,600	3,400
40	25	75	118298,000	36,038	11,400	3,800
40	25	85	118406,000	30,862	12,400	4,000
40	25	95	118406,000	29,468	10,800	3,800
40	35	5	104749,600	11,862	13,000	3,800
40	35	15	111768,000	24,380	15,200	5,000
40	35	25	116855,600	51,726	17,000	5,200
40	35	35	119957,200	62,234	17,000	4,800
40	35	45	122343,200	113,168	19,600	5,600
40	35	55	123949,200	211,490	21,000	5,600
40	35	65	125376,000	348,906	26,000	6,800
40	35	75	126208,800	652,644	30,200	8,400
40	35	85	126712,400	576,694	31,600	8,200
40	35	95	127124,400	901,834	34,200	9,200
40	45	5	105140,800	14,378	14,800	4,200
40	45	15	112582,800	23,798	16,200	4,400
40	45	25	117552,000	56,088	17,800	5,600
40	45	35	121029,200	115,204	17,200	5,600
40	45	45	123472,400	140,054	18,200	5,800
40	45	55	125388,400	200,928	21,000	6,400
40	45	65	126738,800	282,412	23,600	7,000
40	45	75	127855,600	451,600	30,400	9,400
40	45	85	128820,000	773,610	40,000	12,800
40	45	95	129635,600	884,562	41,600	13,400
40	55	5	105267,200	12,770	13,800	4,000
40	55	15	112162,000	18,062	10,800	3,600
40	55	25	116634,400	25,510	11,000	3,800
40	55	35	119890,800	43,124	11,600	4,000
40	55	45	122401,200	82,280	14,600	4,600
40	55	55	124249,600	131,072	17,600	5,800
40	55	65	125595,200	195,736	20,200	6,600
40	55	75	126533,200	227,614	21,000	6,600
40	55	85	127341,200	343,670	23,000	7,200
40	55	95	128103,600	539,962	28,200	8,400
40	65	5	104628,800	11,214	12,400	3,800
40	65	15	110976,000	12,880	11,200	3,600
40	65	25	114637,600	15,528	9,800	3,400
40	65	35	117437,200	28,358	11,600	4,000

Table M.1 continued from previous page

n	f	w	(2.12) o	(2.12) t	(2.12) s	(2.12) r
40	65	45	118516,400	31,962	11,800	4,200
40	65	55	119332,400	48,626	14,000	4,800
40	65	65	120148,000	48,862	13,000	4,400
40	65	75	120782,400	87,138	16,600	5,600
40	65	85	121392,800	130,404	18,200	6,000
40	65	95	122003,600	154,686	20,000	6,600
40	75	5	104701,600	12,934	13,800	3,800
40	75	15	110739,200	15,366	13,800	4,000
40	75	25	114254,800	28,424	15,800	5,000
40	75	35	116106,800	26,278	14,800	4,600
40	75	45	117264,000	29,472	12,800	4,200
40	75	55	118297,600	25,568	12,200	4,000
40	75	65	119316,000	39,550	14,800	4,600
40	75	75	120141,200	53,446	15,000	4,800
40	75	85	120947,600	65,304	15,000	5,000
40	75	95	121496,000	71,150	16,000	5,000
40	85	5	103066,800	8,406	12,400	3,200
40	85	15	106631,200	9,766	11,000	3,400
40	85	25	108374,400	6,682	9,200	2,800
40	85	35	109519,600	10,080	11,400	3,800
40	85	45	110178,800	10,060	10,800	3,600
40	85	55	110611,600	7,854	8,200	3,000
40	85	65	110819,600	7,056	8,400	2,800
40	85	75	110920,800	6,454	8,200	2,800
40	85	85	110920,800	7,236	8,200	2,800
40	85	95	110920,800	7,368	9,800	3,200
40	95	5	101428,000	10,364	13,800	3,800
40	95	15	102655,600	12,080	13,600	4,000
40	95	25	103002,400	12,532	13,600	4,200
40	95	35	103190,800	11,404	13,600	4,200
40	95	45	103379,200	11,680	13,600	4,200
40	95	55	103478,000	11,692	12,800	4,000
40	95	65	103478,000	11,300	12,800	4,000
40	95	75	103478,000	10,706	12,800	4,000
40	95	85	103478,000	11,204	12,800	4,000
40	95	95	103478,000	10,626	12,800	4,000

Table M.1: Aggregated Computational Results for (2.12)

Appendix N

Aggregated Computational Results for (2.14)

NOTE:

n - Number of nodes in the graph

f - Percentage of flagged edges in an instance

w - Reload costs relative to the average edge weight

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
10	5	5	58612,400	0,112	2,200	2,000
10	5	15	59401,600	0,130	2,800	2,200
10	5	25	59683,600	0,130	2,800	2,200
10	5	35	59880,000	0,126	2,800	2,200
10	5	45	60076,800	0,132	2,800	2,200
10	5	55	60186,000	0,126	2,800	2,200
10	5	65	60186,000	0,128	2,800	2,200
10	5	75	60186,000	0,132	2,800	2,200
10	5	85	60186,000	0,126	2,800	2,200
10	5	95	60186,000	0,128	2,800	2,200
10	15	5	58681,200	0,112	2,200	2,000
10	15	15	59530,000	0,116	2,200	2,000
10	15	25	60373,600	0,104	1,800	1,800
10	15	35	61046,400	0,112	2,400	2,000
10	15	45	61358,800	0,114	2,400	2,000
10	15	55	61515,600	0,108	2,000	1,800
10	15	65	61515,600	0,102	2,000	1,800
10	15	75	61515,600	0,094	1,400	1,600
10	15	85	61515,600	0,094	1,400	1,600
10	15	95	61515,600	0,090	1,400	1,600
10	25	5	58814,800	0,116	2,200	2,000
10	25	15	60075,600	0,104	2,000	1,800
10	25	25	61050,800	0,102	2,000	1,800
10	25	35	61916,800	0,092	1,600	1,600
10	25	45	62783,200	0,092	1,600	1,600
10	25	55	63650,400	0,094	1,600	1,600
10	25	65	64516,800	0,100	1,400	1,600
10	25	75	65169,200	0,098	1,400	1,600
10	25	85	65790,400	0,112	1,800	1,800
10	25	95	66218,400	0,098	1,400	1,600
10	35	5	59198,800	0,116	2,200	2,000
10	35	15	61180,400	0,108	1,800	1,800
10	35	25	63023,200	0,112	1,800	1,800
10	35	35	64766,000	0,120	1,800	1,800
10	35	45	66020,800	0,106	1,400	1,600
10	35	55	67124,400	0,092	1,000	1,400
10	35	65	68152,400	0,094	1,000	1,400
10	35	75	69004,800	0,088	1,000	1,400
10	35	85	69857,600	0,094	1,000	1,400
10	35	95	70710,000	0,110	1,400	1,600
10	45	5	59409,200	0,114	2,200	2,000
10	45	15	61826,800	0,124	2,400	2,000
10	45	25	63918,000	0,098	1,600	1,600

Table N.1 continued from previous page

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
10	45	35	65659,200	0,116	2,000	1,800
10	45	45	67042,400	0,138	2,400	2,000
10	45	55	68266,800	0,142	2,200	2,000
10	45	65	69403,200	0,168	3,200	2,400
10	45	75	70429,600	0,178	3,200	2,400
10	45	85	71456,400	0,172	2,800	2,200
10	45	95	72482,800	0,176	2,800	2,200
10	55	5	59409,200	0,112	2,200	2,000
10	55	15	61680,800	0,124	2,200	2,000
10	55	25	63603,200	0,132	2,800	2,200
10	55	35	65317,600	0,158	3,200	2,400
10	55	45	66599,200	0,124	2,400	2,000
10	55	55	67466,400	0,128	2,600	2,200
10	55	65	68332,800	0,124	2,200	2,000
10	55	75	69198,800	0,122	2,000	2,000
10	55	85	70065,200	0,116	1,600	1,800
10	55	95	70931,600	0,124	1,600	1,800
10	65	5	59534,800	0,112	2,200	2,000
10	65	15	61800,800	0,104	1,800	1,800
10	65	25	63858,400	0,112	1,800	1,800
10	65	35	65665,200	0,106	1,400	1,600
10	65	45	67362,400	0,102	1,400	1,600
10	65	55	68532,400	0,086	1,000	1,400
10	65	65	69349,200	0,118	1,800	1,800
10	65	75	69790,800	0,108	1,400	1,600
10	65	85	70232,800	0,110	1,400	1,600
10	65	95	70674,800	0,116	1,400	1,600
10	75	5	59115,600	0,114	2,200	2,000
10	75	15	60526,800	0,106	1,800	1,800
10	75	25	61730,000	0,088	1,400	1,600
10	75	35	62624,400	0,090	1,600	1,600
10	75	45	63400,400	0,096	1,600	1,600
10	75	55	63988,800	0,094	1,600	1,600
10	75	65	64519,600	0,096	1,400	1,600
10	75	75	65050,400	0,094	1,400	1,600
10	75	85	65581,600	0,096	1,400	1,600
10	75	95	66080,800	0,098	1,400	1,600
10	85	5	58724,800	0,126	2,200	2,000
10	85	15	59667,600	0,116	2,400	2,000
10	85	25	60271,600	0,136	2,800	2,200
10	85	35	60298,400	0,116	2,200	2,000
10	85	45	60298,400	0,118	2,200	2,000

Table N.1 continued from previous page

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
10	85	55	60298,400	0,116	2,200	2,000
10	85	65	60298,400	0,128	2,400	2,200
10	85	75	60298,400	0,128	2,400	2,200
10	85	85	60298,400	0,122	2,400	2,200
10	85	95	60298,400	0,126	2,400	2,200
10	95	5	58817,200	0,114	2,200	2,000
10	95	15	60094,000	0,112	2,400	2,000
10	95	25	61020,400	0,136	3,200	2,400
10	95	35	61352,000	0,142	3,200	2,400
10	95	45	61602,400	0,124	2,800	2,200
10	95	55	61852,800	0,126	2,800	2,200
10	95	65	62103,200	0,124	2,800	2,200
10	95	75	62353,600	0,124	2,800	2,200
10	95	85	62604,000	0,134	3,200	2,400
10	95	95	62854,400	0,136	3,200	2,400
15	5	5	68981,200	0,244	4,000	2,200
15	5	15	68981,200	0,252	4,000	2,200
15	5	25	68981,200	0,260	3,800	2,200
15	5	35	68981,200	0,292	3,800	2,200
15	5	45	68981,200	0,256	3,800	2,200
15	5	55	68981,200	0,260	3,800	2,200
15	5	65	68981,200	0,264	3,800	2,200
15	5	75	68981,200	0,262	3,800	2,200
15	5	85	68981,200	0,260	3,800	2,200
15	5	95	68981,200	0,256	3,800	2,200
15	15	5	69520,400	0,240	4,200	2,200
15	15	15	70577,600	0,282	4,400	2,400
15	15	25	71221,600	0,288	4,400	2,400
15	15	35	71586,000	0,292	4,400	2,400
15	15	45	71810,000	0,302	4,400	2,400
15	15	55	71834,000	0,292	4,400	2,400
15	15	65	71834,000	0,292	4,400	2,400
15	15	75	71834,000	0,312	4,400	2,600
15	15	85	71834,000	0,318	4,200	2,600
15	15	95	71834,000	0,322	4,200	2,600
15	25	5	70424,000	0,254	4,400	2,200
15	25	15	72768,000	0,330	5,200	2,600
15	25	25	74780,000	0,316	5,000	2,400
15	25	35	76731,600	0,442	5,400	2,800
15	25	45	78443,200	0,382	4,600	2,400
15	25	55	79616,000	0,472	5,000	2,600
15	25	65	80510,800	0,442	4,600	2,400

Table N.1 continued from previous page

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
15	25	75	81204,400	0,550	4,600	2,600
15	25	85	81480,000	0,418	3,800	2,400
15	25	95	81700,800	0,412	3,800	2,400
15	35	5	70352,000	0,236	4,200	2,200
15	35	15	72622,400	0,244	3,600	2,000
15	35	25	74395,600	0,250	2,400	1,800
15	35	35	76109,200	0,258	2,400	1,800
15	35	45	77566,400	0,338	3,000	2,000
15	35	55	78808,400	0,344	3,000	2,000
15	35	65	79852,000	0,440	4,000	2,400
15	35	75	80896,000	0,626	4,400	2,600
15	35	85	81694,000	0,814	4,600	2,600
15	35	95	82201,200	0,932	5,000	2,800
15	45	5	70855,200	0,212	3,800	2,000
15	45	15	74553,600	0,264	4,000	2,200
15	45	25	77595,200	0,258	3,000	2,000
15	45	35	79926,000	0,308	2,600	1,800
15	45	45	82132,400	0,494	4,200	2,400
15	45	55	84223,600	0,600	4,200	2,400
15	45	65	86060,000	0,822	4,400	2,400
15	45	75	87630,000	1,074	4,400	2,400
15	45	85	89071,600	1,618	5,200	3,000
15	45	95	90246,800	1,894	6,600	3,400
15	55	5	70464,800	0,228	3,800	2,000
15	55	15	73422,400	0,262	3,400	2,000
15	55	25	75783,600	0,272	3,200	2,000
15	55	35	77486,000	0,242	3,000	1,800
15	55	45	79160,000	0,302	3,200	1,800
15	55	55	80556,800	0,330	2,800	1,800
15	55	65	81822,000	0,436	2,800	2,000
15	55	75	82970,400	0,536	3,200	2,200
15	55	85	84040,000	0,758	3,800	2,400
15	55	95	85110,000	0,690	4,000	2,400
15	65	5	70371,200	0,254	4,400	2,200
15	65	15	72890,400	0,250	4,200	2,200
15	65	25	75096,400	0,254	3,600	2,000
15	65	35	76812,000	0,282	3,600	2,000
15	65	45	77934,400	0,328	3,800	2,200
15	65	55	78800,000	0,480	4,200	2,400
15	65	65	79493,600	0,492	4,400	2,400
15	65	75	80136,000	0,560	4,400	2,400
15	65	85	80710,000	0,718	4,400	2,400

Table N.1 continued from previous page

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
15	65	95	80933,200	0,754	4,200	2,400
15	75	5	70362,400	0,246	4,200	2,200
15	75	15	72444,800	0,262	4,000	2,200
15	75	25	73830,000	0,274	3,600	2,200
15	75	35	74681,200	0,334	3,800	2,400
15	75	45	75532,800	0,344	3,800	2,400
15	75	55	76146,000	0,348	3,800	2,400
15	75	65	76593,200	0,344	4,000	2,400
15	75	75	77040,400	0,398	3,800	2,400
15	75	85	77318,800	0,416	3,800	2,400
15	75	95	77490,400	0,314	3,000	2,000
15	85	5	70061,600	0,242	4,000	2,200
15	85	15	71992,000	0,260	4,000	2,200
15	85	25	73488,000	0,282	4,200	2,400
15	85	35	74196,800	0,270	4,200	2,400
15	85	45	74616,000	0,254	3,800	2,200
15	85	55	75034,800	0,246	3,600	2,200
15	85	65	75453,600	0,248	3,600	2,200
15	85	75	75677,600	0,252	3,600	2,200
15	85	85	75901,200	0,252	3,600	2,200
15	85	95	76125,200	0,260	3,600	2,200
15	95	5	69367,200	0,246	4,200	2,200
15	95	15	70080,800	0,260	4,000	2,200
15	95	25	70587,600	0,284	4,200	2,400
15	95	35	70819,600	0,276	4,200	2,400
15	95	45	70862,400	0,280	4,200	2,400
15	95	55	70862,400	0,276	4,200	2,400
15	95	65	70862,400	0,280	4,000	2,400
15	95	75	70862,400	0,282	4,000	2,400
15	95	85	70862,400	0,284	4,000	2,400
15	95	95	70862,400	0,290	4,000	2,400
20	5	5	77616,400	0,618	4,800	2,200
20	5	15	78036,400	0,660	4,800	2,200
20	5	25	78182,000	0,694	4,800	2,400
20	5	35	78182,000	0,682	4,800	2,400
20	5	45	78182,000	0,640	4,200	2,200
20	5	55	78182,000	0,648	4,200	2,200
20	5	65	78182,000	0,612	4,200	2,200
20	5	75	78182,000	0,626	4,200	2,200
20	5	85	78182,000	0,660	4,200	2,200
20	5	95	78182,000	0,618	4,200	2,200
20	15	5	78996,000	0,660	5,400	2,400

Table N.1 continued from previous page

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
20	15	15	81477,200	0,656	5,000	2,200
20	15	25	82715,200	0,678	6,000	2,600
20	15	35	83676,000	0,660	6,600	2,600
20	15	45	84209,600	0,726	6,800	2,800
20	15	55	84633,200	0,780	6,600	2,800
20	15	65	85057,600	0,712	6,200	2,600
20	15	75	85481,600	0,760	6,600	2,800
20	15	85	85666,800	0,786	7,200	3,000
20	15	95	85666,800	0,750	6,600	2,800
20	25	5	79737,600	0,618	5,000	2,200
20	25	15	83402,800	0,662	5,000	2,200
20	25	25	85614,000	0,596	5,000	2,200
20	25	35	86938,400	0,672	5,400	2,400
20	25	45	87973,600	0,806	4,600	2,200
20	25	55	88948,000	1,102	5,000	2,400
20	25	65	89627,200	1,024	6,000	2,800
20	25	75	89926,000	1,160	6,400	3,200
20	25	85	90120,400	1,134	6,400	3,200
20	25	95	90314,800	1,164	6,400	3,200
20	35	5	79652,000	0,674	4,600	2,200
20	35	15	83384,800	0,700	4,600	2,200
20	35	25	85944,000	0,962	6,200	2,800
20	35	35	87934,000	0,944	6,200	2,800
20	35	45	89523,200	0,914	4,600	2,400
20	35	55	90986,400	1,096	4,600	2,400
20	35	65	92261,200	1,286	3,800	2,400
20	35	75	93536,800	2,048	3,600	2,400
20	35	85	94811,600	2,724	5,200	3,000
20	35	95	95818,800	3,116	5,400	3,000
20	45	5	80114,000	0,776	5,400	2,400
20	45	15	84936,400	0,832	6,200	2,600
20	45	25	87948,800	1,080	6,200	2,800
20	45	35	89986,400	1,448	6,600	2,800
20	45	45	91486,400	1,558	6,200	2,800
20	45	55	92985,600	2,130	7,000	3,200
20	45	65	94335,200	3,474	7,800	3,200
20	45	75	95646,000	4,034	7,600	3,400
20	45	85	96956,000	5,816	9,800	4,000
20	45	95	98047,200	6,162	9,000	3,800
20	55	5	80342,800	0,652	4,800	2,200
20	55	15	84831,200	0,814	5,400	2,400
20	55	25	88413,600	0,982	5,600	2,600

Table N.1 continued from previous page

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
20	55	35	91303,600	1,098	5,000	2,600
20	55	45	93238,400	1,476	5,800	3,000
20	55	55	94768,400	1,996	6,000	3,000
20	55	65	96101,600	2,338	7,000	3,200
20	55	75	97038,000	4,558	8,600	4,000
20	55	85	97723,200	6,330	9,400	4,400
20	55	95	98409,200	8,644	10,800	4,600
20	65	5	79040,800	0,624	4,400	2,000
20	65	15	82184,400	0,758	5,000	2,400
20	65	25	84787,600	0,748	5,000	2,400
20	65	35	86868,800	0,882	5,200	2,600
20	65	45	88640,800	1,510	5,400	2,800
20	65	55	90127,200	1,376	5,200	2,800
20	65	65	91340,800	1,892	5,200	2,800
20	65	75	92462,400	2,432	4,600	2,600
20	65	85	93583,200	2,508	4,400	2,400
20	65	95	94704,400	3,962	5,600	2,800
20	75	5	79266,000	0,692	5,400	2,400
20	75	15	82122,000	0,630	4,600	2,200
20	75	25	84197,200	0,744	5,000	2,400
20	75	35	85687,600	0,856	5,000	2,600
20	75	45	86813,600	0,854	4,800	2,600
20	75	55	87874,000	1,034	5,600	2,800
20	75	65	88658,400	1,220	5,800	2,800
20	75	75	89308,000	1,298	5,800	2,800
20	75	85	89924,800	1,540	6,600	3,000
20	75	95	90186,400	1,448	6,600	3,200
20	85	5	78686,400	0,640	5,000	2,200
20	85	15	80469,200	0,666	4,800	2,200
20	85	25	81708,400	0,680	4,800	2,200
20	85	35	82597,600	0,850	6,600	2,800
20	85	45	83244,000	0,928	5,600	2,600
20	85	55	83768,800	0,832	5,600	2,600
20	85	65	84183,600	0,764	5,600	2,600
20	85	75	84598,400	0,884	5,600	2,600
20	85	85	85012,800	0,886	6,000	2,800
20	85	95	85204,800	0,838	6,200	2,800
20	95	5	77804,400	0,684	5,000	2,200
20	95	15	78502,800	0,674	4,800	2,200
20	95	25	79036,400	0,664	5,600	2,400
20	95	35	79230,800	0,690	5,600	2,400
20	95	45	79425,200	0,696	5,600	2,400

Table N.1 continued from previous page

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
20	95	55	79620,000	0,832	5,600	2,400
20	95	65	79814,400	0,654	5,600	2,400
20	95	75	80008,800	0,722	5,600	2,400
20	95	85	80203,200	0,676	5,600	2,400
20	95	95	80397,600	0,656	5,600	2,400
25	5	5	86719,600	1,792	7,600	3,600
25	5	15	87838,800	1,490	7,000	3,400
25	5	25	88576,000	1,502	6,800	3,400
25	5	35	89112,000	1,580	6,800	3,400
25	5	45	89180,800	1,714	6,600	3,600
25	5	55	89180,800	1,808	6,600	3,600
25	5	65	89180,800	1,708	6,600	3,600
25	5	75	89180,800	1,562	6,200	3,400
25	5	85	89180,800	1,552	6,200	3,400
25	5	95	89180,800	1,620	6,200	3,400
25	15	5	87114,800	1,776	7,200	3,400
25	15	15	88891,200	1,748	7,000	3,400
25	15	25	90223,200	2,044	7,600	3,600
25	15	35	90848,800	2,282	9,000	4,000
25	15	45	91457,200	2,266	8,200	3,800
25	15	55	91870,800	2,610	9,000	4,200
25	15	65	92081,600	2,370	8,800	4,000
25	15	75	92255,600	2,334	8,600	3,800
25	15	85	92255,600	1,986	7,800	3,400
25	15	95	92255,600	1,906	7,200	3,200
25	25	5	88959,200	2,182	8,200	4,000
25	25	15	94004,400	2,406	7,600	3,800
25	25	25	97360,000	2,612	8,200	3,800
25	25	35	99734,800	2,700	7,200	3,400
25	25	45	101866,800	3,174	7,600	3,400
25	25	55	103810,000	6,312	9,600	4,200
25	25	65	105383,600	7,060	10,400	4,600
25	25	75	106406,400	11,084	11,400	5,200
25	25	85	106881,600	10,164	10,000	4,400
25	25	95	107183,200	10,030	10,000	4,400
25	35	5	89073,200	2,014	8,000	3,800
25	35	15	94555,600	2,602	8,600	4,000
25	35	25	98357,200	2,624	7,200	3,800
25	35	35	100642,000	3,366	8,200	4,000
25	35	45	101998,800	2,830	7,400	3,600
25	35	55	103240,000	2,706	6,800	3,200
25	35	65	104336,800	3,370	7,000	3,400

Table N.1 continued from previous page

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
25	35	75	105375,600	5,142	8,200	3,600
25	35	85	106272,000	9,732	9,200	4,200
25	35	95	106692,400	11,606	9,800	4,200
25	45	5	89022,400	1,814	7,200	3,400
25	45	15	93934,800	1,614	5,200	3,000
25	45	25	98053,600	1,636	5,400	3,000
25	45	35	101226,800	2,782	7,400	3,400
25	45	45	103153,600	4,362	7,200	3,400
25	45	55	104513,600	3,414	6,400	3,200
25	45	65	105594,400	4,866	6,600	3,000
25	45	75	106621,600	5,882	7,000	3,400
25	45	85	107647,600	9,096	7,200	3,600
25	45	95	108640,400	9,844	9,000	4,000
25	55	5	89101,200	1,986	7,800	3,600
25	55	15	94080,000	2,052	8,400	3,800
25	55	25	98106,000	2,084	7,800	3,600
25	55	35	101216,000	3,094	8,400	3,800
25	55	45	103572,400	3,798	9,600	3,600
25	55	55	105502,800	4,626	8,200	3,600
25	55	65	107356,000	7,432	9,600	3,800
25	55	75	109116,800	16,554	11,600	4,600
25	55	85	110671,600	27,114	16,000	6,000
25	55	95	111909,200	31,970	17,400	6,200
25	65	5	88461,600	1,896	8,000	3,800
25	65	15	92612,800	2,482	8,000	3,800
25	65	25	96258,800	3,086	7,600	3,800
25	65	35	98390,400	2,486	6,600	3,000
25	65	45	100316,800	2,588	6,800	2,800
25	65	55	101686,000	3,278	8,000	2,800
25	65	65	102815,200	4,808	8,200	3,000
25	65	75	103719,200	5,492	8,200	3,000
25	65	85	104533,200	9,932	10,000	3,800
25	65	95	105348,000	11,338	10,000	4,000
25	75	5	87989,600	2,102	8,200	3,800
25	75	15	91098,000	2,116	8,400	3,800
25	75	25	93412,400	2,688	9,000	4,200
25	75	35	94789,600	2,762	9,400	4,400
25	75	45	95808,400	3,142	9,400	4,400
25	75	55	96689,200	2,868	9,200	4,200
25	75	65	97426,000	3,194	9,200	4,400
25	75	75	97881,600	3,494	10,200	4,800
25	75	85	98304,000	3,492	9,400	4,600

Table N.1 continued from previous page

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
25	75	95	98726,800	3,364	9,400	4,600
25	85	5	87396,400	1,868	7,400	3,600
25	85	15	89539,600	1,628	6,200	3,000
25	85	25	91002,800	1,464	5,200	2,600
25	85	35	92160,400	1,680	5,600	2,800
25	85	45	92963,600	1,610	5,800	2,600
25	85	55	93680,000	1,754	6,200	2,800
25	85	65	94237,600	1,818	6,400	3,000
25	85	75	94540,800	1,866	6,400	3,000
25	85	85	94751,200	1,780	6,800	3,000
25	85	95	94846,400	1,964	7,600	3,400
25	95	5	86609,600	1,808	7,200	3,400
25	95	15	87406,000	2,062	7,600	3,600
25	95	25	87732,800	2,046	8,200	4,000
25	95	35	87926,000	2,132	9,000	4,200
25	95	45	88120,800	2,118	8,400	4,000
25	95	55	88315,600	1,898	7,800	3,800
25	95	65	88492,400	1,974	8,200	3,800
25	95	75	88492,400	1,886	8,200	3,800
25	95	85	88492,400	1,982	8,200	3,800
25	95	95	88492,400	2,044	8,200	3,800
30	5	5	93701,600	2,648	7,000	3,200
30	5	15	94705,200	2,724	6,600	3,200
30	5	25	95485,600	3,484	8,600	3,600
30	5	35	95812,000	3,644	8,800	3,600
30	5	45	95812,000	3,786	8,800	3,600
30	5	55	95812,000	3,310	7,800	3,200
30	5	65	95812,000	3,354	7,200	3,000
30	5	75	95812,000	3,146	7,200	3,000
30	5	85	95812,000	2,902	7,200	3,000
30	5	95	95812,000	2,906	7,200	3,000
30	15	5	94617,200	2,830	6,800	3,200
30	15	15	96140,400	2,324	5,000	2,600
30	15	25	97567,200	2,194	4,800	2,400
30	15	35	98606,000	2,216	4,600	2,400
30	15	45	99230,800	2,414	5,400	2,600
30	15	55	99738,800	2,574	6,000	2,800
30	15	65	100153,600	2,500	6,000	2,800
30	15	75	100558,800	3,316	7,400	3,200
30	15	85	100763,600	2,982	5,800	2,800
30	15	95	100968,400	3,212	7,000	3,200
30	25	5	95349,200	2,656	7,200	3,200

Table N.1 continued from previous page

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
30	25	15	98255,200	2,986	7,800	3,400
30	25	25	100536,000	3,316	7,800	3,400
30	25	35	102718,800	4,222	9,400	4,000
30	25	45	104272,800	4,146	8,600	3,800
30	25	55	105132,800	5,168	10,000	4,400
30	25	65	105522,000	4,652	9,000	4,200
30	25	75	105679,200	4,258	8,800	4,000
30	25	85	105679,200	3,666	8,000	3,600
30	25	95	105679,200	3,654	8,000	3,600
30	35	5	96636,400	3,042	7,200	3,400
30	35	15	102326,400	2,796	6,400	3,000
30	35	25	106858,800	3,920	7,800	3,200
30	35	35	110126,000	6,900	9,800	4,200
30	35	45	112367,600	12,246	11,000	4,600
30	35	55	113822,000	22,300	13,600	5,200
30	35	65	114988,000	27,644	16,400	5,800
30	35	75	115538,800	30,862	14,800	5,200
30	35	85	115654,800	30,792	15,400	5,200
30	35	95	116338,000	34,952	16,400	5,400
30	45	5	96461,600	2,404	6,200	2,800
30	45	15	101183,600	2,418	5,000	2,600
30	45	25	104369,600	2,748	4,400	2,400
30	45	35	107136,400	2,934	4,200	2,400
30	45	45	109194,000	3,140	4,000	2,400
30	45	55	110570,400	4,454	4,400	2,600
30	45	65	111660,800	5,024	4,800	2,400
30	45	75	112603,200	7,052	5,400	2,600
30	45	85	113221,600	7,476	5,200	2,600
30	45	95	113826,000	10,218	5,600	3,000
30	55	5	96509,200	2,378	6,200	2,800
30	55	15	102474,000	3,996	8,000	3,400
30	55	25	106990,800	5,006	8,400	3,600
30	55	35	109925,600	8,246	12,800	4,600
30	55	45	112236,800	14,468	12,200	4,600
30	55	55	114247,200	34,646	15,000	5,400
30	55	65	115854,400	37,106	16,400	5,400
30	55	75	117129,600	56,522	19,600	6,400
30	55	85	118306,800	73,998	22,400	7,400
30	55	95	119332,800	110,666	26,200	9,000
30	65	5	95694,800	2,932	6,600	3,200
30	65	15	99647,600	3,346	7,000	3,600
30	65	25	102088,800	3,492	6,200	3,400

Table N.1 continued from previous page

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
30	65	35	104266,800	3,802	6,600	3,000
30	65	45	106116,800	4,230	7,000	3,200
30	65	55	107696,400	5,446	5,800	3,000
30	65	65	109038,400	5,760	6,800	3,000
30	65	75	110087,200	8,888	7,000	3,200
30	65	85	111108,000	11,636	7,400	3,200
30	65	95	111947,200	25,716	8,200	3,800
30	75	5	95262,800	3,008	7,200	3,400
30	75	15	98718,800	3,544	6,800	3,200
30	75	25	101038,800	2,286	5,400	2,600
30	75	35	102692,000	2,638	6,000	2,800
30	75	45	104224,400	3,426	6,200	3,000
30	75	55	105518,800	4,948	7,000	3,600
30	75	65	106008,400	6,786	10,800	4,600
30	75	75	106213,200	5,524	8,200	3,600
30	75	85	106234,400	4,830	7,200	3,400
30	75	95	106234,400	5,410	7,600	3,400
30	85	5	94707,200	2,654	6,600	3,000
30	85	15	97117,200	2,572	7,000	3,000
30	85	25	98956,400	3,032	8,200	3,400
30	85	35	100216,800	2,948	8,400	3,400
30	85	45	100566,400	3,104	8,600	3,400
30	85	55	100631,200	3,310	9,200	3,600
30	85	65	100631,200	3,272	9,200	3,600
30	85	75	100631,200	2,914	9,200	3,600
30	85	85	100631,200	2,950	8,800	3,400
30	85	95	100631,200	3,198	9,200	3,600
30	95	5	93411,600	2,616	6,600	3,000
30	95	15	93984,800	2,792	7,800	3,200
30	95	25	94098,800	3,136	7,800	3,200
30	95	35	94098,800	2,740	7,600	3,200
30	95	45	94098,800	2,884	7,600	3,200
30	95	55	94098,800	2,770	7,600	3,200
30	95	65	94098,800	2,856	7,600	3,200
30	95	75	94098,800	2,994	7,600	3,200
30	95	85	94098,800	2,902	7,600	3,200
30	95	95	94098,800	2,828	8,200	3,400
35	5	5	98675,600	7,078	14,200	4,600
35	5	15	99544,000	6,380	13,000	4,200
35	5	25	100151,600	6,702	13,200	4,200
35	5	35	100461,600	6,142	13,000	4,200
35	5	45	100687,600	6,424	13,400	4,400

Table N.1 continued from previous page

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
35	5	55	100739,600	5,826	12,800	4,200
35	5	65	100739,600	6,044	12,800	4,200
35	5	75	100739,600	5,870	12,800	4,200
35	5	85	100739,600	5,780	12,800	4,200
35	5	95	100739,600	6,856	12,800	4,200
35	15	5	99746,000	5,868	13,000	3,800
35	15	15	102252,000	6,312	11,800	3,800
35	15	25	103764,800	6,656	10,800	3,600
35	15	35	104478,400	6,376	11,200	3,600
35	15	45	105034,000	5,936	10,800	3,400
35	15	55	105171,600	6,796	11,200	3,600
35	15	65	105171,600	6,052	10,600	3,400
35	15	75	105171,600	6,464	11,400	3,800
35	15	85	105171,600	5,888	10,600	3,400
35	15	95	105171,600	5,874	10,600	3,400
35	25	5	100551,200	5,464	13,200	3,800
35	25	15	105044,000	9,892	15,200	4,800
35	25	25	107792,800	7,868	14,000	4,400
35	25	35	109744,800	7,912	15,000	4,600
35	25	45	111197,600	12,526	16,600	5,400
35	25	55	111755,600	11,752	16,200	5,200
35	25	65	111796,000	8,226	12,000	4,200
35	25	75	111796,000	7,548	10,600	4,000
35	25	85	111796,000	8,204	11,400	4,400
35	25	95	111796,000	7,078	10,200	3,800
35	35	5	101486,400	6,290	13,400	4,200
35	35	15	106066,000	5,618	11,800	3,600
35	35	25	109384,000	5,394	9,800	3,000
35	35	35	112406,800	9,004	11,400	3,400
35	35	45	114962,800	18,426	11,800	4,400
35	35	55	116525,200	19,392	9,800	4,000
35	35	65	117909,600	29,354	9,600	3,600
35	35	75	118972,400	42,892	11,000	4,000
35	35	85	120034,800	52,648	13,000	4,400
35	35	95	121097,200	73,058	15,200	5,000
35	45	5	102471,600	5,826	13,800	3,800
35	45	15	109890,800	6,892	12,800	4,000
35	45	25	115498,000	9,520	12,200	3,600
35	45	35	119562,800	15,582	14,200	4,000
35	45	45	122289,600	38,100	16,000	4,400
35	45	55	124603,600	68,812	18,200	4,600
35	45	65	126456,000	93,206	21,200	5,000

Table N.1 continued from previous page

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
35	45	75	127807,200	118,372	22,600	5,600
35	45	85	128958,400	157,068	24,600	6,400
35	45	95	130038,400	202,952	27,800	7,400
35	55	5	102169,200	7,756	14,600	4,800
35	55	15	108203,600	9,104	13,000	4,400
35	55	25	112600,800	9,576	13,600	4,400
35	55	35	115730,800	17,930	15,600	4,800
35	55	45	118274,000	28,594	14,800	4,400
35	55	55	120474,000	59,426	15,600	4,800
35	55	65	122100,800	74,540	15,400	4,600
35	55	75	123299,200	100,058	18,200	5,800
35	55	85	124268,400	151,358	23,000	7,200
35	55	95	124956,000	179,080	23,400	7,000
35	65	5	101548,400	7,240	14,600	4,400
35	65	15	107674,800	7,494	11,800	3,800
35	65	25	112016,000	13,714	14,400	4,800
35	65	35	115441,200	22,138	15,400	5,000
35	65	45	117901,200	62,008	20,600	7,000
35	65	55	119184,400	75,310	19,400	6,200
35	65	65	120211,600	79,476	17,600	5,800
35	65	75	120863,600	95,228	19,400	6,400
35	65	85	121516,000	121,674	20,200	6,800
35	65	95	122168,000	191,356	25,600	9,400
35	75	5	101243,600	7,536	15,400	4,600
35	75	15	106428,400	9,496	16,000	4,800
35	75	25	109234,000	10,298	16,200	5,000
35	75	35	111009,600	11,492	15,600	4,800
35	75	45	112369,600	10,844	14,400	4,400
35	75	55	113450,000	10,100	14,800	4,000
35	75	65	114283,600	11,842	15,600	4,600
35	75	75	114461,200	10,554	12,800	3,800
35	75	85	114461,200	9,910	12,800	3,800
35	75	95	114461,200	10,154	13,000	4,000
35	85	5	99603,200	8,126	15,200	4,600
35	85	15	101445,600	6,126	13,000	3,800
35	85	25	102422,400	5,872	11,800	3,800
35	85	35	102988,400	6,764	12,400	4,200
35	85	45	103309,200	6,656	12,600	4,200
35	85	55	103538,800	6,410	11,800	4,200
35	85	65	103768,800	6,210	11,600	4,200
35	85	75	103882,800	5,738	10,600	3,800
35	85	85	103882,800	4,688	10,200	3,200

Table N.1 continued from previous page

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
35	85	95	103882,800	4,702	10,200	3,200
35	95	5	98501,600	5,394	13,400	3,800
35	95	15	99199,600	5,168	12,000	3,600
35	95	25	99619,200	4,992	11,600	3,600
35	95	35	99839,200	4,540	11,600	3,400
35	95	45	100026,800	4,300	11,600	3,400
35	95	55	100026,800	4,516	11,200	3,400
35	95	65	100026,800	4,150	10,400	3,200
35	95	75	100026,800	4,408	10,400	3,200
35	95	85	100026,800	3,852	10,400	3,200
35	95	95	100026,800	4,184	11,200	3,400
40	5	5	101450,400	6,326	13,000	3,800
40	5	15	102622,400	7,494	13,000	4,000
40	5	25	102925,600	6,554	13,600	4,200
40	5	35	103108,800	7,194	14,600	4,400
40	5	45	103108,800	6,472	13,800	4,200
40	5	55	103108,800	6,960	13,800	4,200
40	5	65	103108,800	7,020	13,800	4,200
40	5	75	103108,800	6,530	13,800	4,200
40	5	85	103108,800	6,582	13,800	4,200
40	5	95	103108,800	7,882	13,800	4,200
40	15	5	102628,800	6,084	12,000	3,400
40	15	15	105530,800	8,458	13,200	4,000
40	15	25	106924,000	9,186	13,400	4,400
40	15	35	107803,200	9,258	12,400	4,200
40	15	45	108187,200	9,052	12,200	4,000
40	15	55	108187,200	9,382	10,800	3,600
40	15	65	108187,200	7,898	10,800	3,600
40	15	75	108187,200	7,798	10,800	3,600
40	15	85	108187,200	7,248	10,800	3,600
40	15	95	108187,200	7,738	10,800	3,600
40	25	5	104170,800	5,824	12,400	3,400
40	25	15	109474,400	8,606	13,400	3,600
40	25	25	113094,800	12,252	14,800	4,600
40	25	35	115766,800	17,048	15,200	4,800
40	25	45	116908,400	18,018	16,200	4,600
40	25	55	117529,600	17,928	12,400	3,800
40	25	65	117932,400	17,744	12,600	3,800
40	25	75	118298,000	19,254	14,200	4,400
40	25	85	118406,000	18,776	14,600	4,400
40	25	95	118406,000	18,410	16,800	5,000
40	35	5	104749,600	7,338	13,000	3,800

Table N.1 continued from previous page

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
40	35	15	111768,000	15,934	18,400	5,800
40	35	25	116855,600	31,384	18,200	5,400
40	35	35	119957,200	28,774	18,200	5,000
40	35	45	122343,200	71,494	20,200	5,800
40	35	55	123949,200	123,686	24,800	6,400
40	35	65	125376,000	223,554	28,400	7,600
40	35	75	126208,800	333,546	33,200	9,000
40	35	85	126712,400	362,256	34,600	9,200
40	35	95	127124,400	416,242	38,800	10,000
40	45	5	105140,800	7,932	13,800	4,000
40	45	15	112582,800	13,050	17,600	4,600
40	45	25	117552,000	28,710	17,800	5,600
40	45	35	121029,200	63,748	17,600	5,600
40	45	45	123472,400	88,484	20,200	6,000
40	45	55	125388,400	117,752	22,000	6,400
40	45	65	126738,800	182,418	23,800	7,000
40	45	75	127855,600	300,618	31,000	9,400
40	45	85	128820,000	466,336	40,600	12,600
40	45	95	129635,600	556,668	43,400	13,600
40	55	5	105267,200	7,270	13,800	4,000
40	55	15	112162,000	12,042	14,200	4,400
40	55	25	116634,400	16,142	12,800	4,200
40	55	35	119890,800	24,364	11,800	4,000
40	55	45	122401,200	46,068	14,600	4,600
40	55	55	124249,600	89,052	18,000	6,000
40	55	65	125595,200	140,824	20,600	6,800
40	55	75	126533,200	172,658	21,600	6,600
40	55	85	127341,200	204,468	23,600	7,200
40	55	95	128103,600	304,440	28,800	8,600
40	65	5	104628,800	6,430	12,400	3,800
40	65	15	110976,000	8,646	12,200	4,000
40	65	25	114637,600	10,614	10,400	3,600
40	65	35	117437,200	17,990	13,000	4,400
40	65	45	118516,400	24,056	12,000	4,200
40	65	55	119332,400	40,820	15,600	5,200
40	65	65	120148,000	33,128	14,200	4,600
40	65	75	120782,400	54,836	17,200	5,400
40	65	85	121392,800	92,542	18,800	6,200
40	65	95	122003,600	127,940	22,200	7,200
40	75	5	104701,600	7,054	13,400	3,800
40	75	15	110739,200	9,964	15,600	4,800
40	75	25	114254,800	16,076	16,400	5,000

Table N.1 continued from previous page

n	f	w	(2.14) o	(2.14) t	(2.14) s	(2.14) r
40	75	35	116106,800	14,246	14,600	4,600
40	75	45	117264,000	12,764	13,800	4,400
40	75	55	118297,600	12,646	12,400	4,200
40	75	65	119316,000	17,160	14,600	4,600
40	75	75	120141,200	19,956	14,200	4,600
40	75	85	120947,600	38,172	15,400	5,000
40	75	95	121496,000	43,786	16,000	5,000
40	85	5	103066,800	5,158	11,800	3,200
40	85	15	106631,200	6,482	10,400	3,200
40	85	25	108374,400	4,860	9,200	2,800
40	85	35	109519,600	7,404	11,400	3,600
40	85	45	110178,800	7,186	10,800	3,600
40	85	55	110611,600	5,584	8,200	3,000
40	85	65	110819,600	4,806	8,400	2,800
40	85	75	110920,800	5,192	8,200	2,800
40	85	85	110920,800	5,068	8,200	2,800
40	85	95	110920,800	4,932	8,200	2,800
40	95	5	101428,000	5,640	13,200	3,600
40	95	15	102655,600	7,576	13,600	4,000
40	95	25	103002,400	8,256	13,800	4,200
40	95	35	103190,800	8,240	13,600	4,200
40	95	45	103379,200	8,490	13,600	4,200
40	95	55	103478,000	8,298	12,800	4,000
40	95	65	103478,000	8,194	12,800	4,000
40	95	75	103478,000	9,294	12,800	4,000
40	95	85	103478,000	8,746	12,800	4,000
40	95	95	103478,000	8,048	12,800	4,000

Table N.1: Aggregated Computational Results for (2.14)

Appendix O

Aggregated Computational Results for (2.15)

NOTE:

n - Number of nodes in the graph

f - Percentage of flagged edges in an instance

w - Reload costs relative to the average edge weight

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
10	5	5	58612,400	0,116	2,200	2,000
10	5	15	59401,600	0,126	2,800	2,200
10	5	25	59683,600	0,132	2,800	2,200
10	5	35	59880,000	0,128	2,800	2,200
10	5	45	60076,800	0,132	2,800	2,200
10	5	55	60186,000	0,126	2,800	2,200
10	5	65	60186,000	0,126	2,800	2,200
10	5	75	60186,000	0,128	2,800	2,200
10	5	85	60186,000	0,132	2,800	2,200
10	5	95	60186,000	0,132	2,800	2,200
10	15	5	58681,200	0,112	2,200	2,000
10	15	15	59530,000	0,110	2,200	2,000
10	15	25	60373,600	0,102	1,800	1,800
10	15	35	61046,400	0,112	2,400	2,000
10	15	45	61358,800	0,114	2,400	2,000
10	15	55	61515,600	0,106	2,000	1,800
10	15	65	61515,600	0,102	2,000	1,800
10	15	75	61515,600	0,090	1,400	1,600
10	15	85	61515,600	0,094	1,400	1,600
10	15	95	61515,600	0,090	1,400	1,600
10	25	5	58814,800	0,116	2,200	2,000
10	25	15	60075,600	0,104	2,000	1,800
10	25	25	61050,800	0,108	2,000	1,800
10	25	35	61916,800	0,092	1,600	1,600
10	25	45	62783,200	0,092	1,600	1,600
10	25	55	63650,400	0,094	1,600	1,600
10	25	65	64516,800	0,098	1,400	1,600
10	25	75	65169,200	0,100	1,400	1,600
10	25	85	65790,400	0,094	1,400	1,600
10	25	95	66218,400	0,096	1,400	1,600
10	35	5	59198,800	0,116	2,200	2,000
10	35	15	61180,400	0,104	1,800	1,800
10	35	25	63023,200	0,114	1,800	1,800
10	35	35	64766,000	0,204	1,800	1,800
10	35	45	66020,800	0,108	1,400	1,600
10	35	55	67124,400	0,092	1,000	1,400
10	35	65	68152,400	0,088	1,000	1,400
10	35	75	69004,800	0,092	1,000	1,400
10	35	85	69857,600	0,094	1,000	1,400
10	35	95	70710,000	0,114	1,400	1,600
10	45	5	59409,200	0,114	2,200	2,000
10	45	15	61826,800	0,122	2,400	2,000
10	45	25	63918,000	0,096	1,600	1,600

Table O.1 continued from previous page

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
10	45	35	65659,200	0,116	2,000	1,800
10	45	45	67042,400	0,134	2,400	2,000
10	45	55	68266,800	0,122	1,800	1,800
10	45	65	69403,200	0,152	2,800	2,200
10	45	75	70429,600	0,162	2,800	2,200
10	45	85	71456,400	0,152	2,400	2,000
10	45	95	72482,800	0,160	2,400	2,000
10	55	5	59409,200	0,114	2,200	2,000
10	55	15	61680,800	0,124	2,200	2,000
10	55	25	63603,200	0,130	2,800	2,200
10	55	35	65317,600	0,154	3,200	2,400
10	55	45	66599,200	0,120	2,400	2,000
10	55	55	67466,400	0,182	2,600	2,200
10	55	65	68332,800	0,116	2,200	2,000
10	55	75	69198,800	0,122	2,000	2,000
10	55	85	70065,200	0,116	1,600	1,800
10	55	95	70931,600	0,122	1,600	1,800
10	65	5	59534,800	0,116	2,200	2,000
10	65	15	61800,800	0,102	1,800	1,800
10	65	25	63858,400	0,110	1,800	1,800
10	65	35	65665,200	0,106	1,400	1,600
10	65	45	67362,400	0,102	1,400	1,600
10	65	55	68532,400	0,092	1,000	1,400
10	65	65	69349,200	0,114	1,800	1,800
10	65	75	69790,800	0,108	1,400	1,600
10	65	85	70232,800	0,108	1,400	1,600
10	65	95	70674,800	0,114	1,400	1,600
10	75	5	59115,600	0,110	2,200	2,000
10	75	15	60526,800	0,104	1,800	1,800
10	75	25	61730,000	0,092	1,400	1,600
10	75	35	62624,400	0,088	1,600	1,600
10	75	45	63400,400	0,090	1,600	1,600
10	75	55	63988,800	0,090	1,600	1,600
10	75	65	64519,600	0,094	1,400	1,600
10	75	75	65050,400	0,094	1,400	1,600
10	75	85	65581,600	0,096	1,400	1,600
10	75	95	66080,800	0,102	1,400	1,600
10	85	5	58724,800	0,112	2,200	2,000
10	85	15	59667,600	0,116	2,400	2,000
10	85	25	60271,600	0,126	2,800	2,200
10	85	35	60298,400	0,114	2,200	2,000
10	85	45	60298,400	0,116	2,200	2,000

Table O.1 continued from previous page

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
10	85	55	60298,400	0,110	2,200	2,000
10	85	65	60298,400	0,128	2,400	2,200
10	85	75	60298,400	0,122	2,400	2,200
10	85	85	60298,400	0,122	2,400	2,200
10	85	95	60298,400	0,122	2,400	2,200
10	95	5	58817,200	0,116	2,200	2,000
10	95	15	60094,000	0,112	2,400	2,000
10	95	25	61020,400	0,136	3,200	2,400
10	95	35	61352,000	0,136	3,200	2,400
10	95	45	61602,400	0,124	2,800	2,200
10	95	55	61852,800	0,122	2,800	2,200
10	95	65	62103,200	0,122	2,800	2,200
10	95	75	62353,600	0,122	2,800	2,200
10	95	85	62604,000	0,138	3,200	2,400
10	95	95	62854,400	0,134	3,200	2,400
15	5	5	68981,200	0,238	3,600	2,000
15	5	15	68981,200	0,240	3,600	2,000
15	5	25	68981,200	0,254	3,800	2,200
15	5	35	68981,200	0,252	3,800	2,200
15	5	45	68981,200	0,264	3,800	2,200
15	5	55	68981,200	0,250	3,800	2,200
15	5	65	68981,200	0,250	3,800	2,200
15	5	75	68981,200	0,248	3,800	2,200
15	5	85	68981,200	0,248	3,800	2,200
15	5	95	68981,200	0,252	3,800	2,200
15	15	5	69520,400	0,232	3,800	2,000
15	15	15	70577,600	0,264	4,000	2,200
15	15	25	71221,600	0,274	4,000	2,200
15	15	35	71586,000	0,256	4,000	2,200
15	15	45	71810,000	0,254	4,000	2,200
15	15	55	71834,000	0,254	4,000	2,200
15	15	65	71834,000	0,250	4,000	2,200
15	15	75	71834,000	0,264	4,000	2,400
15	15	85	71834,000	0,270	3,800	2,400
15	15	95	71834,000	0,274	3,800	2,400
15	25	5	70424,000	0,258	4,400	2,200
15	25	15	72768,000	0,350	5,200	2,600
15	25	25	74780,000	0,326	5,000	2,400
15	25	35	76731,600	0,422	5,400	2,800
15	25	45	78443,200	0,378	4,600	2,400
15	25	55	79616,000	0,456	5,000	2,600
15	25	65	80510,800	0,432	4,600	2,400

Table O.1 continued from previous page

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
15	25	75	81204,400	0,520	4,600	2,600
15	25	85	81480,000	0,388	3,800	2,400
15	25	95	81700,800	0,420	3,800	2,400
15	35	5	70352,000	0,226	3,800	2,000
15	35	15	72622,400	0,242	3,600	2,000
15	35	25	74395,600	0,242	2,400	1,800
15	35	35	76109,200	0,258	2,400	1,800
15	35	45	77566,400	0,324	3,000	2,000
15	35	55	78808,400	0,372	3,000	2,000
15	35	65	79852,000	0,456	4,000	2,400
15	35	75	80896,000	0,544	4,400	2,600
15	35	85	81694,000	0,674	4,600	2,600
15	35	95	82201,200	0,880	4,400	2,600
15	45	5	70855,200	0,212	3,800	2,000
15	45	15	74553,600	0,258	4,000	2,200
15	45	25	77595,200	0,260	3,000	2,000
15	45	35	79926,000	0,310	2,600	1,800
15	45	45	82132,400	0,488	4,200	2,400
15	45	55	84223,600	0,662	4,200	2,400
15	45	65	86060,000	0,794	4,400	2,400
15	45	75	87630,000	1,198	4,400	2,400
15	45	85	89071,600	1,360	5,200	3,000
15	45	95	90246,800	2,294	6,600	3,400
15	55	5	70464,800	0,228	3,800	2,000
15	55	15	73422,400	0,270	3,400	2,000
15	55	25	75783,600	0,278	3,200	2,000
15	55	35	77486,000	0,246	3,000	1,800
15	55	45	79160,000	0,314	3,200	1,800
15	55	55	80556,800	0,338	2,800	1,800
15	55	65	81822,000	0,426	2,800	2,000
15	55	75	82970,400	0,552	3,200	2,200
15	55	85	84040,000	0,696	3,800	2,400
15	55	95	85110,000	0,696	4,000	2,400
15	65	5	70371,200	0,272	4,200	2,200
15	65	15	72890,400	0,278	4,000	2,200
15	65	25	75096,400	0,248	3,600	2,000
15	65	35	76812,000	0,294	3,600	2,000
15	65	45	77934,400	0,344	3,800	2,200
15	65	55	78800,000	0,446	4,200	2,400
15	65	65	79493,600	0,502	4,400	2,400
15	65	75	80136,000	0,596	4,400	2,400
15	65	85	80710,000	0,730	4,400	2,400

Table O.1 continued from previous page

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
15	65	95	80933,200	0,642	4,200	2,400
15	75	5	70362,400	0,240	3,800	2,000
15	75	15	72444,800	0,278	4,000	2,200
15	75	25	73830,000	0,278	3,600	2,200
15	75	35	74681,200	0,304	3,800	2,400
15	75	45	75532,800	0,326	3,800	2,400
15	75	55	76146,000	0,354	3,800	2,400
15	75	65	76593,200	0,338	3,400	2,200
15	75	75	77040,400	0,318	3,200	2,200
15	75	85	77318,800	0,406	3,600	2,400
15	75	95	77490,400	0,298	2,800	2,000
15	85	5	70061,600	0,222	3,600	2,000
15	85	15	71992,000	0,260	4,000	2,200
15	85	25	73488,000	0,308	4,600	2,600
15	85	35	74196,800	0,286	4,200	2,400
15	85	45	74616,000	0,262	3,800	2,200
15	85	55	75034,800	0,248	3,600	2,200
15	85	65	75453,600	0,254	3,600	2,200
15	85	75	75677,600	0,256	3,600	2,200
15	85	85	75901,200	0,258	3,600	2,200
15	85	95	76125,200	0,268	3,600	2,200
15	95	5	69367,200	0,240	3,800	2,000
15	95	15	70080,800	0,246	3,600	2,000
15	95	25	70587,600	0,324	3,800	2,200
15	95	35	70819,600	0,278	3,800	2,200
15	95	45	70862,400	0,272	3,800	2,200
15	95	55	70862,400	0,272	3,800	2,200
15	95	65	70862,400	0,282	3,600	2,200
15	95	75	70862,400	0,274	3,600	2,200
15	95	85	70862,400	0,268	3,600	2,200
15	95	95	70862,400	0,268	3,600	2,200
20	5	5	77616,400	0,624	4,800	2,200
20	5	15	78036,400	0,574	4,800	2,200
20	5	25	78182,000	0,590	4,800	2,400
20	5	35	78182,000	0,626	4,800	2,400
20	5	45	78182,000	0,544	4,200	2,200
20	5	55	78182,000	0,582	4,200	2,200
20	5	65	78182,000	0,632	4,200	2,200
20	5	75	78182,000	0,628	4,200	2,200
20	5	85	78182,000	0,556	4,200	2,200
20	5	95	78182,000	0,596	4,200	2,200
20	15	5	78996,000	0,676	5,400	2,400

Table O.1 continued from previous page

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
20	15	15	81477,200	0,602	5,000	2,200
20	15	25	82715,200	0,652	6,000	2,600
20	15	35	83676,000	0,628	6,600	2,600
20	15	45	84209,600	0,684	6,800	2,800
20	15	55	84633,200	0,684	6,600	2,800
20	15	65	85057,600	0,746	6,200	2,600
20	15	75	85481,600	0,768	6,600	2,800
20	15	85	85666,800	0,968	7,200	3,000
20	15	95	85666,800	0,760	6,600	2,800
20	25	5	79737,600	0,544	5,000	2,200
20	25	15	83402,800	0,570	5,000	2,200
20	25	25	85614,000	0,574	5,000	2,200
20	25	35	86938,400	0,622	5,400	2,400
20	25	45	87973,600	0,752	4,600	2,200
20	25	55	88948,000	0,832	5,000	2,400
20	25	65	89627,200	1,078	6,000	2,800
20	25	75	89926,000	1,062	6,400	3,200
20	25	85	90120,400	1,024	6,400	3,200
20	25	95	90314,800	1,192	6,400	3,200
20	35	5	79652,000	0,596	4,600	2,200
20	35	15	83384,800	0,700	4,600	2,200
20	35	25	85944,000	0,930	6,200	2,800
20	35	35	87934,000	1,042	6,400	3,000
20	35	45	89523,200	0,946	4,600	2,400
20	35	55	90986,400	1,086	4,600	2,400
20	35	65	92261,200	1,276	3,800	2,400
20	35	75	93536,800	2,830	3,400	2,400
20	35	85	94811,600	2,666	4,200	2,600
20	35	95	95818,800	3,516	4,200	2,600
20	45	5	80114,000	0,702	5,400	2,400
20	45	15	84936,400	0,794	6,200	2,600
20	45	25	87948,800	1,024	6,200	2,800
20	45	35	89986,400	1,402	6,600	2,800
20	45	45	91486,400	1,564	6,200	2,800
20	45	55	92985,600	1,906	6,000	2,800
20	45	65	94335,200	2,900	6,800	3,000
20	45	75	95646,000	3,902	7,800	3,600
20	45	85	96956,000	5,522	8,600	3,800
20	45	95	98047,200	6,484	9,200	4,000
20	55	5	80342,800	0,584	4,800	2,200
20	55	15	84831,200	0,806	5,400	2,400
20	55	25	88413,600	0,858	5,800	2,800

Table O.1 continued from previous page

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
20	55	35	91303,600	1,034	5,000	2,800
20	55	45	93238,400	1,254	5,400	2,800
20	55	55	94768,400	1,794	5,400	2,800
20	55	65	96101,600	2,804	6,600	3,000
20	55	75	97038,000	3,438	7,000	3,200
20	55	85	97723,200	4,874	8,200	3,600
20	55	95	98409,200	7,034	9,800	4,200
20	65	5	79040,800	0,644	4,400	2,000
20	65	15	82184,400	0,822	5,000	2,600
20	65	25	84787,600	0,724	5,000	2,400
20	65	35	86868,800	1,000	5,600	2,800
20	65	45	88640,800	1,226	5,000	2,600
20	65	55	90127,200	1,592	5,200	2,800
20	65	65	91340,800	1,574	4,200	2,400
20	65	75	92462,400	1,442	3,600	2,200
20	65	85	93583,200	2,734	3,800	2,200
20	65	95	94704,400	2,902	4,200	2,400
20	75	5	79266,000	0,592	5,400	2,400
20	75	15	82122,000	0,578	4,600	2,200
20	75	25	84197,200	0,734	5,000	2,400
20	75	35	85687,600	0,732	5,000	2,600
20	75	45	86813,600	0,782	4,600	2,600
20	75	55	87874,000	1,216	5,600	3,000
20	75	65	88658,400	1,094	5,400	2,800
20	75	75	89308,000	1,156	5,400	2,800
20	75	85	89924,800	1,638	6,200	3,000
20	75	95	90186,400	1,522	6,200	3,200
20	85	5	78686,400	0,558	5,000	2,200
20	85	15	80469,200	0,628	4,800	2,200
20	85	25	81708,400	0,674	4,800	2,200
20	85	35	82597,600	0,850	6,600	2,800
20	85	45	83244,000	0,970	5,600	2,600
20	85	55	83768,800	0,968	5,600	2,600
20	85	65	84183,600	1,014	5,600	2,600
20	85	75	84598,400	1,224	5,600	2,600
20	85	85	85012,800	1,410	6,000	2,800
20	85	95	85204,800	1,136	6,200	2,800
20	95	5	77804,400	0,560	5,000	2,200
20	95	15	78502,800	0,662	4,800	2,200
20	95	25	79036,400	0,602	5,600	2,400
20	95	35	79230,800	0,582	4,600	2,200
20	95	45	79425,200	0,618	5,600	2,400

Table O.1 continued from previous page

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
20	95	55	79620,000	0,612	5,600	2,400
20	95	65	79814,400	0,590	5,600	2,400
20	95	75	80008,800	0,610	5,600	2,400
20	95	85	80203,200	0,690	5,600	2,400
20	95	95	80397,600	0,572	5,600	2,400
25	5	5	86719,600	2,048	8,200	3,800
25	5	15	87838,800	1,780	7,000	3,400
25	5	25	88576,000	1,718	6,800	3,400
25	5	35	89112,000	1,824	6,800	3,400
25	5	45	89180,800	1,884	6,600	3,600
25	5	55	89180,800	1,856	6,600	3,600
25	5	65	89180,800	1,946	6,600	3,600
25	5	75	89180,800	1,748	6,200	3,400
25	5	85	89180,800	1,718	6,200	3,400
25	5	95	89182,400	1,806	6,200	3,400
25	15	5	87114,800	1,964	7,000	3,400
25	15	15	88891,200	1,738	7,000	3,400
25	15	25	90223,200	2,100	7,600	3,600
25	15	35	90848,800	2,284	8,200	3,800
25	15	45	91457,200	2,526	8,200	3,800
25	15	55	91870,800	2,772	9,200	4,200
25	15	65	92081,600	2,670	8,400	3,800
25	15	75	92255,600	2,592	8,600	3,800
25	15	85	92255,600	2,160	7,800	3,400
25	15	95	92255,600	2,166	8,000	3,400
25	25	5	88959,200	2,422	7,800	3,800
25	25	15	94004,400	2,728	7,200	3,600
25	25	25	97360,000	3,264	8,400	4,000
25	25	35	99734,800	3,020	6,600	3,200
25	25	45	101866,800	3,348	7,600	3,400
25	25	55	103810,000	6,830	10,400	4,400
25	25	65	105382,000	8,132	9,200	4,000
25	25	75	106406,400	12,576	11,400	5,000
25	25	85	106881,600	12,026	9,800	4,400
25	25	95	107183,200	11,316	9,400	4,200
25	35	5	89073,200	2,134	8,400	3,800
25	35	15	94555,600	2,568	7,800	3,600
25	35	25	98357,200	2,772	6,400	3,400
25	35	35	100642,000	4,756	9,000	4,400
25	35	45	101998,800	3,660	7,600	3,600
25	35	55	103240,000	3,870	6,800	3,200
25	35	65	104336,800	5,040	6,600	3,400

Table O.1 continued from previous page

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
25	35	75	105375,600	9,466	7,200	3,400
25	35	85	106272,000	17,256	9,200	4,200
25	35	95	106692,400	12,804	9,400	4,200
25	45	5	89022,400	1,770	6,400	3,200
25	45	15	93934,800	1,792	4,800	2,800
25	45	25	98053,600	1,868	5,400	3,000
25	45	35	101226,800	2,630	6,600	3,200
25	45	45	103153,600	4,864	7,200	3,400
25	45	55	104513,600	3,456	6,000	3,000
25	45	65	105594,400	5,302	7,200	3,200
25	45	75	106621,600	7,724	7,000	3,200
25	45	85	107647,600	8,774	6,600	3,200
25	45	95	108640,400	12,106	8,000	3,600
25	55	5	89101,200	2,316	7,600	3,600
25	55	15	94080,000	2,604	8,200	3,800
25	55	25	98106,000	2,436	7,800	3,600
25	55	35	101216,000	3,620	8,200	3,800
25	55	45	103572,400	3,472	8,200	3,200
25	55	55	105502,800	4,586	8,000	3,400
25	55	65	107356,000	9,340	8,600	3,400
25	55	75	109116,800	20,580	11,800	4,600
25	55	85	110671,600	21,628	14,000	5,000
25	55	95	111909,200	20,482	15,200	5,200
25	65	5	88461,600	2,252	7,800	3,800
25	65	15	92612,800	2,432	7,000	3,400
25	65	25	96258,800	3,078	7,200	3,600
25	65	35	98594,400	3,168	7,800	3,400
25	65	45	100316,800	3,748	7,800	3,200
25	65	55	101686,000	4,490	8,800	3,200
25	65	65	102815,200	6,184	8,200	3,000
25	65	75	103719,200	7,544	8,200	3,000
25	65	85	104533,200	11,118	10,200	3,800
25	65	95	105348,000	10,028	10,000	4,000
25	75	5	87989,600	2,386	8,600	4,000
25	75	15	91098,000	2,526	8,400	3,800
25	75	25	93412,400	3,044	9,000	4,200
25	75	35	94789,600	3,354	8,800	4,200
25	75	45	95808,400	3,514	9,600	4,600
25	75	55	96689,200	3,192	8,800	4,200
25	75	65	97426,000	4,008	9,800	4,800
25	75	75	97881,600	3,818	9,200	4,600
25	75	85	98304,000	4,140	9,600	4,600

Table O.1 continued from previous page

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
25	75	95	98726,800	4,328	9,800	4,800
25	85	5	87396,400	1,904	7,400	3,400
25	85	15	89539,600	1,814	5,800	2,800
25	85	25	91002,800	1,460	5,200	2,600
25	85	35	92160,400	1,928	6,000	3,000
25	85	45	92963,600	1,654	5,800	2,600
25	85	55	93680,000	1,658	6,200	2,800
25	85	65	94237,600	1,908	7,000	3,200
25	85	75	94540,800	1,956	6,400	3,000
25	85	85	94751,200	1,978	7,800	3,200
25	85	95	94846,400	2,212	7,600	3,400
25	95	5	86609,600	2,020	7,800	3,400
25	95	15	87406,000	2,374	7,400	3,600
25	95	25	87731,200	2,440	8,000	4,000
25	95	35	87926,000	2,424	8,200	4,000
25	95	45	88120,800	2,446	8,200	4,000
25	95	55	88315,600	2,192	7,600	3,800
25	95	65	88492,400	2,608	8,600	4,000
25	95	75	88492,400	2,436	8,800	4,000
25	95	85	88492,400	2,320	8,000	3,800
25	95	95	88492,400	2,576	8,600	4,000
30	5	5	93701,600	2,726	7,000	3,200
30	5	15	94705,200	2,716	6,600	3,200
30	5	25	95485,600	3,450	8,600	3,600
30	5	35	95812,000	3,398	8,800	3,600
30	5	45	95812,000	3,678	9,400	3,800
30	5	55	95812,000	2,674	7,200	3,000
30	5	65	95812,000	2,974	7,200	3,000
30	5	75	95812,000	2,942	7,200	3,000
30	5	85	95812,000	2,660	7,200	3,000
30	5	95	95812,000	2,550	7,200	3,000
30	15	5	94617,200	2,812	6,800	3,200
30	15	15	96140,400	1,956	5,000	2,600
30	15	25	97567,200	2,650	4,800	2,400
30	15	35	98606,000	2,094	4,600	2,400
30	15	45	99230,800	2,162	4,600	2,400
30	15	55	99738,800	2,662	6,000	2,800
30	15	65	100153,600	2,526	6,000	2,800
30	15	75	100558,800	3,598	7,000	3,200
30	15	85	100763,600	3,256	6,600	3,000
30	15	95	100968,400	3,122	6,600	3,000
30	25	5	95349,200	2,346	7,200	3,200

Table O.1 continued from previous page

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
30	25	15	98255,200	4,054	8,400	3,600
30	25	25	100536,000	3,612	7,800	3,400
30	25	35	102718,800	4,766	9,400	4,000
30	25	45	104272,800	5,478	9,600	4,000
30	25	55	105132,800	5,388	10,000	4,200
30	25	65	105522,000	4,816	8,200	4,000
30	25	75	105679,200	5,426	9,600	4,200
30	25	85	105679,200	3,916	8,600	3,800
30	25	95	105679,200	3,760	8,000	3,600
30	35	5	96636,400	2,608	7,200	3,400
30	35	15	102326,400	2,716	6,400	3,000
30	35	25	106858,800	4,280	8,600	3,200
30	35	35	110126,000	7,498	9,600	4,000
30	35	45	112367,600	14,356	11,600	4,800
30	35	55	113822,000	30,630	12,600	5,000
30	35	65	114988,000	43,168	16,200	5,600
30	35	75	115538,800	39,150	14,600	5,200
30	35	85	115938,400	40,786	15,800	5,600
30	35	95	116338,000	40,908	14,600	5,200
30	45	5	96461,600	2,558	6,200	2,800
30	45	15	101183,600	1,946	5,000	2,600
30	45	25	104369,600	2,458	4,400	2,400
30	45	35	107136,400	3,294	5,000	2,600
30	45	45	109194,000	3,172	3,400	2,200
30	45	55	110570,400	4,942	4,400	2,600
30	45	65	111660,800	4,676	4,800	2,400
30	45	75	112603,200	6,876	5,400	2,600
30	45	85	113221,600	7,792	5,200	2,600
30	45	95	113826,000	11,042	5,600	3,000
30	55	5	96509,200	2,270	6,200	2,800
30	55	15	102474,000	4,230	7,600	3,200
30	55	25	106990,800	5,040	8,400	3,600
30	55	35	109925,600	9,768	11,200	4,200
30	55	45	112236,800	17,452	11,800	4,600
30	55	55	114247,200	42,398	13,800	5,000
30	55	65	115854,400	42,906	15,800	5,600
30	55	75	117129,600	57,298	17,800	6,200
30	55	85	118306,800	81,550	21,400	7,000
30	55	95	119332,800	110,854	26,000	8,400
30	65	5	95694,800	2,558	6,600	3,200
30	65	15	99647,600	3,022	6,200	3,400
30	65	25	102088,800	3,258	6,200	3,400

Table O.1 continued from previous page

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
30	65	35	104266,800	3,930	6,200	2,800
30	65	45	106116,800	4,514	6,800	3,200
30	65	55	107696,400	8,010	5,400	3,000
30	65	65	109038,400	9,042	6,400	2,800
30	65	75	110087,200	7,378	6,600	3,000
30	65	85	111108,000	9,646	6,400	2,800
30	65	95	111947,200	26,338	7,600	3,600
30	75	5	95262,800	2,760	7,200	3,400
30	75	15	98718,800	3,372	7,000	3,200
30	75	25	101038,800	1,880	5,400	2,600
30	75	35	102692,000	2,380	5,200	2,600
30	75	45	104224,400	3,564	5,600	3,000
30	75	55	105518,800	5,886	6,200	3,400
30	75	65	106008,400	10,314	8,000	3,800
30	75	75	106213,200	8,326	7,200	3,400
30	75	85	106234,400	8,858	7,000	3,200
30	75	95	106234,400	8,900	7,600	3,400
30	85	5	94707,200	2,436	6,600	3,000
30	85	15	97117,200	2,306	7,000	3,000
30	85	25	98956,400	3,026	7,800	3,200
30	85	35	100216,800	3,240	8,000	3,200
30	85	45	100566,400	2,924	8,200	3,200
30	85	55	100631,200	3,124	8,400	3,400
30	85	65	100631,200	3,140	8,000	3,200
30	85	75	100631,200	2,734	8,000	3,200
30	85	85	100631,200	2,866	8,000	3,200
30	85	95	100631,200	2,752	8,000	3,200
30	95	5	93411,600	2,430	6,600	3,000
30	95	15	93984,800	2,356	7,800	3,200
30	95	25	94098,800	2,648	7,800	3,200
30	95	35	94098,800	2,832	7,600	3,200
30	95	45	94098,800	2,472	7,600	3,200
30	95	55	94098,800	2,580	7,600	3,200
30	95	65	94098,800	2,720	7,600	3,200
30	95	75	94098,800	2,850	7,600	3,200
30	95	85	94098,800	2,614	7,600	3,200
30	95	95	94098,800	2,384	7,600	3,200
35	5	5	98675,600	8,372	14,000	4,600
35	5	15	99544,000	7,564	13,000	4,200
35	5	25	100151,600	7,766	13,200	4,200
35	5	35	100461,600	7,534	13,000	4,200
35	5	45	100687,600	7,396	13,400	4,400

Table O.1 continued from previous page

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
35	5	55	100739,600	7,676	13,400	4,400
35	5	65	100739,600	7,302	12,800	4,200
35	5	75	100739,600	6,926	12,800	4,200
35	5	85	100739,600	7,052	12,800	4,200
35	5	95	100739,600	7,722	12,800	4,200
35	15	5	99746,000	6,038	12,200	3,600
35	15	15	102252,000	7,574	12,400	4,000
35	15	25	103764,800	7,036	10,800	3,600
35	15	35	104478,400	7,428	11,200	3,600
35	15	45	105034,000	7,254	10,800	3,400
35	15	55	105171,600	7,614	11,400	3,600
35	15	65	105171,600	6,816	11,200	3,400
35	15	75	105171,600	6,266	10,600	3,400
35	15	85	105171,600	7,254	10,600	3,400
35	15	95	105171,600	7,244	10,600	3,400
35	25	5	100551,200	6,406	13,200	3,800
35	25	15	105044,000	10,316	14,600	4,600
35	25	25	107792,800	11,144	14,600	4,600
35	25	35	109744,800	10,924	14,600	4,600
35	25	45	111197,600	13,244	14,000	4,600
35	25	55	111755,600	14,864	15,600	4,800
35	25	65	111796,000	10,208	11,600	4,000
35	25	75	111796,000	8,224	10,200	3,600
35	25	85	111796,000	8,336	10,000	3,800
35	25	95	111796,000	7,582	9,600	3,600
35	35	5	101486,400	6,562	12,800	4,000
35	35	15	106066,000	6,108	11,800	3,600
35	35	25	109384,000	6,634	10,800	3,200
35	35	35	112406,800	9,134	10,200	3,200
35	35	45	113844,400	12,408	7,800	2,800
35	35	55	116525,200	30,112	8,400	3,400
35	35	65	117909,600	41,416	8,800	3,200
35	35	75	118972,400	47,494	9,600	3,400
35	35	85	120034,800	55,230	12,400	4,000
35	35	95	121097,200	64,206	13,400	4,200
35	45	5	102471,600	6,668	13,200	3,800
35	45	15	109890,800	7,178	12,800	4,000
35	45	25	115498,000	13,210	13,000	3,800
35	45	35	119562,800	24,262	12,600	3,600
35	45	45	122289,600	69,660	14,400	4,000
35	45	55	124603,600	78,826	17,200	4,600
35	45	65	126456,000	107,932	19,000	4,600

Table O.1 continued from previous page

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
35	45	75	127807,200	160,874	21,600	5,200
35	45	85	128958,400	221,436	22,200	5,600
35	45	95	130038,400	240,216	24,200	6,200
35	55	5	102169,200	9,356	14,600	4,800
35	55	15	108203,600	9,484	12,800	4,200
35	55	25	112600,800	10,000	10,400	3,800
35	55	35	115730,800	25,124	14,800	4,600
35	55	45	118274,000	45,508	14,200	4,400
35	55	55	120474,000	63,114	15,000	4,600
35	55	65	122100,800	68,936	14,200	4,200
35	55	75	123299,200	123,796	18,000	5,600
35	55	85	124268,400	160,666	19,800	6,200
35	55	95	124956,000	197,352	20,600	6,400
35	65	5	101548,400	7,816	14,000	4,200
35	65	15	107674,800	9,770	12,400	4,000
35	65	25	112016,000	14,678	14,200	4,600
35	65	35	115441,200	29,920	14,000	4,600
35	65	45	117901,200	88,740	17,600	5,800
35	65	55	119184,400	80,460	16,600	5,600
35	65	65	120211,600	74,746	16,200	5,400
35	65	75	120863,600	83,494	17,600	5,800
35	65	85	121516,000	87,922	16,800	5,600
35	65	95	122168,000	127,156	19,400	6,600
35	75	5	101243,600	7,808	14,800	4,400
35	75	15	106428,400	10,376	15,400	4,400
35	75	25	109234,000	14,696	15,800	4,800
35	75	35	111009,600	15,788	15,600	4,800
35	75	45	112369,600	14,712	14,800	4,400
35	75	55	113450,000	15,656	14,800	4,200
35	75	65	114283,600	16,916	13,400	3,800
35	75	75	114461,200	19,428	12,000	3,600
35	75	85	114461,200	16,766	12,000	3,600
35	75	95	114461,200	17,034	14,000	4,000
35	85	5	99603,200	9,032	14,400	4,400
35	85	15	101445,600	6,198	12,200	3,600
35	85	25	102422,400	6,112	11,000	3,600
35	85	35	102988,400	5,798	10,600	3,600
35	85	45	103309,200	5,622	10,000	3,600
35	85	55	103538,800	6,776	11,400	4,200
35	85	65	103768,800	5,970	10,400	3,800
35	85	75	103882,800	5,880	9,800	3,600
35	85	85	103882,800	4,602	9,400	3,000

Table O.1 continued from previous page

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
35	85	95	103882,800	4,224	9,400	3,000
35	95	5	98501,600	6,066	12,600	3,600
35	95	15	99199,600	5,828	12,000	3,600
35	95	25	99619,200	5,158	11,600	3,400
35	95	35	99840,400	4,954	11,200	3,200
35	95	45	100026,800	4,576	10,800	3,200
35	95	55	100026,800	4,540	10,800	3,200
35	95	65	100026,800	4,006	10,600	3,000
35	95	75	100026,800	4,564	10,400	3,200
35	95	85	100028,000	3,874	10,000	3,000
35	95	95	100026,800	4,210	10,000	3,000
40	5	5	101450,400	9,682	13,000	3,800
40	5	15	102622,400	9,638	14,200	4,200
40	5	25	102925,600	8,590	12,600	3,800
40	5	35	103108,800	8,896	13,400	4,000
40	5	45	103108,800	8,276	12,800	3,800
40	5	55	103108,800	8,844	12,800	3,800
40	5	65	103108,800	7,978	12,800	3,800
40	5	75	103108,800	8,556	12,800	3,800
40	5	85	103108,800	7,698	12,800	3,800
40	5	95	103108,800	8,356	12,800	3,800
40	15	5	102628,800	8,396	12,000	3,400
40	15	15	105530,800	12,764	13,800	4,200
40	15	25	106924,000	12,206	12,800	4,200
40	15	35	107803,200	14,032	13,200	4,400
40	15	45	108187,200	12,438	12,600	4,000
40	15	55	108187,200	10,110	10,000	3,400
40	15	65	108187,200	9,304	11,000	3,600
40	15	75	108187,200	8,286	10,000	3,400
40	15	85	108187,200	8,818	10,000	3,400
40	15	95	108187,200	9,284	10,000	3,400
40	25	5	104170,800	7,858	12,400	3,400
40	25	15	109474,400	12,194	11,800	3,200
40	25	25	113094,800	15,882	13,600	4,200
40	25	35	115766,800	26,130	15,400	5,000
40	25	45	116908,400	19,694	12,400	3,800
40	25	55	117529,600	20,174	11,400	3,600
40	25	65	117932,400	20,000	10,800	3,600
40	25	75	118298,000	24,278	11,400	3,800
40	25	85	118406,000	25,956	11,200	3,800
40	25	95	118406,000	20,660	10,400	3,600
40	35	5	104749,600	10,142	13,000	3,800

Table O.1 continued from previous page

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
40	35	15	111768,000	22,596	15,600	5,200
40	35	25	116855,600	53,098	17,400	5,000
40	35	35	119957,200	65,850	16,800	4,800
40	35	45	122343,200	111,396	19,600	5,600
40	35	55	123949,200	155,416	21,400	5,600
40	35	65	125376,000	250,812	26,600	7,000
40	35	75	126208,800	428,414	31,200	8,600
40	35	85	126712,400	450,404	32,600	8,400
40	35	95	127124,400	605,396	33,600	9,000
40	45	5	105140,800	11,050	13,800	4,000
40	45	15	112582,800	17,072	16,200	4,400
40	45	25	117552,000	51,122	18,000	5,800
40	45	35	121029,200	105,002	17,000	5,600
40	45	45	123472,400	153,710	18,600	5,800
40	45	55	125388,400	161,422	19,800	5,800
40	45	65	126738,800	249,684	23,000	6,800
40	45	75	127855,600	357,444	29,000	8,800
40	45	85	128820,000	613,092	38,000	12,200
40	45	95	129635,600	663,210	39,600	12,800
40	55	5	105267,200	9,924	13,800	4,000
40	55	15	112162,000	12,380	11,200	3,600
40	55	25	116634,400	18,380	11,200	3,800
40	55	35	119890,800	33,406	11,600	4,000
40	55	45	122401,200	89,412	14,600	4,600
40	55	55	124249,600	125,324	17,600	5,800
40	55	65	125595,200	196,236	20,000	6,600
40	55	75	126533,200	188,844	20,000	6,200
40	55	85	127341,200	267,870	22,200	6,800
40	55	95	128103,600	358,294	27,200	8,000
40	65	5	104628,800	8,038	12,400	3,800
40	65	15	110976,000	13,500	11,000	3,600
40	65	25	114637,600	12,840	10,200	3,600
40	65	35	117437,200	20,556	12,000	4,000
40	65	45	118516,400	45,006	13,000	4,400
40	65	55	119332,400	51,588	14,000	4,800
40	65	65	120148,000	52,848	14,400	4,400
40	65	75	120782,400	76,496	16,400	5,600
40	65	85	121392,800	111,994	20,200	6,200
40	65	95	122003,600	122,242	19,200	6,400
40	75	5	104701,600	10,044	13,400	3,800
40	75	15	110739,200	15,642	14,200	4,200
40	75	25	114254,800	24,172	15,600	4,800

Table O.1 continued from previous page

n	f	w	(2.15) o	(2.15) t	(2.15) s	(2.15) r
40	75	35	116106,800	22,194	13,600	4,400
40	75	45	117264,000	33,318	12,400	4,000
40	75	55	118297,600	24,406	11,400	3,800
40	75	65	119316,000	34,664	15,400	4,800
40	75	75	120141,200	43,694	16,200	4,800
40	75	85	120947,600	66,908	15,800	4,800
40	75	95	121496,000	74,780	15,600	5,000
40	85	5	103066,800	6,568	11,200	3,000
40	85	15	106631,200	9,400	11,400	3,400
40	85	25	108374,400	6,892	9,200	2,800
40	85	35	109519,600	9,862	11,200	3,600
40	85	45	110178,800	11,088	11,200	3,600
40	85	55	110611,600	7,850	9,000	3,200
40	85	65	110819,600	6,672	8,400	2,800
40	85	75	110920,800	6,862	8,200	2,800
40	85	85	110920,800	6,470	8,200	2,800
40	85	95	110920,800	6,870	8,400	2,800
40	95	5	101428,000	7,808	13,200	3,600
40	95	15	102655,600	11,520	13,600	4,000
40	95	25	103002,400	11,670	13,600	4,200
40	95	35	103190,800	12,212	13,600	4,200
40	95	45	103379,200	13,276	14,400	4,400
40	95	55	103478,000	10,608	12,800	4,000
40	95	65	103478,000	12,734	13,400	4,200
40	95	75	103478,000	11,768	12,800	4,000
40	95	85	103478,000	13,082	13,600	4,200
40	95	95	103478,000	10,868	12,800	4,000

Table O.1: Aggregated Computational Results for (2.15)

Appendix P

Aggregated Computational Results for (2.16)

NOTE:

n - Number of nodes in the graph

f - Percentage of flagged edges in an instance

w - Reload costs relative to the average edge weight

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
10	5	5	58612,400	0,114	2,200	2,000
10	5	15	59401,600	0,126	2,800	2,200
10	5	25	59683,600	0,130	2,800	2,200
10	5	35	59880,000	0,126	2,800	2,200
10	5	45	60076,800	0,130	2,800	2,200
10	5	55	60186,000	0,128	2,800	2,200
10	5	65	60186,000	0,128	2,800	2,200
10	5	75	60186,000	0,128	2,800	2,200
10	5	85	60186,000	0,130	2,800	2,200
10	5	95	60186,000	0,130	2,800	2,200
10	15	5	58681,200	0,112	2,200	2,000
10	15	15	59530,000	0,112	2,200	2,000
10	15	25	60373,600	0,104	1,800	1,800
10	15	35	61046,400	0,112	2,400	2,000
10	15	45	61358,800	0,116	2,400	2,000
10	15	55	61515,600	0,104	2,000	1,800
10	15	65	61515,600	0,104	2,000	1,800
10	15	75	61515,600	0,090	1,400	1,600
10	15	85	61515,600	0,092	1,400	1,600
10	15	95	61515,600	0,090	1,400	1,600
10	25	5	58814,800	0,114	2,200	2,000
10	25	15	60075,600	0,102	2,000	1,800
10	25	25	61050,800	0,108	2,000	1,800
10	25	35	61916,800	0,092	1,600	1,600
10	25	45	62783,200	0,092	1,600	1,600
10	25	55	63650,400	0,096	1,600	1,600
10	25	65	64516,800	0,102	1,400	1,600
10	25	75	65169,200	0,096	1,400	1,600
10	25	85	65790,400	0,112	1,800	1,800
10	25	95	66218,400	0,100	1,400	1,600
10	35	5	59198,800	0,116	2,200	2,000
10	35	15	61180,400	0,100	1,800	1,800
10	35	25	63023,200	0,114	1,800	1,800
10	35	35	64766,000	0,122	1,800	1,800
10	35	45	66020,800	0,106	1,400	1,600
10	35	55	67124,400	0,092	1,000	1,400
10	35	65	68152,400	0,086	1,000	1,400
10	35	75	69004,800	0,092	1,000	1,400
10	35	85	69857,600	0,092	1,000	1,400
10	35	95	70710,000	0,110	1,400	1,600
10	45	5	59409,200	0,116	2,200	2,000
10	45	15	61826,800	0,124	2,400	2,000
10	45	25	63918,000	0,096	1,600	1,600

Table P.1 continued from previous page

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
10	45	35	65659,200	0,112	2,000	1,800
10	45	45	67042,400	0,132	2,400	2,000
10	45	55	68266,800	0,140	2,200	2,000
10	45	65	69403,200	0,168	3,200	2,400
10	45	75	70429,600	0,182	3,200	2,400
10	45	85	71456,400	0,170	2,800	2,200
10	45	95	72482,800	0,182	2,800	2,200
10	55	5	59409,200	0,114	2,200	2,000
10	55	15	61680,800	0,118	2,200	2,000
10	55	25	63603,200	0,132	2,800	2,200
10	55	35	65317,600	0,156	3,200	2,400
10	55	45	66599,200	0,120	2,400	2,000
10	55	55	67466,400	0,126	2,600	2,200
10	55	65	68332,800	0,118	2,200	2,000
10	55	75	69198,800	0,120	2,000	2,000
10	55	85	70065,200	0,118	1,600	1,800
10	55	95	70931,600	0,122	1,600	1,800
10	65	5	59534,800	0,116	2,200	2,000
10	65	15	61800,800	0,106	1,800	1,800
10	65	25	63858,400	0,108	1,800	1,800
10	65	35	65665,200	0,102	1,400	1,600
10	65	45	67362,400	0,102	1,400	1,600
10	65	55	68532,400	0,086	1,000	1,400
10	65	65	69349,200	0,114	1,800	1,800
10	65	75	69790,800	0,108	1,400	1,600
10	65	85	70232,800	0,124	2,000	1,800
10	65	95	70674,800	0,140	2,400	2,000
10	75	5	59115,600	0,114	2,200	2,000
10	75	15	60526,800	0,108	1,800	1,800
10	75	25	61730,000	0,094	1,400	1,600
10	75	35	62624,400	0,090	1,600	1,600
10	75	45	63400,400	0,090	1,600	1,600
10	75	55	63988,800	0,090	1,600	1,600
10	75	65	64519,600	0,090	1,400	1,600
10	75	75	65050,400	0,090	1,400	1,600
10	75	85	65581,600	0,100	1,400	1,600
10	75	95	66080,800	0,114	1,800	1,800
10	85	5	58724,800	0,116	2,200	2,000
10	85	15	59667,600	0,116	2,400	2,000
10	85	25	60271,600	0,122	2,800	2,200
10	85	35	60298,400	0,114	2,200	2,000
10	85	45	60298,400	0,116	2,200	2,000

Table P.1 continued from previous page

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
10	85	55	60298,400	0,114	2,200	2,000
10	85	65	60298,400	0,124	2,400	2,200
10	85	75	60298,400	0,122	2,400	2,200
10	85	85	60298,400	0,124	2,400	2,200
10	85	95	60298,400	0,120	2,400	2,200
10	95	5	58817,200	0,116	2,200	2,000
10	95	15	60094,000	0,116	2,400	2,000
10	95	25	61020,400	0,156	3,200	2,400
10	95	35	61352,000	0,140	3,200	2,400
10	95	45	61602,400	0,124	2,800	2,200
10	95	55	61852,800	0,124	2,800	2,200
10	95	65	62103,200	0,124	2,800	2,200
10	95	75	62353,600	0,120	2,800	2,200
10	95	85	62604,000	0,136	3,200	2,400
10	95	95	62854,400	0,132	3,200	2,400
15	5	5	68981,200	0,260	4,000	2,200
15	5	15	68981,200	0,240	4,000	2,200
15	5	25	68981,200	0,256	3,800	2,200
15	5	35	68981,200	0,252	3,800	2,200
15	5	45	68981,200	0,242	3,800	2,200
15	5	55	68981,200	0,258	3,800	2,200
15	5	65	68981,200	0,254	3,800	2,200
15	5	75	68981,200	0,252	3,800	2,200
15	5	85	68981,200	0,250	3,800	2,200
15	5	95	68981,200	0,250	3,800	2,200
15	15	5	69520,400	0,238	4,200	2,200
15	15	15	70577,600	0,248	4,200	2,200
15	15	25	71221,600	0,254	4,200	2,200
15	15	35	71586,000	0,250	4,200	2,200
15	15	45	71810,000	0,250	4,200	2,200
15	15	55	71834,000	0,252	4,200	2,200
15	15	65	71834,000	0,254	4,200	2,200
15	15	75	71834,000	0,272	4,200	2,400
15	15	85	71834,000	0,268	4,000	2,400
15	15	95	71834,000	0,272	4,000	2,400
15	25	5	70424,000	0,262	4,400	2,200
15	25	15	72768,000	0,340	5,200	2,600
15	25	25	74780,000	0,336	5,000	2,400
15	25	35	76731,600	0,414	5,400	2,800
15	25	45	78443,200	0,418	4,600	2,400
15	25	55	79616,000	0,438	5,000	2,600
15	25	65	80510,800	0,440	4,600	2,400

Table P.1 continued from previous page

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
15	25	75	81204,400	0,510	4,600	2,600
15	25	85	81480,000	0,420	3,800	2,400
15	25	95	81700,800	0,416	3,800	2,400
15	35	5	70352,000	0,228	4,200	2,200
15	35	15	72622,400	0,228	3,600	2,000
15	35	25	74395,600	0,236	2,400	1,800
15	35	35	76109,200	0,286	2,400	1,800
15	35	45	77566,400	0,324	3,000	2,000
15	35	55	78808,400	0,332	3,000	2,000
15	35	65	79852,000	0,410	4,000	2,400
15	35	75	80896,000	0,568	4,400	2,600
15	35	85	81694,000	0,630	4,600	2,600
15	35	95	82201,200	1,062	5,000	2,800
15	45	5	70855,200	0,204	3,800	2,000
15	45	15	74553,600	0,272	4,000	2,200
15	45	25	77595,200	0,276	3,000	2,000
15	45	35	79926,000	0,314	2,600	1,800
15	45	45	82132,400	0,508	4,200	2,400
15	45	55	84223,600	0,712	4,200	2,400
15	45	65	86060,000	0,784	4,400	2,400
15	45	75	87630,000	0,896	4,400	2,400
15	45	85	89071,600	1,786	5,200	3,000
15	45	95	90246,800	2,092	6,600	3,400
15	55	5	70464,800	0,218	3,800	2,000
15	55	15	73422,400	0,258	3,400	2,000
15	55	25	75783,600	0,270	3,200	2,000
15	55	35	77486,000	0,232	3,000	1,800
15	55	45	79160,000	0,300	3,200	1,800
15	55	55	80556,800	0,328	2,800	1,800
15	55	65	81822,000	0,428	2,800	2,000
15	55	75	82970,400	0,554	3,200	2,200
15	55	85	84040,000	0,690	3,800	2,400
15	55	95	85110,000	0,976	4,000	2,400
15	65	5	70371,200	0,244	4,400	2,200
15	65	15	72890,400	0,244	4,200	2,200
15	65	25	75096,400	0,248	3,600	2,000
15	65	35	76812,000	0,276	3,600	2,000
15	65	45	77934,400	0,368	3,800	2,200
15	65	55	78800,000	0,406	4,200	2,400
15	65	65	79493,600	0,440	4,400	2,400
15	65	75	80136,000	0,484	4,400	2,400
15	65	85	80710,000	0,596	4,400	2,400

Table P.1 continued from previous page

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
15	65	95	80933,200	0,658	4,200	2,400
15	75	5	70362,400	0,246	4,200	2,200
15	75	15	72444,800	0,262	4,000	2,200
15	75	25	73830,000	0,262	3,600	2,200
15	75	35	74681,200	0,298	3,800	2,400
15	75	45	75532,800	0,310	3,800	2,400
15	75	55	76146,000	0,324	3,800	2,400
15	75	65	76593,200	0,306	3,400	2,200
15	75	75	77040,400	0,334	3,200	2,200
15	75	85	77318,800	0,378	3,600	2,400
15	75	95	77490,400	0,292	2,800	2,000
15	85	5	70061,600	0,232	4,000	2,200
15	85	15	71992,000	0,252	4,000	2,200
15	85	25	73488,000	0,272	4,200	2,400
15	85	35	74196,800	0,256	4,200	2,400
15	85	45	74616,000	0,242	3,800	2,200
15	85	55	75034,800	0,240	3,600	2,200
15	85	65	75453,600	0,242	3,600	2,200
15	85	75	75677,600	0,248	3,600	2,200
15	85	85	75901,200	0,244	3,600	2,200
15	85	95	76125,200	0,250	3,600	2,200
15	95	5	69367,200	0,246	4,200	2,200
15	95	15	70080,800	0,240	4,000	2,200
15	95	25	70587,600	0,278	4,200	2,400
15	95	35	70819,600	0,272	4,200	2,400
15	95	45	70862,400	0,270	4,200	2,400
15	95	55	70862,400	0,270	4,200	2,400
15	95	65	70862,400	0,272	4,000	2,400
15	95	75	70862,400	0,274	4,000	2,400
15	95	85	70862,400	0,268	4,000	2,400
15	95	95	70862,400	0,280	4,000	2,400
20	5	5	77616,400	0,572	4,800	2,200
20	5	15	78036,400	0,618	4,800	2,200
20	5	25	78182,000	0,678	4,800	2,400
20	5	35	78182,000	0,650	4,800	2,400
20	5	45	78182,000	0,560	4,200	2,200
20	5	55	78182,000	0,604	4,200	2,200
20	5	65	78182,000	0,580	4,200	2,200
20	5	75	78182,000	0,610	4,200	2,200
20	5	85	78182,000	0,608	4,200	2,200
20	5	95	78182,000	0,626	4,200	2,200
20	15	5	78996,000	0,664	5,400	2,400

Table P.1 continued from previous page

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
20	15	15	81477,200	0,656	5,000	2,200
20	15	25	82715,200	0,668	6,000	2,600
20	15	35	83676,000	0,668	7,400	2,800
20	15	45	84209,600	0,722	7,400	3,000
20	15	55	84633,200	0,702	6,600	2,800
20	15	65	85057,600	0,670	6,200	2,600
20	15	75	85481,600	0,756	6,600	2,800
20	15	85	85666,800	0,772	7,200	3,000
20	15	95	85666,800	0,714	6,600	2,800
20	25	5	79737,600	0,552	5,000	2,200
20	25	15	83402,800	0,600	5,000	2,200
20	25	25	85614,000	0,610	5,000	2,200
20	25	35	86938,400	0,700	5,400	2,400
20	25	45	87973,600	0,638	4,600	2,200
20	25	55	88948,000	0,844	5,000	2,400
20	25	65	89627,200	0,982	6,000	2,800
20	25	75	89926,000	1,150	6,400	3,200
20	25	85	90120,400	1,218	6,400	3,200
20	25	95	90314,800	1,192	6,400	3,200
20	35	5	79652,000	0,566	4,600	2,200
20	35	15	83384,800	0,760	4,600	2,200
20	35	25	85944,000	0,990	6,200	2,800
20	35	35	87934,000	1,024	6,200	2,800
20	35	45	89523,200	0,908	4,600	2,400
20	35	55	90986,400	1,098	4,600	2,400
20	35	65	92261,200	1,314	3,800	2,400
20	35	75	93536,800	1,806	3,600	2,400
20	35	85	94811,600	2,102	4,200	2,600
20	35	95	95818,800	3,204	5,400	3,000
20	45	5	80114,000	0,718	5,400	2,400
20	45	15	84936,400	0,880	6,600	2,800
20	45	25	87948,800	1,184	6,600	3,000
20	45	35	89752,800	1,146	6,200	2,800
20	45	45	91486,400	1,474	6,000	2,800
20	45	55	92985,600	1,728	6,000	2,800
20	45	65	94335,200	2,594	7,400	3,200
20	45	75	95646,000	2,624	7,400	3,400
20	45	85	96956,000	3,822	8,800	3,800
20	45	95	98047,200	4,010	8,600	3,800
20	55	5	80342,800	0,628	4,800	2,200
20	55	15	84831,200	0,778	5,400	2,400
20	55	25	88413,600	0,766	5,600	2,600

Table P.1 continued from previous page

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
20	55	35	91303,600	1,078	5,000	2,600
20	55	45	93238,400	1,330	5,400	2,800
20	55	55	94768,400	1,734	5,600	2,800
20	55	65	96101,600	2,120	6,600	3,000
20	55	75	97038,000	3,294	7,600	3,400
20	55	85	97723,200	4,700	9,000	4,000
20	55	95	98409,200	6,794	9,600	4,000
20	65	5	79040,800	0,628	4,400	2,000
20	65	15	82184,400	0,786	4,600	2,400
20	65	25	84787,600	0,732	5,000	2,400
20	65	35	86868,800	0,962	5,200	2,600
20	65	45	88640,800	1,204	5,000	2,600
20	65	55	90127,200	1,652	6,200	3,200
20	65	65	91340,800	1,746	4,200	2,400
20	65	75	92462,400	1,338	3,600	2,200
20	65	85	93583,200	1,820	4,200	2,400
20	65	95	94704,400	2,704	4,600	2,600
20	75	5	79266,000	0,664	5,400	2,400
20	75	15	82122,000	0,636	4,600	2,200
20	75	25	84197,200	0,772	5,200	2,600
20	75	35	85687,600	0,892	5,400	2,800
20	75	45	86813,600	0,870	4,800	2,600
20	75	55	87874,000	0,970	5,600	2,800
20	75	65	88658,400	1,086	5,800	2,800
20	75	75	89308,000	1,100	5,800	2,800
20	75	85	89924,800	1,332	6,600	3,000
20	75	95	90186,400	1,622	6,400	3,200
20	85	5	78686,400	0,620	5,000	2,200
20	85	15	80469,200	0,640	4,800	2,200
20	85	25	81708,400	0,666	4,800	2,200
20	85	35	82597,600	0,854	6,600	2,800
20	85	45	83244,000	0,900	6,200	2,800
20	85	55	83768,800	0,854	5,600	2,600
20	85	65	84183,600	0,792	5,600	2,600
20	85	75	84598,400	0,838	5,600	2,600
20	85	85	85012,800	0,876	6,000	2,800
20	85	95	85204,800	0,858	6,200	2,800
20	95	5	77804,400	0,616	5,000	2,200
20	95	15	78502,800	0,602	4,800	2,200
20	95	25	79036,400	0,612	5,600	2,400
20	95	35	79230,800	0,602	4,600	2,200
20	95	45	79425,200	0,640	5,600	2,400

Table P.1 continued from previous page

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
20	95	55	79620,000	0,692	5,600	2,400
20	95	65	79814,400	0,640	5,600	2,400
20	95	75	80008,800	0,626	5,600	2,400
20	95	85	80203,200	0,616	5,600	2,400
20	95	95	80397,600	0,588	5,600	2,400
25	5	5	86721,200	1,818	7,600	3,600
25	5	15	87840,400	1,650	7,000	3,400
25	5	25	88576,000	1,686	7,200	3,600
25	5	35	89112,000	1,714	7,200	3,600
25	5	45	89180,800	1,824	7,000	3,800
25	5	55	89180,800	1,798	7,000	3,800
25	5	65	89180,800	1,968	7,200	3,800
25	5	75	89180,800	1,780	6,600	3,600
25	5	85	89180,800	1,692	6,600	3,600
25	5	95	89180,800	1,864	6,600	3,600
25	15	5	87114,800	1,778	7,200	3,400
25	15	15	88891,200	1,874	7,800	3,600
25	15	25	90223,200	2,306	8,400	4,000
25	15	35	90848,800	2,180	8,400	3,800
25	15	45	91457,200	2,232	8,400	3,800
25	15	55	91870,800	2,164	8,400	3,800
25	15	65	92081,600	2,308	8,400	3,800
25	15	75	92255,600	2,308	8,400	3,800
25	15	85	92255,600	2,040	7,600	3,400
25	15	95	92255,600	1,858	7,000	3,200
25	25	5	88960,800	2,116	8,000	3,800
25	25	15	94004,400	2,434	7,200	3,600
25	25	25	97360,000	3,046	8,600	4,000
25	25	35	99736,400	2,706	8,000	3,600
25	25	45	101868,400	3,098	7,600	3,400
25	25	55	103810,000	6,708	10,200	4,600
25	25	65	105383,600	6,466	9,600	4,200
25	25	75	106406,400	10,256	11,400	5,200
25	25	85	106881,600	10,094	10,000	4,400
25	25	95	107183,200	9,446	10,000	4,400
25	35	5	89074,800	2,154	8,000	3,800
25	35	15	94555,600	2,090	8,000	3,600
25	35	25	98357,200	2,608	7,200	3,800
25	35	35	100642,000	3,350	8,000	4,000
25	35	45	101998,800	3,114	7,600	3,600
25	35	55	103240,000	2,740	7,000	3,400
25	35	65	104336,800	2,986	6,400	3,200

Table P.1 continued from previous page

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
25	35	75	105375,600	5,328	7,200	3,400
25	35	85	106272,000	10,720	9,400	4,400
25	35	95	106692,400	11,372	9,600	4,200
25	45	5	89022,400	1,898	6,800	3,400
25	45	15	93934,800	1,700	4,800	2,800
25	45	25	98053,600	1,736	5,400	3,000
25	45	35	101226,800	2,670	7,000	3,400
25	45	45	103153,600	4,446	7,600	3,600
25	45	55	104513,600	3,396	6,400	3,200
25	45	65	105594,400	4,330	7,000	3,200
25	45	75	106621,600	6,736	7,600	3,600
25	45	85	107647,600	7,568	7,800	3,800
25	45	95	108640,400	9,484	9,200	4,200
25	55	5	89101,200	2,050	8,200	3,800
25	55	15	94080,000	2,296	9,200	4,200
25	55	25	98106,000	2,206	7,800	3,600
25	55	35	101216,000	3,064	8,200	3,800
25	55	45	103572,400	3,184	7,200	3,000
25	55	55	105502,800	4,042	7,800	3,400
25	55	65	107356,000	6,942	9,000	3,800
25	55	75	109116,800	15,632	11,200	4,400
25	55	85	110671,600	22,054	15,200	5,400
25	55	95	111909,200	26,236	15,200	5,200
25	65	5	88461,600	2,002	8,000	3,800
25	65	15	92612,800	2,206	7,800	3,600
25	65	25	96258,800	2,522	7,200	3,600
25	65	35	98594,400	2,982	7,800	3,400
25	65	45	100316,800	2,802	6,800	2,800
25	65	55	101686,000	3,076	8,000	2,800
25	65	65	102815,200	4,566	8,200	3,000
25	65	75	103719,200	5,666	8,200	3,000
25	65	85	104533,200	9,960	10,000	3,800
25	65	95	105348,000	10,768	10,000	4,000
25	75	5	87989,600	2,252	8,600	4,000
25	75	15	91098,000	2,276	8,400	3,800
25	75	25	93412,400	2,800	9,000	4,200
25	75	35	94789,600	3,080	8,800	4,200
25	75	45	95808,400	3,100	9,200	4,400
25	75	55	96689,200	3,130	9,200	4,400
25	75	65	97426,000	3,636	10,000	4,800
25	75	75	97881,600	3,524	9,800	4,800
25	75	85	98304,000	3,688	10,200	5,000

Table P.1 continued from previous page

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
25	75	95	98726,800	3,658	10,000	4,800
25	85	5	87396,400	1,866	7,000	3,400
25	85	15	89539,600	1,568	5,800	2,800
25	85	25	91002,800	1,516	5,200	2,600
25	85	35	92160,400	1,794	6,000	3,000
25	85	45	92963,600	1,466	5,800	2,600
25	85	55	93680,000	1,646	6,200	2,800
25	85	65	94237,600	1,752	6,400	3,000
25	85	75	94540,800	1,744	6,400	3,000
25	85	85	94751,200	1,688	6,800	3,000
25	85	95	94846,400	1,968	7,600	3,400
25	95	5	86609,600	1,914	7,600	3,600
25	95	15	87406,000	2,456	8,400	4,000
25	95	25	87731,200	2,368	8,600	4,200
25	95	35	87926,000	2,284	8,400	4,000
25	95	45	88120,800	2,220	8,400	4,000
25	95	55	88315,600	2,090	7,800	3,800
25	95	65	88492,400	2,014	8,400	3,800
25	95	75	88492,400	1,956	8,200	3,800
25	95	85	88492,400	1,944	8,200	3,800
25	95	95	88492,400	2,148	8,200	3,800
30	5	5	93701,600	2,504	7,000	3,200
30	5	15	94705,200	2,700	6,600	3,200
30	5	25	95485,600	3,598	8,600	3,600
30	5	35	95812,000	3,558	8,800	3,600
30	5	45	95812,000	3,516	8,800	3,600
30	5	55	95812,000	2,888	7,200	3,000
30	5	65	95812,000	3,534	7,800	3,200
30	5	75	95812,000	2,846	7,200	3,000
30	5	85	95812,000	2,710	7,200	3,000
30	5	95	95812,000	2,766	7,200	3,000
30	15	5	94617,200	2,852	6,800	3,200
30	15	15	96140,400	1,990	5,000	2,600
30	15	25	97567,200	2,058	4,800	2,400
30	15	35	98606,000	1,974	4,600	2,400
30	15	45	99230,800	2,120	4,600	2,400
30	15	55	99738,800	2,718	6,000	2,800
30	15	65	100153,600	2,556	6,000	2,800
30	15	75	100558,800	3,086	6,600	3,000
30	15	85	100763,600	2,920	5,800	2,800
30	15	95	100968,400	3,048	6,600	3,000
30	25	5	95349,200	2,566	7,600	3,400

Table P.1 continued from previous page

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
30	25	15	98255,200	3,232	7,800	3,400
30	25	25	100536,000	3,030	7,800	3,400
30	25	35	102718,800	4,140	9,400	4,000
30	25	45	104272,800	4,186	8,200	3,600
30	25	55	105132,800	4,820	9,400	4,200
30	25	65	105522,000	4,158	8,600	4,000
30	25	75	105679,200	4,172	8,800	4,000
30	25	85	105679,200	3,470	7,800	3,600
30	25	95	105679,200	3,406	8,800	3,800
30	35	5	96636,400	2,776	7,200	3,400
30	35	15	102326,400	3,026	7,000	3,200
30	35	25	106858,800	3,884	7,800	3,200
30	35	35	110126,000	7,152	10,200	4,000
30	35	45	112367,600	11,824	10,600	4,600
30	35	55	113822,000	19,414	11,800	4,600
30	35	65	114988,000	27,148	15,600	5,400
30	35	75	115538,800	26,706	14,200	5,200
30	35	85	115938,400	34,918	15,800	5,600
30	35	95	116338,000	35,408	15,000	5,200
30	45	5	96461,600	2,824	7,400	3,200
30	45	15	101183,600	2,144	5,000	2,600
30	45	25	104369,600	2,552	4,800	2,600
30	45	35	107136,400	3,280	5,200	2,800
30	45	45	109194,000	3,052	3,400	2,200
30	45	55	110570,400	4,614	4,400	2,600
30	45	65	111660,800	4,536	4,800	2,400
30	45	75	112603,200	6,704	5,600	2,600
30	45	85	113221,600	6,830	5,200	2,600
30	45	95	113826,000	10,004	7,200	3,400
30	55	5	96509,200	2,722	6,600	3,000
30	55	15	102474,000	4,282	8,200	3,400
30	55	25	106990,800	6,244	9,600	4,000
30	55	35	109925,600	8,938	10,800	4,400
30	55	45	112236,800	13,922	12,400	4,800
30	55	55	114247,200	28,760	14,400	5,200
30	55	65	115854,400	33,728	15,800	5,600
30	55	75	117129,600	51,922	17,600	6,000
30	55	85	118306,800	71,982	21,800	7,200
30	55	95	119332,800	105,224	25,200	8,200
30	65	5	95694,800	2,770	7,000	3,400
30	65	15	99647,600	3,256	6,200	3,400
30	65	25	102088,800	3,752	6,800	3,600

Table P.1 continued from previous page

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
30	65	35	104266,800	4,108	8,200	3,400
30	65	45	106116,800	3,930	7,000	3,200
30	65	55	107696,400	4,778	5,800	3,000
30	65	65	109038,400	5,872	6,800	3,000
30	65	75	110087,200	6,796	7,600	3,200
30	65	85	111108,000	10,042	5,800	2,600
30	65	95	111947,200	28,758	8,600	3,800
30	75	5	95262,800	3,124	7,200	3,400
30	75	15	98718,800	3,358	6,800	3,200
30	75	25	101038,800	2,148	5,400	2,600
30	75	35	102692,000	2,778	6,000	2,800
30	75	45	104224,400	3,374	6,200	3,000
30	75	55	105518,800	5,132	6,600	3,600
30	75	65	106008,400	6,472	9,000	4,200
30	75	75	106213,200	5,734	7,800	3,600
30	75	85	106234,400	4,974	7,000	3,200
30	75	95	106234,400	5,334	8,000	3,600
30	85	5	94707,200	2,628	6,600	3,000
30	85	15	97117,200	2,838	7,000	3,000
30	85	25	98956,400	3,000	7,800	3,200
30	85	35	100216,800	2,858	8,000	3,200
30	85	45	100566,400	3,100	8,200	3,200
30	85	55	100631,200	3,200	8,800	3,400
30	85	65	100631,200	3,238	8,800	3,400
30	85	75	100631,200	3,394	9,400	3,600
30	85	85	100631,200	3,118	8,800	3,400
30	85	95	100631,200	3,100	8,800	3,400
30	95	5	93411,600	2,480	6,600	3,000
30	95	15	93984,800	2,798	7,800	3,200
30	95	25	94098,800	2,992	7,800	3,200
30	95	35	94098,800	2,890	7,600	3,200
30	95	45	94098,800	2,772	7,600	3,200
30	95	55	94098,800	2,710	7,600	3,200
30	95	65	94098,800	2,674	7,600	3,200
30	95	75	94098,800	2,658	7,600	3,200
30	95	85	94098,800	2,612	7,600	3,200
30	95	95	94098,800	2,738	7,600	3,200
35	5	5	98675,600	8,296	14,000	4,600
35	5	15	99544,000	6,482	13,000	4,200
35	5	25	100151,600	6,324	13,200	4,200
35	5	35	100461,600	6,292	13,000	4,200
35	5	45	100687,600	6,742	13,400	4,400

Table P.1 continued from previous page

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
35	5	55	100739,600	6,796	12,800	4,200
35	5	65	100739,600	6,332	12,800	4,200
35	5	75	100739,600	6,336	12,800	4,200
35	5	85	100739,600	6,360	12,800	4,200
35	5	95	100739,600	6,992	12,800	4,200
35	15	5	99746,000	5,740	12,200	3,600
35	15	15	102252,000	6,822	11,800	3,800
35	15	25	103764,800	6,132	10,800	3,600
35	15	35	104478,400	6,386	11,200	3,600
35	15	45	105034,000	6,686	10,800	3,400
35	15	55	105171,600	8,092	12,600	4,000
35	15	65	105171,600	4,630	9,800	3,000
35	15	75	105171,600	5,526	10,600	3,400
35	15	85	105171,600	5,732	11,200	3,600
35	15	95	105171,600	5,436	10,600	3,400
35	25	5	100551,200	5,544	13,200	3,800
35	25	15	105044,000	10,708	15,600	5,000
35	25	25	107792,800	7,816	14,000	4,400
35	25	35	109744,800	8,300	14,000	4,400
35	25	45	111197,600	9,848	15,000	4,800
35	25	55	111755,600	12,550	16,000	5,000
35	25	65	111796,000	8,348	11,200	4,000
35	25	75	111796,000	8,216	11,400	4,000
35	25	85	111796,000	7,308	10,200	3,800
35	25	95	111796,000	7,176	10,200	3,800
35	35	5	101486,400	6,548	12,800	4,000
35	35	15	106066,000	5,752	11,800	3,600
35	35	25	109384,000	5,406	9,400	3,000
35	35	35	112406,800	7,700	10,200	3,200
35	35	45	114962,800	14,294	10,200	3,600
35	35	55	116525,200	18,638	9,200	3,600
35	35	65	117909,600	31,806	9,200	3,400
35	35	75	118972,400	36,518	9,600	3,400
35	35	85	120034,800	49,972	12,200	4,000
35	35	95	121097,200	61,400	14,200	4,400
35	45	5	102471,600	5,426	13,000	3,600
35	45	15	109890,800	6,322	12,800	4,000
35	45	25	115498,000	9,268	12,200	3,600
35	45	35	119562,800	15,384	12,600	3,600
35	45	45	122289,600	34,118	14,800	4,200
35	45	55	124603,600	73,708	17,200	4,600
35	45	65	126456,000	83,304	19,000	4,600

Table P.1 continued from previous page

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
35	45	75	127807,200	96,038	21,600	5,200
35	45	85	128958,400	120,602	22,200	5,600
35	45	95	130038,400	171,950	26,000	6,800
35	55	5	102169,200	8,394	15,000	5,000
35	55	15	108203,600	9,542	14,200	4,800
35	55	25	112600,800	7,918	10,400	3,600
35	55	35	115730,800	15,326	15,600	4,600
35	55	45	118274,000	27,342	13,600	4,200
35	55	55	120474,000	47,104	14,200	4,400
35	55	65	122100,800	65,628	15,800	4,800
35	55	75	123299,200	96,820	18,200	5,800
35	55	85	124268,400	143,526	22,000	7,000
35	55	95	124956,000	148,328	21,200	6,600
35	65	5	101548,400	6,630	14,000	4,200
35	65	15	107674,800	7,294	11,600	3,800
35	65	25	112016,000	11,458	14,200	4,600
35	65	35	115441,200	22,116	16,400	5,200
35	65	45	117901,200	53,730	19,000	6,400
35	65	55	119184,400	65,324	16,600	5,600
35	65	65	120211,600	93,128	18,800	6,200
35	65	75	120863,600	87,270	18,000	6,000
35	65	85	120910,800	88,546	15,600	5,400
35	65	95	122168,000	154,312	21,200	7,600
35	75	5	101243,600	7,508	14,800	4,400
35	75	15	106428,400	8,462	15,600	4,600
35	75	25	109234,000	9,714	15,800	4,800
35	75	35	111009,600	11,524	15,600	4,800
35	75	45	112369,600	11,196	14,400	4,400
35	75	55	113450,000	10,514	14,600	4,000
35	75	65	114283,600	11,264	13,800	4,000
35	75	75	114461,200	10,786	12,400	3,800
35	75	85	114461,200	9,790	12,000	3,600
35	75	95	114461,200	10,668	13,800	4,200
35	85	5	99603,200	7,706	14,400	4,400
35	85	15	101445,600	4,944	11,200	3,400
35	85	25	102422,400	5,462	11,000	3,600
35	85	35	102988,400	5,664	10,600	3,600
35	85	45	103309,200	6,236	10,000	3,600
35	85	55	103538,800	5,698	10,400	3,800
35	85	65	103768,800	5,530	9,800	3,600
35	85	75	103882,800	5,442	9,800	3,600
35	85	85	103882,800	4,154	9,400	3,000

Table P.1 continued from previous page

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
35	85	95	103882,800	4,190	9,400	3,000
35	95	5	98501,600	5,388	12,600	3,600
35	95	15	99199,600	4,724	12,000	3,600
35	95	25	99619,200	4,662	12,600	3,600
35	95	35	99839,200	4,326	11,200	3,200
35	95	45	100026,800	4,456	11,200	3,400
35	95	55	100026,800	4,658	11,200	3,400
35	95	65	100026,800	3,690	10,000	3,000
35	95	75	100026,800	4,232	10,400	3,200
35	95	85	100028,000	3,736	10,400	3,200
35	95	95	100026,800	3,796	10,000	3,000
40	5	5	101450,400	7,388	13,000	3,800
40	5	15	102622,400	7,772	14,000	4,200
40	5	25	102925,600	7,860	13,000	4,000
40	5	35	103108,800	8,380	13,200	4,000
40	5	45	103108,800	7,806	13,200	4,000
40	5	55	103108,800	7,060	13,200	4,000
40	5	65	103108,800	8,220	13,200	4,000
40	5	75	103108,800	7,660	13,200	4,000
40	5	85	103108,800	7,732	13,200	4,000
40	5	95	103108,800	7,406	13,200	4,000
40	15	5	102628,800	6,498	12,000	3,400
40	15	15	105530,800	7,638	13,400	4,000
40	15	25	106924,000	10,792	14,400	4,600
40	15	35	107803,200	9,754	11,600	4,000
40	15	45	108187,200	8,698	11,800	4,000
40	15	55	108187,200	6,976	10,600	3,600
40	15	65	108187,200	6,560	10,000	3,400
40	15	75	108187,200	6,386	10,800	3,600
40	15	85	108187,200	6,610	10,000	3,400
40	15	95	108187,200	6,504	10,000	3,400
40	25	5	104170,800	6,570	12,400	3,400
40	25	15	109474,400	8,752	12,200	3,400
40	25	25	113094,800	11,494	14,600	4,400
40	25	35	115766,800	17,614	15,400	5,000
40	25	45	116908,400	14,304	12,400	3,800
40	25	55	117529,600	14,240	10,800	3,400
40	25	65	117932,400	14,398	11,400	3,600
40	25	75	118298,000	16,532	11,400	3,800
40	25	85	118406,000	15,408	12,000	4,000
40	25	95	118406,000	15,268	10,800	3,800
40	35	5	104749,600	7,874	13,000	3,800

Table P.1 continued from previous page

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
40	35	15	111768,000	15,014	15,200	5,000
40	35	25	116855,600	32,444	17,000	5,200
40	35	35	119957,200	33,618	17,000	4,800
40	35	45	122343,200	76,824	19,600	5,600
40	35	55	123949,200	123,672	21,600	5,800
40	35	65	125376,000	196,100	26,400	6,800
40	35	75	126208,800	343,306	31,600	8,800
40	35	85	126712,400	315,282	32,600	8,400
40	35	95	127124,400	414,904	35,000	9,400
40	45	5	105140,800	8,244	13,800	4,000
40	45	15	112582,800	12,636	16,200	4,400
40	45	25	117552,000	29,140	18,000	5,600
40	45	35	121029,200	54,192	16,800	5,400
40	45	45	123472,400	85,178	18,200	5,800
40	45	55	125388,400	118,422	21,000	6,400
40	45	65	126738,800	184,688	23,800	7,200
40	45	75	127855,600	304,780	30,400	9,400
40	45	85	128820,000	503,082	40,000	12,800
40	45	95	129635,600	548,292	41,600	13,400
40	55	5	105267,200	7,938	13,800	4,000
40	55	15	112162,000	10,236	10,800	3,600
40	55	25	116634,400	13,416	11,000	3,800
40	55	35	119890,800	21,736	12,000	4,000
40	55	45	122401,200	51,176	14,800	4,600
40	55	55	124249,600	91,704	17,600	5,800
40	55	65	125595,200	146,228	20,000	6,600
40	55	75	126533,200	169,858	21,000	6,600
40	55	85	127341,200	198,264	23,000	7,200
40	55	95	128103,600	304,058	27,400	8,400
40	65	5	104628,800	7,100	12,400	3,800
40	65	15	110976,000	9,214	11,000	3,600
40	65	25	114637,600	9,178	9,800	3,400
40	65	35	117437,200	18,222	12,600	4,200
40	65	45	118516,400	24,842	11,000	4,000
40	65	55	119332,400	36,692	13,000	4,600
40	65	65	120148,000	31,042	13,000	4,400
40	65	75	120782,400	49,608	17,200	5,600
40	65	85	121392,800	69,390	21,800	6,600
40	65	95	122003,600	87,662	19,200	6,400
40	75	5	104701,600	8,124	13,800	3,800
40	75	15	110739,200	9,674	14,200	4,200
40	75	25	114254,800	16,174	15,800	5,000

Table P.1 continued from previous page

n	f	w	(2.16) o	(2.16) t	(2.16) s	(2.16) r
40	75	35	116106,800	13,388	13,600	4,400
40	75	45	117264,000	11,528	12,400	4,000
40	75	55	118297,600	12,078	11,400	3,800
40	75	65	119316,000	19,974	15,000	4,600
40	75	75	120141,200	27,584	15,400	4,800
40	75	85	120947,600	42,940	15,200	4,800
40	75	95	121496,000	49,198	15,800	5,000
40	85	5	103066,800	5,606	11,200	3,000
40	85	15	106631,200	7,024	11,000	3,400
40	85	25	108374,400	4,748	9,200	2,800
40	85	35	109519,600	7,764	10,600	3,600
40	85	45	110178,800	7,346	10,800	3,600
40	85	55	110611,600	6,596	8,200	3,000
40	85	65	110819,600	5,230	8,400	2,800
40	85	75	110920,800	5,844	8,200	2,800
40	85	85	110920,800	5,408	8,200	2,800
40	85	95	110920,800	5,444	8,200	2,800
40	95	5	101428,000	6,778	13,200	3,600
40	95	15	102655,600	8,592	13,600	4,000
40	95	25	103002,400	8,970	13,600	4,200
40	95	35	103190,800	9,104	13,600	4,200
40	95	45	103379,200	9,066	13,600	4,200
40	95	55	103478,000	8,710	13,600	4,200
40	95	65	103478,000	9,230	13,400	4,200
40	95	75	103478,000	9,066	13,400	4,200
40	95	85	103478,000	8,514	12,800	4,000
40	95	95	103478,000	8,804	12,800	4,000

Table P.1: Aggregated Computational Results for (2.16)

Appendix Q

Aggregated Computational Results for (2.17)

NOTE:

n - Number of nodes in the graph

f - Percentage of flagged edges in an instance

w - Reload costs relative to the average edge weight

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
10	5	5	58612,400	0,114	2,200	2,000
10	5	15	59401,600	0,126	2,800	2,200
10	5	25	59683,600	0,140	3,200	2,400
10	5	35	59880,000	0,136	3,200	2,400
10	5	45	60076,800	0,142	3,200	2,400
10	5	55	60186,000	0,138	3,200	2,400
10	5	65	60186,000	0,140	3,200	2,400
10	5	75	60186,000	0,136	3,200	2,400
10	5	85	60186,000	0,138	3,200	2,400
10	5	95	60186,000	0,138	3,200	2,400
10	15	5	58681,200	0,112	2,200	2,000
10	15	15	59530,000	0,112	2,200	2,000
10	15	25	60373,600	0,104	1,800	1,800
10	15	35	61046,400	0,110	2,400	2,000
10	15	45	61358,800	0,114	2,400	2,000
10	15	55	61515,600	0,114	2,400	2,000
10	15	65	61515,600	0,114	2,400	2,000
10	15	75	61515,600	0,102	1,800	1,800
10	15	85	61515,600	0,104	1,800	1,800
10	15	95	61515,600	0,102	1,800	1,800
10	25	5	58814,800	0,114	2,200	2,000
10	25	15	60075,600	0,104	2,000	1,800
10	25	25	61050,800	0,108	2,000	1,800
10	25	35	61916,800	0,092	1,600	1,600
10	25	45	62783,200	0,090	1,600	1,600
10	25	55	63650,400	0,102	2,000	1,800
10	25	65	64516,800	0,108	1,800	1,800
10	25	75	65169,200	0,108	1,800	1,800
10	25	85	65790,400	0,102	1,400	1,600
10	25	95	66218,400	0,094	1,400	1,600
10	35	5	59198,800	0,110	2,200	2,000
10	35	15	61180,400	0,126	1,800	1,800
10	35	25	63023,200	0,110	1,800	1,800
10	35	35	64766,000	0,138	2,200	2,000
10	35	45	66020,800	0,122	1,800	1,800
10	35	55	67124,400	0,102	1,400	1,600
10	35	65	68152,400	0,108	1,400	1,600
10	35	75	69004,800	0,106	1,400	1,600
10	35	85	69857,600	0,110	1,400	1,600
10	35	95	70710,000	0,116	1,400	1,600
10	45	5	59409,200	0,110	2,200	2,000
10	45	15	61826,800	0,120	2,400	2,000
10	45	25	63918,000	0,110	2,000	1,800

Table Q.1 continued from previous page

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
10	45	35	65659,200	0,132	2,400	2,000
10	45	45	67042,400	0,156	2,800	2,200
10	45	55	68266,800	0,148	3,000	2,200
10	45	65	69403,200	0,182	4,000	2,600
10	45	75	70429,600	0,178	3,400	2,400
10	45	85	71456,400	0,176	3,200	2,400
10	45	95	72482,800	0,230	4,000	2,800
10	55	5	59409,200	0,110	2,200	2,000
10	55	15	61680,800	0,120	2,200	2,000
10	55	25	63603,200	0,132	2,800	2,200
10	55	35	65317,600	0,152	3,200	2,400
10	55	45	66599,200	0,120	2,400	2,000
10	55	55	67466,400	0,124	2,600	2,200
10	55	65	68332,800	0,118	2,200	2,000
10	55	75	69198,800	0,128	2,000	2,000
10	55	85	70065,200	0,118	1,600	1,800
10	55	95	70931,600	0,120	1,600	1,800
10	65	5	59534,800	0,116	2,200	2,000
10	65	15	61800,800	0,102	1,800	1,800
10	65	25	63858,400	0,104	1,800	1,800
10	65	35	65665,200	0,102	1,400	1,600
10	65	45	67362,400	0,104	1,400	1,600
10	65	55	68532,400	0,108	1,400	1,600
10	65	65	69349,200	0,134	2,200	2,000
10	65	75	69790,800	0,126	1,800	1,800
10	65	85	70232,800	0,114	1,400	1,600
10	65	95	70674,800	0,118	1,400	1,600
10	75	5	59115,600	0,110	2,200	2,000
10	75	15	60526,800	0,100	1,800	1,800
10	75	25	61730,000	0,090	1,400	1,600
10	75	35	62624,400	0,092	1,600	1,600
10	75	45	63400,400	0,088	1,600	1,600
10	75	55	63988,800	0,090	1,600	1,600
10	75	65	64519,600	0,094	1,400	1,600
10	75	75	65050,400	0,092	1,400	1,600
10	75	85	65581,600	0,110	1,800	1,800
10	75	95	66080,800	0,096	1,400	1,600
10	85	5	58724,800	0,110	2,200	2,000
10	85	15	59667,600	0,116	2,400	2,000
10	85	25	60271,600	0,124	2,800	2,200
10	85	35	60298,400	0,112	2,200	2,000
10	85	45	60298,400	0,114	2,200	2,000

Table Q.1 continued from previous page

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
10	85	55	60298,400	0,114	2,200	2,000
10	85	65	60298,400	0,124	2,400	2,200
10	85	75	60298,400	0,122	2,400	2,200
10	85	85	60298,400	0,122	2,400	2,200
10	85	95	60298,400	0,122	2,400	2,200
10	95	5	58817,200	0,112	2,200	2,000
10	95	15	60094,000	0,112	2,400	2,000
10	95	25	61020,400	0,148	3,600	2,600
10	95	35	61352,000	0,148	3,600	2,600
10	95	45	61602,400	0,134	3,200	2,400
10	95	55	61852,800	0,136	3,200	2,400
10	95	65	62103,200	0,134	3,200	2,400
10	95	75	62353,600	0,138	3,200	2,400
10	95	85	62604,000	0,148	3,600	2,600
10	95	95	62854,400	0,150	3,600	2,600
15	5	5	68981,200	0,418	4,400	2,400
15	5	15	68981,200	0,266	4,400	2,400
15	5	25	68981,200	0,274	4,200	2,400
15	5	35	68981,200	0,262	4,200	2,400
15	5	45	68981,200	0,260	4,200	2,400
15	5	55	68981,200	0,266	4,200	2,400
15	5	65	68981,200	0,264	4,200	2,400
15	5	75	68981,200	0,268	4,200	2,400
15	5	85	68981,200	0,266	4,200	2,400
15	5	95	68981,200	0,262	4,200	2,400
15	15	5	69520,400	0,236	4,200	2,200
15	15	15	70577,600	0,256	4,000	2,200
15	15	25	71221,600	0,254	4,000	2,200
15	15	35	71586,000	0,250	4,000	2,200
15	15	45	71810,000	0,258	4,000	2,200
15	15	55	71834,000	0,258	4,000	2,200
15	15	65	71834,000	0,242	4,000	2,200
15	15	75	71834,000	0,262	4,000	2,400
15	15	85	71834,000	0,264	3,800	2,400
15	15	95	71834,000	0,266	3,800	2,400
15	25	5	70424,000	0,288	5,200	2,600
15	25	15	72768,000	0,336	5,600	2,800
15	25	25	74780,000	0,364	5,400	2,600
15	25	35	76731,600	0,472	6,000	3,000
15	25	45	78443,200	0,376	4,800	2,400
15	25	55	79616,000	0,498	5,600	2,800
15	25	65	80510,800	0,540	5,600	2,800

Table Q.1 continued from previous page

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
15	25	75	81204,400	0,570	5,200	2,800
15	25	85	81480,000	0,528	5,200	2,800
15	25	95	81700,800	0,508	5,200	2,800
15	35	5	70352,000	0,232	4,200	2,200
15	35	15	72622,400	0,228	3,600	2,000
15	35	25	74395,600	0,240	2,400	1,800
15	35	35	76109,200	0,254	2,400	1,800
15	35	45	77566,400	0,318	3,000	2,000
15	35	55	78808,400	0,392	3,400	2,200
15	35	65	79852,000	0,456	4,200	2,400
15	35	75	80896,000	0,746	4,800	2,600
15	35	85	81694,000	1,214	5,600	3,000
15	35	95	82201,200	1,136	5,200	3,000
15	45	5	70855,200	0,250	4,600	2,400
15	45	15	74553,600	0,246	4,000	2,200
15	45	25	77595,200	0,268	3,000	2,000
15	45	35	79926,000	0,322	3,400	2,000
15	45	45	82132,400	0,498	4,200	2,400
15	45	55	84223,600	0,788	4,600	2,600
15	45	65	86060,000	1,010	5,000	2,600
15	45	75	87630,000	1,370	5,400	2,800
15	45	85	89071,600	1,978	6,600	3,400
15	45	95	90246,800	1,880	8,000	3,800
15	55	5	70464,800	0,266	4,600	2,400
15	55	15	73422,400	0,318	4,200	2,400
15	55	25	75783,600	0,288	3,200	2,000
15	55	35	77486,000	0,234	3,000	1,800
15	55	45	79160,000	0,296	3,200	1,800
15	55	55	80556,800	0,362	2,800	1,800
15	55	65	81822,000	0,418	2,800	2,000
15	55	75	82970,400	0,616	4,200	2,600
15	55	85	84040,000	0,710	3,800	2,400
15	55	95	85110,000	0,682	4,000	2,400
15	65	5	70371,200	0,272	4,800	2,400
15	65	15	72890,400	0,270	4,600	2,400
15	65	25	75096,400	0,254	4,000	2,200
15	65	35	76812,000	0,300	4,000	2,200
15	65	45	77934,400	0,562	4,800	2,600
15	65	55	78800,000	0,444	4,600	2,600
15	65	65	79493,600	0,654	5,600	3,000
15	65	75	80136,000	0,844	5,600	3,000
15	65	85	80710,000	1,064	5,600	3,000

Table Q.1 continued from previous page

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
15	65	95	80933,200	0,974	5,600	3,000
15	75	5	70362,400	0,270	4,600	2,400
15	75	15	72444,800	0,332	4,800	2,600
15	75	25	73830,000	0,290	4,000	2,400
15	75	35	74681,200	0,296	3,800	2,400
15	75	45	75532,800	0,314	3,800	2,400
15	75	55	76146,000	0,322	3,800	2,400
15	75	65	76593,200	0,338	3,400	2,200
15	75	75	77040,400	0,338	3,400	2,200
15	75	85	77318,800	0,362	3,800	2,400
15	75	95	77490,400	0,294	3,000	2,000
15	85	5	70061,600	0,256	4,400	2,400
15	85	15	71992,000	0,298	4,800	2,600
15	85	25	73488,000	0,294	4,600	2,600
15	85	35	74196,800	0,278	4,600	2,600
15	85	45	74616,000	0,260	4,200	2,400
15	85	55	75034,800	0,286	4,400	2,600
15	85	65	75453,600	0,296	4,400	2,600
15	85	75	75677,600	0,294	4,400	2,600
15	85	85	75901,200	0,336	5,000	2,800
15	85	95	76125,200	0,340	5,000	2,800
15	95	5	69367,200	0,280	4,600	2,400
15	95	15	70080,800	0,288	4,400	2,400
15	95	25	70587,600	0,308	4,600	2,600
15	95	35	70819,600	0,278	4,200	2,400
15	95	45	70862,400	0,278	4,200	2,400
15	95	55	70862,400	0,280	4,200	2,400
15	95	65	70862,400	0,280	4,000	2,400
15	95	75	70862,400	0,278	4,000	2,400
15	95	85	70862,400	0,274	4,000	2,400
15	95	95	70862,400	0,284	4,000	2,400
20	5	5	77616,400	0,830	6,400	2,800
20	5	15	78036,400	0,750	6,400	2,800
20	5	25	78182,000	0,758	6,400	3,000
20	5	35	78182,000	0,820	6,400	3,000
20	5	45	78182,000	0,792	5,800	2,800
20	5	55	78182,000	0,736	5,800	2,800
20	5	65	78182,000	0,750	5,800	2,800
20	5	75	78182,000	0,750	5,800	2,800
20	5	85	78182,000	0,780	5,800	2,800
20	5	95	78182,000	0,764	5,800	2,800
20	15	5	78996,000	0,766	7,000	3,000

Table Q.1 continued from previous page

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
20	15	15	81477,200	0,698	5,800	2,400
20	15	25	82715,200	0,694	6,600	2,800
20	15	35	83676,000	0,680	7,200	2,800
20	15	45	84209,600	0,694	7,000	2,800
20	15	55	84633,200	0,710	6,600	2,800
20	15	65	85057,600	0,692	6,200	2,600
20	15	75	85481,600	0,744	6,600	2,800
20	15	85	85666,800	0,812	7,200	3,000
20	15	95	85666,800	0,698	6,600	2,800
20	25	5	79738,400	0,774	6,200	2,800
20	25	15	83402,800	0,708	5,400	2,400
20	25	25	85614,000	0,790	5,400	2,400
20	25	35	86938,400	0,836	5,800	2,600
20	25	45	87973,600	0,788	5,000	2,400
20	25	55	88945,200	0,818	5,000	2,400
20	25	65	89627,200	1,214	7,000	3,200
20	25	75	89926,000	1,020	6,200	3,000
20	25	85	90120,400	0,984	6,200	3,000
20	25	95	90314,800	1,136	6,200	3,000
20	35	5	79652,000	0,776	6,200	2,800
20	35	15	83384,800	0,884	6,600	3,000
20	35	25	85944,000	1,110	7,000	3,200
20	35	35	87934,000	1,126	7,200	3,200
20	35	45	89523,200	1,092	5,200	2,800
20	35	55	90986,400	1,300	5,000	2,600
20	35	65	92261,200	1,614	4,200	2,600
20	35	75	93536,800	2,778	3,600	2,400
20	35	85	94811,600	4,882	6,400	3,400
20	35	95	95818,800	6,096	6,400	3,400
20	45	5	80114,000	0,746	6,200	2,800
20	45	15	84936,400	0,834	6,600	2,800
20	45	25	87948,800	1,242	6,600	3,000
20	45	35	89986,400	1,664	7,800	3,200
20	45	45	91486,400	1,750	7,200	3,000
20	45	55	92985,600	2,230	6,200	2,800
20	45	65	94335,200	4,148	8,000	3,400
20	45	75	95646,000	5,002	8,600	3,600
20	45	85	96956,000	6,812	9,400	4,200
20	45	95	98047,200	6,774	10,200	4,400
20	55	5	80342,800	0,744	6,400	2,800
20	55	15	84831,200	0,928	7,400	3,000
20	55	25	88413,600	1,162	8,200	3,400

Table Q.1 continued from previous page

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
20	55	35	91303,600	1,940	7,600	3,600
20	55	45	93238,400	1,996	7,000	3,400
20	55	55	94768,400	2,604	7,000	3,400
20	55	65	96101,600	3,980	9,000	3,800
20	55	75	97038,000	6,332	11,200	4,400
20	55	85	97723,200	5,690	10,400	4,200
20	55	95	98409,200	7,544	11,600	4,600
20	65	5	79040,800	0,838	5,600	2,600
20	65	15	82184,400	0,848	5,200	2,600
20	65	25	84787,600	0,914	5,600	2,600
20	65	35	86868,800	1,046	5,600	2,800
20	65	45	88640,800	1,448	5,400	2,800
20	65	55	90127,200	1,620	6,000	3,000
20	65	65	91340,800	2,640	5,800	3,000
20	65	75	92462,400	2,890	5,200	2,800
20	65	85	93583,200	2,980	5,000	2,600
20	65	95	94704,400	4,282	7,000	3,200
20	75	5	79266,000	0,796	7,000	3,000
20	75	15	82122,000	0,734	5,800	2,600
20	75	25	84197,200	0,862	6,200	2,800
20	75	35	85687,600	0,920	5,000	2,600
20	75	45	86813,600	1,318	5,600	3,000
20	75	55	87874,000	1,382	5,800	2,800
20	75	65	88658,400	1,440	6,800	3,200
20	75	75	89308,000	1,570	6,600	3,000
20	75	85	89924,800	1,902	7,400	3,200
20	75	95	90186,400	2,206	7,400	3,600
20	85	5	78686,400	0,752	6,600	2,800
20	85	15	80469,200	0,778	6,000	2,600
20	85	25	81708,400	0,758	6,000	2,600
20	85	35	82597,600	0,992	7,400	3,200
20	85	45	83244,000	0,906	6,000	2,800
20	85	55	83768,800	1,016	6,000	2,800
20	85	65	84183,600	0,940	6,000	2,800
20	85	75	84598,400	0,952	6,000	2,800
20	85	85	85012,800	1,120	6,400	3,000
20	85	95	85204,800	0,984	6,600	3,000
20	95	5	77804,400	0,748	6,600	2,800
20	95	15	78502,800	0,714	6,400	2,800
20	95	25	79036,400	0,840	7,200	3,200
20	95	35	79230,800	0,784	6,600	3,000
20	95	45	79425,200	0,810	6,800	3,000

Table Q.1 continued from previous page

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
20	95	55	79620,000	0,834	6,800	3,000
20	95	65	79814,400	0,788	6,800	3,000
20	95	75	80008,800	0,802	6,800	3,000
20	95	85	80203,200	0,754	6,800	3,000
20	95	95	80397,600	0,746	6,800	3,000
25	5	5	86719,600	2,182	8,600	4,000
25	5	15	87838,800	1,726	7,400	3,600
25	5	25	88576,000	1,786	7,200	3,600
25	5	35	89112,000	1,898	7,200	3,600
25	5	45	89180,800	2,082	7,000	3,800
25	5	55	89182,400	1,984	7,000	3,800
25	5	65	89180,800	2,042	7,000	3,800
25	5	75	89180,800	1,876	6,600	3,600
25	5	85	89180,800	1,850	6,400	3,600
25	5	95	89180,800	1,864	6,600	3,600
25	15	5	87114,800	2,062	7,400	3,600
25	15	15	88891,200	1,864	7,400	3,600
25	15	25	90223,200	2,298	8,600	4,000
25	15	35	90848,800	2,472	9,000	4,200
25	15	45	91457,200	2,428	9,200	4,200
25	15	55	91870,800	3,530	11,000	5,000
25	15	65	92081,600	2,832	9,600	4,400
25	15	75	92255,600	2,936	9,800	4,400
25	15	85	92255,600	2,366	8,600	3,800
25	15	95	92255,600	2,450	8,000	3,600
25	25	5	88959,200	2,448	8,800	4,200
25	25	15	94004,400	2,558	7,600	3,800
25	25	25	97360,000	3,392	10,400	4,400
25	25	35	99734,800	3,372	8,200	3,800
25	25	45	101866,800	4,926	10,000	4,200
25	25	55	103810,000	7,114	10,400	4,600
25	25	65	105382,000	9,778	12,000	5,000
25	25	75	106406,400	12,492	12,000	5,400
25	25	85	106881,600	13,036	12,600	5,400
25	25	95	107183,200	11,102	11,000	4,800
25	35	5	89073,200	2,466	8,400	4,000
25	35	15	94555,600	2,550	8,600	4,000
25	35	25	98357,200	3,060	7,600	4,000
25	35	35	100642,000	4,328	9,800	4,600
25	35	45	101998,800	3,660	8,200	3,800
25	35	55	103240,000	3,450	8,200	3,600
25	35	65	104336,800	4,944	7,600	3,600

Table Q.1 continued from previous page

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
25	35	75	105375,600	8,444	9,000	3,600
25	35	85	106272,000	14,964	10,600	4,400
25	35	95	106692,400	15,510	11,800	4,600
25	45	5	89022,400	1,702	6,400	3,200
25	45	15	93934,800	1,928	5,200	3,000
25	45	25	98053,600	2,030	7,000	3,400
25	45	35	101226,800	4,346	8,800	4,000
25	45	45	103153,600	5,008	9,000	4,000
25	45	55	104513,600	4,732	7,400	3,600
25	45	65	105594,400	6,354	8,200	3,800
25	45	75	106621,600	9,872	9,600	4,200
25	45	85	107647,600	10,324	8,800	4,000
25	45	95	108640,400	14,684	11,400	5,000
25	55	5	89101,200	2,180	8,400	4,000
25	55	15	94080,000	2,674	9,000	4,200
25	55	25	98106,000	3,168	9,600	4,400
25	55	35	101216,000	3,606	9,600	4,200
25	55	45	103572,400	3,872	9,600	3,600
25	55	55	105502,800	5,044	8,800	3,800
25	55	65	107356,000	8,078	9,600	3,600
25	55	75	109116,800	18,700	12,000	4,600
25	55	85	110671,600	25,018	15,400	5,800
25	55	95	111909,200	33,498	18,400	6,400
25	65	5	88461,600	2,524	8,200	4,000
25	65	15	92612,800	2,454	7,800	3,800
25	65	25	96258,800	3,140	7,800	3,800
25	65	35	98594,400	3,230	8,000	3,400
25	65	45	100316,800	2,714	7,400	3,000
25	65	55	101686,000	4,006	9,000	3,200
25	65	65	102815,200	6,280	9,200	3,400
25	65	75	103719,200	6,996	9,200	3,400
25	65	85	104533,200	10,916	10,400	4,000
25	65	95	105348,000	13,342	12,600	4,800
25	75	5	87989,600	2,636	10,000	4,600
25	75	15	91098,000	3,272	10,600	4,800
25	75	25	93412,400	3,328	11,200	4,800
25	75	35	94789,600	3,420	10,600	4,600
25	75	45	95808,400	3,270	10,800	4,600
25	75	55	96689,200	3,920	11,600	5,000
25	75	65	97426,000	4,406	12,600	5,600
25	75	75	97881,600	4,612	12,600	5,600
25	75	85	98304,000	4,432	11,400	5,200

Table Q.1 continued from previous page

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
25	75	95	98726,800	4,670	11,600	5,200
25	85	5	87396,400	2,028	8,000	3,800
25	85	15	89539,600	1,896	6,600	3,200
25	85	25	91002,800	1,666	7,000	3,000
25	85	35	92160,400	2,020	6,800	3,000
25	85	45	92963,600	1,792	6,600	3,000
25	85	55	93680,000	1,892	7,000	3,200
25	85	65	94237,600	2,038	7,200	3,400
25	85	75	94540,800	2,172	7,200	3,400
25	85	85	94751,200	2,052	7,600	3,400
25	85	95	94846,400	2,184	8,400	3,800
25	95	5	86609,600	2,038	7,600	3,600
25	95	15	87406,000	2,456	7,800	3,800
25	95	25	87732,800	2,370	8,400	4,200
25	95	35	87926,000	2,566	9,000	4,400
25	95	45	88120,800	2,442	9,000	4,400
25	95	55	88315,600	2,478	8,400	4,200
25	95	65	88492,400	2,562	9,200	4,400
25	95	75	88494,000	2,610	8,800	4,200
25	95	85	88492,400	2,448	8,800	4,200
25	95	95	88492,400	2,556	9,200	4,400
30	5	5	93701,600	3,070	7,800	3,400
30	5	15	94705,200	3,198	7,400	3,400
30	5	25	95485,600	3,948	9,400	3,800
30	5	35	95812,000	4,098	9,600	3,800
30	5	45	95812,000	3,860	10,000	4,000
30	5	55	95812,000	2,892	8,000	3,200
30	5	65	95812,000	3,166	8,000	3,200
30	5	75	95812,000	3,016	8,000	3,200
30	5	85	95812,000	3,098	8,000	3,200
30	5	95	95812,000	2,928	8,000	3,200
30	15	5	94617,200	3,424	7,600	3,400
30	15	15	96140,400	2,214	5,200	2,600
30	15	25	97567,200	2,452	5,000	2,400
30	15	35	98606,000	2,394	4,800	2,400
30	15	45	99230,800	2,350	4,800	2,400
30	15	55	99738,800	3,202	6,200	2,800
30	15	65	100153,600	2,974	6,200	2,800
30	15	75	100558,800	3,588	6,800	3,000
30	15	85	100763,600	3,098	6,000	2,800
30	15	95	100968,400	3,340	7,200	3,200
30	25	5	95349,200	2,936	8,000	3,400

Table Q.1 continued from previous page

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
30	25	15	98255,200	3,804	8,800	3,800
30	25	25	100536,000	4,274	9,200	4,000
30	25	35	102718,800	6,004	11,600	4,800
30	25	45	104272,800	5,212	8,800	3,800
30	25	55	105132,800	5,776	10,800	4,600
30	25	65	105522,000	4,978	8,400	4,000
30	25	75	105679,200	5,612	8,800	4,000
30	25	85	105679,200	4,462	8,400	3,800
30	25	95	105679,200	4,022	8,000	3,600
30	35	5	96636,400	3,632	7,600	3,400
30	35	15	102326,400	3,418	6,400	3,000
30	35	25	106858,800	5,004	8,200	3,400
30	35	35	110126,000	8,036	9,600	4,000
30	35	45	112367,600	13,794	11,000	4,600
30	35	55	113822,000	25,642	13,200	5,000
30	35	65	114988,000	39,396	16,800	6,000
30	35	75	115538,800	40,276	16,400	6,000
30	35	85	115938,400	41,842	18,800	6,400
30	35	95	116338,000	49,186	20,000	6,600
30	45	5	96461,600	2,758	6,600	2,800
30	45	15	101183,600	2,678	5,400	2,800
30	45	25	104369,600	3,190	6,600	3,200
30	45	35	107136,400	3,092	4,200	2,400
30	45	45	109194,000	3,278	3,400	2,200
30	45	55	110570,400	4,782	4,400	2,600
30	45	65	111660,800	5,086	4,800	2,400
30	45	75	112603,200	6,866	5,400	2,600
30	45	85	113221,600	8,172	6,600	2,800
30	45	95	113826,000	12,008	7,000	3,200
30	55	5	96509,200	2,852	7,600	3,200
30	55	15	102474,000	4,208	8,400	3,400
30	55	25	106990,800	5,180	9,000	3,600
30	55	35	109925,600	9,296	12,000	4,400
30	55	45	112236,800	16,898	12,600	4,800
30	55	55	114247,200	40,160	16,200	5,800
30	55	65	115854,400	56,072	19,200	6,600
30	55	75	117129,600	65,200	21,800	7,400
30	55	85	118306,800	94,392	28,400	9,400
30	55	95	119332,800	124,452	32,400	11,000
30	65	5	95694,800	2,984	6,600	3,200
30	65	15	99647,600	3,154	6,200	3,400
30	65	25	102088,800	3,398	6,400	3,400

Table Q.1 continued from previous page

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
30	65	35	104266,800	3,844	6,800	3,000
30	65	45	106116,800	4,536	6,200	3,000
30	65	55	107696,400	5,178	6,800	3,000
30	65	65	109038,400	7,564	7,800	3,200
30	65	75	110087,200	10,744	7,200	3,200
30	65	85	111108,000	10,454	7,000	3,000
30	65	95	111947,200	22,140	8,800	4,000
30	75	5	95262,800	3,098	7,200	3,400
30	75	15	98718,800	3,978	7,400	3,400
30	75	25	101038,800	3,364	6,800	3,200
30	75	35	102692,000	2,854	5,600	2,800
30	75	45	104224,400	3,822	6,000	3,000
30	75	55	105518,800	7,226	7,600	4,000
30	75	65	106008,400	9,932	9,800	4,400
30	75	75	106213,200	7,080	7,600	3,400
30	75	85	106234,400	6,622	8,000	3,600
30	75	95	106234,400	7,048	8,200	3,600
30	85	5	94707,200	3,060	8,200	3,400
30	85	15	97117,200	2,696	7,200	3,000
30	85	25	98956,400	3,850	9,200	3,600
30	85	35	100216,800	3,398	8,400	3,400
30	85	45	100566,400	3,690	9,400	3,600
30	85	55	100631,200	3,574	9,200	3,600
30	85	65	100631,200	3,618	9,200	3,600
30	85	75	100631,200	3,384	9,200	3,600
30	85	85	100631,200	3,408	9,200	3,600
30	85	95	100631,200	3,370	9,200	3,600
30	95	5	93411,600	2,688	7,400	3,200
30	95	15	93984,800	3,014	8,600	3,400
30	95	25	94098,800	3,228	8,400	3,400
30	95	35	94098,800	3,486	8,200	3,400
30	95	45	94098,800	3,114	8,200	3,400
30	95	55	94098,800	3,188	8,200	3,400
30	95	65	94098,800	3,078	8,200	3,400
30	95	75	94098,800	3,160	8,200	3,400
30	95	85	94098,800	3,232	8,200	3,400
30	95	95	94098,800	3,198	8,200	3,400
35	5	5	98675,600	7,766	14,600	4,600
35	5	15	99544,000	8,712	14,200	4,800
35	5	25	100151,600	7,918	14,200	4,600
35	5	35	100461,600	8,582	14,000	4,600
35	5	45	100687,600	9,522	14,800	5,000

Table Q.1 continued from previous page

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
35	5	55	100739,600	7,992	13,600	4,600
35	5	65	100739,600	8,356	13,800	4,600
35	5	75	100739,600	8,590	13,800	4,600
35	5	85	100739,600	8,368	13,800	4,600
35	5	95	100739,600	8,634	14,400	4,800
35	15	5	99746,000	6,270	12,800	3,800
35	15	15	102252,000	7,908	12,800	4,000
35	15	25	103764,800	7,630	11,400	3,800
35	15	35	104478,400	6,794	11,200	3,600
35	15	45	105034,000	6,496	10,800	3,400
35	15	55	105171,600	7,506	11,800	3,800
35	15	65	105171,600	6,480	10,600	3,400
35	15	75	105171,600	6,356	10,600	3,400
35	15	85	105171,600	5,938	10,600	3,400
35	15	95	105171,600	5,770	10,600	3,400
35	25	5	100551,200	7,696	14,800	4,400
35	25	15	105044,000	11,482	16,400	5,000
35	25	25	107792,800	9,806	14,600	4,600
35	25	35	109744,800	11,372	17,000	5,200
35	25	45	111197,600	13,286	16,400	5,200
35	25	55	111755,600	13,770	17,200	5,400
35	25	65	111796,000	9,862	12,400	4,200
35	25	75	111796,000	9,260	11,000	4,000
35	25	85	111796,000	8,810	11,600	4,200
35	25	95	111796,000	8,114	11,000	3,800
35	35	5	101486,400	7,334	14,400	4,400
35	35	15	106066,000	7,220	14,600	4,400
35	35	25	109384,000	6,194	11,000	3,200
35	35	35	112406,800	11,938	15,400	4,200
35	35	45	114962,800	25,102	13,600	4,400
35	35	55	116525,200	27,102	10,000	3,600
35	35	65	117909,600	43,578	11,600	4,000
35	35	75	118972,400	57,758	13,400	4,600
35	35	85	120034,800	74,518	15,800	5,000
35	35	95	121097,200	82,880	17,200	5,400
35	45	5	102471,600	6,092	14,000	4,000
35	45	15	109890,800	7,878	14,000	4,200
35	45	25	115498,000	12,450	15,000	4,200
35	45	35	119562,800	23,570	14,600	4,000
35	45	45	122289,600	59,338	17,000	4,400
35	45	55	124603,600	77,650	19,800	4,800
35	45	65	126456,000	161,214	23,600	6,200

Table Q.1 continued from previous page

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
35	45	75	127807,200	206,442	26,400	6,600
35	45	85	128958,400	256,352	29,200	7,400
35	45	95	130038,400	356,746	33,800	8,800
35	55	5	102169,200	9,460	16,000	5,200
35	55	15	108203,600	11,938	15,000	5,000
35	55	25	112600,800	11,944	13,000	4,200
35	55	35	115730,800	28,156	15,200	4,800
35	55	45	118274,000	41,420	17,000	5,200
35	55	55	120474,000	69,602	19,600	5,400
35	55	65	122100,800	87,508	19,400	5,400
35	55	75	123299,200	114,404	22,800	6,400
35	55	85	124268,400	202,940	27,800	8,000
35	55	95	124956,000	272,114	32,200	9,000
35	65	5	101548,400	7,872	14,600	4,400
35	65	15	107674,800	9,302	13,800	4,400
35	65	25	112016,000	18,886	17,000	5,200
35	65	35	115441,200	31,286	17,000	5,400
35	65	45	117901,200	79,560	20,200	6,600
35	65	55	119184,400	80,048	19,600	7,000
35	65	65	120211,600	89,852	22,200	7,200
35	65	75	120863,600	112,300	21,200	7,400
35	65	85	121516,000	132,098	25,600	8,800
35	65	95	122168,000	179,744	27,400	9,400
35	75	5	101243,600	8,006	15,800	4,800
35	75	15	106428,400	11,498	17,800	5,000
35	75	25	109234,000	12,824	17,000	5,000
35	75	35	111009,600	15,836	17,200	5,200
35	75	45	112369,600	15,738	17,400	5,000
35	75	55	113450,000	14,600	17,000	4,600
35	75	65	114283,600	16,376	16,600	4,600
35	75	75	114461,200	15,816	14,600	4,000
35	75	85	114461,200	15,424	14,200	4,200
35	75	95	114461,200	15,870	15,400	4,600
35	85	5	99603,200	9,508	16,200	5,000
35	85	15	101445,600	7,004	14,000	4,200
35	85	25	102422,400	7,646	12,600	4,000
35	85	35	102988,400	7,762	12,600	4,200
35	85	45	103309,200	7,578	12,000	4,200
35	85	55	103538,800	7,550	12,000	4,200
35	85	65	103768,800	6,934	11,200	4,000
35	85	75	103882,800	7,332	11,200	4,000
35	85	85	103882,800	6,216	11,800	3,600

Table Q.1 continued from previous page

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
35	85	95	103882,800	5,796	10,600	3,400
35	95	5	98501,600	6,780	14,400	4,200
35	95	15	99199,600	5,784	13,000	3,800
35	95	25	99619,200	4,818	11,600	3,400
35	95	35	99839,200	4,508	11,200	3,200
35	95	45	100026,800	4,330	10,800	3,200
35	95	55	100026,800	4,674	10,800	3,200
35	95	65	100026,800	3,924	10,000	3,000
35	95	75	100026,800	4,082	10,000	3,000
35	95	85	100026,800	3,864	10,000	3,000
35	95	95	100026,800	3,912	10,000	3,000
40	5	5	101450,400	9,038	13,600	4,000
40	5	15	102622,400	9,684	13,200	4,000
40	5	25	102925,600	8,384	13,400	4,000
40	5	35	103108,800	9,006	13,600	4,000
40	5	45	103108,800	8,844	13,600	4,000
40	5	55	103108,800	8,104	13,600	4,000
40	5	65	103108,800	8,756	13,600	4,000
40	5	75	103108,800	9,460	13,600	4,000
40	5	85	103108,800	8,796	13,600	4,000
40	5	95	103108,800	9,074	13,600	4,000
40	15	5	102628,800	8,278	13,200	3,800
40	15	15	105530,800	9,998	14,200	4,400
40	15	25	106924,000	11,586	12,800	4,200
40	15	35	107803,200	13,702	13,600	4,400
40	15	45	108187,200	12,396	14,000	4,400
40	15	55	108187,200	11,372	13,600	4,200
40	15	65	108187,200	11,246	12,400	4,000
40	15	75	108187,200	11,980	14,000	4,400
40	15	85	108187,200	10,908	12,600	4,000
40	15	95	108187,200	10,472	11,600	3,800
40	25	5	104170,800	8,536	13,600	3,800
40	25	15	109474,400	13,168	14,600	4,000
40	25	25	113094,800	15,446	16,200	4,800
40	25	35	115766,800	21,082	16,800	5,000
40	25	45	116908,400	22,734	17,800	5,000
40	25	55	117529,600	25,420	16,400	4,600
40	25	65	117932,400	25,162	16,200	4,600
40	25	75	118298,000	29,450	18,200	5,400
40	25	85	118406,000	25,160	16,800	5,000
40	25	95	118406,000	24,226	17,200	5,000
40	35	5	104749,600	10,706	14,400	4,200

Table Q.1 continued from previous page

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
40	35	15	111768,000	19,516	17,800	5,600
40	35	25	116855,600	34,280	18,800	5,400
40	35	35	119957,200	38,360	19,600	5,000
40	35	45	122343,200	87,416	23,000	6,400
40	35	55	123949,200	150,300	27,200	6,800
40	35	65	125376,000	307,204	37,400	9,600
40	35	75	126208,800	515,436	40,600	10,400
40	35	85	126712,400	570,350	43,600	11,600
40	35	95	127124,400	734,874	45,400	12,200
40	45	5	105140,800	10,646	15,000	4,400
40	45	15	112582,800	18,846	18,200	5,000
40	45	25	117552,000	39,680	21,200	6,200
40	45	35	121029,200	85,760	21,400	6,200
40	45	45	123472,400	125,952	24,200	6,800
40	45	55	125388,400	155,916	25,000	7,200
40	45	65	126738,800	280,396	33,400	8,800
40	45	75	127855,600	368,844	38,600	11,200
40	45	85	128820,000	661,822	49,600	15,400
40	45	95	129635,600	776,938	53,200	16,600
40	55	5	105267,200	10,292	14,800	4,200
40	55	15	112162,000	14,702	12,000	4,000
40	55	25	116634,400	23,638	13,800	4,600
40	55	35	119890,800	37,556	15,400	5,000
40	55	45	122401,200	82,404	19,400	6,000
40	55	55	124249,600	137,998	22,800	7,400
40	55	65	125595,200	197,474	26,200	8,400
40	55	75	126533,200	217,120	28,000	8,600
40	55	85	127341,200	257,730	29,800	9,200
40	55	95	128103,600	330,822	31,600	10,000
40	65	5	104628,800	8,978	13,000	4,000
40	65	15	110976,000	12,906	14,600	4,600
40	65	25	114637,600	12,902	11,800	4,000
40	65	35	117437,200	23,836	15,200	4,800
40	65	45	118516,400	29,968	16,200	5,200
40	65	55	119332,400	41,794	15,800	5,200
40	65	65	120148,000	45,650	17,200	5,400
40	65	75	120782,400	68,746	19,800	6,200
40	65	85	121392,800	96,034	21,600	6,600
40	65	95	122003,600	132,868	25,800	7,800
40	75	5	104701,600	11,378	15,600	4,400
40	75	15	110739,200	11,844	15,000	4,600
40	75	25	114254,800	20,396	15,800	4,800

Table Q.1 continued from previous page

n	f	w	(2.17) o	(2.17) t	(2.17) s	(2.17) r
40	75	35	116106,800	21,248	15,800	4,800
40	75	45	117264,000	21,494	15,000	4,800
40	75	55	118297,600	22,958	12,800	4,200
40	75	65	119316,000	28,170	17,000	5,200
40	75	75	120141,200	35,346	16,400	5,200
40	75	85	120947,600	49,244	16,600	5,400
40	75	95	121496,000	57,758	20,200	6,000
40	85	5	103066,800	7,696	12,600	3,600
40	85	15	106631,200	8,316	12,000	3,600
40	85	25	108374,400	7,220	11,600	3,400
40	85	35	109519,600	9,722	11,400	3,800
40	85	45	110178,800	9,004	11,400	3,800
40	85	55	110611,600	7,834	9,600	3,400
40	85	65	110819,600	6,660	9,000	3,000
40	85	75	110920,800	5,640	8,600	2,600
40	85	85	110920,800	6,022	8,200	2,800
40	85	95	110920,800	6,360	8,200	2,800
40	95	5	101428,000	8,346	14,000	3,800
40	95	15	102655,600	10,812	14,400	4,200
40	95	25	103002,400	11,938	14,200	4,400
40	95	35	103190,800	11,680	14,200	4,400
40	95	45	103379,200	11,908	14,200	4,400
40	95	55	103478,000	11,320	14,400	4,400
40	95	65	103478,000	11,090	14,400	4,400
40	95	75	103478,000	11,486	14,400	4,400
40	95	85	103478,000	11,360	14,400	4,400
40	95	95	103478,000	11,530	14,400	4,400

Table Q.1: Aggregated Computational Results for (2.17)

Appendix R

Aggregated Computational Results for (2.18)

NOTE:

n - Number of nodes in the graph

f - Percentage of flagged edges in an instance

w - Reload costs relative to the average edge weight

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
10	5	5	58612,400	0,120	2,200	2,000
10	5	15	59401,600	0,140	2,800	2,200
10	5	25	59683,600	0,138	2,800	2,200
10	5	35	59880,000	0,136	2,800	2,200
10	5	45	60076,800	0,138	2,800	2,200
10	5	55	60186,000	0,134	2,800	2,200
10	5	65	60186,000	0,132	2,800	2,200
10	5	75	60186,000	0,134	2,800	2,200
10	5	85	60186,000	0,138	2,800	2,200
10	5	95	60186,000	0,134	2,800	2,200
10	15	5	58681,200	0,120	2,200	2,000
10	15	15	59530,000	0,118	2,200	2,000
10	15	25	60373,600	0,108	1,800	1,800
10	15	35	61046,400	0,122	2,400	2,000
10	15	45	61358,800	0,120	2,400	2,000
10	15	55	61515,600	0,120	2,000	1,800
10	15	65	61515,600	0,112	2,000	1,800
10	15	75	61515,600	0,098	1,400	1,600
10	15	85	61515,600	0,100	1,400	1,600
10	15	95	61515,600	0,094	1,400	1,600
10	25	5	58814,800	0,122	2,200	2,000
10	25	15	60075,600	0,110	2,000	1,800
10	25	25	61050,800	0,108	2,000	1,800
10	25	35	61916,800	0,098	1,600	1,600
10	25	45	62783,200	0,094	1,600	1,600
10	25	55	63650,400	0,102	1,600	1,600
10	25	65	64516,800	0,102	1,400	1,600
10	25	75	65169,200	0,104	1,400	1,600
10	25	85	65790,400	0,116	1,800	1,800
10	25	95	66218,400	0,106	1,400	1,600
10	35	5	59198,800	0,118	2,200	2,000
10	35	15	61180,400	0,108	1,800	1,800
10	35	25	63023,200	0,128	1,800	1,800
10	35	35	64766,000	0,134	1,800	1,800
10	35	45	66020,800	0,154	1,400	1,600
10	35	55	67124,400	0,100	1,000	1,400
10	35	65	68152,400	0,102	1,000	1,400
10	35	75	69004,800	0,106	1,000	1,400
10	35	85	69857,600	0,098	1,000	1,400
10	35	95	70710,000	0,116	1,400	1,600
10	45	5	59409,200	0,122	2,200	2,000
10	45	15	61826,800	0,130	2,400	2,000
10	45	25	63918,000	0,100	1,600	1,600

Table R.1 continued from previous page

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
10	45	35	65659,200	0,134	2,000	1,800
10	45	45	67042,400	0,154	2,400	2,000
10	45	55	68266,800	0,142	2,200	2,000
10	45	65	69403,200	0,176	3,200	2,400
10	45	75	70429,600	0,210	3,200	2,400
10	45	85	71456,400	0,172	2,800	2,200
10	45	95	72482,800	0,196	2,800	2,200
10	55	5	59409,200	0,120	2,200	2,000
10	55	15	61680,800	0,122	2,200	2,000
10	55	25	63603,200	0,140	2,800	2,200
10	55	35	65317,600	0,166	3,200	2,400
10	55	45	66599,200	0,126	2,400	2,000
10	55	55	67466,400	0,126	2,600	2,200
10	55	65	68332,800	0,122	2,200	2,000
10	55	75	69198,800	0,120	2,000	2,000
10	55	85	70065,200	0,118	1,600	1,800
10	55	95	70931,600	0,130	1,600	1,800
10	65	5	59534,800	0,124	2,200	2,000
10	65	15	61800,800	0,114	1,800	1,800
10	65	25	63858,400	0,114	1,800	1,800
10	65	35	65665,200	0,108	1,400	1,600
10	65	45	67362,400	0,120	1,400	1,600
10	65	55	68532,400	0,098	1,000	1,400
10	65	65	69349,200	0,120	1,800	1,800
10	65	75	69790,800	0,112	1,400	1,600
10	65	85	70232,800	0,134	2,000	1,800
10	65	95	70674,800	0,140	2,400	2,000
10	75	5	59115,600	0,116	2,200	2,000
10	75	15	60526,800	0,108	1,800	1,800
10	75	25	61730,000	0,094	1,400	1,600
10	75	35	62624,400	0,094	1,600	1,600
10	75	45	63400,400	0,092	1,600	1,600
10	75	55	63988,800	0,094	1,600	1,600
10	75	65	64519,600	0,096	1,400	1,600
10	75	75	65050,400	0,094	1,400	1,600
10	75	85	65581,600	0,096	1,400	1,600
10	75	95	66080,800	0,114	1,800	1,800
10	85	5	58724,800	0,116	2,200	2,000
10	85	15	59667,600	0,120	2,400	2,000
10	85	25	60271,600	0,130	2,800	2,200
10	85	35	60298,400	0,116	2,200	2,000
10	85	45	60298,400	0,116	2,200	2,000

Table R.1 continued from previous page

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
10	85	55	60298,400	0,114	2,200	2,000
10	85	65	60298,400	0,124	2,400	2,200
10	85	75	60298,400	0,122	2,400	2,200
10	85	85	60298,400	0,120	2,400	2,200
10	85	95	60298,400	0,122	2,400	2,200
10	95	5	58817,200	0,122	2,200	2,000
10	95	15	60094,000	0,128	2,400	2,000
10	95	25	61020,400	0,146	3,200	2,400
10	95	35	61352,000	0,146	3,200	2,400
10	95	45	61602,400	0,126	2,800	2,200
10	95	55	61852,800	0,132	2,800	2,200
10	95	65	62103,200	0,128	2,800	2,200
10	95	75	62353,600	0,130	2,800	2,200
10	95	85	62604,000	0,232	3,200	2,400
10	95	95	62854,400	0,144	3,200	2,400
15	5	5	68981,200	0,276	4,000	2,200
15	5	15	68981,200	0,296	4,000	2,200
15	5	25	68981,200	0,304	3,800	2,200
15	5	35	68981,200	0,290	3,800	2,200
15	5	45	68981,200	0,288	3,800	2,200
15	5	55	68981,200	0,294	3,800	2,200
15	5	65	68981,200	0,286	3,800	2,200
15	5	75	68981,200	0,286	3,800	2,200
15	5	85	68981,200	0,290	3,800	2,200
15	5	95	68981,200	0,282	3,800	2,200
15	15	5	69520,400	0,288	4,200	2,200
15	15	15	70577,600	0,318	4,200	2,200
15	15	25	71221,600	0,296	4,200	2,200
15	15	35	71586,000	0,292	4,200	2,200
15	15	45	71810,000	0,296	4,200	2,200
15	15	55	71834,000	0,288	4,200	2,200
15	15	65	71834,000	0,290	4,200	2,200
15	15	75	71834,000	0,310	4,200	2,400
15	15	85	71834,000	0,296	4,000	2,400
15	15	95	71834,000	0,294	4,000	2,400
15	25	5	70424,000	0,302	4,400	2,200
15	25	15	72768,000	0,394	5,200	2,600
15	25	25	74780,000	0,448	5,000	2,400
15	25	35	76731,600	0,544	5,400	2,800
15	25	45	78443,200	0,474	4,600	2,400
15	25	55	79616,000	0,620	5,000	2,600
15	25	65	80510,800	0,562	4,600	2,400

Table R.1 continued from previous page

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
15	25	75	81204,400	0,672	4,600	2,600
15	25	85	81480,000	0,576	3,800	2,400
15	25	95	81700,800	0,458	3,800	2,400
15	35	5	70352,000	0,278	4,200	2,200
15	35	15	72622,400	0,272	3,600	2,000
15	35	25	74395,600	0,280	2,400	1,800
15	35	35	76109,200	0,284	2,400	1,800
15	35	45	77566,400	0,322	3,000	2,000
15	35	55	78808,400	0,350	3,000	2,000
15	35	65	79852,000	0,502	4,000	2,400
15	35	75	80896,000	1,212	4,400	2,600
15	35	85	81694,000	1,188	4,600	2,600
15	35	95	82201,200	1,552	5,000	2,800
15	45	5	70855,200	0,252	3,800	2,000
15	45	15	74553,600	0,308	4,000	2,200
15	45	25	77595,200	0,320	3,000	2,000
15	45	35	79926,000	0,346	2,600	1,800
15	45	45	82132,400	0,748	4,200	2,400
15	45	55	84223,600	0,800	4,200	2,400
15	45	65	86060,000	1,114	4,400	2,400
15	45	75	87630,000	1,158	4,400	2,400
15	45	85	89071,600	1,734	5,200	3,000
15	45	95	90246,800	2,236	6,600	3,400
15	55	5	70464,800	0,270	3,800	2,000
15	55	15	73422,400	0,332	3,400	2,000
15	55	25	75783,600	0,304	3,200	2,000
15	55	35	77486,000	0,272	3,000	1,800
15	55	45	79160,000	0,338	3,200	1,800
15	55	55	80556,800	0,372	2,800	1,800
15	55	65	81822,000	0,476	2,800	2,000
15	55	75	82970,400	0,644	3,200	2,200
15	55	85	84040,000	0,874	3,800	2,400
15	55	95	85110,000	0,850	4,000	2,400
15	65	5	70371,200	0,284	4,400	2,200
15	65	15	72890,400	0,306	4,200	2,200
15	65	25	75096,400	0,282	3,600	2,000
15	65	35	76812,000	0,302	3,600	2,000
15	65	45	77934,400	0,356	3,800	2,200
15	65	55	78800,000	0,478	4,200	2,400
15	65	65	79493,600	0,998	4,400	2,400
15	65	75	80136,000	0,810	4,400	2,400
15	65	85	80710,000	1,356	4,400	2,400

Table R.1 continued from previous page

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
15	65	95	80933,200	1,088	4,200	2,400
15	75	5	70362,400	0,300	4,200	2,200
15	75	15	72444,800	0,328	4,000	2,200
15	75	25	73830,000	0,314	3,600	2,200
15	75	35	74681,200	0,346	3,800	2,400
15	75	45	75532,800	0,350	3,800	2,400
15	75	55	76146,000	0,362	3,800	2,400
15	75	65	76593,200	0,348	3,400	2,200
15	75	75	77040,400	0,348	3,200	2,200
15	75	85	77318,800	0,402	3,600	2,400
15	75	95	77490,400	0,318	2,800	2,000
15	85	5	70061,600	0,284	4,000	2,200
15	85	15	71992,000	0,300	4,000	2,200
15	85	25	73488,000	0,296	4,200	2,400
15	85	35	74196,800	0,290	4,200	2,400
15	85	45	74616,000	0,276	3,800	2,200
15	85	55	75034,800	0,258	3,600	2,200
15	85	65	75453,600	0,264	3,600	2,200
15	85	75	75677,600	0,286	3,600	2,200
15	85	85	75901,200	0,272	3,600	2,200
15	85	95	76125,200	0,278	3,600	2,200
15	95	5	69367,200	0,284	4,200	2,200
15	95	15	70080,800	0,314	4,000	2,200
15	95	25	70587,600	0,358	4,200	2,400
15	95	35	70819,600	0,350	4,200	2,400
15	95	45	70862,400	0,326	4,200	2,400
15	95	55	70862,400	0,334	4,200	2,400
15	95	65	70862,400	0,310	4,000	2,400
15	95	75	70862,400	0,306	4,000	2,400
15	95	85	70862,400	0,298	4,000	2,400
15	95	95	70862,400	0,316	4,000	2,400
20	5	5	77616,400	0,966	4,800	2,200
20	5	15	78036,400	0,772	4,800	2,200
20	5	25	78182,000	0,812	4,800	2,400
20	5	35	78182,000	0,824	4,800	2,400
20	5	45	78182,000	0,790	4,200	2,200
20	5	55	78182,000	0,860	4,200	2,200
20	5	65	78182,000	0,784	4,200	2,200
20	5	75	78182,000	0,834	4,200	2,200
20	5	85	78182,000	0,806	4,200	2,200
20	5	95	78182,000	0,776	4,200	2,200
20	15	5	78996,000	0,856	6,000	2,600

Table R.1 continued from previous page

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
20	15	15	81477,200	0,842	5,000	2,200
20	15	25	82715,200	0,906	6,000	2,600
20	15	35	83676,000	0,954	6,600	2,600
20	15	45	84209,600	1,008	6,800	2,800
20	15	55	84633,200	1,066	6,600	2,800
20	15	65	85057,600	1,068	6,200	2,600
20	15	75	85481,600	1,046	6,600	2,800
20	15	85	85666,800	1,100	7,200	3,000
20	15	95	85666,800	0,934	6,600	2,800
20	25	5	79737,600	0,774	5,000	2,200
20	25	15	83402,800	0,786	5,000	2,200
20	25	25	85614,000	0,948	5,000	2,200
20	25	35	86938,400	1,106	5,400	2,400
20	25	45	87973,600	1,202	5,000	2,400
20	25	55	88948,000	1,296	5,000	2,400
20	25	65	89627,200	1,368	6,000	2,800
20	25	75	89926,000	1,654	6,400	3,200
20	25	85	90120,400	1,500	6,400	3,200
20	25	95	90314,800	1,552	6,400	3,200
20	35	5	79652,000	0,846	4,600	2,200
20	35	15	83384,800	0,946	4,600	2,200
20	35	25	85944,000	1,430	6,200	2,800
20	35	35	87934,000	1,450	6,200	2,800
20	35	45	89523,200	1,464	4,800	2,600
20	35	55	90986,400	1,500	4,600	2,400
20	35	65	92261,200	1,632	3,800	2,400
20	35	75	93536,800	2,556	3,600	2,400
20	35	85	94811,600	2,976	4,200	2,600
20	35	95	95818,800	3,894	4,800	2,800
20	45	5	80114,000	1,016	5,400	2,400
20	45	15	84936,400	1,298	6,600	2,800
20	45	25	87948,800	1,640	6,400	3,000
20	45	35	89986,400	2,054	6,600	2,800
20	45	45	91486,400	2,118	6,200	2,800
20	45	55	92985,600	3,012	6,000	2,800
20	45	65	94335,200	5,466	7,400	3,200
20	45	75	95646,000	5,816	7,400	3,400
20	45	85	96956,000	6,926	8,800	3,800
20	45	95	98047,200	6,804	8,800	3,800
20	55	5	80342,800	0,976	4,800	2,200
20	55	15	84831,200	1,196	5,400	2,400
20	55	25	88413,600	0,964	5,600	2,600

Table R.1 continued from previous page

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
20	55	35	91303,600	1,470	5,000	2,600
20	55	45	93238,400	2,666	5,600	3,000
20	55	55	94768,400	3,498	5,600	2,800
20	55	65	96101,600	3,650	6,600	3,000
20	55	75	97038,000	4,854	7,400	3,200
20	55	85	97723,200	7,420	9,000	4,000
20	55	95	98409,200	7,110	9,600	4,000
20	65	5	79040,800	0,798	4,400	2,000
20	65	15	82184,400	1,042	4,600	2,400
20	65	25	84787,600	1,018	5,000	2,400
20	65	35	86868,800	1,110	5,200	2,600
20	65	45	88640,800	1,330	5,000	2,600
20	65	55	90127,200	1,916	6,200	3,200
20	65	65	91340,800	2,544	4,400	2,600
20	65	75	92462,400	2,198	3,600	2,200
20	65	85	93583,200	2,578	4,200	2,400
20	65	95	94704,400	3,344	4,600	2,600
20	75	5	79266,000	1,008	5,400	2,400
20	75	15	82122,000	0,952	4,600	2,200
20	75	25	84197,200	1,068	5,000	2,400
20	75	35	85687,600	1,256	5,400	2,800
20	75	45	86813,600	1,284	4,800	2,600
20	75	55	87874,000	1,558	6,000	3,000
20	75	65	88658,400	1,788	5,800	2,800
20	75	75	89308,000	1,826	5,800	2,800
20	75	85	89924,800	2,420	6,600	3,000
20	75	95	90186,400	2,664	6,400	3,200
20	85	5	78686,400	0,786	5,000	2,200
20	85	15	80469,200	0,912	4,800	2,200
20	85	25	81708,400	0,850	4,800	2,200
20	85	35	82597,600	1,240	6,600	2,800
20	85	45	83244,000	1,102	6,200	2,800
20	85	55	83768,800	1,044	5,600	2,600
20	85	65	84183,600	0,980	5,600	2,600
20	85	75	84598,400	1,066	5,600	2,600
20	85	85	85012,800	1,258	6,000	2,800
20	85	95	85204,800	1,178	6,200	2,800
20	95	5	77804,400	0,780	5,000	2,200
20	95	15	78502,800	0,824	4,800	2,200
20	95	25	79036,400	0,912	5,600	2,400
20	95	35	79230,800	0,880	4,600	2,200
20	95	45	79425,200	0,932	5,600	2,400

Table R.1 continued from previous page

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
20	95	55	79620,000	0,946	5,600	2,400
20	95	65	79814,400	0,948	5,600	2,400
20	95	75	80008,800	0,844	5,600	2,400
20	95	85	80203,200	0,936	5,600	2,400
20	95	95	80397,600	0,824	5,600	2,400
25	5	5	86719,600	2,104	7,600	3,600
25	5	15	87838,800	1,826	7,000	3,400
25	5	25	88576,000	1,914	7,200	3,600
25	5	35	89112,000	1,924	7,200	3,600
25	5	45	89180,800	1,958	7,000	3,800
25	5	55	89180,800	1,922	7,000	3,800
25	5	65	89180,800	2,064	7,000	3,800
25	5	75	89182,400	1,846	6,600	3,600
25	5	85	89180,800	1,892	6,600	3,600
25	5	95	89180,800	1,894	6,600	3,600
25	15	5	87114,800	2,120	7,200	3,400
25	15	15	88891,200	2,508	7,400	3,600
25	15	25	90223,200	2,484	8,400	4,000
25	15	35	90848,800	2,334	8,400	3,800
25	15	45	91457,200	2,348	8,400	3,800
25	15	55	91870,800	2,726	8,600	4,000
25	15	65	92081,600	2,772	8,800	4,000
25	15	75	92255,600	2,880	8,400	3,800
25	15	85	92255,600	2,456	8,200	3,400
25	15	95	92255,600	2,290	7,000	3,200
25	25	5	88959,200	2,408	7,800	3,800
25	25	15	94004,400	2,772	7,800	3,800
25	25	25	97360,000	3,382	8,600	4,000
25	25	35	99736,400	3,308	7,200	3,400
25	25	45	101866,800	4,460	7,600	3,400
25	25	55	103810,000	8,558	10,400	4,600
25	25	65	105382,000	8,658	9,600	4,200
25	25	75	106406,400	13,170	11,400	5,200
25	25	85	106881,600	11,484	10,400	4,600
25	25	95	107183,200	11,976	10,000	4,400
25	35	5	89073,200	2,446	8,600	4,000
25	35	15	94555,600	2,578	8,200	3,800
25	35	25	98357,200	3,178	7,600	3,800
25	35	35	100642,000	4,400	8,000	4,000
25	35	45	101998,800	4,180	7,600	3,600
25	35	55	103240,000	3,628	6,600	3,200
25	35	65	104336,800	4,752	6,400	3,200

Table R.1 continued from previous page

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
25	35	75	105375,600	8,322	7,200	3,400
25	35	85	106272,000	14,918	9,200	4,200
25	35	95	106692,400	13,584	9,400	4,200
25	45	5	89022,400	2,066	6,800	3,400
25	45	15	93934,800	1,678	4,800	2,800
25	45	25	98053,600	2,066	6,400	3,200
25	45	35	101226,800	3,420	7,000	3,400
25	45	45	103153,600	5,510	7,600	3,600
25	45	55	104513,600	4,054	6,400	3,200
25	45	65	105594,400	6,456	7,000	3,200
25	45	75	106621,600	7,876	7,600	3,600
25	45	85	107647,600	11,004	7,800	3,800
25	45	95	108640,400	10,708	9,200	4,200
25	55	5	89101,200	2,452	8,200	3,800
25	55	15	94080,000	2,822	9,400	4,400
25	55	25	98106,000	2,848	7,800	3,600
25	55	35	101216,000	3,440	8,000	3,600
25	55	45	103572,400	4,250	9,000	3,400
25	55	55	105502,800	4,570	7,400	3,200
25	55	65	107356,000	9,172	8,400	3,400
25	55	75	109116,800	21,072	11,200	4,400
25	55	85	110671,600	25,364	14,600	5,400
25	55	95	111909,200	23,966	15,200	5,200
25	65	5	88461,600	2,334	8,200	4,000
25	65	15	92612,800	2,364	7,800	3,600
25	65	25	96258,800	3,840	7,600	3,800
25	65	35	98594,400	3,812	7,800	3,400
25	65	45	100316,800	3,404	6,800	2,800
25	65	55	101686,000	4,350	8,000	2,800
25	65	65	102815,200	7,066	8,000	3,000
25	65	75	103719,200	6,790	8,200	3,000
25	65	85	104533,200	11,954	10,000	3,800
25	65	95	105348,000	12,654	10,200	4,000
25	75	5	87989,600	2,746	8,600	4,000
25	75	15	91098,000	2,400	8,400	3,800
25	75	25	93412,400	3,038	9,000	4,200
25	75	35	94789,600	2,926	9,200	4,000
25	75	45	95808,400	3,350	9,600	4,400
25	75	55	96689,200	3,468	9,400	4,400
25	75	65	97426,000	3,960	10,400	4,600
25	75	75	97881,600	4,094	10,400	5,000
25	75	85	98304,000	4,074	10,000	5,000

Table R.1 continued from previous page

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
25	75	95	98726,800	3,942	9,200	4,600
25	85	5	87396,400	1,968	7,000	3,400
25	85	15	89539,600	1,638	5,800	2,800
25	85	25	91002,800	1,630	5,200	2,600
25	85	35	92160,400	1,868	6,000	3,000
25	85	45	92963,600	1,692	5,800	2,600
25	85	55	93680,000	1,718	6,200	2,800
25	85	65	94237,600	2,146	6,400	3,000
25	85	75	94540,800	1,894	6,400	3,000
25	85	85	94751,200	1,980	6,800	3,000
25	85	95	94846,400	2,410	7,600	3,400
25	95	5	86609,600	2,236	7,600	3,600
25	95	15	87406,000	2,672	8,400	4,000
25	95	25	87731,200	2,616	8,600	4,200
25	95	35	87926,000	2,528	8,400	4,000
25	95	45	88120,800	2,494	8,400	4,000
25	95	55	88315,600	2,428	7,800	3,800
25	95	65	88492,400	2,316	8,200	3,800
25	95	75	88494,000	2,328	8,200	3,800
25	95	85	88492,400	2,610	8,200	3,800
25	95	95	88492,400	2,420	8,200	3,800
30	5	5	93701,600	3,700	7,000	3,200
30	5	15	94705,200	4,058	6,600	3,200
30	5	25	95485,600	4,866	8,600	3,600
30	5	35	95812,000	4,774	8,800	3,600
30	5	45	95812,000	4,408	8,800	3,600
30	5	55	95812,000	4,096	7,200	3,000
30	5	65	95812,000	4,142	7,200	3,000
30	5	75	95812,000	4,086	7,200	3,000
30	5	85	95812,000	3,890	7,200	3,000
30	5	95	95812,000	3,776	7,200	3,000
30	15	5	94617,200	4,160	6,800	3,200
30	15	15	96140,400	2,966	5,000	2,600
30	15	25	97567,200	3,084	4,800	2,400
30	15	35	98606,000	2,894	4,600	2,400
30	15	45	99230,800	3,078	5,400	2,600
30	15	55	99738,800	3,278	6,000	2,800
30	15	65	100153,600	3,096	6,000	2,800
30	15	75	100558,800	3,868	6,600	3,000
30	15	85	100763,600	3,406	5,800	2,800
30	15	95	100968,400	3,442	6,600	3,000
30	25	5	95349,200	3,254	7,600	3,400

Table R.1 continued from previous page

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
30	25	15	98255,200	4,004	7,800	3,400
30	25	25	100536,000	4,376	7,800	3,400
30	25	35	102718,800	5,644	9,400	4,000
30	25	45	104272,800	4,872	8,200	3,600
30	25	55	105132,800	5,886	10,400	4,400
30	25	65	105522,000	5,056	9,200	4,200
30	25	75	105679,200	5,278	8,800	4,000
30	25	85	105679,200	4,174	8,000	3,600
30	25	95	105679,200	4,860	8,600	3,800
30	35	5	96636,400	3,920	7,200	3,400
30	35	15	102326,400	3,738	6,400	3,000
30	35	25	106858,800	4,682	7,800	3,200
30	35	35	110126,000	8,564	9,600	4,000
30	35	45	112367,600	15,714	10,200	4,400
30	35	55	113822,000	25,158	11,800	4,600
30	35	65	114988,000	35,074	14,600	5,200
30	35	75	115538,800	37,700	13,800	5,000
30	35	85	115938,400	42,548	15,800	5,600
30	35	95	116338,000	42,872	15,000	5,200
30	45	5	96461,600	3,562	7,400	3,200
30	45	15	101183,600	2,616	5,400	2,800
30	45	25	104369,600	2,814	5,200	2,600
30	45	35	107136,400	3,364	4,800	2,600
30	45	45	109194,000	3,302	3,400	2,200
30	45	55	110570,400	5,014	5,000	2,600
30	45	65	111660,800	5,118	4,800	2,400
30	45	75	112603,200	8,684	5,400	2,600
30	45	85	113221,600	9,240	5,800	2,800
30	45	95	113826,000	10,508	5,600	3,000
30	55	5	96509,200	3,622	6,600	3,000
30	55	15	102474,000	5,306	7,600	3,200
30	55	25	106990,800	7,472	8,800	3,800
30	55	35	109925,600	10,948	10,400	4,200
30	55	45	112236,800	23,676	13,400	5,000
30	55	55	114247,200	43,060	14,200	5,200
30	55	65	115854,400	45,660	15,800	5,600
30	55	75	117129,600	61,050	17,600	6,000
30	55	85	118306,800	97,092	21,800	7,200
30	55	95	119332,800	124,188	25,000	8,200
30	65	5	95694,800	3,422	7,000	3,400
30	65	15	99647,600	3,790	6,200	3,400
30	65	25	102088,800	4,458	7,000	3,600

Table R.1 continued from previous page

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
30	65	35	104266,800	4,904	6,400	3,000
30	65	45	106116,800	4,634	5,200	2,800
30	65	55	107696,400	7,492	5,000	2,800
30	65	65	109038,400	7,422	7,200	3,000
30	65	75	110087,200	8,266	6,000	2,800
30	65	85	111108,000	8,758	5,800	2,600
30	65	95	111947,200	24,590	7,600	3,600
30	75	5	95262,800	3,632	7,200	3,400
30	75	15	98718,800	4,902	6,600	3,200
30	75	25	101038,800	2,680	5,400	2,600
30	75	35	102692,000	2,884	6,000	2,800
30	75	45	104224,400	3,914	6,200	3,000
30	75	55	105518,800	6,888	7,800	4,000
30	75	65	106008,400	9,228	8,800	4,200
30	75	75	106213,200	7,738	7,800	3,600
30	75	85	106234,400	7,008	7,000	3,200
30	75	95	106234,400	7,372	7,800	3,600
30	85	5	94707,200	3,294	6,600	3,000
30	85	15	97117,200	3,656	7,000	3,000
30	85	25	98956,400	4,302	8,400	3,400
30	85	35	100216,800	4,198	8,000	3,200
30	85	45	100566,400	5,114	8,200	3,200
30	85	55	100631,200	5,092	8,800	3,400
30	85	65	100631,200	4,776	8,800	3,400
30	85	75	100631,200	4,894	8,800	3,400
30	85	85	100631,200	4,734	8,800	3,400
30	85	95	100631,200	4,450	8,800	3,400
30	95	5	93411,600	3,364	6,600	3,000
30	95	15	93984,800	3,466	7,800	3,200
30	95	25	94098,800	3,250	7,800	3,200
30	95	35	94098,800	3,590	7,600	3,200
30	95	45	94098,800	3,528	7,600	3,200
30	95	55	94098,800	3,574	7,600	3,200
30	95	65	94098,800	3,434	7,600	3,200
30	95	75	94098,800	3,500	7,600	3,200
30	95	85	94098,800	3,456	7,600	3,200
30	95	95	94098,800	3,522	7,600	3,200
35	5	5	98675,600	12,918	14,000	4,600
35	5	15	99544,000	11,552	13,000	4,200
35	5	25	100151,600	11,322	13,600	4,200
35	5	35	100461,600	11,688	13,000	4,200
35	5	45	100687,600	12,180	13,400	4,400

Table R.1 continued from previous page

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
35	5	55	100739,600	11,500	12,800	4,200
35	5	65	100739,600	11,518	12,800	4,200
35	5	75	100739,600	11,250	12,800	4,200
35	5	85	100739,600	11,456	12,800	4,200
35	5	95	100739,600	11,744	13,400	4,200
35	15	5	99746,000	9,082	12,200	3,600
35	15	15	102252,000	12,210	11,800	3,800
35	15	25	103764,800	14,194	10,800	3,600
35	15	35	104478,400	13,932	11,200	3,600
35	15	45	105034,000	11,682	10,800	3,400
35	15	55	105171,600	13,038	12,000	3,800
35	15	65	105171,600	12,304	10,600	3,400
35	15	75	105171,600	11,722	10,600	3,400
35	15	85	105171,600	11,750	10,600	3,400
35	15	95	105171,600	11,610	10,600	3,400
35	25	5	100551,200	9,690	13,200	3,800
35	25	15	105044,000	20,136	15,600	5,000
35	25	25	107792,800	12,656	14,000	4,400
35	25	35	109744,800	12,936	14,200	4,400
35	25	45	111197,600	15,324	14,800	4,800
35	25	55	111755,600	17,012	16,200	5,000
35	25	65	111796,000	11,462	11,000	3,800
35	25	75	111796,000	9,576	9,800	3,600
35	25	85	111796,000	10,384	10,200	3,800
35	25	95	111796,000	8,304	9,400	3,400
35	35	5	101486,400	11,060	12,800	4,000
35	35	15	106066,000	9,768	11,800	3,600
35	35	25	109384,000	8,146	9,800	3,000
35	35	35	112406,800	12,770	10,200	3,200
35	35	45	114962,800	26,018	10,000	3,800
35	35	55	116525,200	33,184	8,600	3,400
35	35	65	117909,600	33,162	8,800	3,200
35	35	75	118972,400	45,064	9,600	3,400
35	35	85	120034,800	57,470	12,200	4,000
35	35	95	121097,200	76,288	14,200	4,400
35	45	5	102471,600	8,908	13,000	3,600
35	45	15	109890,800	13,098	13,600	4,200
35	45	25	115498,000	16,684	12,200	3,600
35	45	35	119562,800	30,032	12,600	3,600
35	45	45	122289,600	67,200	14,800	4,200
35	45	55	124603,600	86,522	17,200	4,600
35	45	65	126456,000	144,080	19,400	4,600

Table R.1 continued from previous page

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
35	45	75	127807,200	215,484	21,600	5,200
35	45	85	128958,400	238,820	22,200	5,600
35	45	95	130038,400	294,706	25,800	6,600
35	55	5	102169,200	14,198	15,000	5,000
35	55	15	108203,600	15,410	13,600	4,200
35	55	25	112600,800	14,514	10,400	3,600
35	55	35	115730,800	33,092	14,000	4,400
35	55	45	118274,000	44,386	13,200	4,200
35	55	55	120474,000	72,210	14,200	4,400
35	55	65	122100,800	86,894	15,200	4,600
35	55	75	123299,200	144,160	18,200	5,800
35	55	85	124268,400	228,118	21,400	6,800
35	55	95	124956,000	257,272	21,200	6,600
35	65	5	101548,400	10,636	14,000	4,200
35	65	15	107674,800	11,632	11,200	3,600
35	65	25	112016,000	23,792	13,400	4,400
35	65	35	115441,200	42,998	15,200	4,800
35	65	45	117901,200	90,960	19,000	6,400
35	65	55	119184,400	84,654	16,600	6,000
35	65	65	120211,600	100,232	18,000	6,200
35	65	75	120863,600	98,480	18,000	6,000
35	65	85	121516,000	84,374	17,600	6,000
35	65	95	122168,000	169,044	21,400	7,800
35	75	5	101243,600	11,056	14,800	4,400
35	75	15	106428,400	15,126	15,400	4,400
35	75	25	109234,000	17,658	15,200	4,600
35	75	35	111009,600	21,024	15,600	4,800
35	75	45	112369,600	18,428	14,400	4,400
35	75	55	113450,000	18,546	14,800	4,000
35	75	65	114283,600	19,440	13,800	4,000
35	75	75	114461,200	19,792	12,000	3,600
35	75	85	114461,200	18,422	13,000	3,800
35	75	95	114461,200	15,892	12,200	3,800
35	85	5	99603,200	10,724	14,400	4,400
35	85	15	101445,600	8,058	11,200	3,400
35	85	25	102422,400	8,036	11,000	3,600
35	85	35	102988,400	7,388	10,600	3,600
35	85	45	103309,200	7,484	10,000	3,600
35	85	55	103538,800	7,800	10,400	3,800
35	85	65	103768,800	7,272	9,800	3,600
35	85	75	103882,800	7,126	9,800	3,600
35	85	85	103882,800	5,836	9,400	3,000

Table R.1 continued from previous page

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
35	85	95	103882,800	5,778	9,400	3,000
35	95	5	98501,600	8,262	12,600	3,600
35	95	15	99199,600	7,550	12,000	3,600
35	95	25	99619,200	7,362	12,000	3,600
35	95	35	99839,200	6,976	11,600	3,400
35	95	45	100026,800	6,006	10,800	3,200
35	95	55	100026,800	6,530	11,200	3,400
35	95	65	100026,800	5,940	10,400	3,200
35	95	75	100026,800	5,978	10,400	3,200
35	95	85	100026,800	5,328	10,000	3,000
35	95	95	100026,800	5,758	10,400	3,200
40	5	5	101450,400	9,766	13,000	3,800
40	5	15	102622,400	10,974	13,000	4,000
40	5	25	102925,600	11,628	13,200	4,200
40	5	35	103108,800	11,364	13,200	4,000
40	5	45	103108,800	11,094	13,200	4,000
40	5	55	103108,800	11,730	13,600	4,200
40	5	65	103108,800	11,024	14,800	4,200
40	5	75	103108,800	10,776	13,800	4,000
40	5	85	103108,800	10,900	13,200	4,000
40	5	95	103108,800	11,912	14,200	4,200
40	15	5	102628,800	8,418	12,000	3,400
40	15	15	105530,800	11,662	13,400	4,000
40	15	25	106924,000	14,650	14,200	4,600
40	15	35	107803,200	13,918	11,600	4,000
40	15	45	108187,200	13,446	11,400	3,800
40	15	55	108187,200	10,798	10,000	3,400
40	15	65	108187,200	11,248	10,000	3,400
40	15	75	108187,200	11,054	10,000	3,400
40	15	85	108187,200	10,900	10,000	3,400
40	15	95	108187,200	11,502	10,000	3,400
40	25	5	104170,800	9,462	12,400	3,400
40	25	15	109474,400	13,976	13,400	3,600
40	25	25	113094,800	16,058	13,600	4,200
40	25	35	115766,800	24,854	14,600	4,600
40	25	45	116908,400	27,662	13,400	4,000
40	25	55	117529,600	30,496	10,800	3,400
40	25	65	117932,400	33,600	10,600	3,400
40	25	75	118298,000	38,310	11,400	3,800
40	25	85	118406,000	32,570	11,200	3,800
40	25	95	118406,000	27,450	10,800	3,800
40	35	5	104749,600	12,622	13,000	3,800

Table R.1 continued from previous page

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
40	35	15	111768,000	26,532	16,000	5,200
40	35	25	116855,600	49,088	17,000	5,200
40	35	35	119957,200	61,278	17,000	4,800
40	35	45	122343,200	114,726	19,600	5,600
40	35	55	123949,200	222,154	21,600	5,800
40	35	65	125376,000	344,904	27,200	7,000
40	35	75	126208,800	649,022	30,200	8,400
40	35	85	126712,400	592,476	32,000	8,400
40	35	95	127124,400	891,250	34,200	9,200
40	45	5	105140,800	13,670	13,800	4,000
40	45	15	112582,800	21,002	16,600	4,400
40	45	25	117552,000	54,078	17,800	5,600
40	45	35	121029,200	113,030	16,400	5,400
40	45	45	123472,400	139,032	18,200	5,800
40	45	55	125388,400	202,950	21,000	6,400
40	45	65	126738,800	281,910	24,000	7,000
40	45	75	127855,600	423,912	30,400	9,400
40	45	85	128820,000	731,410	40,400	12,800
40	45	95	129635,600	905,124	43,400	13,600
40	55	5	105267,200	12,832	13,800	4,000
40	55	15	112162,000	19,110	11,800	4,000
40	55	25	116634,400	27,676	11,600	4,000
40	55	35	119890,800	47,390	11,800	4,000
40	55	45	122401,200	81,830	14,600	4,600
40	55	55	124249,600	133,084	17,600	5,800
40	55	65	125595,200	205,848	20,200	6,600
40	55	75	126533,200	228,530	21,000	6,600
40	55	85	127341,200	302,112	23,000	7,200
40	55	95	128103,600	485,360	28,000	8,400
40	65	5	104628,800	11,286	13,000	4,000
40	65	15	110976,000	12,784	11,200	3,600
40	65	25	114637,600	15,708	9,800	3,400
40	65	35	117437,200	27,222	12,000	4,200
40	65	45	118516,400	31,872	11,800	4,200
40	65	55	119332,400	45,652	13,000	4,600
40	65	65	120148,000	42,328	13,000	4,400
40	65	75	120782,400	83,384	16,800	5,600
40	65	85	121392,800	124,380	18,600	6,000
40	65	95	122003,600	150,742	19,200	6,400
40	75	5	104701,600	11,266	13,800	3,800
40	75	15	110739,200	14,544	14,200	4,200
40	75	25	114254,800	28,718	16,400	5,200

Table R.1 continued from previous page

n	f	w	(2.18) o	(2.18) t	(2.18) s	(2.18) r
40	75	35	116106,800	23,062	13,600	4,400
40	75	45	117264,000	25,136	13,000	4,200
40	75	55	118297,600	23,120	11,800	4,000
40	75	65	119316,000	37,116	14,800	4,600
40	75	75	120141,200	45,308	15,000	4,800
40	75	85	120947,600	60,314	15,000	5,000
40	75	95	121496,000	63,674	16,000	5,000
40	85	5	103066,800	9,062	12,000	3,200
40	85	15	106631,200	10,288	11,000	3,400
40	85	25	108374,400	6,972	9,200	2,800
40	85	35	109519,600	10,304	10,600	3,600
40	85	45	110178,800	10,284	11,400	3,800
40	85	55	110611,600	7,632	8,200	3,000
40	85	65	110819,600	6,970	8,400	2,800
40	85	75	110920,800	6,758	8,200	2,800
40	85	85	110920,800	6,868	8,200	2,800
40	85	95	110920,800	7,030	8,800	3,000
40	95	5	101428,000	9,442	13,200	3,600
40	95	15	102655,600	12,730	13,800	4,000
40	95	25	103002,400	11,738	13,600	4,200
40	95	35	103190,800	11,834	13,600	4,200
40	95	45	103379,200	11,542	13,600	4,200
40	95	55	103478,000	10,388	12,800	4,000
40	95	65	103478,000	10,932	12,800	4,000
40	95	75	103478,000	10,916	12,800	4,000
40	95	85	103478,000	10,878	12,800	4,000
40	95	95	103478,000	10,594	12,800	4,000

Table R.1: Aggregated Computational Results for (2.18)

Appendix S

Aggregated Computational Results for (2.19)

NOTE:

n - Number of nodes in the graph

f - Percentage of flagged edges in an instance

w - Reload costs relative to the average edge weight

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
10	5	5	58612,400	0,114	2,200	2,000
10	5	15	59401,600	0,128	2,800	2,200
10	5	25	59683,600	0,138	3,200	2,400
10	5	35	59880,000	0,136	3,200	2,400
10	5	45	60076,800	0,144	3,200	2,400
10	5	55	60186,000	0,138	3,200	2,400
10	5	65	60186,000	0,142	3,200	2,400
10	5	75	60186,000	0,138	3,200	2,400
10	5	85	60186,000	0,140	3,200	2,400
10	5	95	60186,000	0,140	3,200	2,400
10	15	5	58681,200	0,118	2,200	2,000
10	15	15	59530,000	0,114	2,200	2,000
10	15	25	60373,600	0,104	1,800	1,800
10	15	35	61046,400	0,118	2,400	2,000
10	15	45	61358,800	0,142	2,400	2,000
10	15	55	61515,600	0,124	2,400	2,000
10	15	65	61515,600	0,118	2,400	2,000
10	15	75	61515,600	0,108	1,800	1,800
10	15	85	61515,600	0,108	1,800	1,800
10	15	95	61515,600	0,108	1,800	1,800
10	25	5	58814,800	0,114	2,200	2,000
10	25	15	60075,600	0,102	2,000	1,800
10	25	25	61050,800	0,104	2,000	1,800
10	25	35	61916,800	0,090	1,600	1,600
10	25	45	62783,200	0,088	1,600	1,600
10	25	55	63650,400	0,104	2,000	1,800
10	25	65	64516,800	0,108	1,800	1,800
10	25	75	65169,200	0,108	1,800	1,800
10	25	85	65790,400	0,108	1,800	1,800
10	25	95	66218,400	0,098	1,400	1,600
10	35	5	59198,800	0,116	2,200	2,000
10	35	15	61180,400	0,104	1,800	1,800
10	35	25	63023,200	0,112	1,800	1,800
10	35	35	64766,000	0,144	2,200	2,000
10	35	45	66020,800	0,116	1,800	1,800
10	35	55	67124,400	0,108	1,400	1,600
10	35	65	68152,400	0,108	1,400	1,600
10	35	75	69004,800	0,110	1,400	1,600
10	35	85	69857,600	0,116	1,400	1,600
10	35	95	70710,000	0,114	1,400	1,600
10	45	5	59409,200	0,120	2,200	2,000
10	45	15	61826,800	0,120	2,400	2,000
10	45	25	63918,000	0,108	2,000	1,800

Table S.1 continued from previous page

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
10	45	35	65659,200	0,136	2,400	2,000
10	45	45	67042,400	0,156	2,800	2,200
10	45	55	68266,800	0,166	3,400	2,400
10	45	65	69403,200	0,198	4,400	2,800
10	45	75	70429,600	0,200	3,800	2,600
10	45	85	71456,400	0,198	3,600	2,600
10	45	95	72482,800	0,276	4,400	3,000
10	55	5	59409,200	0,116	2,200	2,000
10	55	15	61680,800	0,122	2,200	2,000
10	55	25	63603,200	0,130	2,800	2,200
10	55	35	65317,600	0,164	3,200	2,400
10	55	45	66599,200	0,124	2,400	2,000
10	55	55	67466,400	0,128	2,600	2,200
10	55	65	68332,800	0,120	2,200	2,000
10	55	75	69198,800	0,122	2,000	2,000
10	55	85	70065,200	0,122	1,600	1,800
10	55	95	70931,600	0,130	1,600	1,800
10	65	5	59534,800	0,112	2,200	2,000
10	65	15	61800,800	0,106	1,800	1,800
10	65	25	63858,400	0,110	1,800	1,800
10	65	35	65665,200	0,102	1,400	1,600
10	65	45	67362,400	0,106	1,400	1,600
10	65	55	68532,400	0,112	1,400	1,600
10	65	65	69349,200	0,154	2,800	2,200
10	65	75	69790,800	0,138	2,400	2,000
10	65	85	70232,800	0,122	2,000	1,800
10	65	95	70674,800	0,142	2,400	2,000
10	75	5	59115,600	0,112	2,200	2,000
10	75	15	60526,800	0,102	1,800	1,800
10	75	25	61730,000	0,090	1,400	1,600
10	75	35	62624,400	0,092	1,600	1,600
10	75	45	63400,400	0,086	1,600	1,600
10	75	55	63988,800	0,088	1,600	1,600
10	75	65	64519,600	0,134	1,400	1,600
10	75	75	65050,400	0,092	1,400	1,600
10	75	85	65581,600	0,108	1,800	1,800
10	75	95	66080,800	0,118	1,800	1,800
10	85	5	58724,800	0,112	2,200	2,000
10	85	15	59667,600	0,118	2,400	2,000
10	85	25	60271,600	0,122	2,800	2,200
10	85	35	60298,400	0,118	2,200	2,000
10	85	45	60298,400	0,112	2,200	2,000

Table S.1 continued from previous page

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
10	85	55	60298,400	0,116	2,200	2,000
10	85	65	60298,400	0,126	2,400	2,200
10	85	75	60298,400	0,120	2,400	2,200
10	85	85	60298,400	0,122	2,400	2,200
10	85	95	60298,400	0,124	2,400	2,200
10	95	5	58817,200	0,114	2,200	2,000
10	95	15	60094,000	0,114	2,400	2,000
10	95	25	61020,400	0,146	3,600	2,600
10	95	35	61352,000	0,150	3,600	2,600
10	95	45	61602,400	0,136	3,200	2,400
10	95	55	61852,800	0,140	3,200	2,400
10	95	65	62103,200	0,136	3,200	2,400
10	95	75	62353,600	0,136	3,200	2,400
10	95	85	62604,000	0,356	3,600	2,600
10	95	95	62854,400	0,150	3,600	2,600
15	5	5	68981,200	0,338	4,800	2,600
15	5	15	68981,200	0,354	4,800	2,600
15	5	25	68981,200	0,308	4,600	2,600
15	5	35	68981,200	0,296	4,600	2,600
15	5	45	68981,200	0,294	4,600	2,600
15	5	55	68981,200	0,294	4,600	2,600
15	5	65	68981,200	0,300	4,600	2,600
15	5	75	68981,200	0,302	4,600	2,600
15	5	85	68981,200	0,300	4,600	2,600
15	5	95	68981,200	0,302	4,600	2,600
15	15	5	69520,400	0,286	4,600	2,400
15	15	15	70577,600	0,266	4,200	2,200
15	15	25	71221,600	0,274	4,200	2,200
15	15	35	71586,000	0,264	4,200	2,200
15	15	45	71810,000	0,268	4,200	2,200
15	15	55	71834,000	0,262	4,200	2,200
15	15	65	71834,000	0,268	4,200	2,200
15	15	75	71834,000	0,274	4,200	2,400
15	15	85	71834,000	0,282	4,000	2,400
15	15	95	71834,000	0,284	4,000	2,400
15	25	5	70424,000	0,300	5,200	2,600
15	25	15	72768,000	0,334	5,600	2,800
15	25	25	74780,000	0,368	5,400	2,600
15	25	35	76731,600	0,490	6,000	3,000
15	25	45	78443,200	0,378	4,800	2,400
15	25	55	79616,000	0,548	6,000	3,000
15	25	65	80510,800	0,534	5,600	2,800

Table S.1 continued from previous page

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
15	25	75	81204,400	0,576	5,200	2,800
15	25	85	81480,000	0,628	5,200	2,800
15	25	95	81700,800	0,488	5,200	2,800
15	35	5	70352,000	0,286	4,600	2,400
15	35	15	72622,400	0,234	3,600	2,000
15	35	25	74395,600	0,250	2,400	1,800
15	35	35	76109,200	0,272	2,400	1,800
15	35	45	77566,400	0,500	3,000	2,000
15	35	55	78808,400	0,504	3,400	2,200
15	35	65	79852,000	0,726	4,200	2,400
15	35	75	80896,000	0,944	4,800	2,600
15	35	85	81694,000	1,652	5,600	3,000
15	35	95	82201,200	1,340	5,600	3,000
15	45	5	70855,200	0,296	4,600	2,400
15	45	15	74553,600	0,338	4,000	2,200
15	45	25	77595,200	0,276	3,000	2,000
15	45	35	79926,000	0,338	3,400	2,000
15	45	45	82132,400	0,452	4,200	2,400
15	45	55	84223,600	0,682	4,600	2,600
15	45	65	86060,000	1,046	5,000	2,600
15	45	75	87630,000	1,388	5,600	2,800
15	45	85	89071,600	2,028	6,800	3,400
15	45	95	90246,800	2,114	9,000	4,200
15	55	5	70464,800	0,274	4,600	2,400
15	55	15	73422,400	0,378	4,200	2,400
15	55	25	75783,600	0,294	3,200	2,000
15	55	35	77486,000	0,238	3,000	1,800
15	55	45	79160,000	0,294	3,200	1,800
15	55	55	80556,800	0,362	2,800	1,800
15	55	65	81822,000	0,452	2,800	2,000
15	55	75	82970,400	0,636	3,800	2,400
15	55	85	84040,000	0,806	3,800	2,400
15	55	95	85110,000	0,718	4,000	2,400
15	65	5	70371,200	0,344	5,200	2,600
15	65	15	72890,400	0,344	5,000	2,600
15	65	25	75096,400	0,296	4,400	2,400
15	65	35	76812,000	0,344	4,400	2,400
15	65	45	77934,400	0,454	5,200	2,800
15	65	55	78800,000	0,506	4,600	2,600
15	65	65	79493,600	0,724	5,600	3,000
15	65	75	80136,000	0,860	5,600	3,000
15	65	85	80710,000	1,158	5,600	3,000

Table S.1 continued from previous page

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
15	65	95	80933,200	1,128	5,200	2,800
15	75	5	70362,400	0,330	5,000	2,600
15	75	15	72444,800	0,342	4,800	2,600
15	75	25	73830,000	0,310	4,000	2,400
15	75	35	74681,200	0,314	3,800	2,400
15	75	45	75532,800	0,308	3,800	2,400
15	75	55	76146,000	0,330	3,800	2,400
15	75	65	76593,200	0,358	4,000	2,400
15	75	75	77040,400	0,330	3,400	2,200
15	75	85	77318,800	0,386	3,800	2,400
15	75	95	77490,400	0,310	3,000	2,000
15	85	5	70061,600	0,318	4,800	2,600
15	85	15	71992,000	0,310	4,800	2,600
15	85	25	73488,000	0,300	4,600	2,600
15	85	35	74196,800	0,292	4,600	2,600
15	85	45	74616,000	0,260	4,200	2,400
15	85	55	75034,800	0,316	4,400	2,600
15	85	65	75453,600	0,300	4,400	2,600
15	85	75	75677,600	0,298	4,400	2,600
15	85	85	75901,200	0,326	5,000	2,800
15	85	95	76125,200	0,344	5,000	2,800
15	95	5	69367,200	0,302	5,000	2,600
15	95	15	70080,800	0,352	4,800	2,600
15	95	25	70587,600	0,398	5,000	2,800
15	95	35	70819,600	0,388	5,000	2,800
15	95	45	70862,400	0,370	5,000	2,800
15	95	55	70862,400	0,370	5,000	2,800
15	95	65	70862,400	0,358	4,800	2,800
15	95	75	70862,400	0,342	4,800	2,800
15	95	85	70862,400	0,356	4,800	2,800
15	95	95	70862,400	0,388	4,800	2,800
20	5	5	77616,400	0,726	6,400	2,800
20	5	15	78036,400	0,746	6,400	2,800
20	5	25	78182,000	0,748	6,400	3,000
20	5	35	78182,000	0,910	6,400	3,000
20	5	45	78182,000	0,730	5,800	2,800
20	5	55	78182,000	0,726	5,800	2,800
20	5	65	78182,000	0,686	5,800	2,800
20	5	75	78182,000	0,820	5,800	2,800
20	5	85	78182,000	0,740	5,800	2,800
20	5	95	78182,000	0,718	5,800	2,800
20	15	5	78996,000	0,746	7,000	3,000

Table S.1 continued from previous page

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
20	15	15	81477,200	0,696	5,800	2,400
20	15	25	82715,200	0,702	6,600	2,800
20	15	35	83676,000	0,696	7,200	2,800
20	15	45	84209,600	0,720	7,000	2,800
20	15	55	84633,200	0,752	7,000	3,000
20	15	65	85057,600	0,674	6,200	2,600
20	15	75	85481,600	0,732	6,600	2,800
20	15	85	85666,800	0,776	7,200	3,000
20	15	95	85666,800	0,706	6,600	2,800
20	25	5	79738,400	0,748	6,200	2,800
20	25	15	83402,800	0,698	5,400	2,400
20	25	25	85614,000	0,766	5,400	2,400
20	25	35	86938,400	0,924	5,800	2,600
20	25	45	87973,600	0,804	5,000	2,400
20	25	55	88945,200	0,878	5,000	2,400
20	25	65	89627,200	1,326	7,000	3,200
20	25	75	89926,000	1,378	6,200	3,000
20	25	85	90120,400	1,092	6,200	3,000
20	25	95	90314,800	1,174	6,200	3,000
20	35	5	79652,000	0,764	6,200	2,800
20	35	15	83384,800	0,878	6,800	3,000
20	35	25	85944,000	0,992	7,000	3,200
20	35	35	87934,000	1,200	7,200	3,200
20	35	45	89523,200	0,960	5,000	2,600
20	35	55	90986,400	1,322	5,400	2,800
20	35	65	92261,200	1,460	4,200	2,600
20	35	75	93536,800	2,068	3,800	2,400
20	35	85	94811,600	5,322	6,200	3,400
20	35	95	95818,800	5,794	7,000	3,600
20	45	5	80114,000	0,760	6,200	2,800
20	45	15	84936,400	0,884	7,000	3,000
20	45	25	87948,800	1,312	7,000	3,200
20	45	35	89986,400	1,664	7,800	3,200
20	45	45	91486,400	2,032	7,800	3,200
20	45	55	92985,600	2,242	6,200	2,800
20	45	65	94335,200	4,454	8,000	3,400
20	45	75	95646,000	4,990	8,600	3,600
20	45	85	96956,000	6,086	9,600	4,200
20	45	95	98047,200	7,284	10,000	4,200
20	55	5	80342,800	0,740	6,400	2,800
20	55	15	84831,200	0,886	7,400	3,000
20	55	25	88413,600	1,196	7,600	3,200

Table S.1 continued from previous page

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
20	55	35	91303,600	1,662	7,000	3,400
20	55	45	93238,400	2,394	7,400	3,600
20	55	55	94768,400	3,152	7,000	3,400
20	55	65	96101,600	4,474	9,000	3,800
20	55	75	97010,400	5,882	10,800	4,200
20	55	85	97723,200	6,146	10,800	4,600
20	55	95	98409,200	6,896	11,800	4,600
20	65	5	79040,800	0,770	5,600	2,600
20	65	15	82184,400	0,808	5,600	2,600
20	65	25	84787,600	0,896	5,600	2,600
20	65	35	86868,800	1,026	5,600	2,800
20	65	45	88640,800	1,452	5,400	2,800
20	65	55	90127,200	1,848	7,000	3,400
20	65	65	91340,800	3,190	6,200	3,200
20	65	75	92462,400	3,602	5,600	3,000
20	65	85	93583,200	3,734	5,800	3,000
20	65	95	94704,400	4,064	7,400	3,400
20	75	5	79266,000	0,888	7,000	3,000
20	75	15	82122,000	0,732	5,800	2,600
20	75	25	84197,200	0,838	6,200	2,800
20	75	35	85687,600	0,904	5,400	2,800
20	75	45	86813,600	1,080	5,800	3,000
20	75	55	87874,000	1,276	6,000	2,800
20	75	65	88658,400	1,320	7,000	3,200
20	75	75	89308,000	1,246	6,800	3,000
20	75	85	89924,800	1,628	7,600	3,200
20	75	95	90186,400	1,892	7,200	3,400
20	85	5	78686,400	0,734	6,600	2,800
20	85	15	80469,200	0,726	6,000	2,600
20	85	25	81708,400	0,742	6,000	2,600
20	85	35	82597,600	0,858	7,400	3,200
20	85	45	83244,000	0,878	6,600	3,000
20	85	55	83768,800	0,886	6,000	2,800
20	85	65	84183,600	0,892	6,000	2,800
20	85	75	84598,400	0,866	6,000	2,800
20	85	85	85012,800	1,000	6,400	3,000
20	85	95	85204,800	0,952	6,600	3,000
20	95	5	77804,400	0,756	6,600	2,800
20	95	15	78502,800	0,698	6,400	2,800
20	95	25	79036,400	0,790	7,200	3,200
20	95	35	79230,800	0,738	6,600	3,000
20	95	45	79425,200	0,794	6,800	3,000

Table S.1 continued from previous page

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
20	95	55	79620,000	0,818	6,800	3,000
20	95	65	79814,400	0,776	6,800	3,000
20	95	75	80008,800	0,760	6,800	3,000
20	95	85	80203,200	0,728	6,800	3,000
20	95	95	80397,600	0,730	6,800	3,000
25	5	5	86719,600	1,890	8,600	4,000
25	5	15	87838,800	1,624	7,400	3,600
25	5	25	88576,000	1,818	7,600	3,800
25	5	35	89112,000	1,872	7,600	3,800
25	5	45	89180,800	1,954	7,400	4,000
25	5	55	89180,800	1,978	7,400	4,000
25	5	65	89180,800	2,280	7,400	4,000
25	5	75	89180,800	1,868	7,000	3,800
25	5	85	89180,800	1,788	7,000	3,800
25	5	95	89180,800	1,818	7,000	3,800
25	15	5	87114,800	1,900	7,600	3,600
25	15	15	88891,200	1,980	7,800	3,800
25	15	25	90223,200	2,312	9,400	4,400
25	15	35	90848,800	2,348	9,600	4,400
25	15	45	91457,200	2,476	10,200	4,600
25	15	55	91870,800	2,778	10,400	4,800
25	15	65	92081,600	2,798	10,000	4,600
25	15	75	92255,600	2,652	9,600	4,400
25	15	85	92255,600	2,560	8,800	4,000
25	15	95	92255,600	2,250	8,200	3,800
25	25	5	88959,200	2,428	8,800	4,200
25	25	15	94004,400	2,432	7,600	3,800
25	25	25	97360,000	3,538	11,000	4,800
25	25	35	99734,800	3,282	8,800	4,000
25	25	45	101866,800	4,580	9,200	4,000
25	25	55	103810,000	8,360	11,400	5,000
25	25	65	105382,000	11,808	12,400	5,200
25	25	75	106406,400	14,902	12,600	5,800
25	25	85	106881,600	14,416	13,400	5,600
25	25	95	107183,200	13,838	12,800	5,400
25	35	5	89073,200	2,344	9,200	4,400
25	35	15	94555,600	2,868	9,600	4,600
25	35	25	98357,200	3,360	9,400	4,600
25	35	35	100642,000	4,502	10,400	4,800
25	35	45	101998,800	3,458	8,800	4,000
25	35	55	103240,000	4,112	7,800	3,600
25	35	65	104336,800	4,728	7,600	3,600

Table S.1 continued from previous page

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
25	35	75	105375,600	7,810	9,000	3,600
25	35	85	106272,000	15,326	10,800	4,400
25	35	95	106692,400	14,640	11,200	4,400
25	45	5	89022,400	1,844	6,800	3,400
25	45	15	93934,800	1,756	5,200	3,000
25	45	25	98053,600	2,188	7,000	3,400
25	45	35	101226,800	4,434	9,200	4,200
25	45	45	103153,600	7,318	10,000	4,400
25	45	55	104513,600	7,280	8,600	4,000
25	45	65	105594,400	9,306	8,200	3,800
25	45	75	106621,600	11,852	10,800	4,800
25	45	85	107647,600	10,868	10,400	4,800
25	45	95	108640,400	14,670	13,400	6,000
25	55	5	89101,200	2,286	9,000	4,200
25	55	15	94080,000	2,588	10,000	4,600
25	55	25	98106,000	3,070	10,000	4,600
25	55	35	100938,400	3,438	8,800	3,800
25	55	45	103572,400	3,844	9,600	3,600
25	55	55	105502,800	5,968	10,000	4,400
25	55	65	107356,000	8,238	9,200	3,600
25	55	75	109116,800	15,550	11,600	4,400
25	55	85	110671,600	28,570	16,600	6,200
25	55	95	111909,200	35,170	20,800	7,400
25	65	5	88461,600	2,244	8,800	4,200
25	65	15	92612,800	2,508	8,200	3,800
25	65	25	96258,800	3,410	8,200	4,000
25	65	35	98594,400	3,652	8,400	3,600
25	65	45	100316,800	2,804	7,400	3,000
25	65	55	101686,000	4,096	9,000	3,200
25	65	65	102815,200	6,584	10,200	3,800
25	65	75	103719,200	7,396	9,800	3,600
25	65	85	104533,200	11,752	11,400	4,400
25	65	95	105348,000	16,208	12,800	5,000
25	75	5	87989,600	2,500	9,800	4,600
25	75	15	91098,000	2,914	10,600	4,800
25	75	25	93412,400	3,146	11,400	4,800
25	75	35	94789,600	3,526	11,200	5,200
25	75	45	95808,400	3,332	11,000	4,800
25	75	55	96689,200	4,142	12,600	5,400
25	75	65	97426,000	5,170	13,400	6,200
25	75	75	97881,600	4,322	11,800	5,400
25	75	85	98304,000	4,510	12,400	5,600

Table S.1 continued from previous page

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
25	75	95	98726,800	5,178	12,600	6,000
25	85	5	87396,400	1,994	8,000	3,800
25	85	15	89539,600	1,908	6,600	3,200
25	85	25	91002,800	1,532	7,000	3,000
25	85	35	92160,400	1,676	6,800	3,000
25	85	45	92963,600	1,734	6,200	2,800
25	85	55	93680,000	1,864	7,000	3,200
25	85	65	94237,600	2,006	7,200	3,400
25	85	75	94540,800	1,980	7,200	3,400
25	85	85	94751,200	1,974	7,600	3,400
25	85	95	94846,400	2,376	8,400	3,800
25	95	5	86609,600	1,970	8,200	3,800
25	95	15	87406,000	2,538	8,800	4,200
25	95	25	87731,200	2,396	9,000	4,400
25	95	35	87926,000	2,512	9,200	4,400
25	95	45	88120,800	2,462	9,200	4,400
25	95	55	88317,200	2,318	8,600	4,200
25	95	65	88492,400	2,408	9,600	4,200
25	95	75	88492,400	2,396	9,000	4,200
25	95	85	88492,400	2,500	9,000	4,200
25	95	95	88492,400	2,340	9,000	4,200
30	5	5	93701,600	3,004	7,800	3,400
30	5	15	94705,200	3,026	7,400	3,400
30	5	25	95485,600	3,904	9,400	3,800
30	5	35	95812,000	3,518	9,600	3,800
30	5	45	95812,000	3,448	9,600	3,800
30	5	55	95812,000	2,990	8,000	3,200
30	5	65	95812,000	3,170	8,000	3,200
30	5	75	95812,000	2,968	8,000	3,200
30	5	85	95812,000	2,976	8,000	3,200
30	5	95	95812,000	3,010	8,000	3,200
30	15	5	94617,200	2,800	7,600	3,400
30	15	15	96140,400	2,120	5,200	2,600
30	15	25	97567,200	2,304	5,000	2,400
30	15	35	98606,000	2,186	4,800	2,400
30	15	45	99230,800	2,284	4,800	2,400
30	15	55	99738,800	2,846	6,200	2,800
30	15	65	100153,600	2,518	6,200	2,800
30	15	75	100558,800	3,220	6,800	3,000
30	15	85	100763,600	2,822	6,000	2,800
30	15	95	100968,400	3,118	7,200	3,200
30	25	5	95349,200	2,996	8,400	3,600

Table S.1 continued from previous page

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
30	25	15	98255,200	3,412	8,800	3,800
30	25	25	100536,000	3,844	8,800	3,800
30	25	35	102718,800	5,274	10,800	4,400
30	25	45	104272,800	5,334	10,200	4,200
30	25	55	105132,800	6,088	11,800	4,800
30	25	65	105522,000	4,684	8,600	4,000
30	25	75	105679,200	5,094	8,800	4,000
30	25	85	105679,200	4,224	9,000	3,800
30	25	95	105679,200	3,712	8,000	3,600
30	35	5	96636,400	2,808	7,600	3,400
30	35	15	102326,400	3,048	6,400	3,000
30	35	25	106858,800	4,410	8,200	3,400
30	35	35	110126,000	8,102	10,000	4,200
30	35	45	112367,600	14,570	11,400	4,800
30	35	55	113822,000	28,022	15,200	5,600
30	35	65	114988,000	39,412	17,000	6,000
30	35	75	115538,800	40,884	17,400	6,200
30	35	85	115938,400	41,882	18,800	6,400
30	35	95	116338,000	51,064	21,400	7,000
30	45	5	96461,600	3,000	7,800	3,200
30	45	15	101183,600	2,440	5,400	2,800
30	45	25	104369,600	2,510	4,400	2,400
30	45	35	107136,400	3,276	5,000	2,600
30	45	45	109194,000	3,196	3,400	2,200
30	45	55	110570,400	4,774	4,800	2,800
30	45	65	111660,800	4,698	4,800	2,400
30	45	75	112603,200	7,064	5,400	2,600
30	45	85	113221,600	9,300	7,200	3,000
30	45	95	113826,000	11,132	7,000	3,200
30	55	5	96509,200	2,538	7,400	3,200
30	55	15	102474,000	4,434	9,600	3,600
30	55	25	106990,800	6,246	9,200	3,800
30	55	35	109925,600	10,192	11,800	4,800
30	55	45	112236,800	24,546	14,400	5,400
30	55	55	114247,200	51,782	16,600	6,000
30	55	65	115854,400	62,042	19,600	6,800
30	55	75	117129,600	65,414	22,200	7,600
30	55	85	118306,800	107,026	31,000	10,400
30	55	95	119332,800	160,616	35,200	12,200
30	65	5	95694,800	2,730	7,000	3,400
30	65	15	99647,600	3,412	6,200	3,400
30	65	25	102088,800	3,700	7,200	3,600

Table S.1 continued from previous page

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
30	65	35	104266,800	4,140	7,600	3,200
30	65	45	106116,800	4,486	6,800	3,200
30	65	55	107696,400	5,408	7,200	3,200
30	65	65	109038,400	7,074	7,000	3,000
30	65	75	110087,200	10,874	7,200	3,200
30	65	85	111108,000	9,242	7,800	3,200
30	65	95	111947,200	25,928	9,600	4,200
30	75	5	95262,800	2,724	7,200	3,400
30	75	15	98718,800	4,086	8,000	3,800
30	75	25	101038,800	2,862	6,800	3,200
30	75	35	102692,000	3,178	6,400	3,000
30	75	45	104224,400	4,178	7,000	3,400
30	75	55	105518,800	7,416	7,400	4,000
30	75	65	106008,400	10,028	9,800	4,600
30	75	75	106213,200	6,602	8,200	3,800
30	75	85	106234,400	6,312	7,800	3,600
30	75	95	106234,400	7,078	8,200	3,600
30	85	5	94707,200	2,608	8,200	3,400
30	85	15	97117,200	2,462	7,200	3,000
30	85	25	98956,400	3,582	8,600	3,600
30	85	35	100216,800	3,012	8,400	3,400
30	85	45	100566,400	3,536	10,200	3,800
30	85	55	100631,200	3,492	10,000	3,800
30	85	65	100631,200	3,344	10,000	3,800
30	85	75	100631,200	3,246	10,000	3,800
30	85	85	100631,200	3,266	10,000	3,800
30	85	95	100631,200	3,440	10,000	3,800
30	95	5	93411,600	2,700	7,400	3,200
30	95	15	93984,800	3,130	8,600	3,400
30	95	25	94098,800	2,810	8,400	3,400
30	95	35	94098,800	2,836	8,200	3,400
30	95	45	94098,800	3,074	9,000	3,600
30	95	55	94098,800	2,880	8,200	3,400
30	95	65	94098,800	2,798	8,200	3,400
30	95	75	94098,800	2,926	8,200	3,400
30	95	85	94098,800	2,924	8,200	3,400
30	95	95	94098,800	2,994	8,200	3,400
35	5	5	98675,600	7,862	15,000	4,800
35	5	15	99544,000	9,086	14,400	4,800
35	5	25	100151,600	9,332	14,600	4,800
35	5	35	100461,600	9,026	14,400	4,800
35	5	45	100687,600	9,348	14,800	5,000

Table S.1 continued from previous page

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
35	5	55	100739,600	8,612	14,200	4,800
35	5	65	100739,600	8,864	14,200	4,800
35	5	75	100739,600	8,584	14,200	4,800
35	5	85	100739,600	8,864	14,200	4,800
35	5	95	100739,600	9,048	14,200	4,800
35	15	5	99746,000	6,390	12,800	3,800
35	15	15	102252,000	7,110	12,800	4,000
35	15	25	103764,800	7,156	11,400	3,800
35	15	35	104478,400	6,588	11,200	3,600
35	15	45	105034,000	5,872	10,800	3,400
35	15	55	105171,600	7,578	11,800	3,800
35	15	65	105171,600	5,690	10,600	3,400
35	15	75	105171,600	5,738	10,600	3,400
35	15	85	105171,600	5,644	10,600	3,400
35	15	95	105171,600	5,630	10,600	3,400
35	25	5	100551,200	6,680	14,800	4,400
35	25	15	105044,000	11,916	17,400	5,400
35	25	25	107792,800	8,736	14,400	4,400
35	25	35	109744,800	10,790	15,200	4,800
35	25	45	111197,600	13,400	16,800	5,400
35	25	55	111755,600	13,734	17,200	5,600
35	25	65	111796,000	9,256	11,800	4,200
35	25	75	111796,000	8,388	10,600	4,000
35	25	85	111796,000	7,994	11,200	4,000
35	25	95	111796,000	7,528	11,000	4,000
35	35	5	101486,400	7,056	14,400	4,400
35	35	15	106066,000	6,294	11,800	3,600
35	35	25	109384,000	6,480	11,400	3,400
35	35	35	112406,800	12,482	14,200	4,000
35	35	45	114962,800	24,942	14,000	4,600
35	35	55	116525,200	29,406	10,400	3,800
35	35	65	117909,600	46,232	12,000	4,200
35	35	75	118972,400	63,084	13,400	4,600
35	35	85	120034,800	73,308	16,400	5,200
35	35	95	121097,200	87,022	18,200	5,800
35	45	5	102471,600	6,176	14,000	4,000
35	45	15	109890,800	7,530	14,000	4,200
35	45	25	115498,000	12,082	15,000	4,200
35	45	35	119562,800	23,450	14,600	4,000
35	45	45	122289,600	60,802	17,600	4,600
35	45	55	124603,600	70,182	19,800	4,800
35	45	65	126456,000	163,876	23,600	6,200

Table S.1 continued from previous page

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
35	45	75	127807,200	237,852	27,600	7,000
35	45	85	128958,400	279,090	30,200	7,800
35	45	95	130038,400	411,148	36,800	9,600
35	55	5	102169,200	9,796	16,800	5,600
35	55	15	108203,600	11,148	14,800	4,600
35	55	25	112600,800	12,824	14,600	4,400
35	55	35	115730,800	24,960	16,400	5,200
35	55	45	118274,000	42,056	16,000	5,000
35	55	55	120474,000	73,830	19,800	5,600
35	55	65	122100,800	95,252	21,600	6,000
35	55	75	123299,200	117,300	23,000	6,600
35	55	85	124268,400	196,490	27,800	8,000
35	55	95	124956,000	278,908	32,000	9,000
35	65	5	101548,400	7,814	14,600	4,400
35	65	15	107674,800	8,650	12,600	4,000
35	65	25	112016,000	18,152	15,600	5,000
35	65	35	115441,200	34,482	17,600	5,800
35	65	45	117901,200	89,832	22,600	7,600
35	65	55	119184,400	94,488	21,600	7,800
35	65	65	120211,600	111,258	24,400	8,200
35	65	75	120863,600	123,126	24,400	8,600
35	65	85	121516,000	141,190	26,200	8,800
35	65	95	122168,000	251,460	32,400	11,800
35	75	5	101243,600	8,432	15,800	4,800
35	75	15	106428,400	11,990	19,200	5,400
35	75	25	109234,000	12,852	17,400	5,200
35	75	35	111009,600	14,742	17,200	5,200
35	75	45	112369,600	14,298	15,800	4,800
35	75	55	113450,000	14,682	17,000	4,600
35	75	65	114283,600	15,958	16,600	4,600
35	75	75	114461,200	15,636	14,600	4,000
35	75	85	114461,200	16,892	15,000	4,600
35	75	95	114461,200	16,784	14,600	4,600
35	85	5	99603,200	8,752	16,200	5,000
35	85	15	101445,600	7,750	14,600	4,400
35	85	25	102422,400	6,538	12,600	4,000
35	85	35	102988,400	7,530	12,600	4,200
35	85	45	103309,200	6,878	12,000	4,200
35	85	55	103538,800	7,340	12,000	4,200
35	85	65	103768,800	6,260	11,200	4,000
35	85	75	103882,800	6,622	11,400	4,000
35	85	85	103882,800	5,600	11,800	3,600

Table S.1 continued from previous page

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
35	85	95	103882,800	5,298	10,600	3,400
35	95	5	98501,600	6,366	13,600	4,000
35	95	15	99199,600	5,486	13,000	3,800
35	95	25	99619,200	4,786	11,600	3,400
35	95	35	99839,200	4,776	11,200	3,200
35	95	45	100026,800	4,484	10,800	3,200
35	95	55	100026,800	4,558	10,800	3,200
35	95	65	100026,800	3,966	10,000	3,000
35	95	75	100026,800	4,282	10,000	3,000
35	95	85	100026,800	3,788	10,000	3,000
35	95	95	100026,800	3,886	10,000	3,000
40	5	5	101450,400	7,990	13,600	4,000
40	5	15	102622,400	8,686	13,600	4,200
40	5	25	102925,600	8,850	14,200	4,400
40	5	35	103108,800	9,132	14,400	4,400
40	5	45	103108,800	9,564	14,400	4,400
40	5	55	103108,800	9,442	14,400	4,400
40	5	65	103108,800	9,086	14,400	4,400
40	5	75	103108,800	8,498	14,400	4,400
40	5	85	103108,800	9,262	14,400	4,400
40	5	95	103108,800	9,670	14,400	4,400
40	15	5	102628,800	7,078	13,200	3,800
40	15	15	105530,800	9,630	14,200	4,400
40	15	25	106924,000	11,694	14,000	4,600
40	15	35	107803,200	11,718	13,600	4,400
40	15	45	108187,200	12,632	14,000	4,400
40	15	55	108187,200	11,006	13,000	4,200
40	15	65	108187,200	10,118	12,400	4,000
40	15	75	108187,200	11,726	14,200	4,200
40	15	85	108187,200	10,220	14,200	4,200
40	15	95	108187,200	9,398	11,600	3,800
40	25	5	104170,800	8,182	14,200	4,000
40	25	15	109474,400	13,510	15,800	4,400
40	25	25	113094,800	14,538	15,600	4,600
40	25	35	115766,800	19,496	16,400	5,000
40	25	45	116908,400	23,692	17,400	5,000
40	25	55	117529,600	25,782	17,200	4,800
40	25	65	117932,400	23,498	16,200	4,600
40	25	75	118298,000	26,190	17,200	5,200
40	25	85	118406,000	22,352	18,800	5,000
40	25	95	118406,000	21,892	16,000	4,800
40	35	5	104749,600	10,568	14,400	4,200

Table S.1 continued from previous page

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
40	35	15	111768,000	18,982	19,000	5,800
40	35	25	116855,600	32,304	18,800	5,400
40	35	35	119957,200	47,956	20,000	5,200
40	35	45	122343,200	126,822	25,400	7,000
40	35	55	123949,200	180,170	28,400	7,400
40	35	65	125376,000	360,732	36,600	9,400
40	35	75	126208,800	566,102	42,600	11,000
40	35	85	126712,400	714,632	44,000	11,800
40	35	95	127124,400	1051,868	47,000	12,800
40	45	5	105140,800	9,496	16,000	4,600
40	45	15	112582,800	18,818	18,200	5,000
40	45	25	117552,000	39,552	20,200	6,000
40	45	35	121029,200	91,524	21,400	6,200
40	45	45	123472,400	131,808	23,600	6,800
40	45	55	125388,400	188,786	26,200	7,800
40	45	65	126738,800	301,828	34,000	9,400
40	45	75	127855,600	499,764	43,800	13,600
40	45	85	128820,000	1030,380	60,400	20,400
40	45	95	129635,600	1211,764	67,400	22,800
40	55	5	105267,200	9,278	14,800	4,200
40	55	15	112162,000	13,174	12,600	4,000
40	55	25	116634,400	23,462	14,600	4,800
40	55	35	119890,800	38,648	17,000	5,400
40	55	45	122401,200	86,014	19,600	6,200
40	55	55	124249,600	136,918	23,600	7,600
40	55	65	125595,200	225,328	26,400	8,800
40	55	75	126533,200	243,458	30,400	9,600
40	55	85	127341,200	326,066	33,400	10,600
40	55	95	128103,600	481,090	38,400	12,400
40	65	5	104628,800	7,968	13,000	4,000
40	65	15	110976,000	10,324	12,200	4,000
40	65	25	114637,600	11,930	11,200	3,800
40	65	35	117437,200	21,836	14,800	4,800
40	65	45	118516,400	28,540	17,000	5,200
40	65	55	119332,400	38,848	17,200	5,200
40	65	65	120148,000	49,190	16,000	5,200
40	65	75	120782,400	66,268	20,600	6,200
40	65	85	121392,800	99,178	22,400	6,800
40	65	95	122003,600	134,682	25,600	7,800
40	75	5	104701,600	10,178	15,600	4,400
40	75	15	110739,200	11,936	15,800	4,800
40	75	25	114254,800	25,898	19,600	6,000

Table S.1 continued from previous page

n	f	w	(2.19) o	(2.19) t	(2.19) s	(2.19) r
40	75	35	116106,800	22,160	17,000	5,200
40	75	45	117264,000	21,406	13,600	4,400
40	75	55	118297,600	22,634	13,400	4,400
40	75	65	119316,000	34,216	16,400	5,000
40	75	75	120141,200	39,998	16,800	5,400
40	75	85	120947,600	60,920	17,000	5,600
40	75	95	121496,000	62,212	19,800	6,000
40	85	5	103066,800	7,126	12,600	3,600
40	85	15	106631,200	9,060	13,000	4,000
40	85	25	108374,400	6,958	11,600	3,400
40	85	35	109519,600	10,042	11,800	4,000
40	85	45	110178,800	9,234	11,400	3,800
40	85	55	110611,600	7,616	9,600	3,400
40	85	65	110819,600	6,016	9,000	3,000
40	85	75	110920,800	5,288	8,600	2,800
40	85	85	110920,800	5,598	8,200	2,800
40	85	95	110920,800	5,480	8,200	2,800
40	95	5	101428,000	7,296	14,000	3,800
40	95	15	102655,600	9,996	14,400	4,200
40	95	25	103002,400	10,008	14,200	4,400
40	95	35	103190,800	9,934	14,200	4,400
40	95	45	103379,200	10,200	14,200	4,400
40	95	55	103478,000	10,444	14,400	4,400
40	95	65	103478,000	9,816	14,400	4,400
40	95	75	103478,000	10,118	14,400	4,400
40	95	85	103478,000	10,166	14,400	4,400
40	95	95	103478,000	9,828	14,400	4,400

Table S.1: Aggregated Computational Results for (2.19)

Appendix T

Aggregated Computational Results for (2.20)

NOTE:

n - Number of nodes in the graph

f - Percentage of flagged edges in an instance

w - Reload costs relative to the average edge weight

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
10	5	5	58612,400	0,112	2,200	2,000
10	5	15	59401,600	0,128	2,800	2,200
10	5	25	59683,600	0,128	2,800	2,200
10	5	35	59880,000	0,126	2,800	2,200
10	5	45	60076,800	0,130	2,800	2,200
10	5	55	60186,000	0,126	2,800	2,200
10	5	65	60186,000	0,132	2,800	2,200
10	5	75	60186,000	0,128	2,800	2,200
10	5	85	60186,000	0,126	2,800	2,200
10	5	95	60186,000	0,128	2,800	2,200
10	15	5	58681,200	0,114	2,200	2,000
10	15	15	59530,000	0,116	2,200	2,000
10	15	25	60373,600	0,102	1,800	1,800
10	15	35	61046,400	0,112	2,400	2,000
10	15	45	61358,800	0,116	2,400	2,000
10	15	55	61515,600	0,106	2,000	1,800
10	15	65	61515,600	0,102	2,000	1,800
10	15	75	61515,600	0,090	1,400	1,600
10	15	85	61515,600	0,096	1,400	1,600
10	15	95	61515,600	0,088	1,400	1,600
10	25	5	58814,800	0,116	2,200	2,000
10	25	15	60075,600	0,102	2,000	1,800
10	25	25	61050,800	0,110	2,000	1,800
10	25	35	61916,800	0,092	1,600	1,600
10	25	45	62783,200	0,094	1,600	1,600
10	25	55	63650,400	0,096	1,600	1,600
10	25	65	64516,800	0,100	1,400	1,600
10	25	75	65169,200	0,098	1,400	1,600
10	25	85	65790,400	0,114	1,800	1,800
10	25	95	66218,400	0,102	1,400	1,600
10	35	5	59198,800	0,114	2,200	2,000
10	35	15	61180,400	0,100	1,800	1,800
10	35	25	63023,200	0,110	1,800	1,800
10	35	35	64766,000	0,118	1,800	1,800
10	35	45	66020,800	0,106	1,400	1,600
10	35	55	67124,400	0,090	1,000	1,400
10	35	65	68152,400	0,090	1,000	1,400
10	35	75	69004,800	0,090	1,000	1,400
10	35	85	69857,600	0,098	1,000	1,400
10	35	95	70710,000	0,110	1,400	1,600
10	45	5	59409,200	0,114	2,200	2,000
10	45	15	61826,800	0,126	2,400	2,000
10	45	25	63918,000	0,102	1,600	1,600

Table T.1 continued from previous page

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
10	45	35	65659,200	0,122	2,000	1,800
10	45	45	67042,400	0,134	2,400	2,000
10	45	55	68266,800	0,140	2,200	2,000
10	45	65	69403,200	0,170	3,200	2,400
10	45	75	70429,600	0,184	3,200	2,400
10	45	85	71456,400	0,166	2,800	2,200
10	45	95	72482,800	0,192	2,800	2,200
10	55	5	59409,200	0,116	2,200	2,000
10	55	15	61680,800	0,118	2,200	2,000
10	55	25	63603,200	0,130	2,800	2,200
10	55	35	65317,600	0,158	3,200	2,400
10	55	45	66599,200	0,122	2,400	2,000
10	55	55	67466,400	0,124	2,600	2,200
10	55	65	68332,800	0,118	2,200	2,000
10	55	75	69198,800	0,118	2,000	2,000
10	55	85	70065,200	0,114	1,600	1,800
10	55	95	70931,600	0,122	1,600	1,800
10	65	5	59534,800	0,114	2,200	2,000
10	65	15	61800,800	0,102	1,800	1,800
10	65	25	63858,400	0,110	1,800	1,800
10	65	35	65665,200	0,104	1,400	1,600
10	65	45	67362,400	0,102	1,400	1,600
10	65	55	68532,400	0,088	1,000	1,400
10	65	65	69349,200	0,118	1,800	1,800
10	65	75	69790,800	0,108	1,400	1,600
10	65	85	70232,800	0,120	2,000	1,800
10	65	95	70674,800	0,142	2,400	2,000
10	75	5	59115,600	0,112	2,200	2,000
10	75	15	60526,800	0,102	1,800	1,800
10	75	25	61730,000	0,090	1,400	1,600
10	75	35	62624,400	0,092	1,600	1,600
10	75	45	63400,400	0,090	1,600	1,600
10	75	55	63988,800	0,092	1,600	1,600
10	75	65	64519,600	0,148	1,400	1,600
10	75	75	65050,400	0,100	1,400	1,600
10	75	85	65581,600	0,100	1,400	1,600
10	75	95	66080,800	0,116	1,800	1,800
10	85	5	58724,800	0,110	2,200	2,000
10	85	15	59667,600	0,116	2,400	2,000
10	85	25	60271,600	0,124	2,800	2,200
10	85	35	60298,400	0,112	2,200	2,000
10	85	45	60298,400	0,116	2,200	2,000

Table T.1 continued from previous page

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
10	85	55	60298,400	0,112	2,200	2,000
10	85	65	60298,400	0,122	2,400	2,200
10	85	75	60298,400	0,116	2,400	2,200
10	85	85	60298,400	0,118	2,400	2,200
10	85	95	60298,400	0,120	2,400	2,200
10	95	5	58817,200	0,112	2,200	2,000
10	95	15	60094,000	0,114	2,400	2,000
10	95	25	61020,400	0,136	3,200	2,400
10	95	35	61352,000	0,136	3,200	2,400
10	95	45	61602,400	0,122	2,800	2,200
10	95	55	61852,800	0,124	2,800	2,200
10	95	65	62103,200	0,122	2,800	2,200
10	95	75	62353,600	0,120	2,800	2,200
10	95	85	62604,000	0,132	3,200	2,400
10	95	95	62854,400	0,134	3,200	2,400
15	5	5	68981,200	0,246	4,000	2,200
15	5	15	68981,200	0,246	4,000	2,200
15	5	25	68981,200	0,264	3,800	2,200
15	5	35	68981,200	0,256	3,800	2,200
15	5	45	68981,200	0,246	3,800	2,200
15	5	55	68981,200	0,276	3,800	2,200
15	5	65	68981,200	0,256	3,800	2,200
15	5	75	68981,200	0,260	3,800	2,200
15	5	85	68981,200	0,250	3,800	2,200
15	5	95	68981,200	0,260	3,800	2,200
15	15	5	69520,400	0,240	4,200	2,200
15	15	15	70577,600	0,256	4,200	2,200
15	15	25	71221,600	0,256	4,200	2,200
15	15	35	71586,000	0,260	4,200	2,200
15	15	45	71810,000	0,256	4,200	2,200
15	15	55	71834,000	0,256	4,200	2,200
15	15	65	71834,000	0,262	4,200	2,200
15	15	75	71834,000	0,276	4,200	2,400
15	15	85	71834,000	0,272	4,000	2,400
15	15	95	71834,000	0,278	4,000	2,400
15	25	5	70424,000	0,262	4,400	2,200
15	25	15	72768,000	0,338	5,200	2,600
15	25	25	74780,000	0,330	5,000	2,400
15	25	35	76731,600	0,428	5,400	2,800
15	25	45	78443,200	0,368	4,600	2,400
15	25	55	79616,000	0,452	5,000	2,600
15	25	65	80510,800	0,442	4,600	2,400

Table T.1 continued from previous page

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
15	25	75	81204,400	0,490	4,600	2,600
15	25	85	81480,000	0,418	3,800	2,400
15	25	95	81700,800	0,418	3,800	2,400
15	35	5	70352,000	0,234	4,200	2,200
15	35	15	72622,400	0,230	3,600	2,000
15	35	25	74395,600	0,242	2,400	1,800
15	35	35	76109,200	0,296	2,400	1,800
15	35	45	77566,400	0,304	3,000	2,000
15	35	55	78808,400	0,376	3,000	2,000
15	35	65	79852,000	0,428	4,000	2,400
15	35	75	80896,000	0,542	4,400	2,600
15	35	85	81694,000	0,690	4,600	2,600
15	35	95	82201,200	0,774	5,000	2,800
15	45	5	70855,200	0,204	3,800	2,000
15	45	15	74553,600	0,318	4,000	2,200
15	45	25	77595,200	0,276	3,000	2,000
15	45	35	79926,000	0,348	2,600	1,800
15	45	45	82132,400	0,508	4,200	2,400
15	45	55	84223,600	0,634	4,200	2,400
15	45	65	86060,000	0,880	4,400	2,400
15	45	75	87630,000	1,092	4,400	2,400
15	45	85	89071,600	1,638	5,200	3,000
15	45	95	90246,800	1,964	6,600	3,400
15	55	5	70464,800	0,224	3,800	2,000
15	55	15	73422,400	0,270	3,400	2,000
15	55	25	75783,600	0,274	3,200	2,000
15	55	35	77486,000	0,248	3,000	1,800
15	55	45	79160,000	0,304	3,200	1,800
15	55	55	80556,800	0,336	2,800	1,800
15	55	65	81822,000	0,432	2,800	2,000
15	55	75	82970,400	0,614	3,200	2,200
15	55	85	84040,000	0,722	3,800	2,400
15	55	95	85110,000	0,990	4,000	2,400
15	65	5	70371,200	0,246	4,400	2,200
15	65	15	72890,400	0,248	4,200	2,200
15	65	25	75096,400	0,242	3,600	2,000
15	65	35	76812,000	0,282	3,600	2,000
15	65	45	77934,400	0,332	3,800	2,200
15	65	55	78800,000	0,424	4,200	2,400
15	65	65	79493,600	0,524	4,400	2,400
15	65	75	80136,000	0,586	4,400	2,400
15	65	85	80710,000	0,648	4,400	2,400

Table T.1 continued from previous page

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
15	65	95	80933,200	0,784	4,200	2,400
15	75	5	70362,400	0,250	4,200	2,200
15	75	15	72444,800	0,268	4,000	2,200
15	75	25	73830,000	0,264	3,600	2,200
15	75	35	74681,200	0,300	3,800	2,400
15	75	45	75532,800	0,312	3,800	2,400
15	75	55	76146,000	0,328	3,800	2,400
15	75	65	76593,200	0,344	4,000	2,400
15	75	75	77040,400	0,370	3,800	2,400
15	75	85	77318,800	0,380	3,800	2,400
15	75	95	77490,400	0,310	3,000	2,000
15	85	5	70061,600	0,238	4,000	2,200
15	85	15	71992,000	0,256	4,000	2,200
15	85	25	73488,000	0,276	4,200	2,400
15	85	35	74196,800	0,276	4,200	2,400
15	85	45	74616,000	0,246	3,800	2,200
15	85	55	75034,800	0,270	3,600	2,200
15	85	65	75453,600	0,250	3,600	2,200
15	85	75	75677,600	0,252	3,600	2,200
15	85	85	75901,200	0,248	3,600	2,200
15	85	95	76125,200	0,258	3,600	2,200
15	95	5	69367,200	0,246	4,200	2,200
15	95	15	70080,800	0,250	4,000	2,200
15	95	25	70587,600	0,278	4,200	2,400
15	95	35	70819,600	0,278	4,200	2,400
15	95	45	70862,400	0,276	4,200	2,400
15	95	55	70862,400	0,278	4,200	2,400
15	95	65	70862,400	0,280	4,000	2,400
15	95	75	70862,400	0,288	4,000	2,400
15	95	85	70862,400	0,276	4,000	2,400
15	95	95	70862,400	0,284	4,000	2,400
20	5	5	77616,400	0,620	4,800	2,200
20	5	15	78036,400	0,652	4,800	2,200
20	5	25	78182,000	0,662	4,800	2,400
20	5	35	78182,000	0,680	4,800	2,400
20	5	45	78182,000	0,586	4,200	2,200
20	5	55	78182,000	0,614	4,200	2,200
20	5	65	78182,000	0,590	4,200	2,200
20	5	75	78182,000	0,828	4,200	2,200
20	5	85	78182,000	0,618	4,200	2,200
20	5	95	78182,000	0,618	4,200	2,200
20	15	5	78996,000	0,630	5,400	2,400

Table T.1 continued from previous page

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
20	15	15	81477,200	0,654	5,000	2,200
20	15	25	82715,200	0,672	6,000	2,600
20	15	35	83676,000	0,636	6,600	2,600
20	15	45	84209,600	0,746	6,800	2,800
20	15	55	84633,200	0,740	6,600	2,800
20	15	65	85057,600	0,686	6,200	2,600
20	15	75	85481,600	0,766	6,600	2,800
20	15	85	85666,800	0,774	7,200	3,000
20	15	95	85666,800	0,724	6,600	2,800
20	25	5	79737,600	0,592	5,000	2,200
20	25	15	83402,800	0,628	5,000	2,200
20	25	25	85614,000	0,610	5,000	2,200
20	25	35	86938,400	0,666	5,400	2,400
20	25	45	87973,600	0,636	4,600	2,200
20	25	55	88948,000	0,884	5,000	2,400
20	25	65	89627,200	1,026	6,000	2,800
20	25	75	89926,000	1,220	6,400	3,200
20	25	85	90120,400	1,212	6,400	3,200
20	25	95	90314,800	1,278	6,400	3,200
20	35	5	79652,000	0,666	4,600	2,200
20	35	15	83384,800	0,700	4,600	2,200
20	35	25	85944,000	0,976	6,200	2,800
20	35	35	87934,000	1,154	6,200	2,800
20	35	45	89523,200	0,936	4,600	2,400
20	35	55	90986,400	1,102	4,600	2,400
20	35	65	92261,200	1,294	3,800	2,400
20	35	75	93536,800	2,072	3,600	2,400
20	35	85	94811,600	2,724	5,200	3,000
20	35	95	95818,800	3,346	5,400	3,000
20	45	5	80114,000	0,722	5,400	2,400
20	45	15	84936,400	0,880	6,600	2,800
20	45	25	87948,800	1,254	6,600	3,000
20	45	35	89986,400	1,416	6,600	2,800
20	45	45	91486,400	1,602	6,200	2,800
20	45	55	92985,600	2,232	7,000	3,200
20	45	65	94335,200	3,576	7,800	3,200
20	45	75	95646,000	4,136	7,600	3,400
20	45	85	96956,000	6,566	9,800	4,000
20	45	95	98047,200	6,114	9,000	3,800
20	55	5	80342,800	0,668	4,800	2,200
20	55	15	84831,200	0,774	5,400	2,400
20	55	25	88413,600	0,790	5,600	2,600

Table T.1 continued from previous page

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
20	55	35	91303,600	1,066	5,000	2,600
20	55	45	93238,400	1,520	5,800	3,000
20	55	55	94768,400	2,026	6,400	3,200
20	55	65	96101,600	2,532	7,000	3,200
20	55	75	97038,000	4,508	8,400	3,800
20	55	85	97723,200	6,810	9,400	4,400
20	55	95	98409,200	8,210	10,400	4,400
20	65	5	79040,800	0,646	4,400	2,000
20	65	15	82184,400	0,756	5,000	2,400
20	65	25	84787,600	0,812	5,200	2,600
20	65	35	86868,800	0,964	5,200	2,600
20	65	45	88640,800	1,378	5,400	2,800
20	65	55	90127,200	1,656	6,200	3,200
20	65	65	91340,800	2,102	5,200	2,800
20	65	75	92462,400	2,332	4,600	2,600
20	65	85	93583,200	2,760	4,800	2,600
20	65	95	94704,400	3,628	6,200	3,200
20	75	5	79266,000	0,702	5,400	2,400
20	75	15	82122,000	0,636	4,600	2,200
20	75	25	84197,200	0,738	5,000	2,400
20	75	35	85687,600	0,880	5,400	2,800
20	75	45	86813,600	0,896	4,800	2,600
20	75	55	87874,000	1,124	5,600	2,800
20	75	65	88658,400	1,224	5,800	2,800
20	75	75	89308,000	1,202	5,800	2,800
20	75	85	89924,800	1,710	6,600	3,000
20	75	95	90186,400	1,646	6,600	3,200
20	85	5	78686,400	0,692	5,000	2,200
20	85	15	80469,200	0,668	4,800	2,200
20	85	25	81708,400	0,654	4,800	2,200
20	85	35	82597,600	0,866	6,600	2,800
20	85	45	83244,000	0,838	6,200	2,800
20	85	55	83768,800	0,828	5,600	2,600
20	85	65	84183,600	0,880	5,600	2,600
20	85	75	84598,400	0,856	5,600	2,600
20	85	85	85012,800	0,946	6,000	2,800
20	85	95	85204,800	0,856	6,200	2,800
20	95	5	77804,400	0,636	5,000	2,200
20	95	15	78502,800	0,694	4,800	2,200
20	95	25	79036,400	0,652	5,600	2,400
20	95	35	79230,800	0,664	5,600	2,400
20	95	45	79425,200	0,666	5,600	2,400

Table T.1 continued from previous page

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
20	95	55	79620,000	0,676	5,600	2,400
20	95	65	79814,400	0,636	5,600	2,400
20	95	75	80008,800	0,702	5,600	2,400
20	95	85	80203,200	0,640	5,600	2,400
20	95	95	80397,600	0,646	5,600	2,400
25	5	5	86719,600	1,898	7,600	3,600
25	5	15	87838,800	1,612	7,000	3,400
25	5	25	88576,000	1,672	7,200	3,600
25	5	35	89112,000	1,824	7,200	3,600
25	5	45	89180,800	1,856	7,000	3,800
25	5	55	89180,800	1,850	7,000	3,800
25	5	65	89180,800	1,910	7,200	3,800
25	5	75	89180,800	1,904	6,600	3,600
25	5	85	89180,800	1,680	6,600	3,600
25	5	95	89180,800	1,710	6,600	3,600
25	15	5	87114,800	1,886	7,400	3,400
25	15	15	88891,200	1,912	7,800	3,600
25	15	25	90223,200	2,278	8,400	4,000
25	15	35	90848,800	2,426	8,800	4,000
25	15	45	91457,200	2,340	8,800	4,000
25	15	55	91870,800	2,482	9,200	4,200
25	15	65	92081,600	2,478	8,800	4,000
25	15	75	92255,600	2,536	8,800	4,000
25	15	85	92255,600	2,238	8,000	3,600
25	15	95	92255,600	2,078	7,400	3,400
25	25	5	88959,200	2,350	8,200	4,000
25	25	15	94004,400	2,620	7,600	3,800
25	25	25	97360,000	2,916	9,000	4,000
25	25	35	99734,800	2,558	6,800	3,200
25	25	45	101868,400	3,508	7,600	3,400
25	25	55	103810,000	7,088	10,400	4,600
25	25	65	105382,000	7,330	10,000	4,400
25	25	75	106406,400	10,950	12,000	5,200
25	25	85	106881,600	10,242	10,000	4,400
25	25	95	107183,200	11,012	10,400	4,600
25	35	5	89073,200	2,326	8,400	4,000
25	35	15	94555,600	2,302	8,400	3,800
25	35	25	98357,200	2,932	7,600	4,000
25	35	35	100642,000	3,304	8,000	4,000
25	35	45	101998,800	2,776	8,000	3,600
25	35	55	103240,000	2,798	7,000	3,400
25	35	65	104336,800	3,666	6,800	3,400

Table T.1 continued from previous page

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
25	35	75	105375,600	4,966	7,800	3,600
25	35	85	106272,000	9,898	9,200	4,200
25	35	95	106692,400	12,340	9,600	4,200
25	45	5	89022,400	1,840	6,800	3,400
25	45	15	93934,800	1,630	5,200	3,000
25	45	25	98053,600	1,820	5,400	3,000
25	45	35	101226,800	2,536	6,600	3,200
25	45	45	103153,600	4,508	7,600	3,600
25	45	55	104513,600	3,518	6,800	3,400
25	45	65	105594,400	4,772	7,000	3,200
25	45	75	106621,600	6,236	7,600	3,600
25	45	85	107647,600	10,336	7,600	3,800
25	45	95	108640,400	11,252	9,200	4,200
25	55	5	89101,200	1,974	8,200	3,800
25	55	15	94080,000	2,428	9,200	4,200
25	55	25	98104,000	2,084	7,400	3,400
25	55	35	101216,000	3,158	8,200	3,800
25	55	45	103572,400	3,774	10,000	3,800
25	55	55	105502,800	4,378	8,400	3,600
25	55	65	107356,000	7,166	9,600	3,800
25	55	75	109116,800	16,294	11,600	4,600
25	55	85	110671,600	25,356	16,000	5,800
25	55	95	111909,200	31,822	17,400	6,200
25	65	5	88461,600	2,066	8,000	3,800
25	65	15	92612,800	2,228	7,800	3,600
25	65	25	96258,800	3,266	8,000	4,000
25	65	35	98594,400	3,364	7,800	3,400
25	65	45	100316,800	2,888	6,800	2,800
25	65	55	101686,000	3,488	8,000	2,800
25	65	65	102815,200	4,864	8,200	3,000
25	65	75	103719,200	5,414	8,200	3,000
25	65	85	104533,200	9,654	10,000	3,800
25	65	95	105348,000	11,838	10,000	4,000
25	75	5	87989,600	2,502	8,600	4,000
25	75	15	91098,000	2,358	8,400	3,800
25	75	25	93412,400	2,980	9,200	4,400
25	75	35	94789,600	3,088	9,000	4,200
25	75	45	95808,400	3,244	9,800	4,600
25	75	55	96689,200	3,170	9,400	4,400
25	75	65	97426,000	3,524	10,200	4,800
25	75	75	97881,600	3,922	9,600	4,600
25	75	85	98304,000	3,592	9,400	4,600

Table T.1 continued from previous page

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
25	75	95	98726,800	3,546	10,000	4,800
25	85	5	87396,400	2,036	7,400	3,600
25	85	15	89539,600	1,724	6,200	3,000
25	85	25	91002,800	1,630	5,600	2,800
25	85	35	92160,400	1,808	6,000	3,000
25	85	45	92963,600	1,574	5,800	2,600
25	85	55	93680,000	1,766	7,000	3,000
25	85	65	94237,600	1,792	6,400	3,000
25	85	75	94540,800	1,816	6,400	3,000
25	85	85	94751,200	1,786	6,800	3,000
25	85	95	94846,400	1,938	7,600	3,400
25	95	5	86609,600	2,006	7,600	3,600
25	95	15	87406,000	2,624	9,600	4,400
25	95	25	87731,200	2,426	8,600	4,200
25	95	35	87926,000	2,216	8,400	4,000
25	95	45	88120,800	2,160	8,400	4,000
25	95	55	88315,600	2,186	7,800	3,800
25	95	65	88492,400	1,986	8,400	3,800
25	95	75	88494,000	2,028	8,200	3,800
25	95	85	88492,400	2,014	8,200	3,800
25	95	95	88492,400	2,068	8,200	3,800
30	5	5	93701,600	2,548	7,000	3,200
30	5	15	94705,200	2,868	6,600	3,200
30	5	25	95485,600	3,586	8,600	3,600
30	5	35	95812,000	3,506	8,800	3,600
30	5	45	95812,000	3,514	8,800	3,600
30	5	55	95812,000	2,798	7,200	3,000
30	5	65	95812,000	2,942	7,200	3,000
30	5	75	95812,000	2,866	7,200	3,000
30	5	85	95812,000	2,804	7,200	3,000
30	5	95	95812,000	2,794	7,200	3,000
30	15	5	94617,200	3,056	7,800	3,400
30	15	15	96140,400	2,078	5,000	2,600
30	15	25	97567,200	2,206	4,800	2,400
30	15	35	98606,000	2,090	4,600	2,400
30	15	45	99230,800	2,216	4,600	2,400
30	15	55	99738,800	2,746	6,000	2,800
30	15	65	100153,600	2,604	6,000	2,800
30	15	75	100558,800	3,100	6,600	3,000
30	15	85	100763,600	2,888	5,800	2,800
30	15	95	100968,400	3,244	7,000	3,200
30	25	5	95349,200	2,764	7,600	3,400

Table T.1 continued from previous page

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
30	25	15	98255,200	3,424	7,800	3,400
30	25	25	100536,000	3,258	7,800	3,400
30	25	35	102718,800	4,382	9,800	4,000
30	25	45	104272,800	4,006	8,200	3,600
30	25	55	105132,800	5,266	11,000	4,600
30	25	65	105522,000	4,144	8,800	4,000
30	25	75	105679,200	4,526	9,400	4,200
30	25	85	105679,200	3,370	8,000	3,600
30	25	95	105679,200	3,350	8,800	3,800
30	35	5	96636,400	3,098	7,200	3,400
30	35	15	102326,400	2,920	6,400	3,000
30	35	25	106858,800	4,058	7,800	3,200
30	35	35	110126,000	7,280	10,200	4,200
30	35	45	112367,600	12,672	10,600	4,600
30	35	55	113822,000	23,114	13,000	5,000
30	35	65	114988,000	28,156	16,400	5,600
30	35	75	115538,800	31,864	14,400	5,200
30	35	85	115938,400	33,634	17,000	5,600
30	35	95	116338,000	35,350	17,400	5,600
30	45	5	96461,600	2,886	7,400	3,200
30	45	15	101183,600	2,100	5,000	2,600
30	45	25	104369,600	2,510	4,400	2,400
30	45	35	107136,400	2,912	4,200	2,400
30	45	45	109194,000	3,210	4,000	2,400
30	45	55	110570,400	4,664	4,400	2,600
30	45	65	111660,800	4,606	4,800	2,400
30	45	75	112603,200	6,738	5,400	2,600
30	45	85	113221,600	7,888	5,200	2,600
30	45	95	113826,000	9,816	6,200	3,200
30	55	5	96509,200	2,586	6,600	3,000
30	55	15	102474,000	4,308	8,000	3,400
30	55	25	106990,800	5,984	8,800	3,800
30	55	35	109925,600	8,376	12,200	4,600
30	55	45	112236,800	16,466	12,600	4,800
30	55	55	114247,200	35,026	15,400	5,600
30	55	65	115854,400	37,634	17,200	5,600
30	55	75	117129,600	56,446	18,800	6,200
30	55	85	118306,800	78,698	22,800	7,600
30	55	95	119332,800	121,252	27,000	9,400
30	65	5	95694,800	2,982	7,000	3,400
30	65	15	99647,600	3,380	7,000	3,600
30	65	25	102088,800	3,966	7,000	3,600

Table T.1 continued from previous page

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
30	65	35	104266,800	3,902	6,400	3,000
30	65	45	106116,800	4,030	6,000	3,000
30	65	55	107696,400	5,182	5,800	3,000
30	65	65	109038,400	5,714	6,800	3,000
30	65	75	110087,200	8,598	7,800	3,400
30	65	85	111108,000	12,782	8,000	3,400
30	65	95	111947,200	26,640	8,200	3,800
30	75	5	95262,800	2,762	7,200	3,400
30	75	15	98718,800	3,758	7,000	3,400
30	75	25	101038,800	2,056	5,400	2,600
30	75	35	102692,000	2,570	6,000	2,800
30	75	45	104224,400	3,508	6,200	3,000
30	75	55	105518,800	5,072	6,600	3,600
30	75	65	106008,400	6,764	9,400	4,600
30	75	75	106213,200	5,534	8,200	3,600
30	75	85	106234,400	4,924	7,200	3,400
30	75	95	106234,400	5,478	8,200	3,400
30	85	5	94707,200	2,740	6,600	3,000
30	85	15	97117,200	2,864	7,000	3,000
30	85	25	98956,400	3,306	8,200	3,400
30	85	35	100216,800	3,302	8,400	3,400
30	85	45	100566,400	3,146	8,600	3,400
30	85	55	100631,200	3,492	9,200	3,600
30	85	65	100631,200	3,336	9,200	3,600
30	85	75	100631,200	3,406	9,200	3,600
30	85	85	100631,200	3,096	8,800	3,400
30	85	95	100631,200	3,324	9,200	3,600
30	95	5	93411,600	2,656	6,600	3,000
30	95	15	93984,800	2,748	7,800	3,200
30	95	25	94098,800	3,062	7,800	3,200
30	95	35	94098,800	2,802	7,600	3,200
30	95	45	94098,800	2,780	7,600	3,200
30	95	55	94098,800	2,788	7,600	3,200
30	95	65	94098,800	2,598	7,600	3,200
30	95	75	94098,800	2,924	7,600	3,200
30	95	85	94098,800	3,096	7,600	3,200
30	95	95	94098,800	2,678	7,600	3,200
35	5	5	98675,600	7,718	14,200	4,600
35	5	15	99544,000	6,808	13,600	4,200
35	5	25	100151,600	6,894	13,600	4,200
35	5	35	100461,600	6,432	13,000	4,200
35	5	45	100687,600	6,826	13,400	4,400

Table T.1 continued from previous page

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
35	5	55	100739,600	6,540	12,800	4,200
35	5	65	100739,600	6,740	12,800	4,200
35	5	75	100739,600	6,526	12,800	4,200
35	5	85	100739,600	6,704	12,800	4,200
35	5	95	100739,600	6,732	12,800	4,200
35	15	5	99746,000	6,090	13,000	3,800
35	15	15	102252,000	6,742	11,800	3,800
35	15	25	103764,800	6,678	10,800	3,600
35	15	35	104478,400	6,904	11,200	3,600
35	15	45	105034,000	6,214	10,800	3,400
35	15	55	105171,600	7,590	11,400	3,800
35	15	65	105171,600	5,988	10,600	3,400
35	15	75	105171,600	6,398	10,600	3,600
35	15	85	105171,600	6,144	10,600	3,400
35	15	95	105171,600	6,154	10,600	3,400
35	25	5	100551,200	5,588	13,200	3,800
35	25	15	105044,000	11,206	15,600	5,000
35	25	25	107792,800	8,620	14,800	4,600
35	25	35	109744,800	8,482	14,400	4,600
35	25	45	111197,600	12,850	17,400	5,400
35	25	55	111755,600	12,542	16,800	5,400
35	25	65	111796,000	8,542	11,400	4,200
35	25	75	111796,000	8,318	10,600	4,000
35	25	85	111796,000	7,928	11,000	4,200
35	25	95	111796,000	7,082	10,200	3,800
35	35	5	101486,400	6,982	13,400	4,200
35	35	15	106066,000	6,274	12,400	3,800
35	35	25	109384,000	5,794	10,400	3,200
35	35	35	112406,800	8,984	11,400	3,400
35	35	45	114962,800	17,204	11,000	4,000
35	35	55	116525,200	21,472	9,400	3,800
35	35	65	117909,600	28,978	9,600	3,600
35	35	75	118972,400	43,334	11,000	4,000
35	35	85	120034,800	55,636	13,600	4,600
35	35	95	121097,200	80,350	16,200	5,400
35	45	5	102471,600	6,258	13,800	3,800
35	45	15	109890,800	6,800	12,800	4,000
35	45	25	115498,000	9,866	13,000	3,800
35	45	35	119562,800	16,820	14,000	4,000
35	45	45	122289,600	38,676	15,800	4,400
35	45	55	124603,600	71,800	18,200	4,600
35	45	65	126456,000	92,712	21,600	5,200

Table T.1 continued from previous page

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
35	45	75	127807,200	115,492	22,600	5,600
35	45	85	128958,400	161,416	25,000	6,600
35	45	95	130038,400	226,280	29,000	7,800
35	55	5	102169,200	9,378	15,000	5,000
35	55	15	108203,600	8,532	12,800	4,200
35	55	25	112600,800	9,724	12,800	4,200
35	55	35	115730,800	17,176	14,800	4,600
35	55	45	118274,000	26,494	13,800	4,200
35	55	55	120474,000	55,208	15,400	4,600
35	55	65	122100,800	69,894	15,400	4,600
35	55	75	123299,200	111,000	19,000	6,000
35	55	85	124268,400	178,386	23,800	7,400
35	55	95	124956,000	173,248	24,200	7,200
35	65	5	101548,400	7,406	14,600	4,400
35	65	15	107674,800	7,696	11,800	3,800
35	65	25	112016,000	13,758	15,000	4,800
35	65	35	115441,200	24,666	16,400	5,000
35	65	45	117901,200	60,468	20,000	6,800
35	65	55	119184,400	74,890	17,400	5,800
35	65	65	120211,600	88,706	18,400	6,000
35	65	75	120863,600	102,822	20,200	6,800
35	65	85	121516,000	125,752	20,200	6,800
35	65	95	122168,000	205,692	26,400	9,600
35	75	5	101243,600	7,510	15,400	4,600
35	75	15	106428,400	9,936	16,000	4,800
35	75	25	109234,000	11,666	16,400	5,200
35	75	35	111009,600	11,664	16,400	5,000
35	75	45	112369,600	11,720	14,400	4,400
35	75	55	113450,000	10,926	14,800	4,000
35	75	65	114283,600	12,014	15,600	4,400
35	75	75	114461,200	11,116	12,800	3,800
35	75	85	114461,200	10,304	12,800	3,800
35	75	95	114461,200	10,450	13,000	4,000
35	85	5	99603,200	8,436	15,200	4,600
35	85	15	101445,600	6,056	13,000	3,800
35	85	25	102422,400	6,090	11,800	3,800
35	85	35	102988,400	7,050	12,400	4,200
35	85	45	103309,200	6,820	11,800	4,200
35	85	55	103538,800	6,758	11,600	4,200
35	85	65	103768,800	6,352	11,600	4,000
35	85	75	103882,800	6,466	11,400	4,000
35	85	85	103882,800	4,886	10,200	3,200

Table T.1 continued from previous page

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
35	85	95	103882,800	4,458	10,200	3,200
35	95	5	98501,600	5,440	13,400	3,800
35	95	15	99199,600	4,746	12,000	3,600
35	95	25	99619,200	4,550	11,200	3,400
35	95	35	99839,200	4,684	11,800	3,400
35	95	45	100026,800	4,316	10,800	3,200
35	95	55	100028,000	4,498	10,800	3,200
35	95	65	100026,800	3,894	10,000	3,000
35	95	75	100026,800	4,048	10,000	3,000
35	95	85	100026,800	3,690	10,000	3,000
35	95	95	100026,800	3,820	10,000	3,000
40	5	5	101450,400	7,092	13,000	3,800
40	5	15	102622,400	7,360	13,000	4,000
40	5	25	102925,600	7,692	13,600	4,200
40	5	35	103108,800	8,598	13,800	4,200
40	5	45	103108,800	8,316	13,800	4,200
40	5	55	103108,800	8,632	14,400	4,400
40	5	65	103108,800	7,892	13,800	4,200
40	5	75	103108,800	8,064	13,800	4,200
40	5	85	103108,800	8,266	13,800	4,200
40	5	95	103108,800	9,144	13,800	4,200
40	15	5	102628,800	6,350	12,000	3,400
40	15	15	105530,800	8,108	13,200	4,000
40	15	25	106924,000	11,614	14,000	4,600
40	15	35	107803,200	9,554	12,400	4,200
40	15	45	108187,200	9,908	13,200	4,200
40	15	55	108187,200	9,148	11,800	3,800
40	15	65	108187,200	8,600	11,600	3,800
40	15	75	108187,200	7,796	10,800	3,600
40	15	85	108187,200	7,974	11,600	3,800
40	15	95	108187,200	7,972	10,800	3,600
40	25	5	104170,800	7,176	12,400	3,400
40	25	15	109474,400	10,424	13,800	3,800
40	25	25	113094,800	14,288	16,600	5,000
40	25	35	115766,800	18,592	15,200	4,800
40	25	45	116908,400	17,982	14,000	4,200
40	25	55	117529,600	19,838	13,400	4,000
40	25	65	117932,400	18,926	12,200	3,800
40	25	75	118298,000	19,884	13,800	4,200
40	25	85	118406,000	19,240	14,600	4,200
40	25	95	118406,000	19,258	15,400	4,600
40	35	5	104749,600	8,208	13,600	4,000

Table T.1 continued from previous page

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
40	35	15	111768,000	16,788	17,000	5,600
40	35	25	116855,600	31,394	18,800	5,600
40	35	35	119957,200	32,630	18,600	5,000
40	35	45	122343,200	80,872	20,600	6,000
40	35	55	123949,200	129,988	24,800	6,400
40	35	65	125376,000	226,774	29,400	7,600
40	35	75	126208,800	319,124	33,400	9,000
40	35	85	126712,400	346,392	34,600	9,200
40	35	95	127124,400	471,494	38,000	9,800
40	45	5	105140,800	8,538	13,800	4,000
40	45	15	112582,800	14,400	16,200	4,400
40	45	25	117552,000	29,082	18,600	5,800
40	45	35	121029,200	64,666	18,200	5,600
40	45	45	123472,400	88,866	20,800	6,200
40	45	55	125388,400	140,350	22,600	6,800
40	45	65	126738,800	193,284	24,200	7,200
40	45	75	127855,600	325,974	31,800	9,800
40	45	85	128820,000	562,904	44,200	14,400
40	45	95	129635,600	606,186	47,400	15,200
40	55	5	105267,200	8,100	13,800	4,000
40	55	15	112162,000	10,404	12,000	3,800
40	55	25	116634,400	17,222	13,800	4,400
40	55	35	119890,800	27,782	12,600	4,400
40	55	45	122401,200	58,030	15,600	4,800
40	55	55	124249,600	91,082	18,000	6,000
40	55	65	125595,200	138,122	21,400	7,000
40	55	75	126533,200	164,212	21,600	6,600
40	55	85	127341,200	228,838	23,600	7,200
40	55	95	128103,600	325,158	29,400	8,800
40	65	5	104628,800	6,972	12,400	3,800
40	65	15	110976,000	9,620	11,600	3,800
40	65	25	114637,600	10,278	11,000	3,600
40	65	35	117437,200	16,930	12,800	4,400
40	65	45	118516,400	22,502	12,200	4,200
40	65	55	119332,400	41,452	13,200	4,800
40	65	65	120148,000	32,586	13,200	4,400
40	65	75	120782,400	55,232	18,800	5,800
40	65	85	121392,800	91,480	18,600	6,200
40	65	95	122003,600	133,576	21,800	7,200
40	75	5	104701,600	8,518	13,800	3,800
40	75	15	110739,200	9,914	15,200	4,400
40	75	25	114254,800	18,078	16,800	5,200

Table T.1 continued from previous page

n	f	w	(2.20) o	(2.20) t	(2.20) s	(2.20) r
40	75	35	116106,800	14,570	15,800	4,800
40	75	45	117264,000	13,124	13,400	4,200
40	75	55	118297,600	13,698	13,400	4,400
40	75	65	119316,000	18,010	15,400	4,600
40	75	75	120141,200	27,670	14,400	4,600
40	75	85	120947,600	40,520	15,200	5,000
40	75	95	121496,000	50,802	16,000	5,000
40	85	5	103066,800	5,960	11,800	3,200
40	85	15	106631,200	7,536	12,000	3,600
40	85	25	108374,400	5,098	9,200	2,800
40	85	35	109519,600	8,188	10,600	3,600
40	85	45	110178,800	7,396	10,800	3,600
40	85	55	110611,600	6,160	8,200	3,000
40	85	65	110819,600	4,920	8,200	2,600
40	85	75	110920,800	5,512	8,200	2,800
40	85	85	110920,800	5,634	8,200	2,800
40	85	95	110920,800	5,318	8,200	2,800
40	95	5	101428,000	7,216	13,200	3,600
40	95	15	102655,600	8,466	13,600	4,000
40	95	25	103002,400	9,616	13,600	4,200
40	95	35	103190,800	9,360	13,600	4,200
40	95	45	103379,200	8,958	13,600	4,200
40	95	55	103478,000	8,906	12,800	4,000
40	95	65	103478,000	9,176	12,800	4,000
40	95	75	103478,000	8,968	12,800	4,000
40	95	85	103478,000	9,334	12,800	4,000
40	95	95	103478,000	9,048	12,800	4,000

Table T.1: Aggregated Computational Results for (2.20)

Appendix U

Aggregated Computational Results for (2.21)

NOTE:

n - Number of nodes in the graph

f - Percentage of flagged edges in an instance

w - Reload costs relative to the average edge weight

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
10	5	5	58612,400	0,114	2,200	2,000
10	5	15	59401,600	0,126	2,800	2,200
10	5	25	59683,600	0,140	3,200	2,400
10	5	35	59880,000	0,138	3,200	2,400
10	5	45	60076,800	0,144	3,200	2,400
10	5	55	60186,000	0,138	3,200	2,400
10	5	65	60186,000	0,138	3,200	2,400
10	5	75	60186,000	0,138	3,200	2,400
10	5	85	60186,000	0,140	3,200	2,400
10	5	95	60186,000	0,142	3,200	2,400
10	15	5	58681,200	0,112	2,200	2,000
10	15	15	59530,000	0,114	2,200	2,000
10	15	25	60373,600	0,100	1,800	1,800
10	15	35	61046,400	0,114	2,400	2,000
10	15	45	61358,800	0,116	2,400	2,000
10	15	55	61515,600	0,120	2,400	2,000
10	15	65	61515,600	0,116	2,400	2,000
10	15	75	61515,600	0,106	1,800	1,800
10	15	85	61515,600	0,104	1,800	1,800
10	15	95	61515,600	0,104	1,800	1,800
10	25	5	58814,800	0,114	2,200	2,000
10	25	15	60075,600	0,106	2,000	1,800
10	25	25	61050,800	0,102	2,000	1,800
10	25	35	61916,800	0,094	1,600	1,600
10	25	45	62783,200	0,088	1,600	1,600
10	25	55	63650,400	0,104	2,000	1,800
10	25	65	64516,800	0,108	1,800	1,800
10	25	75	65169,200	0,110	1,800	1,800
10	25	85	65790,400	0,112	1,800	1,800
10	25	95	66218,400	0,104	1,400	1,600
10	35	5	59198,800	0,116	2,200	2,000
10	35	15	61180,400	0,104	1,800	1,800
10	35	25	63023,200	0,112	1,800	1,800
10	35	35	64766,000	0,142	2,200	2,000
10	35	45	66020,800	0,126	1,800	1,800
10	35	55	67124,400	0,110	1,400	1,600
10	35	65	68152,400	0,110	1,400	1,600
10	35	75	69004,800	0,112	1,400	1,600
10	35	85	69857,600	0,114	1,400	1,600
10	35	95	70710,000	0,114	1,400	1,600
10	45	5	59409,200	0,114	2,200	2,000
10	45	15	61826,800	0,124	2,400	2,000
10	45	25	63918,000	0,106	2,000	1,800

Table U.1 continued from previous page

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
10	45	35	65659,200	0,132	2,400	2,000
10	45	45	67042,400	0,158	2,800	2,200
10	45	55	68266,800	0,166	3,400	2,400
10	45	65	69403,200	0,202	4,400	2,800
10	45	75	70429,600	0,194	3,800	2,600
10	45	85	71456,400	0,202	3,600	2,600
10	45	95	72482,800	0,260	4,400	3,000
10	55	5	59409,200	0,112	2,200	2,000
10	55	15	61680,800	0,120	2,200	2,000
10	55	25	63603,200	0,130	2,800	2,200
10	55	35	65317,600	0,154	3,200	2,400
10	55	45	66599,200	0,120	2,400	2,000
10	55	55	67466,400	0,126	2,600	2,200
10	55	65	68332,800	0,120	2,200	2,000
10	55	75	69198,800	0,124	2,000	2,000
10	55	85	70065,200	0,120	1,600	1,800
10	55	95	70931,600	0,122	1,600	1,800
10	65	5	59534,800	0,114	2,200	2,000
10	65	15	61800,800	0,104	1,800	1,800
10	65	25	63858,400	0,108	1,800	1,800
10	65	35	65665,200	0,104	1,400	1,600
10	65	45	67362,400	0,102	1,400	1,600
10	65	55	68532,400	0,106	1,400	1,600
10	65	65	69349,200	0,138	2,200	2,000
10	65	75	69790,800	0,130	1,800	1,800
10	65	85	70232,800	0,112	1,400	1,600
10	65	95	70674,800	0,118	1,400	1,600
10	75	5	59115,600	0,112	2,200	2,000
10	75	15	60526,800	0,102	1,800	1,800
10	75	25	61730,000	0,088	1,400	1,600
10	75	35	62624,400	0,092	1,600	1,600
10	75	45	63400,400	0,090	1,600	1,600
10	75	55	63988,800	0,088	1,600	1,600
10	75	65	64519,600	0,276	1,400	1,600
10	75	75	65050,400	0,092	1,400	1,600
10	75	85	65581,600	0,110	1,800	1,800
10	75	95	66080,800	0,100	1,400	1,600
10	85	5	58724,800	0,110	2,200	2,000
10	85	15	59667,600	0,114	2,400	2,000
10	85	25	60271,600	0,124	2,800	2,200
10	85	35	60298,400	0,116	2,200	2,000
10	85	45	60298,400	0,114	2,200	2,000

Table U.1 continued from previous page

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
10	85	55	60298,400	0,114	2,200	2,000
10	85	65	60298,400	0,124	2,400	2,200
10	85	75	60298,400	0,122	2,400	2,200
10	85	85	60298,400	0,122	2,400	2,200
10	85	95	60298,400	0,124	2,400	2,200
10	95	5	58817,200	0,114	2,200	2,000
10	95	15	60094,000	0,114	2,400	2,000
10	95	25	61020,400	0,148	3,600	2,600
10	95	35	61352,000	0,148	3,600	2,600
10	95	45	61602,400	0,138	3,200	2,400
10	95	55	61852,800	0,134	3,200	2,400
10	95	65	62103,200	0,134	3,200	2,400
10	95	75	62353,600	0,136	3,200	2,400
10	95	85	62604,000	0,146	3,600	2,600
10	95	95	62854,400	0,148	3,600	2,600
15	5	5	68981,200	0,282	4,800	2,600
15	5	15	68981,200	0,286	4,800	2,600
15	5	25	68981,200	0,304	4,600	2,600
15	5	35	68981,200	0,290	4,600	2,600
15	5	45	68981,200	0,286	4,600	2,600
15	5	55	68981,200	0,290	4,600	2,600
15	5	65	68981,200	0,288	4,600	2,600
15	5	75	68981,200	0,292	4,600	2,600
15	5	85	68981,200	0,288	4,600	2,600
15	5	95	68981,200	0,290	4,600	2,600
15	15	5	69520,400	0,238	4,200	2,200
15	15	15	70577,600	0,278	4,400	2,400
15	15	25	71221,600	0,276	4,400	2,400
15	15	35	71586,000	0,290	4,400	2,400
15	15	45	71810,000	0,284	4,400	2,400
15	15	55	71834,000	0,288	4,400	2,400
15	15	65	71834,000	0,276	4,400	2,400
15	15	75	71834,000	0,290	4,400	2,600
15	15	85	71834,000	0,298	4,200	2,600
15	15	95	71834,000	0,300	4,200	2,600
15	25	5	70424,000	0,298	5,200	2,600
15	25	15	72768,000	0,338	5,600	2,800
15	25	25	74780,000	0,350	5,400	2,600
15	25	35	76731,600	0,482	6,000	3,000
15	25	45	78443,200	0,030	4,800	2,400
15	25	55	79616,000	0,564	6,000	3,000
15	25	65	80510,800	0,546	5,600	2,800

Table U.1 continued from previous page

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
15	25	75	81204,400	0,554	5,200	2,800
15	25	85	81480,000	0,506	5,200	2,800
15	25	95	81700,800	0,486	5,200	2,800
15	35	5	70352,000	0,254	4,600	2,400
15	35	15	72622,400	0,234	3,600	2,000
15	35	25	74395,600	0,250	2,400	1,800
15	35	35	76109,200	0,270	2,400	1,800
15	35	45	77566,400	0,328	3,000	2,000
15	35	55	78808,400	0,402	3,400	2,200
15	35	65	79852,000	0,464	4,200	2,400
15	35	75	80896,000	0,884	4,800	2,600
15	35	85	81694,000	1,386	5,600	3,000
15	35	95	82201,200	1,498	5,600	3,000
15	45	5	70855,200	0,256	4,600	2,400
15	45	15	74553,600	0,446	4,000	2,200
15	45	25	77595,200	0,276	3,000	2,000
15	45	35	79926,000	0,550	3,400	2,000
15	45	45	82132,400	0,484	4,200	2,400
15	45	55	84223,600	0,872	4,600	2,600
15	45	65	86060,000	0,958	5,000	2,600
15	45	75	87630,000	1,188	5,600	2,800
15	45	85	89071,600	1,924	6,800	3,400
15	45	95	90246,800	1,946	8,800	4,000
15	55	5	70464,800	0,260	4,600	2,400
15	55	15	73422,400	0,320	4,200	2,400
15	55	25	75783,600	0,292	3,200	2,000
15	55	35	77486,000	0,234	3,000	1,800
15	55	45	79160,000	0,298	3,200	1,800
15	55	55	80556,800	0,362	2,800	1,800
15	55	65	81822,000	0,456	2,800	2,000
15	55	75	82970,400	0,688	3,800	2,400
15	55	85	84040,000	0,752	3,800	2,400
15	55	95	85110,000	0,784	4,000	2,400
15	65	5	70371,200	0,290	5,200	2,600
15	65	15	72890,400	0,280	4,600	2,400
15	65	25	75096,400	0,260	4,000	2,200
15	65	35	76812,000	0,310	4,000	2,200
15	65	45	77934,400	0,384	4,800	2,600
15	65	55	78800,000	0,484	4,600	2,600
15	65	65	79493,600	0,700	5,600	3,000
15	65	75	80136,000	0,742	5,600	3,000
15	65	85	80710,000	0,850	5,600	3,000

Table U.1 continued from previous page

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
15	65	95	80933,200	0,916	5,200	2,800
15	75	5	70362,400	0,278	5,000	2,600
15	75	15	72444,800	0,316	4,800	2,600
15	75	25	73830,000	0,296	4,000	2,400
15	75	35	74681,200	0,294	3,800	2,400
15	75	45	75532,800	0,310	3,800	2,400
15	75	55	76146,000	0,324	3,800	2,400
15	75	65	76593,200	0,370	4,000	2,400
15	75	75	77040,400	0,344	3,400	2,200
15	75	85	77318,800	0,360	3,800	2,400
15	75	95	77490,400	0,322	3,000	2,000
15	85	5	70061,600	0,280	4,800	2,600
15	85	15	71992,000	0,300	4,800	2,600
15	85	25	73488,000	0,294	4,600	2,600
15	85	35	74196,800	0,286	4,600	2,600
15	85	45	74616,000	0,258	4,200	2,400
15	85	55	75034,800	0,344	4,400	2,600
15	85	65	75453,600	0,306	4,400	2,600
15	85	75	75677,600	0,316	4,400	2,600
15	85	85	75901,200	0,322	5,000	2,800
15	85	95	76125,200	0,342	5,000	2,800
15	95	5	69367,200	0,264	4,600	2,400
15	95	15	70080,800	0,276	4,400	2,400
15	95	25	70587,600	0,304	4,600	2,600
15	95	35	70819,600	0,276	4,200	2,400
15	95	45	70862,400	0,272	4,200	2,400
15	95	55	70862,400	0,270	4,200	2,400
15	95	65	70862,400	0,272	4,000	2,400
15	95	75	70862,400	0,274	4,000	2,400
15	95	85	70862,400	0,266	4,000	2,400
15	95	95	70862,400	0,278	4,000	2,400
20	5	5	77616,400	0,738	6,400	2,800
20	5	15	78036,400	0,752	6,400	2,800
20	5	25	78182,000	0,780	6,400	3,000
20	5	35	78182,000	0,884	6,400	3,000
20	5	45	78182,000	0,770	5,800	2,800
20	5	55	78182,000	0,722	5,800	2,800
20	5	65	78182,000	0,728	5,800	2,800
20	5	75	78182,000	0,756	5,800	2,800
20	5	85	78182,000	0,754	5,800	2,800
20	5	95	78182,000	0,836	5,800	2,800
20	15	5	78996,000	0,760	7,000	3,000

Table U.1 continued from previous page

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
20	15	15	81477,200	0,698	5,800	2,400
20	15	25	82715,200	0,694	6,600	2,800
20	15	35	83676,000	0,680	7,200	2,800
20	15	45	84209,600	0,698	7,000	2,800
20	15	55	84633,200	0,720	6,600	2,800
20	15	65	85057,600	0,662	6,200	2,600
20	15	75	85481,600	0,754	6,600	2,800
20	15	85	85666,800	0,792	7,200	3,000
20	15	95	85666,800	0,706	6,600	2,800
20	25	5	79737,600	0,770	6,200	2,800
20	25	15	83402,800	0,700	5,400	2,400
20	25	25	85614,000	0,770	5,400	2,400
20	25	35	86938,400	0,818	5,800	2,600
20	25	45	87973,600	0,772	5,000	2,400
20	25	55	88945,200	0,800	5,000	2,400
20	25	65	89627,200	1,366	7,600	3,400
20	25	75	89926,000	1,090	6,200	3,000
20	25	85	90120,400	1,108	6,200	3,000
20	25	95	90314,800	1,148	6,200	3,000
20	35	5	79652,000	0,812	6,200	2,800
20	35	15	83384,800	0,874	6,600	3,000
20	35	25	85944,000	1,034	7,000	3,200
20	35	35	87934,000	1,150	7,200	3,200
20	35	45	89523,200	1,136	5,200	2,800
20	35	55	90986,400	1,236	5,000	2,600
20	35	65	92261,200	1,574	4,200	2,600
20	35	75	93536,800	2,892	4,000	2,600
20	35	85	94811,600	4,592	6,200	3,400
20	35	95	95818,800	5,290	7,000	3,600
20	45	5	80114,000	0,750	6,200	2,800
20	45	15	84936,400	0,850	6,600	2,800
20	45	25	87948,800	1,232	6,600	3,000
20	45	35	89986,400	1,676	7,800	3,200
20	45	45	91486,400	1,816	7,200	3,000
20	45	55	92985,600	2,298	6,200	2,800
20	45	65	94335,200	4,188	8,000	3,400
20	45	75	95646,000	4,842	8,800	3,800
20	45	85	96956,000	7,170	9,400	4,200
20	45	95	98047,200	7,016	10,000	4,200
20	55	5	80342,800	0,776	7,000	3,000
20	55	15	84831,200	0,834	7,000	2,800
20	55	25	88413,600	1,114	7,600	3,200

Table U.1 continued from previous page

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
20	55	35	91303,600	1,794	7,800	3,600
20	55	45	93238,400	1,956	7,000	3,400
20	55	55	94768,400	2,834	7,000	3,400
20	55	65	96101,600	3,856	9,200	4,000
20	55	75	97038,000	6,880	11,200	4,400
20	55	85	97723,200	5,942	10,600	4,400
20	55	95	98409,200	8,344	11,800	4,600
20	65	5	79040,800	0,774	5,600	2,600
20	65	15	82184,400	0,882	5,600	2,600
20	65	25	84787,600	0,904	5,600	2,600
20	65	35	86868,800	1,104	5,600	2,800
20	65	45	88640,800	1,490	5,800	2,800
20	65	55	90127,200	1,774	6,000	3,000
20	65	65	91340,800	2,634	5,800	3,000
20	65	75	92462,400	3,264	5,200	2,800
20	65	85	93583,200	3,144	5,000	2,600
20	65	95	94704,400	3,904	7,000	3,200
20	75	5	79266,000	0,802	7,000	3,000
20	75	15	82122,000	0,760	5,800	2,600
20	75	25	84197,200	0,856	6,200	2,800
20	75	35	85687,600	0,870	5,000	2,600
20	75	45	86813,600	1,142	6,000	3,200
20	75	55	87874,000	1,182	6,000	2,800
20	75	65	88658,400	1,344	7,000	3,200
20	75	75	89308,000	1,298	6,800	3,000
20	75	85	89924,800	1,784	7,600	3,200
20	75	95	90186,400	2,164	7,200	3,400
20	85	5	78686,400	0,912	6,600	2,800
20	85	15	80469,200	0,776	6,000	2,600
20	85	25	81708,400	0,740	6,000	2,600
20	85	35	82597,600	0,984	7,400	3,200
20	85	45	83244,000	0,888	6,000	2,800
20	85	55	83768,800	0,932	6,000	2,800
20	85	65	84183,600	1,116	6,000	2,800
20	85	75	84598,400	0,970	6,000	2,800
20	85	85	85012,800	1,072	6,400	3,000
20	85	95	85204,800	0,996	6,600	3,000
20	95	5	77804,400	0,744	6,600	2,800
20	95	15	78502,800	0,862	6,400	2,800
20	95	25	79036,400	0,838	7,200	3,200
20	95	35	79230,800	0,752	6,600	3,000
20	95	45	79425,200	0,822	6,800	3,000

Table U.1 continued from previous page

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
20	95	55	79620,000	0,846	6,800	3,000
20	95	65	79814,400	0,786	6,800	3,000
20	95	75	80008,800	0,772	6,800	3,000
20	95	85	80203,200	0,756	6,800	3,000
20	95	95	80397,600	0,740	6,800	3,000
25	5	5	86719,600	2,092	8,600	4,000
25	5	15	87838,800	1,854	7,400	3,600
25	5	25	88576,000	1,814	7,200	3,600
25	5	35	89112,000	1,886	7,200	3,600
25	5	45	89180,800	2,116	7,000	3,800
25	5	55	89180,800	2,012	7,000	3,800
25	5	65	89182,400	2,092	7,000	3,800
25	5	75	89180,800	1,828	6,600	3,600
25	5	85	89180,800	1,904	6,600	3,600
25	5	95	89180,800	1,988	6,600	3,600
25	15	5	87114,800	2,044	7,600	3,600
25	15	15	88891,200	1,960	7,400	3,600
25	15	25	90223,200	2,142	8,600	4,000
25	15	35	90848,800	2,436	9,000	4,200
25	15	45	91457,200	2,512	9,600	4,400
25	15	55	91870,800	3,192	10,200	4,800
25	15	65	92081,600	2,950	9,600	4,400
25	15	75	92255,600	2,580	9,400	4,200
25	15	85	92255,600	2,426	8,600	3,800
25	15	95	92255,600	2,240	8,000	3,600
25	25	5	88959,200	2,518	8,800	4,200
25	25	15	94004,400	2,576	7,600	3,800
25	25	25	97360,000	3,188	9,600	4,200
25	25	35	99734,800	3,180	8,200	3,800
25	25	45	101866,800	4,584	9,200	4,000
25	25	55	103810,000	8,790	11,400	5,000
25	25	65	105382,000	10,668	13,400	5,400
25	25	75	106406,400	12,724	12,400	5,600
25	25	85	106881,600	13,970	13,000	5,400
25	25	95	107183,200	12,062	11,800	5,000
25	35	5	89073,200	2,336	8,400	4,000
25	35	15	94555,600	3,080	9,400	4,400
25	35	25	98357,200	3,484	8,000	4,200
25	35	35	100642,000	4,760	10,800	5,000
25	35	45	101998,800	3,784	9,000	4,000
25	35	55	103240,000	4,190	8,200	3,800
25	35	65	104336,800	5,144	7,600	3,600

Table U.1 continued from previous page

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
25	35	75	105375,600	8,294	9,000	3,600
25	35	85	106272,000	13,508	10,400	4,400
25	35	95	106692,400	16,272	11,800	4,600
25	45	5	89022,400	1,762	7,200	3,400
25	45	15	93934,800	1,706	5,200	3,000
25	45	25	98053,600	2,338	7,200	3,400
25	45	35	101226,800	4,462	8,800	4,000
25	45	45	103153,600	6,670	9,600	4,200
25	45	55	104513,600	6,878	8,200	3,800
25	45	65	105594,400	9,496	7,800	3,600
25	45	75	106621,600	11,356	10,000	4,400
25	45	85	107647,600	10,894	9,600	4,400
25	45	95	108640,400	14,234	12,400	5,400
25	55	5	89101,200	2,156	8,600	4,000
25	55	15	94080,000	2,572	9,200	4,200
25	55	25	98106,000	3,116	9,600	4,400
25	55	35	101216,000	3,642	9,200	4,000
25	55	45	103572,400	4,308	10,200	4,000
25	55	55	105502,800	5,352	8,800	3,800
25	55	65	107356,000	8,122	9,200	3,600
25	55	75	109116,800	16,490	11,600	4,400
25	55	85	110671,600	26,604	16,800	6,200
25	55	95	111909,200	32,384	19,000	6,800
25	65	5	88461,600	2,250	8,400	4,000
25	65	15	92612,800	2,480	8,200	3,800
25	65	25	96258,800	3,396	8,400	4,000
25	65	35	98594,400	3,018	8,000	3,400
25	65	45	100316,800	3,116	7,400	3,000
25	65	55	101686,000	4,180	9,000	3,200
25	65	65	102815,200	6,520	9,200	3,400
25	65	75	103719,200	8,294	9,600	3,600
25	65	85	104533,200	11,592	10,800	4,200
25	65	95	105348,000	15,388	12,800	5,000
25	75	5	87989,600	2,452	9,400	4,400
25	75	15	91098,000	2,998	10,600	4,800
25	75	25	93412,400	3,238	11,000	4,600
25	75	35	94789,600	4,024	11,200	5,000
25	75	45	95808,400	3,590	10,800	4,600
25	75	55	96689,200	4,378	11,600	5,000
25	75	65	97426,000	4,766	12,800	5,400
25	75	75	97881,600	4,594	12,800	5,600
25	75	85	98304,000	4,652	11,800	5,200

Table U.1 continued from previous page

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
25	75	95	98726,800	4,854	11,800	5,400
25	85	5	87396,400	2,056	8,000	3,800
25	85	15	89539,600	1,912	6,600	3,200
25	85	25	91002,800	1,754	7,600	3,200
25	85	35	92160,400	1,864	7,600	3,200
25	85	45	92963,600	1,706	6,600	3,000
25	85	55	93680,000	1,898	7,000	3,200
25	85	65	94237,600	2,094	7,200	3,400
25	85	75	94540,800	1,984	7,200	3,400
25	85	85	94751,200	2,040	7,600	3,400
25	85	95	94846,400	2,194	8,400	3,800
25	95	5	86611,200	1,964	7,800	3,600
25	95	15	87406,000	2,400	8,000	3,800
25	95	25	87731,200	2,420	8,600	4,200
25	95	35	87926,000	2,680	9,600	4,600
25	95	45	88120,800	2,436	9,200	4,400
25	95	55	88315,600	2,394	8,600	4,200
25	95	65	88492,400	2,448	9,000	4,200
25	95	75	88492,400	2,360	9,000	4,200
25	95	85	88492,400	2,438	9,000	4,200
25	95	95	88492,400	2,654	9,000	4,200
30	5	5	93701,600	3,108	7,800	3,400
30	5	15	94705,200	3,304	7,400	3,400
30	5	25	95485,600	4,112	10,800	4,000
30	5	35	95812,000	3,956	9,600	3,800
30	5	45	95812,000	3,802	9,600	3,800
30	5	55	95812,000	3,234	9,800	3,600
30	5	65	95812,000	2,990	8,000	3,200
30	5	75	95812,000	3,014	8,000	3,200
30	5	85	95812,000	2,950	8,000	3,200
30	5	95	95812,000	3,142	8,000	3,200
30	15	5	94617,200	3,236	7,600	3,400
30	15	15	96140,400	2,268	5,200	2,600
30	15	25	97567,200	2,284	5,000	2,400
30	15	35	98606,000	2,336	4,800	2,400
30	15	45	99230,800	2,586	4,800	2,400
30	15	55	99738,800	3,182	6,600	3,000
30	15	65	100153,600	2,830	6,200	2,800
30	15	75	100558,800	3,596	6,800	3,000
30	15	85	100763,600	3,112	6,000	2,800
30	15	95	100968,400	3,270	7,200	3,200
30	25	5	95349,200	2,930	8,000	3,400

Table U.1 continued from previous page

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
30	25	15	98255,200	3,724	9,000	4,000
30	25	25	100536,000	4,034	9,000	3,800
30	25	35	102718,800	5,830	10,600	4,600
30	25	45	104272,800	5,218	9,000	4,000
30	25	55	105132,800	6,432	11,600	4,800
30	25	65	105522,000	5,126	8,400	4,000
30	25	75	105679,200	5,124	8,800	4,000
30	25	85	105679,200	4,408	8,600	3,600
30	25	95	105679,200	4,162	8,600	3,800
30	35	5	96636,400	3,152	7,600	3,400
30	35	15	102326,400	3,596	6,400	3,000
30	35	25	106858,800	4,808	8,200	3,400
30	35	35	110126,000	8,058	9,600	4,000
30	35	45	112367,600	16,582	12,800	5,400
30	35	55	113822,000	26,764	13,000	5,000
30	35	65	114988,000	37,550	16,800	6,000
30	35	75	115538,800	44,046	17,000	6,000
30	35	85	115938,400	41,464	18,800	6,400
30	35	95	116338,000	48,482	20,000	6,600
30	45	5	96461,600	2,834	6,600	2,800
30	45	15	101183,600	2,540	5,400	2,800
30	45	25	104369,600	2,778	4,800	2,600
30	45	35	107136,400	3,062	4,200	2,400
30	45	45	109194,000	3,116	3,400	2,200
30	45	55	110570,400	4,618	4,400	2,600
30	45	65	111660,800	4,998	4,800	2,400
30	45	75	112603,200	7,268	6,000	2,800
30	45	85	113221,600	8,282	6,600	2,800
30	45	95	113826,000	11,354	7,000	3,200
30	55	5	96509,200	2,694	7,000	3,000
30	55	15	102474,000	4,382	8,800	3,600
30	55	25	106990,800	5,690	8,800	3,600
30	55	35	109925,600	10,002	11,800	4,400
30	55	45	112236,800	17,858	14,200	5,200
30	55	55	114247,200	42,440	17,000	6,000
30	55	65	115854,400	55,114	19,200	6,600
30	55	75	117129,600	69,762	22,400	7,400
30	55	85	118306,800	106,364	29,800	10,000
30	55	95	119332,800	146,442	34,800	12,000
30	65	5	95694,800	3,046	6,600	3,200
30	65	15	99647,600	3,154	6,200	3,400
30	65	25	102088,800	3,740	7,400	3,600

Table U.1 continued from previous page

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
30	65	35	104266,800	3,756	6,800	3,000
30	65	45	106116,800	4,142	6,200	3,000
30	65	55	107696,400	5,250	6,800	3,000
30	65	65	109038,400	7,688	7,000	3,000
30	65	75	110087,200	10,866	7,200	3,200
30	65	85	111108,000	10,180	7,600	3,200
30	65	95	111947,200	29,204	9,600	4,200
30	75	5	95262,800	2,920	7,200	3,400
30	75	15	98718,800	3,656	7,200	3,400
30	75	25	101038,800	3,076	6,800	3,200
30	75	35	102692,000	3,090	6,400	3,000
30	75	45	104224,400	3,914	6,600	3,200
30	75	55	105518,800	7,388	8,600	4,400
30	75	65	106008,400	10,422	9,800	4,600
30	75	75	106213,200	7,560	8,200	3,800
30	75	85	106234,400	7,102	7,600	3,400
30	75	95	106234,400	6,860	8,200	3,600
30	85	5	94707,200	3,310	8,200	3,400
30	85	15	97117,200	2,664	7,200	3,000
30	85	25	98956,400	3,462	8,200	3,400
30	85	35	100216,800	3,460	9,400	3,600
30	85	45	100566,400	3,602	9,400	3,600
30	85	55	100631,200	4,154	10,400	4,000
30	85	65	100631,200	3,656	10,000	3,800
30	85	75	100631,200	3,602	10,000	3,800
30	85	85	100631,200	3,774	10,000	3,800
30	85	95	100631,200	3,674	10,000	3,800
30	95	5	93411,600	2,796	7,400	3,200
30	95	15	93984,800	3,258	8,600	3,400
30	95	25	94098,800	3,130	8,400	3,400
30	95	35	94098,800	3,178	8,200	3,400
30	95	45	94098,800	3,096	8,200	3,400
30	95	55	94098,800	3,148	8,200	3,400
30	95	65	94098,800	3,046	8,200	3,400
30	95	75	94098,800	3,146	8,200	3,400
30	95	85	94098,800	3,118	8,200	3,400
30	95	95	94098,800	3,166	8,200	3,400
35	5	5	98675,600	8,406	15,000	4,800
35	5	15	99544,000	9,464	14,400	4,800
35	5	25	100151,600	9,372	14,600	4,800
35	5	35	100461,600	8,744	14,400	4,800
35	5	45	100687,600	9,222	14,800	5,000

Table U.1 continued from previous page

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
35	5	55	100739,600	8,982	14,200	4,800
35	5	65	100739,600	9,278	14,200	4,800
35	5	75	100739,600	8,648	14,200	4,800
35	5	85	100739,600	9,166	14,200	4,800
35	5	95	100739,600	9,126	14,200	4,800
35	15	5	99746,000	6,044	12,800	3,800
35	15	15	102252,000	7,910	12,800	4,000
35	15	25	103764,800	8,312	11,400	3,800
35	15	35	104478,400	7,062	11,200	3,600
35	15	45	105034,000	6,612	10,800	3,400
35	15	55	105171,600	7,504	11,800	3,800
35	15	65	105171,600	6,268	10,600	3,400
35	15	75	105171,600	6,350	10,600	3,400
35	15	85	105171,600	6,186	10,600	3,400
35	15	95	105171,600	5,976	10,600	3,400
35	25	5	100551,200	7,370	14,800	4,400
35	25	15	105044,000	11,648	16,600	5,000
35	25	25	107792,800	9,906	14,800	4,600
35	25	35	109744,800	11,118	15,200	4,800
35	25	45	111197,600	14,278	17,600	5,600
35	25	55	111755,600	13,202	16,400	5,200
35	25	65	111796,000	9,366	11,800	4,200
35	25	75	111796,000	8,786	10,600	4,000
35	25	85	111796,000	8,786	10,800	4,000
35	25	95	111796,000	8,180	10,800	4,000
35	35	5	101486,400	7,570	14,400	4,400
35	35	15	106066,000	6,194	11,800	3,600
35	35	25	109384,000	6,936	11,400	3,400
35	35	35	112406,800	12,242	14,200	4,000
35	35	45	114962,800	27,074	14,000	4,600
35	35	55	116525,200	30,788	10,400	3,800
35	35	65	117909,600	50,146	12,000	4,200
35	35	75	118972,400	61,834	13,400	4,600
35	35	85	120034,800	73,376	15,400	5,000
35	35	95	121097,200	88,886	17,800	5,600
35	45	5	102471,600	6,500	14,000	4,000
35	45	15	109890,800	8,520	14,400	4,400
35	45	25	115498,000	12,144	14,200	4,000
35	45	35	119562,800	23,544	14,600	4,000
35	45	45	122289,600	56,158	17,000	4,400
35	45	55	124603,600	72,422	19,800	4,800
35	45	65	126456,000	169,290	23,600	6,200

Table U.1 continued from previous page

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
35	45	75	127807,200	231,696	27,600	7,000
35	45	85	128958,400	295,308	29,800	7,600
35	45	95	130038,400	444,736	37,600	9,600
35	55	5	102169,200	10,574	16,400	5,400
35	55	15	108203,600	13,292	17,200	5,400
35	55	25	112600,800	12,816	13,200	4,200
35	55	35	115730,800	28,454	15,400	4,800
35	55	45	118274,000	48,806	17,000	5,200
35	55	55	120474,000	81,694	19,800	5,600
35	55	65	122100,800	111,920	21,600	6,000
35	55	75	123299,200	124,410	23,000	6,600
35	55	85	124268,400	243,750	27,800	8,000
35	55	95	124956,000	284,198	32,000	9,000
35	65	5	101548,400	8,258	15,400	4,600
35	65	15	107674,800	8,672	13,200	4,200
35	65	25	112016,000	19,608	15,600	5,000
35	65	35	115441,200	36,234	17,800	5,800
35	65	45	117901,200	80,166	21,600	7,200
35	65	55	119184,400	95,018	20,600	7,400
35	65	65	120211,600	112,012	22,800	7,600
35	65	75	120863,600	117,152	22,600	7,800
35	65	85	121516,000	144,730	24,800	8,600
35	65	95	122168,000	221,754	30,200	10,800
35	75	5	101243,600	8,684	15,800	4,800
35	75	15	106428,400	12,700	18,000	5,200
35	75	25	109234,000	13,638	18,000	5,200
35	75	35	111009,600	16,122	17,600	5,400
35	75	45	112369,600	15,232	16,600	5,000
35	75	55	113450,000	14,462	17,000	4,600
35	75	65	114283,600	18,118	17,600	4,800
35	75	75	114461,200	15,694	14,600	4,000
35	75	85	114461,200	15,834	14,600	4,200
35	75	95	114461,200	16,122	15,200	4,600
35	85	5	99603,200	9,176	16,200	5,000
35	85	15	101445,600	7,644	14,000	4,200
35	85	25	102422,400	7,006	12,600	4,000
35	85	35	102988,400	7,506	12,600	4,200
35	85	45	103309,200	7,742	12,000	4,200
35	85	55	103538,800	7,778	12,600	4,400
35	85	65	103768,800	7,712	11,200	4,000
35	85	75	103882,800	7,804	11,200	4,000
35	85	85	103882,800	6,660	12,600	3,800

Table U.1 continued from previous page

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
35	85	95	103882,800	6,166	10,600	3,400
35	95	5	98501,600	6,510	13,600	4,000
35	95	15	99199,600	5,488	13,000	3,800
35	95	25	99619,200	4,680	11,600	3,400
35	95	35	99839,200	4,394	11,200	3,200
35	95	45	100026,800	4,446	10,800	3,200
35	95	55	100026,800	4,456	10,800	3,200
35	95	65	100026,800	3,912	10,000	3,000
35	95	75	100028,000	4,320	10,000	3,000
35	95	85	100026,800	3,888	10,000	3,000
35	95	95	100026,800	4,154	10,000	3,000
40	5	5	101450,400	8,794	13,600	4,000
40	5	15	102622,400	8,818	13,200	4,000
40	5	25	102925,600	9,382	13,800	4,200
40	5	35	103108,800	9,260	14,000	4,200
40	5	45	103108,800	9,918	14,000	4,200
40	5	55	103108,800	9,318	14,000	4,200
40	5	65	103108,800	9,434	14,000	4,200
40	5	75	103108,800	9,024	14,000	4,200
40	5	85	103108,800	9,312	14,000	4,200
40	5	95	103108,800	10,150	14,000	4,200
40	15	5	102628,800	8,168	13,200	3,800
40	15	15	105530,800	10,212	14,200	4,400
40	15	25	106924,000	12,700	14,200	4,600
40	15	35	107803,200	13,104	13,600	4,400
40	15	45	108187,200	13,070	16,000	4,800
40	15	55	108187,200	10,722	12,400	4,000
40	15	65	108187,200	10,656	12,400	4,000
40	15	75	108187,200	12,488	13,400	4,200
40	15	85	108187,200	11,332	13,200	4,200
40	15	95	108187,200	11,368	11,600	3,800
40	25	5	104170,800	8,504	13,600	3,800
40	25	15	109474,400	12,712	15,000	4,000
40	25	25	113094,800	15,702	17,000	4,800
40	25	35	115766,800	20,668	16,400	5,000
40	25	45	116908,400	23,098	17,400	5,000
40	25	55	117529,600	25,164	16,400	4,600
40	25	65	117932,400	23,694	16,400	4,600
40	25	75	118298,000	26,786	18,000	5,400
40	25	85	118406,000	23,298	17,600	4,800
40	25	95	118406,000	24,388	18,400	5,400
40	35	5	104749,600	10,374	14,400	4,200

Table U.1 continued from previous page

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
40	35	15	111768,000	19,804	18,800	5,800
40	35	25	116855,600	32,844	18,800	5,400
40	35	35	119957,200	42,094	19,800	5,200
40	35	45	122343,200	115,972	23,800	6,800
40	35	55	123949,200	186,030	28,200	7,200
40	35	65	125376,000	324,652	36,400	9,200
40	35	75	126208,800	583,258	43,600	11,400
40	35	85	126712,400	654,900	44,600	11,800
40	35	95	127124,400	901,468	46,200	12,600
40	45	5	105140,800	9,754	15,000	4,400
40	45	15	112582,800	18,656	19,000	5,000
40	45	25	117552,000	40,110	20,600	6,200
40	45	35	121029,200	90,814	21,400	6,200
40	45	45	123472,400	125,300	22,600	6,600
40	45	55	125388,400	161,010	25,000	7,200
40	45	65	126738,800	260,468	32,400	8,600
40	45	75	127855,600	418,388	40,600	12,000
40	45	85	128820,000	752,074	52,800	16,600
40	45	95	129635,600	946,394	60,400	19,000
40	55	5	105267,200	9,908	15,200	4,400
40	55	15	112162,000	12,866	12,400	4,000
40	55	25	116634,400	22,974	13,800	4,600
40	55	35	119890,800	38,294	15,800	5,200
40	55	45	122401,200	71,142	19,000	6,000
40	55	55	124249,600	146,578	23,400	7,600
40	55	65	125595,200	219,008	26,200	8,400
40	55	75	126533,200	237,234	30,600	9,400
40	55	85	127341,200	302,258	31,800	10,000
40	55	95	128103,600	436,384	35,800	11,400
40	65	5	104628,800	8,796	13,400	4,200
40	65	15	110976,000	11,280	13,000	4,200
40	65	25	114637,600	13,582	11,800	4,000
40	65	35	117437,200	23,298	15,200	4,800
40	65	45	118516,400	31,294	17,400	5,400
40	65	55	119332,400	38,940	17,000	5,200
40	65	65	120148,000	48,072	16,000	5,200
40	65	75	120782,400	63,554	21,200	6,400
40	65	85	121392,800	113,908	23,600	7,000
40	65	95	122003,600	130,204	26,600	8,000
40	75	5	104701,600	11,582	15,600	4,400
40	75	15	110739,200	12,494	15,000	4,600
40	75	25	114254,800	19,474	17,200	5,200

Table U.1 continued from previous page

n	f	w	(2.21) o	(2.21) t	(2.21) s	(2.21) r
40	75	35	116106,800	20,626	15,800	4,800
40	75	45	117264,000	23,908	15,000	4,600
40	75	55	118297,600	21,748	13,200	4,400
40	75	65	119316,000	28,400	16,400	5,000
40	75	75	120141,200	45,022	16,400	5,200
40	75	85	120947,600	54,206	16,600	5,400
40	75	95	121496,000	60,888	19,200	5,800
40	85	5	103066,800	7,898	13,400	3,800
40	85	15	106631,200	7,998	12,000	3,600
40	85	25	108374,400	7,370	11,600	3,400
40	85	35	109519,600	10,314	11,800	4,000
40	85	45	110178,800	9,424	11,400	3,800
40	85	55	110611,600	7,868	9,600	3,400
40	85	65	110819,600	6,888	9,000	3,000
40	85	75	110920,800	5,874	8,600	2,800
40	85	85	110920,800	6,054	8,200	2,800
40	85	95	110920,800	6,152	8,200	2,800
40	95	5	101428,000	7,818	14,000	3,800
40	95	15	102655,600	10,382	14,400	4,200
40	95	25	103002,400	11,436	14,200	4,400
40	95	35	103190,800	11,744	14,200	4,400
40	95	45	103379,200	11,282	14,200	4,400
40	95	55	103478,000	11,016	14,400	4,400
40	95	65	103478,000	11,086	14,400	4,400
40	95	75	103478,000	11,158	14,400	4,400
40	95	85	103478,000	11,282	14,400	4,400
40	95	95	103478,000	10,900	14,400	4,400

Table U.1: Aggregated Computational Results for (2.21)

Appendix V

Aggregated Computational Results for (2.22)

NOTE:

n - Number of nodes in the graph

f - Percentage of flagged edges in an instance

w - Reload costs relative to the average edge weight

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
10	5	5	58612,400	0,112	2,200	2,000
10	5	15	59401,600	0,128	2,800	2,200
10	5	25	59683,600	0,128	2,800	2,200
10	5	35	59880,000	0,130	2,800	2,200
10	5	45	60076,800	0,134	2,800	2,200
10	5	55	60186,000	0,130	2,800	2,200
10	5	65	60186,000	0,134	2,800	2,200
10	5	75	60186,000	0,130	2,800	2,200
10	5	85	60186,000	0,130	2,800	2,200
10	5	95	60186,000	0,130	2,800	2,200
10	15	5	58681,200	0,112	2,200	2,000
10	15	15	59530,000	0,114	2,200	2,000
10	15	25	60373,600	0,104	1,800	1,800
10	15	35	61046,400	0,112	2,400	2,000
10	15	45	61358,800	0,114	2,400	2,000
10	15	55	61515,600	0,108	2,000	1,800
10	15	65	61515,600	0,104	2,000	1,800
10	15	75	61515,600	0,090	1,400	1,600
10	15	85	61515,600	0,096	1,400	1,600
10	15	95	61515,600	0,090	1,400	1,600
10	25	5	58814,800	0,118	2,200	2,000
10	25	15	60075,600	0,102	2,000	1,800
10	25	25	61050,800	0,110	2,000	1,800
10	25	35	61916,800	0,094	1,600	1,600
10	25	45	62783,200	0,092	1,600	1,600
10	25	55	63650,400	0,094	1,600	1,600
10	25	65	64516,800	0,102	1,400	1,600
10	25	75	65169,200	0,100	1,400	1,600
10	25	85	65790,400	0,110	1,800	1,800
10	25	95	66218,400	0,102	1,400	1,600
10	35	5	59198,800	0,112	2,200	2,000
10	35	15	61180,400	0,100	1,800	1,800
10	35	25	63023,200	0,116	1,800	1,800
10	35	35	64766,000	0,120	1,800	1,800
10	35	45	66020,800	0,110	1,400	1,600
10	35	55	67124,400	0,090	1,000	1,400
10	35	65	68152,400	0,090	1,000	1,400
10	35	75	69004,800	0,092	1,000	1,400
10	35	85	69857,600	0,094	1,000	1,400
10	35	95	70710,000	0,114	1,400	1,600
10	45	5	59409,200	0,114	2,200	2,000
10	45	15	61826,800	0,120	2,400	2,000
10	45	25	63918,000	0,100	1,600	1,600

Table V.1 continued from previous page

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
10	45	35	65659,200	0,116	2,000	1,800
10	45	45	67042,400	0,132	2,400	2,000
10	45	55	68266,800	0,144	2,200	2,000
10	45	65	69403,200	0,174	3,200	2,400
10	45	75	70429,600	0,186	3,200	2,400
10	45	85	71456,400	0,174	2,800	2,200
10	45	95	72482,800	0,192	2,800	2,200
10	55	5	59409,200	0,112	2,200	2,000
10	55	15	61680,800	0,118	2,200	2,000
10	55	25	63603,200	0,132	2,800	2,200
10	55	35	65317,600	0,156	3,200	2,400
10	55	45	66599,200	0,120	2,400	2,000
10	55	55	67466,400	0,124	2,600	2,200
10	55	65	68332,800	0,118	2,200	2,000
10	55	75	69198,800	0,122	2,000	2,000
10	55	85	70065,200	0,116	1,600	1,800
10	55	95	70931,600	0,126	1,600	1,800
10	65	5	59534,800	0,118	2,200	2,000
10	65	15	61800,800	0,104	1,800	1,800
10	65	25	63858,400	0,112	1,800	1,800
10	65	35	65665,200	0,102	1,400	1,600
10	65	45	67362,400	0,104	1,400	1,600
10	65	55	68532,400	0,090	1,000	1,400
10	65	65	69349,200	0,112	1,800	1,800
10	65	75	69790,800	0,108	1,400	1,600
10	65	85	70232,800	0,122	2,000	1,800
10	65	95	70674,800	0,142	2,400	2,000
10	75	5	59115,600	0,112	2,200	2,000
10	75	15	60526,800	0,104	1,800	1,800
10	75	25	61730,000	0,090	1,400	1,600
10	75	35	62624,400	0,092	1,600	1,600
10	75	45	63400,400	0,088	1,600	1,600
10	75	55	63988,800	0,088	1,600	1,600
10	75	65	64519,600	0,094	1,400	1,600
10	75	75	65050,400	0,094	1,400	1,600
10	75	85	65581,600	0,098	1,400	1,600
10	75	95	66080,800	0,118	1,800	1,800
10	85	5	58724,800	0,116	2,200	2,000
10	85	15	59667,600	0,114	2,400	2,000
10	85	25	60271,600	0,128	2,800	2,200
10	85	35	60298,400	0,114	2,200	2,000
10	85	45	60298,400	0,116	2,200	2,000

Table V.1 continued from previous page

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
10	85	55	60298,400	0,114	2,200	2,000
10	85	65	60298,400	0,126	2,400	2,200
10	85	75	60298,400	0,124	2,400	2,200
10	85	85	60298,400	0,122	2,400	2,200
10	85	95	60298,400	0,126	2,400	2,200
10	95	5	58817,200	0,116	2,200	2,000
10	95	15	60094,000	0,114	2,400	2,000
10	95	25	61020,400	0,138	3,200	2,400
10	95	35	61352,000	0,138	3,200	2,400
10	95	45	61602,400	0,126	2,800	2,200
10	95	55	61852,800	0,122	2,800	2,200
10	95	65	62103,200	0,122	2,800	2,200
10	95	75	62353,600	0,122	2,800	2,200
10	95	85	62604,000	0,134	3,200	2,400
10	95	95	62854,400	0,134	3,200	2,400
15	5	5	68981,200	0,244	4,000	2,200
15	5	15	68981,200	0,246	4,000	2,200
15	5	25	68981,200	0,274	4,000	2,400
15	5	35	68981,200	0,254	3,800	2,200
15	5	45	68981,200	0,252	3,800	2,200
15	5	55	68981,200	0,248	3,800	2,200
15	5	65	68981,200	0,250	3,800	2,200
15	5	75	68981,200	0,250	3,800	2,200
15	5	85	68981,200	0,246	3,800	2,200
15	5	95	68981,200	0,250	3,800	2,200
15	15	5	69520,400	0,238	4,200	2,200
15	15	15	70577,600	0,256	4,200	2,200
15	15	25	71221,600	0,342	4,200	2,200
15	15	35	71586,000	0,260	4,200	2,200
15	15	45	71810,000	0,256	4,200	2,200
15	15	55	71834,000	0,266	4,200	2,200
15	15	65	71834,000	0,262	4,200	2,200
15	15	75	71834,000	0,270	4,200	2,400
15	15	85	71834,000	0,274	4,000	2,400
15	15	95	71834,000	0,278	4,000	2,400
15	25	5	70424,000	0,262	4,400	2,200
15	25	15	72768,000	0,340	5,200	2,600
15	25	25	74780,000	0,312	5,000	2,400
15	25	35	76731,600	0,422	5,400	2,800
15	25	45	78443,200	0,368	4,600	2,400
15	25	55	79616,000	0,444	5,000	2,600
15	25	65	80510,800	0,418	4,600	2,400

Table V.1 continued from previous page

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
15	25	75	81204,400	0,514	4,600	2,600
15	25	85	81480,000	0,402	3,800	2,400
15	25	95	81700,800	0,406	3,800	2,400
15	35	5	70352,000	0,234	4,200	2,200
15	35	15	72622,400	0,236	3,600	2,000
15	35	25	74395,600	0,242	2,400	1,800
15	35	35	76109,200	0,288	2,400	1,800
15	35	45	77566,400	0,344	3,000	2,000
15	35	55	78808,400	0,346	3,000	2,000
15	35	65	79852,000	0,450	4,000	2,400
15	35	75	80896,000	0,516	4,400	2,600
15	35	85	81694,000	0,718	4,600	2,600
15	35	95	82201,200	0,904	5,000	2,800
15	45	5	70855,200	0,214	3,800	2,000
15	45	15	74553,600	0,272	4,000	2,200
15	45	25	77595,200	0,274	3,000	2,000
15	45	35	79926,000	0,322	2,600	1,800
15	45	45	82132,400	0,484	4,200	2,400
15	45	55	84223,600	0,790	4,200	2,400
15	45	65	86060,000	0,790	4,400	2,400
15	45	75	87630,000	1,104	4,400	2,400
15	45	85	89071,600	1,428	5,200	3,000
15	45	95	90246,800	2,132	6,600	3,400
15	55	5	70464,800	0,228	3,800	2,000
15	55	15	73422,400	0,270	3,400	2,000
15	55	25	75783,600	0,284	3,200	2,000
15	55	35	77486,000	0,248	3,000	1,800
15	55	45	79160,000	0,324	3,200	1,800
15	55	55	80556,800	0,336	2,800	1,800
15	55	65	81822,000	0,434	2,800	2,000
15	55	75	82970,400	0,584	3,200	2,200
15	55	85	84040,000	0,744	3,800	2,400
15	55	95	85110,000	0,780	4,000	2,400
15	65	5	70371,200	0,262	4,400	2,200
15	65	15	72890,400	0,248	4,200	2,200
15	65	25	75096,400	0,246	3,600	2,000
15	65	35	76812,000	0,286	3,600	2,000
15	65	45	77934,400	0,340	3,800	2,200
15	65	55	78800,000	0,408	4,200	2,400
15	65	65	79493,600	0,532	4,400	2,400
15	65	75	80136,000	0,614	4,400	2,400
15	65	85	80710,000	0,690	4,400	2,400

Table V.1 continued from previous page

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
15	65	95	80933,200	0,682	4,200	2,400
15	75	5	70362,400	0,256	4,200	2,200
15	75	15	72444,800	0,272	4,000	2,200
15	75	25	73830,000	0,322	3,600	2,200
15	75	35	74681,200	0,294	3,800	2,400
15	75	45	75532,800	0,314	3,800	2,400
15	75	55	76146,000	0,320	3,800	2,400
15	75	65	76593,200	0,310	3,400	2,200
15	75	75	77040,400	0,346	3,200	2,200
15	75	85	77318,800	0,380	3,600	2,400
15	75	95	77490,400	0,308	2,800	2,000
15	85	5	70061,600	0,238	4,000	2,200
15	85	15	71992,000	0,262	4,000	2,200
15	85	25	73488,000	0,278	4,200	2,400
15	85	35	74196,800	0,288	4,200	2,400
15	85	45	74616,000	0,258	3,800	2,200
15	85	55	75034,800	0,422	3,600	2,200
15	85	65	75453,600	0,252	3,600	2,200
15	85	75	75677,600	0,256	3,600	2,200
15	85	85	75901,200	0,252	3,600	2,200
15	85	95	76125,200	0,260	3,600	2,200
15	95	5	69367,200	0,252	4,200	2,200
15	95	15	70080,800	0,256	4,000	2,200
15	95	25	70587,600	0,288	4,200	2,400
15	95	35	70819,600	0,278	4,200	2,400
15	95	45	70862,400	0,282	4,200	2,400
15	95	55	70862,400	0,284	4,200	2,400
15	95	65	70862,400	0,278	4,000	2,400
15	95	75	70862,400	0,278	4,000	2,400
15	95	85	70862,400	0,278	4,000	2,400
15	95	95	70862,400	0,282	4,000	2,400
20	5	5	77616,400	0,588	4,800	2,200
20	5	15	78036,400	0,572	4,800	2,200
20	5	25	78182,000	0,582	4,800	2,400
20	5	35	78182,000	0,608	4,800	2,400
20	5	45	78182,000	0,554	4,200	2,200
20	5	55	78182,000	0,552	4,200	2,200
20	5	65	78182,000	0,548	4,200	2,200
20	5	75	78182,000	0,624	4,200	2,200
20	5	85	78182,000	0,564	4,200	2,200
20	5	95	78182,000	0,718	4,200	2,200
20	15	5	78996,000	0,690	5,400	2,400

Table V.1 continued from previous page

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
20	15	15	81477,200	0,604	5,000	2,200
20	15	25	82715,200	0,670	6,000	2,600
20	15	35	83676,000	0,614	6,600	2,600
20	15	45	84209,600	0,672	6,800	2,800
20	15	55	84633,200	0,674	6,600	2,800
20	15	65	85057,600	0,676	6,200	2,600
20	15	75	85481,600	0,772	6,600	2,800
20	15	85	85666,800	0,866	7,200	3,000
20	15	95	85666,800	0,762	6,600	2,800
20	25	5	79737,600	0,556	5,000	2,200
20	25	15	83402,800	0,570	5,000	2,200
20	25	25	85614,000	0,572	5,000	2,200
20	25	35	86938,400	0,636	5,400	2,400
20	25	45	87973,600	0,768	4,600	2,200
20	25	55	88948,000	0,832	5,000	2,400
20	25	65	89627,200	1,034	6,000	2,800
20	25	75	89926,000	1,142	6,400	3,200
20	25	85	90120,400	1,178	6,400	3,200
20	25	95	90314,800	1,226	6,400	3,200
20	35	5	79652,000	0,746	4,600	2,200
20	35	15	83384,800	0,630	4,600	2,200
20	35	25	85944,000	0,978	6,200	2,800
20	35	35	87934,000	0,998	6,200	2,800
20	35	45	89523,200	0,958	4,600	2,400
20	35	55	90986,400	1,154	4,600	2,400
20	35	65	92261,200	1,518	4,400	2,600
20	35	75	93536,800	2,080	3,600	2,400
20	35	85	94811,600	2,748	4,200	2,600
20	35	95	95818,800	3,710	4,800	2,800
20	45	5	80114,000	0,668	5,400	2,400
20	45	15	84936,400	0,842	6,600	2,800
20	45	25	87948,800	1,132	6,600	3,000
20	45	35	89986,400	1,224	6,600	2,800
20	45	45	91486,400	1,574	6,200	2,800
20	45	55	92985,600	1,760	6,000	2,800
20	45	65	94335,200	3,018	7,400	3,200
20	45	75	95646,000	3,826	7,400	3,400
20	45	85	96956,000	5,050	8,800	3,800
20	45	95	98047,200	7,888	9,000	4,000
20	55	5	80342,800	0,584	4,800	2,200
20	55	15	84831,200	0,772	5,400	2,400
20	55	25	88413,600	0,808	5,600	2,600

Table V.1 continued from previous page

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
20	55	35	91303,600	1,020	4,800	2,600
20	55	45	93238,400	1,406	5,400	2,800
20	55	55	94768,400	2,148	5,400	2,800
20	55	65	96101,600	2,486	6,600	3,000
20	55	75	97038,000	4,332	7,400	3,400
20	55	85	97723,200	6,314	9,000	4,000
20	55	95	98409,200	6,304	9,600	4,000
20	65	5	79040,800	0,624	4,400	2,000
20	65	15	82184,400	0,790	4,600	2,400
20	65	25	84787,600	0,742	5,000	2,400
20	65	35	86868,800	1,090	5,200	2,600
20	65	45	88640,800	1,194	5,000	2,600
20	65	55	90127,200	1,680	6,200	3,200
20	65	65	91340,800	1,618	4,200	2,400
20	65	75	92462,400	1,482	3,600	2,200
20	65	85	93583,200	2,742	4,200	2,400
20	65	95	94704,400	2,732	4,600	2,600
20	75	5	79266,000	0,622	5,400	2,400
20	75	15	82122,000	0,578	4,600	2,200
20	75	25	84197,200	0,734	5,000	2,400
20	75	35	85687,600	0,772	5,400	2,800
20	75	45	86813,600	0,850	5,000	2,800
20	75	55	87874,000	1,040	5,600	2,800
20	75	65	88658,400	1,104	5,800	2,800
20	75	75	89308,000	1,196	5,800	2,800
20	75	85	89924,800	1,440	6,600	3,000
20	75	95	90186,400	1,644	6,400	3,200
20	85	5	78686,400	0,560	5,000	2,200
20	85	15	80469,200	0,608	4,800	2,200
20	85	25	81708,400	0,648	4,800	2,200
20	85	35	82597,600	0,860	6,600	2,800
20	85	45	83244,000	0,908	6,200	2,800
20	85	55	83768,800	0,854	5,600	2,600
20	85	65	84183,600	0,932	5,600	2,600
20	85	75	84598,400	0,976	5,600	2,600
20	85	85	85012,800	1,224	6,000	2,800
20	85	95	85204,800	1,146	6,200	2,800
20	95	5	77804,400	0,550	5,000	2,200
20	95	15	78502,800	0,658	4,800	2,200
20	95	25	79036,400	0,614	5,600	2,400
20	95	35	79230,800	0,576	4,600	2,200
20	95	45	79425,200	0,620	5,600	2,400

Table V.1 continued from previous page

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
20	95	55	79620,000	0,616	5,600	2,400
20	95	65	79814,400	0,590	5,600	2,400
20	95	75	80008,800	0,606	5,600	2,400
20	95	85	80203,200	0,636	5,600	2,400
20	95	95	80397,600	0,578	5,600	2,400
25	5	5	86719,600	1,854	7,600	3,600
25	5	15	87838,800	1,540	7,000	3,400
25	5	25	88576,000	1,666	7,200	3,600
25	5	35	89112,000	1,870	7,200	3,600
25	5	45	89180,800	1,832	7,000	3,800
25	5	55	89180,800	1,744	7,000	3,800
25	5	65	89180,800	1,740	7,000	3,800
25	5	75	89180,800	1,828	6,600	3,600
25	5	85	89180,800	1,608	6,600	3,600
25	5	95	89180,800	1,572	6,600	3,600
25	15	5	87114,800	1,850	7,200	3,400
25	15	15	88891,200	1,794	7,400	3,600
25	15	25	90223,200	2,292	8,400	4,000
25	15	35	90848,800	2,206	8,400	3,800
25	15	45	91457,200	2,062	8,400	3,800
25	15	55	91870,800	2,346	8,400	3,800
25	15	65	92081,600	2,364	8,400	3,800
25	15	75	92255,600	2,550	8,400	3,800
25	15	85	92255,600	2,264	7,600	3,400
25	15	95	92255,600	1,810	7,000	3,200
25	25	5	88959,200	2,398	7,800	3,800
25	25	15	94004,400	2,418	7,200	3,600
25	25	25	97360,000	3,092	8,400	3,800
25	25	35	99734,800	2,952	7,000	3,400
25	25	45	101866,800	3,486	7,600	3,400
25	25	55	103810,000	7,806	10,400	4,600
25	25	65	105382,000	6,742	9,200	4,000
25	25	75	106408,000	12,542	11,400	5,200
25	25	85	106881,600	12,298	10,000	4,400
25	25	95	107183,200	10,944	10,000	4,400
25	35	5	89073,200	2,324	8,800	4,000
25	35	15	94555,600	2,366	8,200	3,800
25	35	25	98358,800	2,934	7,600	4,000
25	35	35	100642,000	4,290	8,200	4,000
25	35	45	101998,800	3,576	7,600	3,600
25	35	55	103240,000	3,480	6,800	3,200
25	35	65	104336,800	4,692	6,400	3,200

Table V.1 continued from previous page

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
25	35	75	105375,600	9,268	7,200	3,400
25	35	85	106272,000	17,906	9,200	4,200
25	35	95	106692,400	14,412	9,400	4,200
25	45	5	89022,400	1,724	6,800	3,400
25	45	15	93934,800	1,674	4,800	2,800
25	45	25	98053,600	1,722	5,400	3,000
25	45	35	101226,800	2,936	7,000	3,400
25	45	45	103153,600	5,110	7,600	3,600
25	45	55	104513,600	3,828	6,400	3,200
25	45	65	105594,400	4,852	7,000	3,200
25	45	75	106621,600	7,564	7,400	3,600
25	45	85	107647,600	10,568	7,800	3,800
25	45	95	108640,400	12,220	9,400	4,400
25	55	5	89101,200	2,080	8,200	3,800
25	55	15	94080,000	2,388	9,200	4,200
25	55	25	98106,000	2,582	7,600	3,600
25	55	35	101216,000	3,012	8,000	3,600
25	55	45	103572,400	3,498	8,400	3,200
25	55	55	105502,800	4,506	7,400	3,200
25	55	65	107356,000	8,522	8,600	3,400
25	55	75	109116,800	20,918	11,800	4,600
25	55	85	110671,600	21,034	14,000	5,000
25	55	95	111909,200	23,264	15,800	5,400
25	65	5	88461,600	2,370	8,000	3,800
25	65	15	92612,800	2,322	7,800	3,600
25	65	25	96258,800	3,056	7,600	3,800
25	65	35	98594,400	2,948	7,800	3,400
25	65	45	100316,800	2,814	6,800	2,800
25	65	55	101686,000	4,132	9,200	3,200
25	65	65	102815,200	6,550	8,200	3,000
25	65	75	103719,200	7,472	8,200	3,000
25	65	85	104533,200	13,208	10,200	3,800
25	65	95	105348,000	10,270	10,800	4,200
25	75	5	87989,600	2,368	8,600	4,000
25	75	15	91098,000	2,268	8,400	3,800
25	75	25	93412,400	2,794	9,000	4,200
25	75	35	94789,600	3,162	8,800	4,200
25	75	45	95808,400	3,502	9,600	4,400
25	75	55	96689,200	3,264	9,200	4,400
25	75	65	97426,000	4,098	10,000	4,800
25	75	75	97881,600	3,766	10,000	5,000
25	75	85	98304,000	3,980	9,800	4,800

Table V.1 continued from previous page

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
25	75	95	98726,800	3,598	9,400	4,400
25	85	5	87396,400	1,880	7,000	3,400
25	85	15	89539,600	1,698	5,800	2,800
25	85	25	91002,800	1,544	5,600	2,800
25	85	35	92160,400	1,898	6,600	3,200
25	85	45	92963,600	1,580	5,800	2,600
25	85	55	93680,000	1,648	6,200	2,800
25	85	65	94237,600	1,712	6,400	3,000
25	85	75	94540,800	1,872	6,400	3,000
25	85	85	94751,200	1,776	6,800	3,000
25	85	95	94846,400	2,296	7,600	3,400
25	95	5	86609,600	2,212	7,600	3,600
25	95	15	87406,000	2,696	8,800	4,200
25	95	25	87731,200	2,764	8,600	4,200
25	95	35	87926,000	2,186	8,400	4,000
25	95	45	88120,800	2,152	8,400	4,000
25	95	55	88315,600	2,024	7,800	3,800
25	95	65	88492,400	2,034	8,200	3,800
25	95	75	88492,400	2,078	8,200	3,800
25	95	85	88492,400	2,290	8,200	3,800
25	95	95	88492,400	2,266	8,600	4,000
30	5	5	93701,600	2,568	7,000	3,200
30	5	15	94705,200	3,194	6,600	3,200
30	5	25	95485,600	3,286	8,600	3,600
30	5	35	95812,000	4,268	9,400	3,800
30	5	45	95812,000	3,302	8,800	3,600
30	5	55	95812,000	2,930	8,000	3,200
30	5	65	95812,000	3,012	7,200	3,000
30	5	75	95812,000	2,868	7,800	3,200
30	5	85	95812,000	2,670	7,200	3,000
30	5	95	95812,000	2,800	7,800	3,200
30	15	5	94617,200	2,988	6,800	3,200
30	15	15	96140,400	1,988	5,000	2,600
30	15	25	97567,200	2,324	4,800	2,400
30	15	35	98606,000	2,366	4,600	2,400
30	15	45	99230,800	2,438	4,600	2,400
30	15	55	99738,800	2,770	6,000	2,800
30	15	65	100153,600	2,996	6,600	3,000
30	15	75	100558,800	3,170	6,600	3,000
30	15	85	100763,600	3,136	5,800	2,800
30	15	95	100968,400	2,986	6,600	3,000
30	25	5	95349,200	2,448	7,600	3,400

Table V.1 continued from previous page

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
30	25	15	98255,200	3,710	7,800	3,400
30	25	25	100536,000	3,814	8,400	3,600
30	25	35	102718,800	4,534	9,400	4,000
30	25	45	104272,800	4,864	9,000	3,800
30	25	55	105132,800	5,084	10,000	4,200
30	25	65	105522,000	5,952	10,000	4,400
30	25	75	105679,200	4,998	8,800	4,000
30	25	85	105679,200	4,068	8,400	3,800
30	25	95	105679,200	3,634	9,400	3,800
30	35	5	96636,400	2,756	7,200	3,400
30	35	15	102326,400	2,876	7,000	3,200
30	35	25	106858,800	4,406	8,600	3,200
30	35	35	110126,000	7,476	10,400	4,000
30	35	45	112367,600	14,756	10,200	4,400
30	35	55	113822,000	29,178	13,000	5,000
30	35	65	114988,000	41,430	15,400	5,400
30	35	75	115538,800	34,694	14,400	5,000
30	35	85	115938,400	41,144	15,800	5,600
30	35	95	116338,000	40,014	15,000	5,200
30	45	5	96461,600	2,898	7,400	3,200
30	45	15	101183,600	1,964	5,000	2,600
30	45	25	104369,600	2,498	4,400	2,400
30	45	35	107136,400	3,996	5,400	2,800
30	45	45	109194,000	3,080	3,400	2,200
30	45	55	110570,400	4,722	4,400	2,600
30	45	65	111660,800	4,806	4,800	2,400
30	45	75	112603,200	6,888	6,000	2,800
30	45	85	113221,600	8,660	5,800	2,800
30	45	95	113826,000	10,518	5,600	3,000
30	55	5	96509,200	2,244	6,600	3,000
30	55	15	102474,000	3,950	7,800	3,200
30	55	25	106990,800	6,222	10,200	4,200
30	55	35	109925,600	9,400	10,800	4,200
30	55	45	112236,800	20,034	13,200	5,000
30	55	55	114247,200	38,084	14,200	5,200
30	55	65	115854,400	42,814	15,800	5,600
30	55	75	117129,600	54,208	17,800	6,200
30	55	85	118306,800	80,240	21,800	7,200
30	55	95	119332,800	101,194	25,000	8,200
30	65	5	95694,800	2,808	7,000	3,400
30	65	15	99647,600	2,872	6,200	3,400
30	65	25	102088,800	3,580	7,000	3,600

Table V.1 continued from previous page

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
30	65	35	104266,800	4,132	7,000	3,000
30	65	45	106116,800	4,370	6,000	3,000
30	65	55	107696,400	7,716	5,400	3,000
30	65	65	109038,400	9,342	7,000	3,000
30	65	75	110087,200	7,406	6,600	3,000
30	65	85	111108,000	8,962	5,800	2,600
30	65	95	111947,200	23,890	7,600	3,600
30	75	5	95262,800	2,850	7,600	3,600
30	75	15	98718,800	3,526	7,000	3,400
30	75	25	101038,800	2,004	5,400	2,600
30	75	35	102692,000	2,730	6,000	2,800
30	75	45	104224,400	3,216	6,200	3,000
30	75	55	105518,800	6,226	6,800	3,800
30	75	65	106008,400	10,210	9,600	4,400
30	75	75	106213,200	8,854	7,400	3,400
30	75	85	106234,400	7,490	8,200	3,400
30	75	95	106234,400	8,754	7,600	3,400
30	85	5	94707,200	2,542	6,600	3,000
30	85	15	97117,200	2,354	6,600	3,000
30	85	25	98956,400	3,074	7,800	3,200
30	85	35	100216,800	2,800	8,000	3,200
30	85	45	100566,400	2,852	8,200	3,200
30	85	55	100631,200	3,100	8,800	3,400
30	85	65	100631,200	3,028	9,000	3,400
30	85	75	100631,200	3,114	8,800	3,400
30	85	85	100631,200	2,930	8,800	3,400
30	85	95	100631,200	2,914	8,800	3,400
30	95	5	93411,600	2,730	6,600	3,000
30	95	15	93984,800	2,584	7,800	3,200
30	95	25	94098,800	2,628	7,800	3,200
30	95	35	94098,800	2,518	7,600	3,200
30	95	45	94098,800	2,602	7,600	3,200
30	95	55	94098,800	2,754	7,600	3,200
30	95	65	94098,800	2,474	7,600	3,200
30	95	75	94098,800	2,740	7,600	3,200
30	95	85	94098,800	2,542	7,600	3,200
30	95	95	94098,800	2,310	7,600	3,200
35	5	5	98675,600	9,450	14,000	4,600
35	5	15	99544,000	7,232	13,000	4,200
35	5	25	100151,600	7,702	13,200	4,200
35	5	35	100461,600	7,110	13,000	4,200
35	5	45	100687,600	7,074	13,400	4,400

Table V.1 continued from previous page

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
35	5	55	100739,600	7,162	12,800	4,200
35	5	65	100739,600	6,538	12,800	4,200
35	5	75	100739,600	6,562	12,800	4,200
35	5	85	100739,600	6,816	12,800	4,200
35	5	95	100739,600	7,234	12,800	4,200
35	15	5	99746,000	6,150	12,200	3,600
35	15	15	102252,000	7,530	11,800	3,800
35	15	25	103764,800	7,230	10,800	3,600
35	15	35	104478,400	7,014	11,200	3,600
35	15	45	105034,000	6,386	10,800	3,400
35	15	55	105171,600	7,490	11,400	3,600
35	15	65	105171,600	7,032	11,200	3,400
35	15	75	105171,600	5,530	10,600	3,400
35	15	85	105171,600	6,088	10,600	3,400
35	15	95	105171,600	5,832	10,600	3,400
35	25	5	100551,200	6,884	13,200	3,800
35	25	15	105044,000	12,656	16,600	5,200
35	25	25	107792,800	9,656	14,000	4,400
35	25	35	109744,800	9,822	14,000	4,400
35	25	45	111197,600	13,348	14,800	4,800
35	25	55	111755,600	14,580	16,000	5,000
35	25	65	111796,000	10,628	11,400	4,000
35	25	75	111796,000	7,534	9,400	3,600
35	25	85	111796,000	8,286	11,000	4,000
35	25	95	111796,000	7,342	9,800	3,600
35	35	5	101486,400	7,246	13,400	4,200
35	35	15	106066,000	6,476	11,800	3,600
35	35	25	109384,000	7,070	10,800	3,200
35	35	35	112407,600	8,334	10,200	3,200
35	35	45	113844,400	11,422	7,800	3,000
35	35	55	116525,200	28,964	9,400	3,600
35	35	65	117909,600	36,904	8,800	3,200
35	35	75	118972,400	52,134	10,400	3,600
35	35	85	120034,800	55,306	12,200	4,000
35	35	95	121097,200	73,516	13,800	4,400
35	45	5	102471,600	5,904	13,200	3,600
35	45	15	109890,800	7,446	12,800	4,000
35	45	25	115498,000	14,190	12,800	3,800
35	45	35	119562,800	24,242	12,600	3,600
35	45	45	122289,600	75,616	15,600	4,400
35	45	55	124603,600	84,310	17,200	4,600
35	45	65	126456,000	111,820	19,000	4,600

Table V.1 continued from previous page

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
35	45	75	127807,200	161,510	21,600	5,200
35	45	85	128958,400	187,312	22,200	5,600
35	45	95	130038,400	267,484	25,600	6,600
35	55	5	102169,200	10,090	15,200	5,000
35	55	15	108203,600	9,900	14,000	4,400
35	55	25	112600,800	11,464	13,400	4,200
35	55	35	115730,800	27,190	14,400	4,400
35	55	45	118274,000	39,778	13,600	4,400
35	55	55	120474,000	61,020	14,400	4,400
35	55	65	122100,800	74,844	15,200	4,600
35	55	75	123299,200	130,098	19,000	6,000
35	55	85	124268,400	179,502	21,400	6,800
35	55	95	124956,000	189,394	21,200	6,600
35	65	5	101548,400	7,520	14,000	4,200
35	65	15	107674,800	9,246	12,400	4,000
35	65	25	112016,000	14,606	14,600	4,800
35	65	35	115441,200	28,880	14,600	4,800
35	65	45	117901,200	94,816	19,000	6,400
35	65	55	119184,400	78,812	16,200	5,800
35	65	65	120211,600	92,800	17,800	6,000
35	65	75	120863,600	85,848	18,000	6,000
35	65	85	121516,000	94,542	18,200	6,200
35	65	95	122168,000	166,694	21,200	7,600
35	75	5	101243,600	7,472	14,800	4,400
35	75	15	106428,400	9,980	16,600	4,600
35	75	25	109234,000	13,270	15,200	4,600
35	75	35	111009,600	14,060	16,400	5,000
35	75	45	112369,600	16,158	17,000	4,800
35	75	55	113450,000	13,984	14,600	4,000
35	75	65	114283,600	18,564	14,800	4,000
35	75	75	114461,200	18,704	12,400	3,800
35	75	85	114461,200	16,498	12,000	3,600
35	75	95	114461,200	16,716	14,200	4,200
35	85	5	99603,200	10,004	14,400	4,400
35	85	15	101445,600	5,772	11,200	3,400
35	85	25	102422,400	5,634	11,000	3,600
35	85	35	102988,400	5,916	10,600	3,600
35	85	45	103309,200	5,612	10,000	3,600
35	85	55	103538,800	6,144	10,400	3,800
35	85	65	103768,800	5,424	9,800	3,600
35	85	75	103882,800	6,250	11,400	4,000
35	85	85	103882,800	4,294	9,400	3,000

Table V.1 continued from previous page

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
35	85	95	103882,800	4,202	9,400	3,000
35	95	5	98501,600	5,568	12,600	3,600
35	95	15	99199,600	5,700	12,000	3,600
35	95	25	99619,200	5,384	12,000	3,600
35	95	35	99839,200	4,842	11,200	3,200
35	95	45	100026,800	4,682	10,800	3,200
35	95	55	100026,800	5,510	11,200	3,400
35	95	65	100026,800	4,000	10,600	3,000
35	95	75	100026,800	4,522	10,000	3,000
35	95	85	100026,800	4,318	10,000	3,000
35	95	95	100026,800	4,144	10,000	3,000
40	5	5	101450,400	10,082	13,400	3,800
40	5	15	102622,400	9,094	13,000	4,000
40	5	25	102925,600	8,578	13,000	4,000
40	5	35	103108,800	9,054	13,200	4,000
40	5	45	103108,800	9,288	13,200	4,000
40	5	55	103108,800	9,566	13,200	4,000
40	5	65	103108,800	8,994	13,200	4,000
40	5	75	103108,800	9,000	14,000	4,000
40	5	85	103108,800	8,780	13,200	4,000
40	5	95	103108,800	9,556	13,200	4,000
40	15	5	102628,800	8,562	12,000	3,400
40	15	15	105530,800	11,482	13,400	4,000
40	15	25	106924,000	13,450	14,000	4,600
40	15	35	107803,200	12,330	12,200	4,200
40	15	45	108187,200	11,174	11,400	3,800
40	15	55	108187,200	9,410	10,000	3,400
40	15	65	108187,200	10,296	10,000	3,400
40	15	75	108187,200	10,068	10,600	3,600
40	15	85	108187,200	8,814	10,000	3,400
40	15	95	108187,200	9,344	10,000	3,400
40	25	5	104170,800	8,294	12,400	3,400
40	25	15	109474,400	12,182	12,200	3,400
40	25	25	113094,800	16,744	13,600	4,200
40	25	35	115766,800	23,050	15,000	4,800
40	25	45	116908,400	18,476	12,400	3,800
40	25	55	117529,600	17,570	10,800	3,400
40	25	65	117932,400	19,512	10,800	3,600
40	25	75	118298,000	23,982	12,000	4,000
40	25	85	118406,000	23,998	11,200	3,800
40	25	95	118406,000	22,726	10,800	3,800
40	35	5	104749,600	11,320	14,000	4,000

Table V.1 continued from previous page

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
40	35	15	111768,000	20,116	15,200	5,000
40	35	25	116855,600	55,678	17,200	5,000
40	35	35	119957,200	75,012	17,000	4,800
40	35	45	122343,200	115,140	19,600	5,600
40	35	55	123949,200	179,216	22,200	5,800
40	35	65	125376,000	261,650	26,400	7,000
40	35	75	126208,800	436,384	30,600	8,600
40	35	85	126712,400	414,684	32,400	8,400
40	35	95	127124,400	696,626	35,200	9,200
40	45	5	105140,800	10,636	13,800	4,000
40	45	15	112582,800	18,204	16,200	4,400
40	45	25	117552,000	48,894	18,000	5,800
40	45	35	121029,200	96,512	17,200	5,400
40	45	45	123472,400	153,198	18,600	5,800
40	45	55	125388,400	169,962	21,000	6,400
40	45	65	126738,800	249,350	23,600	7,000
40	45	75	127855,600	395,704	30,400	9,400
40	45	85	128820,000	609,480	40,000	12,800
40	45	95	129635,600	649,588	41,600	13,400
40	55	5	105267,200	10,366	14,200	4,000
40	55	15	112162,000	13,086	11,600	3,800
40	55	25	116634,400	19,244	12,400	4,200
40	55	35	119890,800	39,316	12,000	4,200
40	55	45	122401,200	86,714	15,200	4,600
40	55	55	124249,600	125,058	17,600	5,800
40	55	65	125595,200	200,146	20,000	6,600
40	55	75	126533,200	225,768	21,000	6,600
40	55	85	127341,200	274,800	23,000	7,200
40	55	95	128103,600	380,590	27,400	8,400
40	65	5	104628,800	7,836	12,400	3,800
40	65	15	110976,000	13,076	12,000	3,800
40	65	25	114637,600	12,448	10,000	3,600
40	65	35	117437,200	19,870	11,200	4,000
40	65	45	118516,400	45,254	12,600	4,400
40	65	55	119332,400	51,950	14,600	4,800
40	65	65	120148,000	53,754	14,200	4,600
40	65	75	120782,400	75,636	16,400	5,600
40	65	85	121392,800	109,104	19,800	6,200
40	65	95	122003,600	131,258	19,200	6,400
40	75	5	104701,600	10,368	13,800	3,800
40	75	15	110739,200	13,338	14,200	4,200
40	75	25	114254,800	23,148	16,000	5,000

Table V.1 continued from previous page

n	f	w	(2.22) o	(2.22) t	(2.22) s	(2.22) r
40	75	35	116106,800	20,960	14,400	4,600
40	75	45	117264,000	31,712	12,400	4,000
40	75	55	118297,600	24,160	11,800	3,800
40	75	65	119316,000	34,802	14,600	4,600
40	75	75	120141,200	60,240	17,600	5,200
40	75	85	120947,600	77,504	15,200	5,000
40	75	95	121496,000	81,102	16,200	5,200
40	85	5	103066,800	6,340	11,200	3,000
40	85	15	106631,200	9,604	11,400	3,400
40	85	25	108374,400	7,350	9,200	2,800
40	85	35	109519,600	10,150	10,600	3,600
40	85	45	110178,800	11,806	10,800	3,600
40	85	55	110611,600	8,472	8,200	3,000
40	85	65	110819,600	7,202	8,400	2,800
40	85	75	110920,800	7,348	8,200	2,800
40	85	85	110920,800	6,948	8,200	2,800
40	85	95	110920,800	7,122	8,200	2,800
40	95	5	101428,000	8,404	13,200	3,600
40	95	15	102655,600	10,456	13,600	4,000
40	95	25	103002,400	11,286	13,600	4,200
40	95	35	103190,800	11,294	13,600	4,200
40	95	45	103379,200	11,478	13,600	4,200
40	95	55	103478,000	11,390	14,000	4,200
40	95	65	103478,000	10,680	12,800	4,000
40	95	75	103478,000	10,156	12,800	4,000
40	95	85	103478,000	11,418	12,800	4,000
40	95	95	103478,000	11,074	12,800	4,000

Table V.1: Aggregated Computational Results for (2.22)

Appendix W

Aggregated Computational Results for (2.23)

NOTE:

n - Number of nodes in the graph

f - Percentage of flagged edges in an instance

w - Reload costs relative to the average edge weight

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
10	5	5	58612,400	0,114	2,200	2,000
10	5	15	59401,600	0,126	2,800	2,200
10	5	25	59683,600	0,140	3,200	2,400
10	5	35	59880,000	0,138	3,200	2,400
10	5	45	60076,800	0,140	3,200	2,400
10	5	55	60186,000	0,138	3,200	2,400
10	5	65	60186,000	0,136	3,200	2,400
10	5	75	60186,000	0,138	3,200	2,400
10	5	85	60186,000	0,140	3,200	2,400
10	5	95	60186,000	0,138	3,200	2,400
10	15	5	58681,200	0,112	2,200	2,000
10	15	15	59530,000	0,110	2,200	2,000
10	15	25	60373,600	0,102	1,800	1,800
10	15	35	61046,400	0,112	2,400	2,000
10	15	45	61358,800	0,114	2,400	2,000
10	15	55	61515,600	0,116	2,400	2,000
10	15	65	61515,600	0,112	2,400	2,000
10	15	75	61515,600	0,104	1,800	1,800
10	15	85	61515,600	0,106	1,800	1,800
10	15	95	61515,600	0,102	1,800	1,800
10	25	5	58814,800	0,114	2,200	2,000
10	25	15	60075,600	0,108	2,000	1,800
10	25	25	61050,800	0,104	2,000	1,800
10	25	35	61916,800	0,090	1,600	1,600
10	25	45	62783,200	0,090	1,600	1,600
10	25	55	63650,400	0,106	2,000	1,800
10	25	65	64516,800	0,106	1,800	1,800
10	25	75	65169,200	0,108	1,800	1,800
10	25	85	65790,400	0,100	1,400	1,600
10	25	95	66218,400	0,098	1,400	1,600
10	35	5	59198,800	0,116	2,200	2,000
10	35	15	61180,400	0,102	1,800	1,800
10	35	25	63023,200	0,112	1,800	1,800
10	35	35	64766,000	0,142	2,200	2,000
10	35	45	66020,800	0,114	1,800	1,800
10	35	55	67124,400	0,106	1,400	1,600
10	35	65	68152,400	0,104	1,400	1,600
10	35	75	69004,800	0,104	1,400	1,600
10	35	85	69857,600	0,114	1,400	1,600
10	35	95	70710,000	0,118	1,400	1,600
10	45	5	59409,200	0,112	2,200	2,000
10	45	15	61826,800	0,122	2,400	2,000
10	45	25	63918,000	0,110	2,000	1,800

Table W.1 continued from previous page

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
10	45	35	65659,200	0,138	2,400	2,000
10	45	45	67042,400	0,156	2,800	2,200
10	45	55	68266,800	0,146	3,000	2,200
10	45	65	69403,200	0,182	4,000	2,600
10	45	75	70429,600	0,200	3,600	2,600
10	45	85	71456,400	0,178	3,200	2,400
10	45	95	72482,800	0,238	4,000	2,800
10	55	5	59409,200	0,114	2,200	2,000
10	55	15	61680,800	0,120	2,200	2,000
10	55	25	63603,200	0,132	2,800	2,200
10	55	35	65317,600	0,156	3,200	2,400
10	55	45	66599,200	0,120	2,400	2,000
10	55	55	67466,400	0,130	2,600	2,200
10	55	65	68332,800	0,120	2,200	2,000
10	55	75	69198,800	0,124	2,000	2,000
10	55	85	70065,200	0,122	1,600	1,800
10	55	95	70931,600	0,128	1,600	1,800
10	65	5	59534,800	0,116	2,200	2,000
10	65	15	61800,800	0,100	1,800	1,800
10	65	25	63858,400	0,112	1,800	1,800
10	65	35	65665,200	0,104	1,400	1,600
10	65	45	67362,400	0,104	1,400	1,600
10	65	55	68532,400	0,106	1,400	1,600
10	65	65	69349,200	0,140	2,200	2,000
10	65	75	69790,800	0,128	1,800	1,800
10	65	85	70232,800	0,114	1,400	1,600
10	65	95	70674,800	0,118	1,400	1,600
10	75	5	59115,600	0,110	2,200	2,000
10	75	15	60526,800	0,100	1,800	1,800
10	75	25	61730,000	0,086	1,400	1,600
10	75	35	62624,400	0,090	1,600	1,600
10	75	45	63400,400	0,088	1,600	1,600
10	75	55	63988,800	0,088	1,600	1,600
10	75	65	64519,600	0,092	1,400	1,600
10	75	75	65050,400	0,094	1,400	1,600
10	75	85	65581,600	0,108	1,800	1,800
10	75	95	66080,800	0,104	1,400	1,600
10	85	5	58724,800	0,112	2,200	2,000
10	85	15	59667,600	0,114	2,400	2,000
10	85	25	60271,600	0,124	2,800	2,200
10	85	35	60298,400	0,112	2,200	2,000
10	85	45	60298,400	0,112	2,200	2,000

Table W.1 continued from previous page

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
10	85	55	60298,400	0,114	2,200	2,000
10	85	65	60298,400	0,124	2,400	2,200
10	85	75	60298,400	0,122	2,400	2,200
10	85	85	60298,400	0,122	2,400	2,200
10	85	95	60298,400	0,120	2,400	2,200
10	95	5	58817,200	0,112	2,200	2,000
10	95	15	60094,000	0,114	2,400	2,000
10	95	25	61020,400	0,146	3,600	2,600
10	95	35	61352,000	0,152	3,600	2,600
10	95	45	61602,400	0,136	3,200	2,400
10	95	55	61852,800	0,132	3,200	2,400
10	95	65	62103,200	0,132	3,200	2,400
10	95	75	62353,600	0,138	3,200	2,400
10	95	85	62604,000	0,144	3,600	2,600
10	95	95	62854,400	0,150	3,600	2,600
15	5	5	68981,200	0,264	4,400	2,400
15	5	15	68981,200	0,284	4,400	2,400
15	5	25	68981,200	0,272	4,200	2,400
15	5	35	68981,200	0,266	4,200	2,400
15	5	45	68981,200	0,268	4,200	2,400
15	5	55	68981,200	0,272	4,200	2,400
15	5	65	68981,200	0,272	4,200	2,400
15	5	75	68981,200	0,272	4,200	2,400
15	5	85	68981,200	0,268	4,200	2,400
15	5	95	68981,200	0,268	4,200	2,400
15	15	5	69520,400	0,254	4,200	2,200
15	15	15	70577,600	0,258	4,000	2,200
15	15	25	71221,600	0,410	4,000	2,200
15	15	35	71586,000	0,254	4,000	2,200
15	15	45	71810,000	0,252	4,000	2,200
15	15	55	71834,000	0,250	4,000	2,200
15	15	65	71834,000	0,244	4,000	2,200
15	15	75	71834,000	0,260	4,000	2,400
15	15	85	71834,000	0,266	3,800	2,400
15	15	95	71834,000	0,274	3,800	2,400
15	25	5	70424,000	0,300	5,200	2,600
15	25	15	72768,000	0,360	5,600	2,800
15	25	25	74780,000	0,350	5,400	2,600
15	25	35	76731,600	0,460	6,000	3,000
15	25	45	78443,200	0,376	4,800	2,400
15	25	55	79616,000	0,504	5,600	2,800
15	25	65	80510,800	0,584	5,600	2,800

Table W.1 continued from previous page

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
15	25	75	81204,400	0,574	5,200	2,800
15	25	85	81480,000	0,530	5,200	2,800
15	25	95	81700,800	0,536	5,200	2,800
15	35	5	70352,000	0,242	4,200	2,200
15	35	15	72622,400	0,238	3,600	2,000
15	35	25	74395,600	0,264	2,400	1,800
15	35	35	76109,200	0,266	2,400	1,800
15	35	45	77566,400	0,342	3,000	2,000
15	35	55	78808,400	0,422	3,400	2,200
15	35	65	79852,000	0,546	4,200	2,400
15	35	75	80896,000	0,802	4,800	2,600
15	35	85	81694,000	1,264	5,600	3,000
15	35	95	82201,200	1,316	4,800	2,800
15	45	5	70855,200	0,246	4,600	2,400
15	45	15	74553,600	0,256	4,000	2,200
15	45	25	77595,200	0,274	3,000	2,000
15	45	35	79926,000	0,328	3,400	2,000
15	45	45	82132,400	0,456	4,200	2,400
15	45	55	84223,600	0,696	4,600	2,600
15	45	65	86060,000	1,054	5,000	2,600
15	45	75	87630,000	1,268	5,400	2,800
15	45	85	89071,600	2,054	6,600	3,400
15	45	95	90246,800	2,172	8,000	3,800
15	55	5	70464,800	0,268	4,600	2,400
15	55	15	73422,400	0,318	4,200	2,400
15	55	25	75783,600	0,296	3,200	2,000
15	55	35	77486,000	0,234	3,000	1,800
15	55	45	79160,000	0,292	3,200	1,800
15	55	55	80556,800	0,356	2,800	1,800
15	55	65	81822,000	0,462	2,800	2,000
15	55	75	82970,400	0,612	3,800	2,400
15	55	85	84040,000	0,766	3,800	2,400
15	55	95	85110,000	0,798	4,400	2,600
15	65	5	70371,200	0,280	4,800	2,400
15	65	15	72890,400	0,284	4,600	2,400
15	65	25	75096,400	0,258	4,000	2,200
15	65	35	76812,000	0,304	4,000	2,200
15	65	45	77934,400	0,436	4,800	2,600
15	65	55	78800,000	0,478	4,600	2,600
15	65	65	79395,200	0,676	5,200	2,800
15	65	75	80136,000	0,964	5,600	3,000
15	65	85	80710,000	0,870	5,600	3,000

Table W.1 continued from previous page

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
15	65	95	80933,200	0,910	5,200	2,800
15	75	5	70362,400	0,274	4,600	2,400
15	75	15	72444,800	0,306	4,800	2,600
15	75	25	73830,000	0,294	4,000	2,400
15	75	35	74681,200	0,304	3,800	2,400
15	75	45	75532,800	0,310	3,800	2,400
15	75	55	76146,000	0,330	3,800	2,400
15	75	65	76593,200	0,346	3,400	2,200
15	75	75	77040,400	0,330	3,400	2,200
15	75	85	77318,800	0,372	3,800	2,400
15	75	95	77490,400	0,294	3,000	2,000
15	85	5	70061,600	0,260	4,400	2,400
15	85	15	71992,000	0,302	4,800	2,600
15	85	25	73488,000	0,308	4,600	2,600
15	85	35	74196,800	0,300	4,600	2,600
15	85	45	74616,000	0,268	4,200	2,400
15	85	55	75034,800	0,300	4,400	2,600
15	85	65	75453,600	0,306	4,400	2,600
15	85	75	75677,600	0,318	4,400	2,600
15	85	85	75901,200	0,350	5,000	2,800
15	85	95	76125,200	0,346	5,000	2,800
15	95	5	69367,200	0,284	4,600	2,400
15	95	15	70080,800	0,316	4,400	2,400
15	95	25	70587,600	0,346	4,600	2,600
15	95	35	70819,600	0,314	4,200	2,400
15	95	45	70862,400	0,308	4,200	2,400
15	95	55	70862,400	0,310	4,200	2,400
15	95	65	70862,400	0,314	4,000	2,400
15	95	75	70862,400	0,310	4,000	2,400
15	95	85	70862,400	0,304	4,000	2,400
15	95	95	70862,400	0,334	4,000	2,400
20	5	5	77616,400	0,772	6,400	2,800
20	5	15	78036,400	0,776	6,400	2,800
20	5	25	78182,000	0,766	6,400	3,000
20	5	35	78182,000	0,814	6,600	3,000
20	5	45	78182,000	0,820	6,200	3,000
20	5	55	78182,000	0,802	5,800	2,800
20	5	65	78182,000	0,750	5,800	2,800
20	5	75	78182,000	0,814	5,800	2,800
20	5	85	78182,000	0,796	5,800	2,800
20	5	95	78182,000	0,798	5,800	2,800
20	15	5	78996,000	0,750	7,000	3,000

Table W.1 continued from previous page

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
20	15	15	81477,200	0,700	5,800	2,400
20	15	25	82715,200	0,692	6,600	2,800
20	15	35	83676,000	0,692	7,200	2,800
20	15	45	84209,600	0,684	7,000	2,800
20	15	55	84633,200	0,722	6,600	2,800
20	15	65	85057,600	0,652	6,200	2,600
20	15	75	85481,600	0,794	7,200	3,000
20	15	85	85666,800	0,782	7,200	3,000
20	15	95	85666,800	0,692	6,600	2,800
20	25	5	79737,600	0,748	6,200	2,800
20	25	15	83402,800	0,718	5,400	2,400
20	25	25	85614,000	0,792	5,400	2,400
20	25	35	86938,400	0,870	5,800	2,600
20	25	45	87973,600	0,834	5,000	2,400
20	25	55	88945,200	0,856	5,000	2,400
20	25	65	89627,200	1,318	7,000	3,200
20	25	75	89926,000	1,198	6,800	3,400
20	25	85	90120,400	1,164	6,200	3,000
20	25	95	90314,800	1,234	6,200	3,000
20	35	5	79652,000	0,778	6,200	2,800
20	35	15	83384,800	0,882	6,600	3,000
20	35	25	85944,000	1,054	7,000	3,200
20	35	35	87934,000	1,226	7,200	3,200
20	35	45	89523,200	1,032	5,000	2,600
20	35	55	90986,400	1,286	5,000	2,600
20	35	65	92261,200	1,540	4,200	2,600
20	35	75	93536,800	2,816	3,600	2,400
20	35	85	94811,600	4,500	6,200	3,400
20	35	95	95818,800	5,128	6,400	3,400
20	45	5	80114,000	0,888	6,200	2,800
20	45	15	84936,400	0,846	6,600	2,800
20	45	25	87948,800	1,194	6,600	3,000
20	45	35	89986,400	1,610	7,800	3,200
20	45	45	91486,400	1,714	7,200	3,000
20	45	55	92985,600	2,334	6,200	2,800
20	45	65	94335,200	4,648	8,000	3,400
20	45	75	95646,000	4,488	8,600	3,600
20	45	85	96956,000	7,298	9,400	4,200
20	45	95	98047,200	6,478	9,800	4,200
20	55	5	80342,800	0,744	6,400	2,800
20	55	15	84831,200	0,870	7,000	2,800
20	55	25	88413,600	1,166	7,600	3,200

Table W.1 continued from previous page

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
20	55	35	91303,600	1,642	7,000	3,400
20	55	45	93238,400	1,962	7,000	3,400
20	55	55	94768,400	2,776	7,000	3,400
20	55	65	96101,600	4,118	9,000	3,800
20	55	75	97038,000	6,532	11,200	4,400
20	55	85	97723,200	5,992	10,400	4,200
20	55	95	98409,200	7,804	11,600	4,600
20	65	5	79040,800	0,806	5,600	2,600
20	65	15	82184,400	0,858	5,600	2,600
20	65	25	84787,600	0,846	5,600	2,600
20	65	35	86868,800	1,042	5,600	2,800
20	65	45	88640,800	1,624	5,600	3,000
20	65	55	90127,200	1,736	6,000	3,000
20	65	65	91340,800	2,474	5,800	3,000
20	65	75	92462,400	3,172	5,200	2,800
20	65	85	93583,200	3,188	5,000	2,600
20	65	95	94704,400	4,322	7,000	3,200
20	75	5	79266,000	0,846	7,000	3,000
20	75	15	82122,000	0,760	5,800	2,600
20	75	25	84197,200	0,842	6,200	2,800
20	75	35	85687,600	0,938	5,000	2,600
20	75	45	86813,600	1,236	5,600	3,000
20	75	55	87874,000	1,456	5,800	2,800
20	75	65	88658,400	1,608	6,800	3,200
20	75	75	89308,000	1,610	6,600	3,000
20	75	85	89924,800	2,068	7,400	3,200
20	75	95	90186,400	1,868	7,000	3,400
20	85	5	78686,400	0,774	6,600	2,800
20	85	15	80469,200	0,744	6,000	2,600
20	85	25	81708,400	0,784	6,000	2,600
20	85	35	82597,600	0,956	7,400	3,200
20	85	45	83244,000	0,882	6,000	2,800
20	85	55	83768,800	0,900	6,000	2,800
20	85	65	84183,600	0,916	6,000	2,800
20	85	75	84598,400	0,910	6,000	2,800
20	85	85	85012,800	1,154	6,400	3,000
20	85	95	85204,800	0,988	6,600	3,000
20	95	5	77804,400	0,754	6,600	2,800
20	95	15	78502,800	0,726	6,400	2,800
20	95	25	79036,400	0,832	7,200	3,200
20	95	35	79230,800	0,760	6,600	3,000
20	95	45	79425,200	0,808	6,800	3,000

Table W.1 continued from previous page

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
20	95	55	79620,000	0,800	6,800	3,000
20	95	65	79814,400	0,786	6,800	3,000
20	95	75	80008,800	0,796	6,800	3,000
20	95	85	80203,200	0,726	6,800	3,000
20	95	95	80397,600	0,914	6,800	3,000
25	5	5	86719,600	2,214	8,600	4,000
25	5	15	87838,800	1,714	7,400	3,600
25	5	25	88576,000	1,778	7,200	3,600
25	5	35	89113,600	1,812	7,200	3,600
25	5	45	89180,800	1,936	7,000	3,800
25	5	55	89180,800	1,884	7,000	3,800
25	5	65	89180,800	2,008	7,000	3,800
25	5	75	89180,800	1,806	6,600	3,600
25	5	85	89180,800	1,886	6,600	3,600
25	5	95	89180,800	1,832	6,600	3,600
25	15	5	87114,800	2,034	7,400	3,600
25	15	15	88891,200	1,776	7,400	3,600
25	15	25	90223,200	2,232	8,600	4,000
25	15	35	90848,800	2,462	9,600	4,400
25	15	45	91457,200	2,432	9,000	4,200
25	15	55	91870,800	2,916	10,200	4,800
25	15	65	92081,600	3,100	9,800	4,600
25	15	75	92255,600	2,620	9,400	4,200
25	15	85	92255,600	2,444	8,600	3,800
25	15	95	92255,600	2,280	8,000	3,600
25	25	5	88959,200	2,562	8,800	4,200
25	25	15	94004,400	2,508	7,600	3,800
25	25	25	97360,000	3,730	9,600	4,200
25	25	35	99734,800	3,342	8,200	3,800
25	25	45	101866,800	4,658	9,200	4,000
25	25	55	103811,600	7,152	10,400	4,600
25	25	65	105382,000	9,408	11,200	4,600
25	25	75	106406,400	13,090	12,000	5,400
25	25	85	106881,600	14,338	12,200	5,200
25	25	95	107183,200	11,726	11,600	5,000
25	35	5	89073,200	2,262	8,400	4,000
25	35	15	94555,600	2,776	8,600	4,000
25	35	25	98357,200	3,272	8,400	4,400
25	35	35	100642,000	4,410	9,800	4,600
25	35	45	101998,800	3,692	8,200	3,800
25	35	55	103240,000	3,628	8,000	3,600
25	35	65	104336,800	4,788	7,600	3,600

Table W.1 continued from previous page

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
25	35	75	105375,600	8,150	9,000	3,600
25	35	85	106272,000	13,918	10,600	4,400
25	35	95	106692,400	17,890	11,200	4,400
25	45	5	89022,400	1,606	6,400	3,200
25	45	15	93934,800	1,676	5,400	3,200
25	45	25	98053,600	2,098	7,000	3,400
25	45	35	101226,800	4,666	8,800	4,000
25	45	45	103153,600	5,214	8,600	4,000
25	45	55	104513,600	5,098	7,400	3,600
25	45	65	105594,400	7,102	7,800	3,600
25	45	75	106621,600	10,576	9,600	4,200
25	45	85	107647,600	10,308	9,200	4,200
25	45	95	108640,400	14,534	11,400	5,000
25	55	5	89101,200	2,262	8,400	4,000
25	55	15	94080,000	2,684	8,800	4,200
25	55	25	98106,000	3,112	9,600	4,400
25	55	35	101216,000	4,012	9,200	4,200
25	55	45	103572,400	4,110	10,400	3,800
25	55	55	105502,800	5,030	8,800	3,800
25	55	65	107356,000	8,574	9,200	3,600
25	55	75	109116,800	17,658	11,600	4,400
25	55	85	110671,600	24,828	15,400	5,600
25	55	95	111909,200	31,988	18,600	6,600
25	65	5	88461,600	2,376	8,200	4,000
25	65	15	92612,800	2,434	7,600	3,800
25	65	25	96258,800	3,576	7,800	3,800
25	65	35	98594,400	3,148	8,200	3,600
25	65	45	100316,800	3,574	8,200	3,400
25	65	55	101686,000	4,310	9,400	3,400
25	65	65	102815,200	6,938	9,200	3,400
25	65	75	103719,200	8,264	9,200	3,400
25	65	85	104533,200	11,396	11,000	4,400
25	65	95	105348,000	15,438	12,400	4,800
25	75	5	87989,600	2,428	9,400	4,400
25	75	15	91098,000	2,980	10,600	4,800
25	75	25	93412,400	3,230	11,400	4,600
25	75	35	94789,600	3,606	10,600	4,600
25	75	45	95808,400	3,580	10,800	4,600
25	75	55	96689,200	4,208	12,200	5,200
25	75	65	97426,000	5,042	13,200	6,000
25	75	75	97881,600	4,558	12,400	5,600
25	75	85	98304,000	4,332	11,600	5,200

Table W.1 continued from previous page

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
25	75	95	98726,800	4,494	11,600	5,200
25	85	5	87396,400	2,278	8,000	3,800
25	85	15	89539,600	2,126	6,600	3,200
25	85	25	91002,800	1,774	7,000	3,000
25	85	35	92160,400	1,790	6,800	3,000
25	85	45	92963,600	1,644	6,600	3,000
25	85	55	93680,000	1,816	8,000	3,400
25	85	65	94237,600	1,950	7,200	3,400
25	85	75	94540,800	1,828	7,200	3,400
25	85	85	94751,200	2,108	7,600	3,400
25	85	95	94846,400	2,008	8,400	3,800
25	95	5	86609,600	1,954	7,600	3,600
25	95	15	87406,000	2,352	7,800	3,800
25	95	25	87732,800	2,318	8,400	4,200
25	95	35	87926,000	2,696	9,600	4,600
25	95	45	88120,800	2,470	9,000	4,400
25	95	55	88315,600	2,422	8,400	4,200
25	95	65	88492,400	2,548	8,800	4,200
25	95	75	88492,400	2,530	9,200	4,200
25	95	85	88492,400	2,582	8,800	4,200
25	95	95	88494,000	2,548	8,800	4,200
30	5	5	93701,600	3,254	7,800	3,400
30	5	15	94705,200	3,396	7,400	3,400
30	5	25	95485,600	4,154	9,400	3,800
30	5	35	95812,000	3,860	9,600	3,800
30	5	45	95812,000	4,034	10,000	4,000
30	5	55	95812,000	3,732	8,600	3,400
30	5	65	95812,000	3,458	8,000	3,200
30	5	75	95812,000	3,134	8,000	3,200
30	5	85	95812,000	3,074	8,000	3,200
30	5	95	95812,000	3,368	8,800	3,400
30	15	5	94617,200	3,456	7,600	3,400
30	15	15	96140,400	2,176	5,200	2,600
30	15	25	97567,200	2,626	5,000	2,400
30	15	35	98606,000	2,378	4,800	2,400
30	15	45	99230,800	2,286	4,800	2,400
30	15	55	99738,800	2,842	6,200	2,800
30	15	65	100153,600	2,758	6,200	2,800
30	15	75	100558,800	3,836	6,800	3,000
30	15	85	100763,600	3,266	6,000	2,800
30	15	95	100968,400	3,682	7,600	3,400
30	25	5	95349,200	3,058	8,600	3,600

Table W.1 continued from previous page

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
30	25	15	98255,200	3,576	8,800	3,800
30	25	25	100536,000	4,076	8,800	3,800
30	25	35	102718,800	5,936	10,400	4,400
30	25	45	104272,800	5,348	8,800	3,800
30	25	55	105132,800	5,886	10,800	4,400
30	25	65	105522,000	4,976	8,400	4,000
30	25	75	105679,200	5,844	9,800	4,200
30	25	85	105679,200	4,468	8,600	3,800
30	25	95	105679,200	4,118	8,000	3,600
30	35	5	96636,400	3,066	7,600	3,400
30	35	15	102326,400	3,268	6,400	3,000
30	35	25	106858,800	4,938	9,600	3,400
30	35	35	110126,000	8,202	10,800	4,400
30	35	45	112367,600	15,074	11,000	4,600
30	35	55	113822,000	31,174	13,400	5,200
30	35	65	114988,000	42,032	16,600	5,800
30	35	75	115538,800	43,578	16,600	6,000
30	35	85	115938,400	44,244	18,800	6,400
30	35	95	116338,000	51,068	20,200	6,600
30	45	5	96461,600	2,746	6,600	2,800
30	45	15	101183,600	2,464	5,400	2,800
30	45	25	104369,600	2,958	4,400	2,400
30	45	35	107136,400	3,120	4,200	2,400
30	45	45	109194,000	3,312	3,400	2,200
30	45	55	110570,400	4,580	4,400	2,600
30	45	65	111660,800	5,026	4,800	2,400
30	45	75	112603,200	7,512	5,400	2,600
30	45	85	113221,600	7,834	5,200	2,600
30	45	95	113826,000	11,382	7,000	3,200
30	55	5	96509,200	2,918	7,000	3,000
30	55	15	102474,000	4,238	8,400	3,400
30	55	25	106990,800	4,986	8,400	3,400
30	55	35	109925,600	9,972	11,800	4,600
30	55	45	112236,800	18,004	12,800	5,000
30	55	55	114247,200	44,766	16,400	5,800
30	55	65	115854,400	56,586	20,000	6,600
30	55	75	117129,600	68,034	21,800	7,400
30	55	85	118306,800	107,950	28,400	9,400
30	55	95	119332,800	129,658	32,400	11,000
30	65	5	95694,800	2,796	6,600	3,200
30	65	15	99647,600	3,724	7,400	3,800
30	65	25	102088,800	3,804	6,400	3,400

Table W.1 continued from previous page

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
30	65	35	104266,800	3,880	6,800	3,000
30	65	45	106116,800	4,282	6,200	3,000
30	65	55	107696,400	5,662	7,400	3,200
30	65	65	109038,400	7,512	7,000	3,000
30	65	75	110087,200	11,024	7,200	3,200
30	65	85	111108,000	9,920	7,000	3,000
30	65	95	111947,200	25,468	8,800	4,000
30	75	5	95262,800	3,044	7,200	3,400
30	75	15	98718,800	3,926	8,200	3,600
30	75	25	101038,800	3,078	6,800	3,200
30	75	35	102692,000	2,910	5,600	2,800
30	75	45	104224,400	4,012	6,400	3,400
30	75	55	105518,800	8,244	7,000	3,800
30	75	65	106008,400	9,846	9,600	4,200
30	75	75	106213,200	7,454	8,600	3,800
30	75	85	106234,400	7,266	7,600	3,400
30	75	95	106234,400	7,768	8,400	3,800
30	85	5	94707,200	3,150	8,200	3,400
30	85	15	97117,200	2,762	7,200	3,000
30	85	25	98956,400	3,440	8,200	3,400
30	85	35	100216,800	3,322	8,400	3,400
30	85	45	100566,400	3,666	9,400	3,600
30	85	55	100631,200	3,580	9,200	3,600
30	85	65	100631,200	3,468	9,200	3,600
30	85	75	100631,200	3,590	9,200	3,600
30	85	85	100631,200	3,664	9,200	3,600
30	85	95	100631,200	3,524	9,200	3,600
30	95	5	93411,600	3,124	7,400	3,200
30	95	15	93984,800	3,380	8,600	3,400
30	95	25	94098,800	3,526	8,400	3,400
30	95	35	94098,800	3,518	8,200	3,400
30	95	45	94098,800	3,196	8,200	3,400
30	95	55	94098,800	3,376	8,200	3,400
30	95	65	94098,800	3,406	8,200	3,400
30	95	75	94098,800	3,254	8,200	3,400
30	95	85	94098,800	3,356	8,200	3,400
30	95	95	94098,800	3,362	8,200	3,400
35	5	5	98675,600	8,324	14,600	4,600
35	5	15	99544,000	8,830	14,000	4,600
35	5	25	100151,600	9,352	14,200	4,600
35	5	35	100461,600	9,182	14,000	4,600
35	5	45	100687,600	9,238	14,800	5,000

Table W.1 continued from previous page

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
35	5	55	100739,600	8,710	13,800	4,600
35	5	65	100739,600	8,646	13,800	4,600
35	5	75	100739,600	8,970	14,400	4,800
35	5	85	100739,600	8,044	13,800	4,600
35	5	95	100739,600	8,852	13,800	4,600
35	15	5	99746,000	6,538	12,800	3,800
35	15	15	102252,000	7,768	13,600	4,200
35	15	25	103764,800	8,062	11,400	3,800
35	15	35	104478,400	6,548	11,200	3,600
35	15	45	105034,000	6,276	10,800	3,400
35	15	55	105171,600	7,994	11,800	3,800
35	15	65	105171,600	6,016	10,600	3,400
35	15	75	105171,600	6,172	11,600	3,600
35	15	85	105171,600	5,852	10,600	3,400
35	15	95	105171,600	5,804	10,600	3,400
35	25	5	100551,200	7,330	14,800	4,400
35	25	15	105044,000	12,640	17,200	5,200
35	25	25	107792,800	10,028	14,600	4,600
35	25	35	109744,800	11,214	15,800	4,800
35	25	45	111197,600	14,240	17,400	5,400
35	25	55	111755,600	13,016	16,000	5,000
35	25	65	111796,000	9,220	11,400	4,000
35	25	75	111796,000	8,466	10,200	3,800
35	25	85	111796,000	8,362	10,400	3,800
35	25	95	111796,000	7,608	10,800	3,600
35	35	5	101486,400	7,522	14,400	4,400
35	35	15	106066,000	6,596	12,200	3,800
35	35	25	109384,000	6,216	11,000	3,200
35	35	35	112406,800	11,570	14,200	4,000
35	35	45	114962,800	26,064	13,600	4,400
35	35	55	116525,200	30,794	10,000	3,600
35	35	65	117909,600	50,470	11,600	4,000
35	35	75	118972,400	69,628	13,400	4,600
35	35	85	120034,800	78,524	15,800	5,000
35	35	95	121097,200	83,636	18,000	5,600
35	45	5	102471,600	6,134	14,000	4,000
35	45	15	109890,800	8,936	14,800	4,400
35	45	25	115498,000	11,996	14,200	4,000
35	45	35	119562,800	26,764	16,400	4,400
35	45	45	122289,600	59,312	17,000	4,400
35	45	55	124603,600	72,884	19,800	4,800
35	45	65	126456,000	170,668	23,600	6,200

Table W.1 continued from previous page

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
35	45	75	127807,200	205,324	26,400	6,600
35	45	85	128958,400	289,158	29,200	7,400
35	45	95	130038,400	384,846	34,200	8,800
35	55	5	102169,200	9,624	16,400	5,400
35	55	15	108203,600	10,816	14,000	4,600
35	55	25	112600,800	14,102	14,200	4,600
35	55	35	115730,800	31,468	15,600	4,800
35	55	45	118274,000	42,648	16,200	5,000
35	55	55	120474,000	67,838	18,000	5,200
35	55	65	122100,800	93,846	19,400	5,400
35	55	75	123299,200	130,014	22,000	6,200
35	55	85	124268,400	214,496	27,800	8,000
35	55	95	124956,000	292,262	32,200	9,000
35	65	5	101548,400	7,664	14,600	4,400
35	65	15	107674,800	9,006	12,600	4,000
35	65	25	112016,000	17,954	16,200	5,000
35	65	35	115441,200	35,062	17,600	5,600
35	65	45	117901,200	86,370	20,200	6,600
35	65	55	119184,400	88,174	19,000	6,800
35	65	65	120211,600	101,312	21,400	7,000
35	65	75	120863,600	110,606	21,800	7,600
35	65	85	121516,000	144,842	24,400	8,400
35	65	95	122168,000	197,110	27,400	9,400
35	75	5	101243,600	8,640	15,800	4,800
35	75	15	106428,400	12,640	18,000	5,200
35	75	25	109234,000	13,684	17,000	5,000
35	75	35	111009,600	16,918	18,600	5,600
35	75	45	112369,600	16,252	15,800	4,800
35	75	55	113450,000	15,886	17,000	4,600
35	75	65	114283,600	17,582	16,600	4,600
35	75	75	114461,200	16,950	15,200	4,200
35	75	85	114461,200	17,738	14,200	4,200
35	75	95	114461,200	15,422	14,400	4,400
35	85	5	99603,200	9,766	16,200	5,000
35	85	15	101445,600	7,314	14,600	4,200
35	85	25	102422,400	7,264	12,600	4,000
35	85	35	102988,400	7,738	12,600	4,200
35	85	45	103309,200	7,994	12,000	4,200
35	85	55	103538,800	8,076	12,000	4,200
35	85	65	103768,800	7,952	11,200	4,000
35	85	75	103882,800	7,756	11,800	4,200
35	85	85	103882,800	5,966	11,800	3,600

Table W.1 continued from previous page

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
35	85	95	103882,800	5,964	10,600	3,400
35	95	5	98501,600	6,422	13,600	4,000
35	95	15	99199,600	5,488	13,000	3,800
35	95	25	99619,200	4,804	11,600	3,400
35	95	35	99839,200	4,592	11,200	3,200
35	95	45	100026,800	4,586	10,800	3,200
35	95	55	100026,800	4,758	10,800	3,200
35	95	65	100026,800	4,032	10,000	3,000
35	95	75	100026,800	3,930	10,000	3,000
35	95	85	100026,800	3,736	10,000	3,000
35	95	95	100026,800	3,826	10,000	3,000
40	5	5	101450,400	9,964	13,600	4,000
40	5	15	102622,400	9,634	13,200	4,000
40	5	25	102925,600	10,068	13,400	4,000
40	5	35	103108,800	9,504	13,600	4,000
40	5	45	103108,800	10,338	13,600	4,000
40	5	55	103108,800	9,810	13,600	4,000
40	5	65	103108,800	9,076	13,600	4,000
40	5	75	103108,800	9,548	13,600	4,000
40	5	85	103108,800	9,056	13,600	4,000
40	5	95	103108,800	10,170	13,600	4,000
40	15	5	102628,800	8,850	13,200	3,800
40	15	15	105530,800	12,616	15,200	4,600
40	15	25	106924,000	13,996	13,600	4,400
40	15	35	107803,200	13,924	13,600	4,400
40	15	45	108187,200	14,500	14,800	4,600
40	15	55	108187,200	12,028	12,400	4,000
40	15	65	108187,200	11,344	12,400	4,000
40	15	75	108187,200	13,166	13,400	4,200
40	15	85	108187,200	11,538	13,200	4,200
40	15	95	108187,200	10,880	12,400	4,000
40	25	5	104170,800	8,452	13,600	3,800
40	25	15	109474,400	13,544	14,600	4,000
40	25	25	113094,800	17,310	16,800	4,800
40	25	35	115766,800	23,364	18,800	5,400
40	25	45	116908,400	26,142	17,400	5,000
40	25	55	117529,600	27,052	16,400	4,600
40	25	65	117932,400	26,084	17,000	4,600
40	25	75	118298,000	27,398	16,800	5,000
40	25	85	118406,000	27,392	17,000	4,800
40	25	95	118406,000	27,000	16,400	5,000
40	35	5	104749,600	11,548	14,400	4,200

Table W.1 continued from previous page

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
40	35	15	111768,000	22,882	19,400	5,800
40	35	25	116855,600	42,334	18,800	5,400
40	35	35	119957,200	45,084	19,000	5,000
40	35	45	122343,200	116,938	22,000	6,400
40	35	55	123949,200	162,050	27,800	6,800
40	35	65	125376,000	343,710	37,000	9,400
40	35	75	126208,800	584,032	41,000	10,600
40	35	85	126712,400	677,960	43,000	11,400
40	35	95	127124,400	956,058	45,400	12,200
40	45	5	105140,800	10,612	15,000	4,400
40	45	15	112582,800	19,784	18,200	5,000
40	45	25	117552,000	44,814	20,200	6,000
40	45	35	121029,200	92,086	21,400	6,200
40	45	45	123472,400	139,060	22,600	6,600
40	45	55	125388,400	182,430	25,600	7,400
40	45	65	126738,800	296,074	32,400	8,600
40	45	75	127855,600	415,122	39,600	11,400
40	45	85	128820,000	706,592	48,600	15,200
40	45	95	129635,600	836,828	53,200	16,600
40	55	5	105267,200	11,756	14,800	4,200
40	55	15	112162,000	13,528	12,400	4,000
40	55	25	116634,400	22,430	13,000	4,400
40	55	35	119890,800	41,276	15,800	5,200
40	55	45	122401,200	92,762	19,000	6,000
40	55	55	124249,600	142,568	22,800	7,400
40	55	65	125595,200	210,928	25,600	8,400
40	55	75	126533,200	237,536	27,600	8,600
40	55	85	127341,200	276,070	28,800	9,000
40	55	95	128103,600	401,350	31,800	10,000
40	65	5	104628,800	9,626	13,600	4,200
40	65	15	110978,400	11,540	12,800	4,200
40	65	25	114637,600	12,962	11,600	3,800
40	65	35	117437,200	24,162	14,400	4,800
40	65	45	118516,400	39,014	18,000	5,400
40	65	55	119332,400	40,678	17,000	5,400
40	65	65	120148,000	51,482	18,600	5,600
40	65	75	120782,400	68,268	20,600	6,400
40	65	85	121392,800	101,256	22,200	6,800
40	65	95	122003,600	128,214	24,600	7,600
40	75	5	104701,600	11,672	15,600	4,400
40	75	15	110739,200	13,518	15,000	4,600
40	75	25	114254,800	20,014	15,800	4,800

Table W.1 continued from previous page

n	f	w	(2.23) o	(2.23) t	(2.23) s	(2.23) r
40	75	35	116106,800	21,164	15,800	4,800
40	75	45	117264,000	23,670	13,600	4,400
40	75	55	118297,600	25,544	12,600	4,200
40	75	65	119316,000	34,898	17,000	5,200
40	75	75	120141,200	41,576	16,400	5,200
40	75	85	120947,600	49,148	16,600	5,400
40	75	95	121496,000	66,798	19,600	5,800
40	85	5	103066,800	8,336	12,600	3,600
40	85	15	106631,200	9,058	12,000	3,600
40	85	25	108374,400	7,576	11,600	3,400
40	85	35	109519,600	10,432	11,400	3,800
40	85	45	110178,800	9,668	11,400	3,800
40	85	55	110611,600	7,858	9,600	3,400
40	85	65	110819,600	6,474	9,000	3,000
40	85	75	110920,800	5,636	8,600	2,800
40	85	85	110920,800	5,906	8,200	2,800
40	85	95	110920,800	5,632	8,200	2,800
40	95	5	101428,000	8,808	14,000	3,800
40	95	15	102655,600	10,952	14,400	4,200
40	95	25	103002,400	12,640	14,200	4,400
40	95	35	103190,800	12,582	14,200	4,400
40	95	45	103379,200	12,292	14,200	4,400
40	95	55	103478,000	11,940	14,400	4,400
40	95	65	103478,000	11,436	14,400	4,400
40	95	75	103478,000	12,598	14,400	4,400
40	95	85	103478,000	12,148	14,400	4,400
40	95	95	103478,000	12,028	14,400	4,400

Table W.1: Aggregated Computational Results for (2.23)

Appendix X

Aggregated Computational Results for (2.24)

NOTE:

n - Number of nodes in the graph

f - Percentage of flagged edges in an instance

w - Reload costs relative to the average edge weight

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
10	5	5	58612,400	0,136	2,200	2,000
10	5	15	59401,600	0,144	2,800	2,200
10	5	25	59683,600	0,144	2,800	2,200
10	5	35	59880,000	0,148	2,800	2,200
10	5	45	60076,800	0,150	2,800	2,200
10	5	55	60186,000	0,140	2,800	2,200
10	5	65	60186,000	0,150	2,800	2,200
10	5	75	60186,000	0,150	2,800	2,200
10	5	85	60186,000	0,148	2,800	2,200
10	5	95	60186,000	0,144	2,800	2,200
10	15	5	58681,200	0,126	2,200	2,000
10	15	15	59530,000	0,132	2,200	2,000
10	15	25	60373,600	0,120	1,800	1,800
10	15	35	61046,400	0,136	2,400	2,000
10	15	45	61358,800	0,136	2,400	2,000
10	15	55	61515,600	0,140	2,200	2,000
10	15	65	61515,600	0,122	2,000	1,800
10	15	75	61515,600	0,102	1,400	1,600
10	15	85	61515,600	0,104	1,400	1,600
10	15	95	61515,600	0,104	1,400	1,600
10	25	5	58814,800	0,132	2,200	2,000
10	25	15	60075,600	0,116	2,000	1,800
10	25	25	61050,800	0,122	2,000	1,800
10	25	35	61916,800	0,104	1,600	1,600
10	25	45	62783,200	0,102	1,600	1,600
10	25	55	63650,400	0,106	1,600	1,600
10	25	65	64516,800	0,108	1,400	1,600
10	25	75	65169,200	0,106	1,400	1,600
10	25	85	65790,400	0,124	1,800	1,800
10	25	95	66218,400	0,110	1,400	1,600
10	35	5	59198,800	0,134	2,200	2,000
10	35	15	61180,400	0,124	1,800	1,800
10	35	25	63023,200	0,136	1,800	1,800
10	35	35	64766,000	0,134	1,800	1,800
10	35	45	66020,800	0,146	1,400	1,600
10	35	55	67124,400	0,110	1,000	1,400
10	35	65	68152,400	0,100	1,000	1,400
10	35	75	69004,800	0,112	1,000	1,400
10	35	85	69857,600	0,102	1,000	1,400
10	35	95	70710,000	0,124	1,400	1,600
10	45	5	59409,200	0,126	2,200	2,000
10	45	15	61826,800	0,134	2,400	2,000
10	45	25	63918,000	0,112	1,600	1,600

Table X.1 continued from previous page

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
10	45	35	65659,200	0,146	2,000	1,800
10	45	45	67042,400	0,164	2,400	2,000
10	45	55	68266,800	0,160	2,200	2,000
10	45	65	69403,200	0,200	3,200	2,400
10	45	75	70429,600	0,208	3,200	2,400
10	45	85	71456,400	0,186	2,800	2,200
10	45	95	72482,800	0,242	2,800	2,200
10	55	5	59409,200	0,128	2,200	2,000
10	55	15	61680,800	0,154	2,200	2,000
10	55	25	63603,200	0,150	2,800	2,200
10	55	35	65317,600	0,172	3,200	2,400
10	55	45	66599,200	0,138	2,400	2,000
10	55	55	67466,400	0,148	2,600	2,200
10	55	65	68332,800	0,136	2,200	2,000
10	55	75	69198,800	0,132	2,000	2,000
10	55	85	70065,200	0,128	1,600	1,800
10	55	95	70931,600	0,126	1,600	1,800
10	65	5	59534,800	0,126	2,200	2,000
10	65	15	61800,800	0,114	1,800	1,800
10	65	25	63858,400	0,126	1,600	1,800
10	65	35	65665,200	0,114	1,400	1,600
10	65	45	67362,400	0,122	1,400	1,600
10	65	55	68532,400	0,100	1,000	1,400
10	65	65	69349,200	0,132	1,800	1,800
10	65	75	69790,800	0,122	1,400	1,600
10	65	85	70232,800	0,140	2,000	1,800
10	65	95	70674,800	0,152	2,400	2,000
10	75	5	59115,600	0,130	2,200	2,000
10	75	15	60526,800	0,112	1,800	1,800
10	75	25	61730,000	0,098	1,400	1,600
10	75	35	62624,400	0,104	1,600	1,600
10	75	45	63400,400	0,102	1,600	1,600
10	75	55	63988,800	0,100	1,600	1,600
10	75	65	64519,600	0,100	1,400	1,600
10	75	75	65050,400	0,098	1,400	1,600
10	75	85	65581,600	0,102	1,400	1,600
10	75	95	66080,800	0,122	1,800	1,800
10	85	5	58724,800	0,124	2,200	2,000
10	85	15	59667,600	0,128	2,400	2,000
10	85	25	60271,600	0,142	2,800	2,200
10	85	35	60298,400	0,128	2,200	2,000
10	85	45	60298,400	0,130	2,200	2,000

Table X.1 continued from previous page

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
10	85	55	60298,400	0,128	2,200	2,000
10	85	65	60298,400	0,140	2,400	2,200
10	85	75	60298,400	0,138	2,400	2,200
10	85	85	60298,400	0,138	2,400	2,200
10	85	95	60298,400	0,138	2,400	2,200
10	95	5	58817,200	0,124	2,200	2,000
10	95	15	60094,000	0,128	2,400	2,000
10	95	25	61020,400	0,156	3,200	2,400
10	95	35	61352,000	0,158	3,200	2,400
10	95	45	61602,400	0,142	2,800	2,200
10	95	55	61852,800	0,140	2,800	2,200
10	95	65	62103,200	0,140	2,800	2,200
10	95	75	62353,600	0,136	2,800	2,200
10	95	85	62604,000	0,156	3,200	2,400
10	95	95	62854,400	0,156	3,200	2,400
15	5	5	68981,200	0,362	4,000	2,200
15	5	15	68981,200	0,384	4,000	2,200
15	5	25	68981,200	0,358	3,800	2,200
15	5	35	68981,200	0,358	3,800	2,200
15	5	45	68981,200	0,344	3,800	2,200
15	5	55	68981,200	0,348	3,800	2,200
15	5	65	68981,200	0,368	3,800	2,200
15	5	75	68981,200	0,584	3,800	2,200
15	5	85	68981,200	0,356	3,800	2,200
15	5	95	68981,200	0,350	3,800	2,200
15	15	5	69520,400	0,356	4,200	2,200
15	15	15	70577,600	0,388	4,200	2,200
15	15	25	71221,600	0,374	4,200	2,200
15	15	35	71586,000	0,334	4,200	2,200
15	15	45	71810,000	0,350	4,200	2,200
15	15	55	71834,000	0,362	4,200	2,200
15	15	65	71834,000	0,336	4,200	2,200
15	15	75	71834,000	0,366	4,200	2,400
15	15	85	71834,000	0,352	4,000	2,400
15	15	95	71834,000	0,370	4,000	2,400
15	25	5	70424,000	0,342	4,400	2,200
15	25	15	72768,000	0,462	5,200	2,600
15	25	25	74780,000	0,426	5,000	2,400
15	25	35	76731,600	0,558	5,400	2,800
15	25	45	78443,200	0,506	4,600	2,400
15	25	55	79616,000	0,590	5,000	2,600
15	25	65	80510,800	0,608	4,600	2,400

Table X.1 continued from previous page

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
15	25	75	81204,400	0,652	4,600	2,600
15	25	85	81480,000	0,538	3,800	2,400
15	25	95	81700,800	0,448	3,800	2,400
15	35	5	70352,000	0,318	4,200	2,200
15	35	15	72622,400	0,330	3,600	2,000
15	35	25	74395,600	0,310	2,400	1,800
15	35	35	76109,200	0,370	2,400	1,800
15	35	45	77566,400	0,470	3,000	2,000
15	35	55	78808,400	0,606	3,000	2,000
15	35	65	79852,000	0,874	4,000	2,400
15	35	75	80896,000	1,354	4,400	2,600
15	35	85	81694,000	1,216	4,600	2,600
15	35	95	82201,200	1,482	5,200	3,000
15	45	5	70855,200	0,268	3,800	2,000
15	45	15	74553,600	0,386	4,000	2,200
15	45	25	77595,200	0,502	3,000	2,000
15	45	35	79926,000	0,406	2,600	1,800
15	45	45	82132,400	0,870	4,200	2,400
15	45	55	84223,600	0,830	4,200	2,400
15	45	65	86060,000	1,114	4,400	2,400
15	45	75	87630,000	1,264	4,400	2,400
15	45	85	89071,600	1,962	5,200	3,000
15	45	95	90246,800	2,184	6,600	3,400
15	55	5	70464,800	0,318	3,800	2,000
15	55	15	73422,400	0,352	3,400	2,000
15	55	25	75783,600	0,334	3,200	2,000
15	55	35	77486,000	0,276	3,000	1,800
15	55	45	79160,000	0,346	3,200	1,800
15	55	55	80556,800	0,358	2,800	1,800
15	55	65	81822,000	0,534	2,800	2,000
15	55	75	82970,400	0,590	3,200	2,200
15	55	85	84040,000	0,878	3,800	2,400
15	55	95	85110,000	0,782	4,000	2,400
15	65	5	70371,200	0,348	4,400	2,200
15	65	15	72890,400	0,448	4,200	2,200
15	65	25	75096,400	0,400	3,600	2,000
15	65	35	76812,000	0,400	3,600	2,000
15	65	45	77934,400	0,534	3,800	2,200
15	65	55	78800,000	0,920	4,200	2,400
15	65	65	79493,600	1,088	4,400	2,400
15	65	75	80136,000	1,202	4,800	2,600
15	65	85	80710,000	1,082	4,400	2,400

Table X.1 continued from previous page

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
15	65	95	80933,200	1,010	4,200	2,400
15	75	5	70362,400	0,334	4,200	2,200
15	75	15	72444,800	0,384	4,000	2,200
15	75	25	73830,000	0,548	3,600	2,200
15	75	35	74681,200	0,400	3,800	2,400
15	75	45	75532,800	0,416	3,800	2,400
15	75	55	76146,000	0,416	3,800	2,400
15	75	65	76593,200	0,432	4,000	2,400
15	75	75	77040,400	0,476	3,800	2,400
15	75	85	77318,800	0,500	3,800	2,400
15	75	95	77490,400	0,406	3,000	2,000
15	85	5	70061,600	0,338	4,000	2,200
15	85	15	71992,000	0,320	4,000	2,200
15	85	25	73488,000	0,332	4,200	2,400
15	85	35	74196,800	0,334	4,200	2,400
15	85	45	74616,000	0,294	3,800	2,200
15	85	55	75034,800	0,286	3,600	2,200
15	85	65	75453,600	0,290	3,600	2,200
15	85	75	75677,600	0,302	3,600	2,200
15	85	85	75901,200	0,302	3,600	2,200
15	85	95	76125,200	0,296	3,600	2,200
15	95	5	69367,200	0,344	4,200	2,200
15	95	15	70080,800	0,350	4,000	2,200
15	95	25	70587,600	0,394	4,200	2,400
15	95	35	70819,600	0,408	4,200	2,400
15	95	45	70862,400	0,388	4,200	2,400
15	95	55	70862,400	0,392	4,200	2,400
15	95	65	70862,400	0,380	4,000	2,400
15	95	75	70862,400	0,370	4,000	2,400
15	95	85	70862,400	0,370	4,000	2,400
15	95	95	70862,400	0,398	4,000	2,400
20	5	5	77616,400	0,954	4,800	2,200
20	5	15	78036,400	0,824	4,800	2,200
20	5	25	78182,800	0,832	4,800	2,400
20	5	35	78182,000	0,926	4,800	2,400
20	5	45	78182,000	0,772	4,200	2,200
20	5	55	78182,000	0,840	4,200	2,200
20	5	65	78182,000	0,772	4,200	2,200
20	5	75	78182,000	0,846	4,200	2,200
20	5	85	78182,000	0,840	4,200	2,200
20	5	95	78182,000	0,884	4,200	2,200
20	15	5	78996,000	0,884	5,400	2,400

Table X.1 continued from previous page

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
20	15	15	81477,200	0,866	5,000	2,200
20	15	25	82715,200	0,924	6,000	2,600
20	15	35	83676,000	0,972	6,600	2,600
20	15	45	84209,600	1,022	6,800	2,800
20	15	55	84633,200	1,050	6,600	2,800
20	15	65	85057,600	0,940	6,200	2,600
20	15	75	85481,600	1,028	6,600	2,800
20	15	85	85666,800	1,220	7,200	3,000
20	15	95	85666,800	1,040	6,600	2,800
20	25	5	79737,600	0,784	5,000	2,200
20	25	15	83402,800	0,882	5,000	2,200
20	25	25	85614,000	1,004	5,000	2,200
20	25	35	86938,400	1,176	5,400	2,400
20	25	45	87973,600	1,216	4,600	2,200
20	25	55	88948,000	1,258	5,000	2,400
20	25	65	89627,200	1,286	6,000	2,800
20	25	75	89926,000	1,520	6,400	3,200
20	25	85	90120,400	1,672	6,400	3,200
20	25	95	90314,800	1,672	6,400	3,200
20	35	5	79652,000	0,858	4,600	2,200
20	35	15	83384,800	1,294	5,000	2,400
20	35	25	85944,000	1,374	6,200	2,800
20	35	35	87934,000	1,698	6,800	3,000
20	35	45	88650,400	1,182	4,000	2,200
20	35	55	90986,400	1,344	4,600	2,400
20	35	65	92261,200	1,950	3,800	2,400
20	35	75	93536,800	2,838	3,600	2,400
20	35	85	94811,600	3,976	5,200	3,000
20	35	95	95818,800	4,384	5,400	3,000
20	45	5	80114,000	1,140	5,400	2,400
20	45	15	84936,400	1,478	6,600	2,800
20	45	25	87948,800	1,784	6,600	3,000
20	45	35	89986,400	2,180	6,600	2,800
20	45	45	91486,400	2,386	6,200	2,800
20	45	55	92985,600	3,526	6,200	2,800
20	45	65	94335,200	5,394	8,400	3,400
20	45	75	95646,000	5,100	7,600	3,400
20	45	85	96956,000	7,052	9,400	4,000
20	45	95	98047,200	6,648	9,000	3,800
20	55	5	80342,800	0,976	4,800	2,200
20	55	15	84831,200	0,978	5,400	2,400
20	55	25	88413,600	1,196	5,600	2,600

Table X.1 continued from previous page

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
20	55	35	91303,600	1,546	5,000	2,600
20	55	45	93238,400	2,896	5,800	3,000
20	55	55	94768,400	3,728	6,000	3,000
20	55	65	96101,600	4,338	7,000	3,200
20	55	75	97038,000	6,582	8,400	3,800
20	55	85	97723,200	7,768	9,400	4,200
20	55	95	98409,200	9,248	10,000	4,200
20	65	5	79040,800	0,906	4,400	2,000
20	65	15	82184,400	1,214	5,000	2,400
20	65	25	84787,600	1,122	5,000	2,400
20	65	35	86868,800	1,258	5,200	2,600
20	65	45	88640,800	1,678	5,400	2,800
20	65	55	90127,200	2,688	6,200	3,200
20	65	65	91340,800	2,592	5,200	2,800
20	65	75	92462,400	2,696	4,600	2,600
20	65	85	93583,200	2,518	4,800	2,600
20	65	95	94704,400	4,512	6,000	3,000
20	75	5	79266,000	1,042	5,400	2,400
20	75	15	82122,000	0,896	4,600	2,200
20	75	25	84197,200	1,018	5,000	2,400
20	75	35	85687,600	1,236	5,400	2,800
20	75	45	86813,600	1,278	4,800	2,600
20	75	55	87874,000	1,518	5,600	2,800
20	75	65	88658,400	1,896	5,800	2,800
20	75	75	89308,000	2,186	5,800	2,800
20	75	85	89924,800	2,250	6,600	3,000
20	75	95	90186,400	2,458	6,600	3,200
20	85	5	78686,400	0,964	5,000	2,200
20	85	15	80469,200	0,838	4,800	2,200
20	85	25	81708,400	0,974	4,800	2,200
20	85	35	82597,600	1,194	6,600	2,800
20	85	45	83244,000	1,266	6,200	2,800
20	85	55	83768,800	0,944	5,600	2,600
20	85	65	84183,600	1,008	5,600	2,600
20	85	75	84598,400	1,044	5,600	2,600
20	85	85	85012,800	1,232	6,000	2,800
20	85	95	85204,800	1,156	6,200	2,800
20	95	5	77804,400	0,920	5,000	2,200
20	95	15	78502,800	0,846	4,800	2,200
20	95	25	79036,400	0,926	5,600	2,400
20	95	35	79230,800	0,958	5,600	2,400
20	95	45	79425,200	0,932	5,600	2,400

Table X.1 continued from previous page

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
20	95	55	79620,000	1,040	5,600	2,400
20	95	65	79814,400	0,902	5,600	2,400
20	95	75	80008,800	0,932	5,600	2,400
20	95	85	80203,200	0,860	5,600	2,400
20	95	95	80397,600	0,950	5,600	2,400
25	5	5	86719,600	2,324	7,600	3,600
25	5	15	87838,800	2,000	7,000	3,400
25	5	25	88576,000	2,342	7,800	3,800
25	5	35	89112,000	2,182	7,200	3,600
25	5	45	89180,800	2,336	7,000	3,800
25	5	55	89180,800	2,364	7,000	3,800
25	5	65	89180,800	2,460	7,000	3,800
25	5	75	89180,800	2,212	7,000	3,600
25	5	85	89180,800	2,210	6,600	3,600
25	5	95	89180,800	2,132	6,600	3,600
25	15	5	87114,800	2,202	7,400	3,400
25	15	15	88891,200	2,284	7,400	3,600
25	15	25	90223,200	2,924	8,400	4,000
25	15	35	90848,800	2,962	8,800	4,000
25	15	45	91457,200	3,184	9,200	4,200
25	15	55	91870,800	3,400	9,200	4,200
25	15	65	92081,600	3,386	8,800	4,000
25	15	75	92255,600	3,426	8,800	4,000
25	15	85	92255,600	2,836	8,000	3,600
25	15	95	92255,600	2,886	7,400	3,400
25	25	5	88959,200	2,694	8,200	4,000
25	25	15	94004,400	2,902	7,600	3,800
25	25	25	97360,000	3,344	8,200	3,800
25	25	35	99734,800	3,498	7,200	3,400
25	25	45	101866,800	4,288	7,600	3,400
25	25	55	103810,000	9,096	10,400	4,600
25	25	65	105382,000	9,248	10,200	4,400
25	25	75	106406,400	13,512	11,400	5,200
25	25	85	106881,600	11,888	10,000	4,400
25	25	95	107183,200	12,524	10,600	4,600
25	35	5	89073,200	2,732	8,400	4,000
25	35	15	94555,600	3,016	8,600	4,000
25	35	25	98357,200	3,818	7,600	4,000
25	35	35	100642,000	4,274	8,000	4,000
25	35	45	101998,800	3,846	7,600	3,600
25	35	55	103240,000	4,026	7,200	3,400
25	35	65	104336,800	5,804	7,400	3,600

Table X.1 continued from previous page

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
25	35	75	105375,600	8,274	7,800	3,600
25	35	85	106272,000	15,496	9,200	4,200
25	35	95	106692,400	12,542	9,800	4,200
25	45	5	89022,400	2,164	6,800	3,400
25	45	15	93934,800	1,986	6,000	3,200
25	45	25	98053,600	2,236	5,400	3,000
25	45	35	101226,800	3,804	7,000	3,400
25	45	45	103153,600	5,992	8,400	3,800
25	45	55	104513,600	4,694	6,400	3,200
25	45	65	105594,400	6,236	7,000	3,200
25	45	75	106621,600	9,530	7,600	3,600
25	45	85	107647,600	10,902	7,600	3,800
25	45	95	108640,400	10,726	9,200	4,200
25	55	5	89101,200	2,858	8,200	3,800
25	55	15	94080,000	2,952	9,600	4,400
25	55	25	98106,000	3,190	7,800	3,600
25	55	35	101216,000	3,792	8,000	3,600
25	55	45	103572,400	4,116	9,600	3,400
25	55	55	105502,800	5,310	8,000	3,400
25	55	65	107356,000	9,376	8,600	3,400
25	55	75	109116,800	19,644	11,200	4,400
25	55	85	110671,600	23,492	15,000	5,400
25	55	95	111909,200	28,080	16,800	5,800
25	65	5	88461,600	2,532	8,000	3,800
25	65	15	92612,800	2,638	7,800	3,600
25	65	25	96258,800	5,078	8,000	4,000
25	65	35	98594,400	4,428	7,800	3,400
25	65	45	100316,800	3,750	7,400	3,000
25	65	55	101686,000	4,924	8,800	3,000
25	65	65	102815,200	6,488	8,600	3,200
25	65	75	103719,200	5,092	8,600	3,000
25	65	85	104533,200	12,064	10,600	4,000
25	65	95	105348,000	11,950	10,000	4,000
25	75	5	87989,600	2,852	8,600	4,000
25	75	15	91098,000	2,666	8,400	3,800
25	75	25	93412,400	3,406	9,000	4,200
25	75	35	94789,600	3,676	9,000	4,200
25	75	45	95808,400	3,776	9,400	4,400
25	75	55	96689,200	3,752	9,400	4,400
25	75	65	97426,000	4,602	10,200	4,800
25	75	75	97881,600	4,306	10,200	4,800
25	75	85	98304,000	4,458	9,400	4,600

Table X.1 continued from previous page

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
25	75	95	98726,800	4,470	10,000	4,800
25	85	5	87396,400	2,482	7,800	3,800
25	85	15	89539,600	2,210	6,200	3,000
25	85	25	91002,800	1,680	5,200	2,600
25	85	35	92160,400	1,976	6,000	3,000
25	85	45	92963,600	1,712	5,800	2,600
25	85	55	93680,000	1,934	7,400	3,000
25	85	65	94237,600	2,290	6,400	3,000
25	85	75	94540,800	2,142	6,400	3,000
25	85	85	94751,200	2,264	6,800	3,000
25	85	95	94846,400	2,526	7,800	3,400
25	95	5	86609,600	2,326	7,600	3,600
25	95	15	87406,000	2,972	8,400	4,000
25	95	25	87731,200	2,904	8,600	4,200
25	95	35	87926,000	2,708	8,400	4,000
25	95	45	88120,800	2,674	8,400	4,000
25	95	55	88315,600	2,384	7,800	3,800
25	95	65	88492,400	2,816	8,600	4,000
25	95	75	88492,400	2,542	8,200	3,800
25	95	85	88492,400	2,486	8,200	3,800
25	95	95	88492,400	2,578	8,200	3,800
30	5	5	93701,600	3,852	7,000	3,200
30	5	15	94705,200	4,124	6,600	3,200
30	5	25	95485,600	5,540	8,600	3,600
30	5	35	95812,000	4,590	8,800	3,600
30	5	45	95812,000	4,906	8,800	3,600
30	5	55	95812,000	4,174	7,200	3,000
30	5	65	95812,000	4,368	7,200	3,000
30	5	75	95812,000	4,076	7,200	3,000
30	5	85	95812,000	3,882	7,200	3,000
30	5	95	95812,000	4,412	7,200	3,000
30	15	5	94617,200	4,164	6,800	3,200
30	15	15	96140,400	3,542	5,000	2,600
30	15	25	97567,200	3,082	4,800	2,400
30	15	35	98606,000	2,864	4,600	2,400
30	15	45	99230,800	3,020	4,600	2,400
30	15	55	99738,800	3,608	6,200	3,000
30	15	65	100153,600	3,632	6,000	2,800
30	15	75	100558,800	3,984	6,600	3,000
30	15	85	100763,600	3,660	5,800	2,800
30	15	95	100968,400	4,020	7,000	3,200
30	25	5	95349,200	4,180	8,400	3,600

Table X.1 continued from previous page

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
30	25	15	98255,200	4,390	7,800	3,400
30	25	25	100536,000	4,210	7,800	3,400
30	25	35	102718,800	6,360	9,600	4,200
30	25	45	104272,800	5,158	8,200	3,600
30	25	55	105132,800	6,148	9,600	4,200
30	25	65	105522,000	6,004	9,000	4,200
30	25	75	105679,200	5,676	8,800	4,000
30	25	85	105679,200	4,886	8,000	3,600
30	25	95	105679,200	5,040	8,000	3,600
30	35	5	96636,400	4,264	7,200	3,400
30	35	15	102326,400	3,432	6,400	3,000
30	35	25	106858,800	5,072	8,200	3,400
30	35	35	110126,000	9,030	10,000	4,200
30	35	45	112367,600	17,102	10,400	4,400
30	35	55	113822,000	31,290	13,000	5,000
30	35	65	114988,000	34,752	15,000	5,200
30	35	75	115538,800	38,276	15,200	5,400
30	35	85	115938,400	43,048	17,000	5,600
30	35	95	116338,000	40,512	15,800	5,200
30	45	5	96461,600	3,794	7,400	3,200
30	45	15	101183,600	2,660	5,000	2,600
30	45	25	104369,600	2,880	4,800	2,600
30	45	35	107136,400	3,470	4,200	2,400
30	45	45	109194,000	3,216	3,400	2,200
30	45	55	110570,400	6,216	4,600	2,600
30	45	65	111660,800	5,516	4,800	2,400
30	45	75	112603,200	8,830	5,400	2,600
30	45	85	113221,600	8,784	5,200	2,600
30	45	95	113826,000	11,074	6,000	3,000
30	55	5	96509,200	3,814	6,600	3,000
30	55	15	102474,000	5,826	8,000	3,400
30	55	25	106990,800	8,000	9,400	4,000
30	55	35	109925,600	10,444	10,800	4,200
30	55	45	112236,800	23,032	12,600	4,800
30	55	55	114247,200	41,434	15,400	5,600
30	55	65	115854,400	41,798	16,200	5,600
30	55	75	117129,600	62,336	18,800	6,200
30	55	85	118306,800	99,062	24,000	7,800
30	55	95	119332,800	137,822	27,000	9,400
30	65	5	95694,800	4,048	7,000	3,400
30	65	15	99647,600	4,034	6,200	3,400
30	65	25	102088,800	5,444	7,000	3,600

Table X.1 continued from previous page

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
30	65	35	104266,800	4,992	6,400	3,000
30	65	45	106116,800	5,768	6,000	3,000
30	65	55	107696,400	7,690	6,200	3,200
30	65	65	109038,400	9,048	6,800	3,000
30	65	75	110087,200	11,646	7,000	3,200
30	65	85	111108,000	12,216	6,800	3,000
30	65	95	111947,200	30,562	8,200	3,800
30	75	5	95262,800	3,902	7,200	3,400
30	75	15	98718,800	5,104	7,000	3,400
30	75	25	101038,800	2,894	5,400	2,600
30	75	35	102692,000	3,444	6,400	3,000
30	75	45	104224,400	3,996	6,400	3,000
30	75	55	105518,800	6,242	6,600	3,600
30	75	65	106008,400	8,106	8,600	4,000
30	75	75	106213,200	8,238	7,400	3,400
30	75	85	106234,400	7,446	7,000	3,200
30	75	95	106234,400	7,896	7,600	3,400
30	85	5	94707,200	3,460	6,600	3,000
30	85	15	97117,200	3,780	7,000	3,000
30	85	25	98956,400	4,454	8,200	3,400
30	85	35	100216,800	4,864	8,400	3,400
30	85	45	100566,400	5,252	8,600	3,400
30	85	55	100631,200	5,714	9,200	3,600
30	85	65	100631,200	5,020	9,800	3,800
30	85	75	100631,200	4,872	9,200	3,600
30	85	85	100631,200	5,116	9,200	3,600
30	85	95	100631,200	4,556	9,200	3,600
30	95	5	93411,600	3,608	6,600	3,000
30	95	15	93984,800	3,720	7,800	3,200
30	95	25	94098,800	3,786	7,800	3,200
30	95	35	94098,800	3,792	7,600	3,200
30	95	45	94098,800	3,582	7,600	3,200
30	95	55	94098,800	3,668	7,600	3,200
30	95	65	94098,800	3,582	7,600	3,200
30	95	75	94098,800	3,634	7,600	3,200
30	95	85	94098,800	3,488	7,600	3,200
30	95	95	94098,800	3,380	8,000	3,200
35	5	5	98675,600	13,070	14,200	4,600
35	5	15	99544,000	12,938	14,400	4,600
35	5	25	100151,600	11,180	13,200	4,200
35	5	35	100461,600	11,980	13,000	4,200
35	5	45	100687,600	13,364	14,000	4,600

Table X.1 continued from previous page

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
35	5	55	100739,600	12,336	12,800	4,200
35	5	65	100739,600	12,534	12,800	4,200
35	5	75	100739,600	11,924	12,800	4,200
35	5	85	100739,600	11,634	12,800	4,200
35	5	95	100739,600	12,148	12,800	4,200
35	15	5	99746,000	10,964	13,000	3,800
35	15	15	102252,000	14,178	14,200	4,200
35	15	25	103764,800	15,072	10,800	3,600
35	15	35	104478,400	10,842	11,200	3,600
35	15	45	105034,000	13,126	10,800	3,400
35	15	55	105171,600	13,412	11,600	3,600
35	15	65	105171,600	12,152	10,600	3,400
35	15	75	105171,600	11,774	10,600	3,400
35	15	85	105171,600	10,538	10,600	3,400
35	15	95	105171,600	11,054	10,600	3,400
35	25	5	100551,200	9,906	13,200	3,800
35	25	15	105044,000	18,734	15,600	5,000
35	25	25	107792,800	13,284	14,000	4,400
35	25	35	109744,800	15,188	14,000	4,400
35	25	45	111197,600	18,772	14,800	5,000
35	25	55	111755,600	18,594	15,400	5,000
35	25	65	111796,000	12,952	11,000	4,000
35	25	75	111796,000	10,962	10,600	4,000
35	25	85	111796,000	10,444	10,600	4,000
35	25	95	111796,000	9,628	10,200	3,800
35	35	5	101486,400	11,892	13,400	4,200
35	35	15	106066,000	10,390	11,800	3,600
35	35	25	109384,000	8,018	9,800	3,000
35	35	35	112406,800	13,872	11,400	3,400
35	35	45	114962,800	32,034	13,400	4,400
35	35	55	116525,200	36,068	9,400	3,800
35	35	65	117909,600	41,618	9,600	3,600
35	35	75	118972,400	56,238	11,000	4,000
35	35	85	120034,800	74,910	13,600	4,600
35	35	95	121097,200	102,474	15,600	5,200
35	45	5	102471,600	9,998	13,800	3,800
35	45	15	109890,800	12,992	12,800	4,000
35	45	25	115498,000	15,744	12,600	3,600
35	45	35	119562,800	29,952	12,600	3,600
35	45	45	122289,600	73,976	15,800	4,400
35	45	55	124603,600	90,938	19,000	4,800
35	45	65	126456,000	161,336	20,600	5,000

Table X.1 continued from previous page

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
35	45	75	127807,200	222,138	22,600	5,600
35	45	85	128958,400	306,544	25,200	6,600
35	45	95	130038,400	370,898	27,200	7,400
35	55	5	102169,200	15,450	15,600	5,000
35	55	15	108203,600	16,620	12,200	4,000
35	55	25	112600,800	16,410	12,000	4,000
35	55	35	115730,800	32,958	14,800	4,800
35	55	45	118274,000	49,120	13,200	4,200
35	55	55	120474,000	67,182	14,600	4,400
35	55	65	122100,800	101,854	15,400	4,600
35	55	75	123299,200	195,466	20,600	6,400
35	55	85	124268,400	291,238	22,800	7,200
35	55	95	124956,000	328,046	23,200	7,200
35	65	5	101548,400	13,134	15,600	4,600
35	65	15	107674,800	12,584	11,800	3,800
35	65	25	112016,000	23,656	13,600	4,400
35	65	35	115441,200	44,040	14,600	4,800
35	65	45	117901,200	92,614	19,400	6,600
35	65	55	119184,400	84,460	17,600	6,000
35	65	65	120211,600	107,270	18,000	6,000
35	65	75	120863,600	111,238	19,800	6,600
35	65	85	121516,000	117,326	20,200	6,800
35	65	95	122168,000	243,290	26,400	9,600
35	75	5	101243,600	12,598	15,400	4,600
35	75	15	106428,400	17,000	15,800	4,600
35	75	25	109234,000	20,684	15,600	4,800
35	75	35	111009,600	23,676	15,600	4,800
35	75	45	112369,600	19,762	14,400	4,400
35	75	55	113450,000	18,712	15,000	4,200
35	75	65	114283,600	20,396	13,800	4,000
35	75	75	114461,200	23,544	12,800	3,800
35	75	85	114461,200	23,230	12,800	3,800
35	75	95	114461,200	23,876	13,000	4,000
35	85	5	99603,200	12,522	15,200	4,600
35	85	15	101445,600	9,652	13,000	3,800
35	85	25	102422,400	8,228	12,400	3,800
35	85	35	102988,400	9,412	12,400	4,200
35	85	45	103309,200	9,208	11,800	4,200
35	85	55	103538,800	9,200	12,200	4,200
35	85	65	103768,800	8,346	11,000	4,000
35	85	75	103882,800	8,236	10,600	3,800
35	85	85	103882,800	6,618	10,200	3,200

Table X.1 continued from previous page

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
35	85	95	103882,800	6,340	10,200	3,200
35	95	5	98501,600	9,370	13,400	3,800
35	95	15	99199,600	7,970	12,000	3,600
35	95	25	99619,200	6,806	11,600	3,400
35	95	35	99839,200	7,694	12,000	3,600
35	95	45	100026,800	6,654	10,800	3,200
35	95	55	100026,800	6,824	10,800	3,200
35	95	65	100026,800	5,826	10,000	3,000
35	95	75	100026,800	5,706	10,000	3,000
35	95	85	100026,800	5,542	10,000	3,000
35	95	95	100026,800	6,272	10,400	3,200
40	5	5	101450,400	10,990	13,000	3,800
40	5	15	102622,400	13,108	13,000	4,000
40	5	25	102925,600	12,882	13,600	4,200
40	5	35	103108,800	12,574	13,800	4,200
40	5	45	103108,800	12,878	13,800	4,200
40	5	55	103108,800	12,066	13,800	4,200
40	5	65	103108,800	12,626	13,800	4,200
40	5	75	103108,800	12,654	13,800	4,200
40	5	85	103108,800	12,342	14,200	4,200
40	5	95	103108,800	12,344	13,800	4,200
40	15	5	102628,800	10,360	12,000	3,400
40	15	15	105530,800	13,686	13,200	4,000
40	15	25	106924,000	16,526	14,000	4,600
40	15	35	107803,200	15,110	12,400	4,200
40	15	45	108187,200	15,108	12,200	4,000
40	15	55	108187,200	13,664	10,800	3,600
40	15	65	108187,200	12,966	10,800	3,600
40	15	75	108187,200	13,112	11,000	3,600
40	15	85	108187,200	11,754	10,800	3,600
40	15	95	108187,200	12,388	10,800	3,600
40	25	5	104170,800	9,964	12,400	3,400
40	25	15	109474,400	19,274	13,800	3,800
40	25	25	113094,800	19,506	14,400	4,400
40	25	35	115766,800	29,742	15,200	4,800
40	25	45	116908,400	31,004	14,000	4,200
40	25	55	117529,600	37,246	12,400	3,800
40	25	65	117932,400	36,042	12,200	3,800
40	25	75	118298,000	41,742	13,800	4,200
40	25	85	118406,000	32,058	14,000	4,200
40	25	95	118406,000	28,628	13,600	4,200
40	35	5	104749,600	12,680	13,000	3,800

Table X.1 continued from previous page

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
40	35	15	111768,000	29,792	17,000	5,600
40	35	25	116855,600	51,522	19,000	5,600
40	35	35	119957,200	63,062	18,200	5,000
40	35	45	122343,200	140,520	22,800	6,400
40	35	55	123949,200	206,742	25,600	6,600
40	35	65	125376,000	387,086	29,400	7,600
40	35	75	126208,800	582,928	32,400	8,800
40	35	85	126712,400	687,860	35,000	9,200
40	35	95	127124,400	876,036	36,600	10,000
40	45	5	105140,800	13,976	13,800	4,000
40	45	15	112582,800	23,586	16,200	4,400
40	45	25	117552,000	54,710	17,800	5,600
40	45	35	121029,200	119,850	17,600	5,600
40	45	45	123472,400	141,782	20,200	6,000
40	45	55	125388,400	206,318	22,600	6,800
40	45	65	126738,800	280,242	24,200	7,200
40	45	75	127855,600	416,756	31,800	9,800
40	45	85	128820,000	797,724	43,400	14,000
40	45	95	129635,600	984,372	46,200	15,000
40	55	5	105267,200	13,728	13,800	4,000
40	55	15	112162,000	18,110	13,000	4,000
40	55	25	116634,400	24,502	12,200	4,000
40	55	35	119890,800	48,436	11,600	4,000
40	55	45	122401,200	76,858	14,600	4,600
40	55	55	124249,600	144,432	18,000	6,000
40	55	65	125595,200	204,824	20,600	6,800
40	55	75	126533,200	214,358	21,400	6,600
40	55	85	127341,200	292,482	23,600	7,200
40	55	95	128103,600	498,532	28,800	8,600
40	65	5	104628,800	11,824	12,400	3,800
40	65	15	110976,000	13,614	11,600	3,800
40	65	25	114637,600	18,386	10,400	3,600
40	65	35	117437,200	31,310	12,200	4,200
40	65	45	118516,400	40,462	13,200	4,600
40	65	55	119332,400	53,662	13,200	4,800
40	65	65	120148,000	53,096	13,200	4,400
40	65	75	120782,400	83,830	16,600	5,400
40	65	85	121392,800	137,062	18,600	6,200
40	65	95	122003,600	206,424	21,000	7,000
40	75	5	104701,600	12,932	13,800	3,800
40	75	15	110739,200	16,922	14,200	4,200
40	75	25	114254,800	28,304	16,800	5,200

Table X.1 continued from previous page

n	f	w	(2.24) o	(2.24) t	(2.24) s	(2.24) r
40	75	35	116106,800	27,300	15,600	4,800
40	75	45	117264,000	26,958	13,600	4,200
40	75	55	118297,600	22,430	11,600	3,800
40	75	65	119316,000	40,422	14,600	4,600
40	75	75	120141,200	49,706	15,000	4,800
40	75	85	120947,600	62,780	15,200	5,000
40	75	95	121496,000	66,380	16,000	5,000
40	85	5	103066,800	9,034	11,800	3,200
40	85	15	106631,200	10,102	11,000	3,400
40	85	25	108374,400	7,164	9,200	2,800
40	85	35	109519,600	10,054	10,600	3,600
40	85	45	110178,800	10,182	10,800	3,600
40	85	55	110611,600	7,534	8,200	3,000
40	85	65	110819,600	6,570	8,400	2,800
40	85	75	110920,800	6,628	8,200	2,800
40	85	85	110920,800	6,870	8,200	2,800
40	85	95	110920,800	6,988	8,200	2,800
40	95	5	101428,000	10,854	13,200	3,600
40	95	15	102655,600	11,856	13,600	4,000
40	95	25	103002,400	12,370	13,600	4,200
40	95	35	103190,800	12,668	13,600	4,200
40	95	45	103379,200	12,286	13,600	4,200
40	95	55	103478,000	11,464	13,600	4,200
40	95	65	103478,000	11,432	12,800	4,000
40	95	75	103478,000	11,664	12,800	4,000
40	95	85	103478,000	11,400	12,800	4,000
40	95	95	103478,000	11,580	14,600	4,200

Table X.1: Aggregated Computational Results for (2.24)

Appendix Y

Aggregated Computational Results for Heuristics

NOTE:

O. - *Objective*

G. - *Gap*

App. - *New heuristic approach*

n	f	w	CI O.	CI G.	NN O.	NN G.	App. O.	App. G.
10	5	5	67471,600	1,137	63693,600	1,084	73888,800	1,263
10	5	15	70950,800	1,181	63040,000	1,059	75706,800	1,279
10	5	25	72696,000	1,202	63410,800	1,059	74450,000	1,252
10	5	35	72772,800	1,200	63822,800	1,065	77262,000	1,300
10	5	45	73598,400	1,207	64365,600	1,069	80400,800	1,352
10	5	55	73556,400	1,206	64943,600	1,077	80750,800	1,356
10	5	65	73556,400	1,206	64943,600	1,077	81335,200	1,367
10	5	75	70722,400	1,161	64943,600	1,077	79617,600	1,322
10	5	85	70722,400	1,161	64943,600	1,077	81176,400	1,360
10	5	95	70722,400	1,161	64943,600	1,077	84186,000	1,414
10	15	5	68781,600	1,157	63982,800	1,086	76036,400	1,302
10	15	15	73056,000	1,209	65920,000	1,108	76755,600	1,297
10	15	25	72637,200	1,181	67044,400	1,114	77455,200	1,289
10	15	35	73182,800	1,182	64688,800	1,057	78709,600	1,296
10	15	45	73833,200	1,184	65233,200	1,063	81632,000	1,338
10	15	55	74112,400	1,183	65478,800	1,065	80420,800	1,320
10	15	65	74602,800	1,190	65268,400	1,059	84012,800	1,375
10	15	75	76534,800	1,226	66732,400	1,083	78536,000	1,274
10	15	85	80038,400	1,269	67631,200	1,095	81756,000	1,319
10	15	95	80779,200	1,278	67876,400	1,097	82425,600	1,327
10	25	5	68964,800	1,162	64241,200	1,088	77918,400	1,333
10	25	15	69414,400	1,141	65709,600	1,089	79696,000	1,336
10	25	25	71076,000	1,155	69070,400	1,133	81040,800	1,331
10	25	35	77776,000	1,241	70704,800	1,142	84199,600	1,368
10	25	45	80310,400	1,270	70421,600	1,111	79116,000	1,258
10	25	55	82012,800	1,285	71919,200	1,118	80033,600	1,262
10	25	65	83039,200	1,285	73249,600	1,127	83249,600	1,303
10	25	75	76584,000	1,181	73941,600	1,125	86377,200	1,334
10	25	85	77360,400	1,183	74634,000	1,124	83724,800	1,268
10	25	95	77952,400	1,176	72699,200	1,090	83746,400	1,250
10	35	5	69196,000	1,153	64206,800	1,080	78211,200	1,326
10	35	15	70738,400	1,145	66031,600	1,073	78986,800	1,293
10	35	25	72518,800	1,139	67840,000	1,069	81799,600	1,300
10	35	35	75230,000	1,148	69456,800	1,066	85146,000	1,313
10	35	45	78707,200	1,177	71067,600	1,070	93569,200	1,418
10	35	55	81562,400	1,205	73543,600	1,094	91522,400	1,365
10	35	65	83652,000	1,217	75979,200	1,115	94619,600	1,380
10	35	75	85740,800	1,232	77166,000	1,119	94331,200	1,369
10	35	85	87830,800	1,245	82037,200	1,167	102507,200	1,460
10	35	95	89920,400	1,260	84146,000	1,185	106778,400	1,506
10	45	5	68070,400	1,134	64447,200	1,080	76760,000	1,300
10	45	15	70038,400	1,123	68537,600	1,114	81910,800	1,333
10	45	25	72022,000	1,120	70952,400	1,106	80815,600	1,268

Table Y.1 continued from previous page

n	f	w	CI O.	CI G.	NN O.	NN G.	App. Obj.	App. G.
10	45	35	79771,200	1,205	71138,000	1,075	83898,400	1,272
10	45	45	81151,200	1,203	73053,600	1,077	86090,000	1,292
10	45	55	84240,000	1,229	76388,800	1,104	88500,400	1,289
10	45	65	88225,600	1,268	76348,000	1,085	88558,000	1,276
10	45	75	88910,000	1,262	79574,400	1,107	91815,600	1,307
10	45	85	90713,200	1,270	83278,000	1,152	99998,000	1,399
10	45	95	92515,600	1,273	84800,000	1,155	101435,600	1,407
10	55	5	66660,000	1,111	65176,000	1,092	77578,800	1,317
10	55	15	69218,000	1,112	68720,000	1,107	81042,400	1,324
10	55	25	72168,400	1,130	72529,600	1,137	83419,600	1,313
10	55	35	75489,600	1,149	73221,200	1,112	86022,400	1,316
10	55	45	75939,600	1,128	75464,800	1,122	84798,000	1,256
10	55	55	80454,400	1,175	78780,400	1,159	92158,800	1,351
10	55	65	81900,000	1,181	81652,000	1,186	92602,800	1,363
10	55	75	84918,400	1,213	88263,600	1,273	107011,600	1,545
10	55	85	87194,800	1,229	93024,400	1,318	106460,400	1,501
10	55	95	90524,400	1,268	94210,800	1,321	113820,400	1,612
10	65	5	66840,400	1,113	64655,200	1,080	73879,600	1,241
10	65	15	69847,200	1,125	67170,800	1,089	78668,400	1,281
10	65	25	71543,200	1,117	70531,200	1,113	81961,600	1,289
10	65	35	73435,600	1,115	72434,800	1,106	83917,200	1,284
10	65	45	79853,600	1,174	73944,000	1,103	88690,000	1,316
10	65	55	82069,200	1,188	76428,400	1,125	91468,800	1,345
10	65	65	85308,400	1,227	78989,600	1,148	96349,200	1,396
10	65	75	86738,400	1,245	80372,800	1,164	97432,000	1,394
10	65	85	86324,000	1,232	83606,000	1,198	101806,400	1,452
10	65	95	88373,200	1,250	79476,800	1,124	93791,600	1,342
10	75	5	68990,400	1,156	64444,000	1,086	77104,000	1,311
10	75	15	70312,000	1,150	65078,800	1,072	78899,200	1,307
10	75	25	72431,600	1,165	65623,200	1,062	81162,800	1,313
10	75	35	73806,000	1,171	68494,400	1,095	82169,200	1,308
10	75	45	75554,400	1,182	70618,000	1,112	85103,200	1,341
10	75	55	76930,800	1,193	71989,600	1,121	88448,000	1,376
10	75	65	78666,800	1,208	70519,600	1,092	88481,600	1,363
10	75	75	80041,200	1,219	71058,800	1,092	88912,400	1,359
10	75	85	80056,400	1,207	72915,600	1,110	92538,800	1,402
10	75	95	80357,600	1,200	73625,200	1,111	101203,600	1,526
10	85	5	68442,000	1,160	63731,600	1,082	80775,200	1,381
10	85	15	71640,800	1,190	62938,400	1,052	75321,600	1,268
10	85	25	73422,400	1,212	63135,200	1,046	80188,800	1,328
10	85	35	72731,200	1,205	63668,000	1,053	84646,400	1,407
10	85	45	74512,000	1,236	63668,000	1,053	82097,600	1,370

Table Y.1 continued from previous page

n	f	w	CI O.	CI G.	NN O.	NN G.	App. Obj.	App. G.
10	85	55	75363,200	1,249	63668,000	1,053	79864,800	1,326
10	85	65	75768,400	1,255	63668,000	1,053	80796,800	1,343
10	85	75	76174,000	1,263	63668,000	1,053	85074,800	1,415
10	85	85	73628,400	1,220	63668,000	1,053	89412,000	1,474
10	85	95	73628,400	1,220	64118,400	1,061	86560,800	1,425
10	95	5	69876,000	1,179	64047,600	1,086	71834,000	1,219
10	95	15	70500,000	1,166	64572,000	1,075	75856,800	1,270
10	95	25	68660,000	1,119	65308,000	1,075	77829,600	1,282
10	95	35	68771,600	1,117	65732,400	1,075	77810,400	1,282
10	95	45	70972,400	1,150	64988,400	1,055	74701,200	1,224
10	95	55	71811,200	1,155	65238,800	1,055	76566,000	1,244
10	95	65	71811,200	1,151	66488,400	1,067	77240,800	1,252
10	95	75	71196,000	1,140	66488,400	1,063	77863,200	1,255
10	95	85	71196,000	1,136	70328,400	1,107	78364,000	1,260
10	95	95	70738,000	1,122	70328,400	1,105	81398,000	1,312
15	5	5	84778,000	1,227	82859,600	1,195	92071,600	1,334
15	5	15	84806,000	1,229	83068,800	1,198	97058,000	1,405
15	5	25	85029,200	1,231	84212,400	1,212	99078,800	1,436
15	5	35	85499,600	1,239	84421,600	1,215	93471,200	1,346
15	5	45	85499,600	1,239	84630,800	1,219	96824,400	1,405
15	5	55	85499,600	1,239	84839,600	1,220	97019,600	1,408
15	5	65	85499,600	1,239	85048,800	1,224	89590,000	1,298
15	5	75	85499,600	1,239	85258,000	1,225	98120,800	1,420
15	5	85	85499,600	1,239	85467,200	1,228	97666,000	1,415
15	5	95	85499,600	1,239	85676,400	1,230	94352,800	1,356
15	15	5	85655,200	1,231	82009,200	1,178	91280,800	1,312
15	15	15	83354,400	1,179	85801,200	1,214	91775,600	1,298
15	15	25	82683,200	1,160	87611,200	1,226	94432,800	1,326
15	15	35	85194,800	1,192	88015,600	1,227	99402,000	1,391
15	15	45	86045,600	1,198	88420,000	1,229	98717,200	1,372
15	15	55	86896,000	1,212	88824,000	1,234	99658,400	1,387
15	15	65	88492,800	1,232	87273,600	1,214	97928,000	1,363
15	15	75	90078,400	1,254	87273,600	1,214	104710,400	1,450
15	15	85	94316,400	1,314	87273,600	1,214	102597,200	1,423
15	15	95	94944,000	1,322	87273,600	1,214	110340,000	1,524
15	25	5	86922,400	1,235	82309,600	1,164	93218,000	1,323
15	25	15	89776,400	1,235	84708,400	1,158	96576,000	1,324
15	25	25	95114,400	1,270	84430,000	1,129	103074,400	1,375
15	25	35	96561,200	1,257	88283,600	1,148	106302,000	1,375
15	25	45	101231,600	1,293	90428,400	1,154	106768,000	1,362
15	25	55	99435,200	1,246	98803,200	1,239	117263,200	1,476
15	25	65	104970,000	1,304	101860,400	1,263	126684,800	1,569

Table Y.1 continued from previous page

n	f	w	CI O.	CI G.	NN O.	NN G.	App. Obj.	App. G.
15	25	75	108318,000	1,332	108984,000	1,337	130728,000	1,607
15	25	85	113649,200	1,391	110866,000	1,355	130525,200	1,601
15	25	95	116057,600	1,415	106986,000	1,300	127464,800	1,556
15	35	5	88868,000	1,262	84988,800	1,206	95276,000	1,353
15	35	15	93942,000	1,290	87735,200	1,205	96329,200	1,323
15	35	25	96910,400	1,301	87127,600	1,168	95245,200	1,283
15	35	35	100304,800	1,321	89048,000	1,170	109841,200	1,441
15	35	45	103842,400	1,342	94957,600	1,223	110674,800	1,425
15	35	55	105851,200	1,345	96694,000	1,226	115604,400	1,461
15	35	65	109875,600	1,379	98182,400	1,228	121508,400	1,518
15	35	75	113864,800	1,407	101174,400	1,250	125433,200	1,546
15	35	85	114065,600	1,391	101739,200	1,247	125551,600	1,531
15	35	95	116227,600	1,410	103006,800	1,255	127924,000	1,534
15	45	5	87140,000	1,230	83580,800	1,175	95216,400	1,346
15	45	15	92822,400	1,246	86157,200	1,150	101863,600	1,365
15	45	25	96834,800	1,249	93216,000	1,199	107857,200	1,390
15	45	35	100156,400	1,253	94832,800	1,185	121498,000	1,521
15	45	45	102191,600	1,245	99608,000	1,210	123609,600	1,502
15	45	55	105830,000	1,255	102396,800	1,213	123128,000	1,458
15	45	65	109444,000	1,270	103678,400	1,201	125572,400	1,456
15	45	75	111427,600	1,271	101767,200	1,159	134762,000	1,526
15	45	85	113097,200	1,272	108225,200	1,207	134311,200	1,499
15	45	95	115465,600	1,280	109754,400	1,209	143881,600	1,583
15	55	5	89308,000	1,269	85593,600	1,213	93891,600	1,332
15	55	15	94025,600	1,281	87532,800	1,189	96804,800	1,318
15	55	25	98225,200	1,293	91389,200	1,203	104582,800	1,376
15	55	35	103690,400	1,337	95234,800	1,225	115291,600	1,482
15	55	45	105940,800	1,337	98494,400	1,242	121996,800	1,539
15	55	55	109378,400	1,355	100543,200	1,248	130205,600	1,613
15	55	65	112952,800	1,379	103367,200	1,262	134588,400	1,637
15	55	75	113147,600	1,365	105286,800	1,270	140052,800	1,690
15	55	85	120682,000	1,434	109232,800	1,298	152540,400	1,811
15	55	95	123910,000	1,457	112917,600	1,326	155202,000	1,821
15	65	5	87076,000	1,234	83055,200	1,175	90336,000	1,280
15	65	15	91115,200	1,251	83022,800	1,140	101207,600	1,374
15	65	25	95245,600	1,270	89524,000	1,192	100698,400	1,334
15	65	35	101198,800	1,318	91347,200	1,187	108137,600	1,401
15	65	45	95268,400	1,215	98548,800	1,254	105178,400	1,350
15	65	55	107346,000	1,363	99817,200	1,256	112857,600	1,429
15	65	65	113684,000	1,429	101087,200	1,258	131330,000	1,639
15	65	75	114331,600	1,427	95200,800	1,182	125472,400	1,552
15	65	85	114789,200	1,417	95671,200	1,182	129277,200	1,596

Table Y.1 continued from previous page

n	f	w	CI O.	CI G.	NN O.	NN G.	App. Obj.	App. G.
15	65	95	116156,400	1,432	96327,600	1,183	131266,000	1,619
15	75	5	86929,200	1,235	85979,200	1,217	93420,000	1,328
15	75	15	87141,200	1,199	90944,400	1,250	95006,400	1,310
15	75	25	91635,200	1,241	88980,400	1,195	100677,200	1,366
15	75	35	94389,600	1,264	89924,000	1,193	100439,600	1,343
15	75	45	97363,600	1,288	90999,600	1,193	111600,000	1,470
15	75	55	100156,800	1,317	91688,000	1,188	113076,800	1,477
15	75	65	104901,600	1,369	84381,200	1,098	118747,200	1,548
15	75	75	104159,200	1,353	85023,600	1,102	125393,600	1,624
15	75	85	105328,400	1,361	86260,000	1,114	132040,800	1,706
15	75	95	107610,000	1,390	86679,200	1,116	136658,000	1,761
15	85	5	84728,000	1,208	84118,000	1,195	96658,000	1,377
15	85	15	85799,200	1,190	88000,000	1,215	97860,000	1,353
15	85	25	87142,800	1,182	88676,000	1,198	93010,400	1,258
15	85	35	89294,800	1,200	86363,200	1,157	107418,400	1,450
15	85	45	89200,800	1,192	86782,400	1,156	108397,200	1,452
15	85	55	90043,200	1,198	87201,200	1,156	116247,600	1,548
15	85	65	90685,600	1,198	87701,600	1,154	119105,600	1,579
15	85	75	90932,400	1,197	87925,600	1,154	124480,400	1,640
15	85	85	91574,400	1,203	88149,200	1,152	123148,000	1,617
15	85	95	92216,800	1,209	87969,600	1,146	121508,000	1,583
15	95	5	85344,800	1,230	82339,200	1,183	91278,800	1,318
15	95	15	85028,400	1,211	83219,600	1,182	91834,800	1,306
15	95	25	85252,400	1,205	81650,400	1,154	91695,600	1,297
15	95	35	85476,000	1,205	81874,000	1,152	95946,400	1,353
15	95	45	85655,200	1,205	82098,000	1,156	93562,000	1,318
15	95	55	85655,200	1,205	82321,600	1,158	91662,000	1,289
15	95	65	85655,200	1,205	82545,600	1,162	92838,800	1,309
15	95	75	85655,200	1,205	82769,600	1,164	97509,200	1,378
15	95	85	85655,200	1,205	85867,600	1,206	94474,400	1,331
15	95	95	85655,200	1,205	86091,600	1,208	99181,600	1,390
20	5	5	99424,000	1,277	86671,600	1,116	106295,600	1,356
20	5	15	103320,800	1,318	91985,200	1,169	107324,000	1,370
20	5	25	103895,200	1,322	92595,600	1,175	111059,200	1,418
20	5	35	104612,400	1,332	92821,200	1,179	110782,400	1,411
20	5	45	104434,400	1,327	93046,400	1,180	118269,600	1,485
20	5	55	103904,800	1,322	93272,000	1,182	122787,600	1,560
20	5	65	103904,800	1,322	93497,200	1,185	116219,600	1,477
20	5	75	103904,800	1,322	93722,800	1,187	117813,600	1,494
20	5	85	103904,800	1,322	93948,000	1,189	127207,600	1,619
20	5	95	103904,800	1,322	94173,600	1,190	129773,200	1,646
20	15	5	97289,200	1,228	88996,400	1,122	108216,800	1,367

Table Y.1 continued from previous page

n	f	w	CI O.	CI G.	NN O.	NN G.	App. Obj.	App. G.
20	15	15	100925,200	1,236	92950,800	1,137	108339,200	1,317
20	15	25	102481,600	1,238	92841,600	1,121	118130,000	1,421
20	15	35	107125,200	1,278	95642,400	1,140	122202,000	1,461
20	15	45	106038,400	1,257	95113,200	1,127	125014,800	1,471
20	15	55	107530,800	1,271	93327,600	1,105	131803,600	1,548
20	15	65	112300,000	1,315	93752,000	1,103	131278,400	1,525
20	15	75	111126,800	1,298	94176,000	1,101	128496,000	1,494
20	15	85	113394,800	1,321	94600,000	1,105	148474,800	1,708
20	15	95	114180,400	1,329	95024,400	1,109	149538,000	1,734
20	25	5	100681,200	1,259	91053,600	1,139	111102,000	1,389
20	25	15	108990,400	1,305	94130,000	1,122	110181,200	1,317
20	25	25	112301,600	1,308	99361,200	1,156	118748,800	1,379
20	25	35	114763,600	1,316	102498,400	1,169	122943,200	1,396
20	25	45	117012,000	1,326	105382,800	1,191	132693,200	1,498
20	25	55	117816,800	1,320	110580,000	1,236	134013,600	1,503
20	25	65	118736,800	1,324	109980,000	1,222	143188,800	1,596
20	25	75	120350,400	1,336	110835,600	1,226	138006,000	1,530
20	25	85	123681,200	1,370	114748,400	1,273	155849,600	1,717
20	25	95	122590,000	1,357	115830,000	1,281	150085,600	1,656
20	35	5	102874,800	1,287	90012,000	1,128	110477,200	1,381
20	35	15	103793,600	1,245	97469,200	1,173	120178,000	1,434
20	35	25	110354,800	1,285	99874,000	1,163	131410,000	1,524
20	35	35	117176,000	1,327	104400,000	1,189	130156,800	1,479
20	35	45	123893,200	1,373	109769,200	1,226	142410,000	1,570
20	35	55	130810,000	1,427	114233,600	1,257	153316,800	1,660
20	35	65	134365,600	1,450	121828,000	1,318	159002,000	1,714
20	35	75	141496,000	1,506	126407,600	1,343	164022,800	1,755
20	35	85	147937,200	1,549	127905,600	1,344	173799,200	1,823
20	35	95	152328,400	1,579	130511,600	1,353	189452,400	1,958
20	45	5	101344,400	1,262	90027,600	1,122	106358,800	1,321
20	45	15	106170,400	1,247	97118,000	1,141	114821,200	1,341
20	45	25	115508,000	1,313	100452,400	1,138	129588,800	1,461
20	45	35	119072,800	1,320	104088,400	1,153	131743,200	1,457
20	45	45	121295,600	1,321	106397,200	1,157	145260,000	1,584
20	45	55	127176,800	1,365	107902,000	1,156	151691,600	1,632
20	45	65	129452,400	1,371	114228,400	1,208	165452,800	1,744
20	45	75	130399,600	1,356	120566,400	1,260	180245,200	1,882
20	45	85	132129,200	1,360	132504,400	1,356	179295,200	1,839
20	45	95	139726,400	1,425	133622,400	1,354	183742,400	1,871
20	55	5	102758,800	1,275	91084,800	1,133	111975,200	1,388
20	55	15	108324,800	1,277	90098,400	1,062	116801,600	1,374
20	55	25	115809,600	1,307	100342,000	1,131	119954,400	1,349

Table Y.1 continued from previous page

n	f	w	CI O.	CI G.	NN O.	NN G.	App. Obj.	App. G.
20	55	35	119118,000	1,305	112507,200	1,229	128738,000	1,398
20	55	45	125075,600	1,338	109296,400	1,173	135562,000	1,441
20	55	55	133041,600	1,396	110777,600	1,168	153094,000	1,615
20	55	65	136634,000	1,414	118835,600	1,233	171153,600	1,780
20	55	75	143585,200	1,470	120146,400	1,236	170102,400	1,735
20	55	85	147724,400	1,503	126268,800	1,293	174442,800	1,776
20	55	95	151866,800	1,533	133008,800	1,352	188024,400	1,905
20	65	5	98457,200	1,243	89928,400	1,136	105446,000	1,330
20	65	15	103458,400	1,257	91215,200	1,106	111879,600	1,354
20	65	25	108646,400	1,280	93812,400	1,103	125006,400	1,470
20	65	35	112740,000	1,295	103537,600	1,194	137092,000	1,568
20	65	45	116009,600	1,304	110808,400	1,245	138836,000	1,564
20	65	55	120692,800	1,339	111614,800	1,234	148938,400	1,656
20	65	65	124133,200	1,357	110190,000	1,206	154800,800	1,698
20	65	75	130665,600	1,416	116435,200	1,244	150522,400	1,620
20	65	85	134059,200	1,435	117745,200	1,245	170826,800	1,826
20	65	95	138068,000	1,463	120368,800	1,263	193400,400	2,024
20	75	5	97751,200	1,230	90962,800	1,142	106482,400	1,339
20	75	15	101870,400	1,240	92946,400	1,131	106631,200	1,294
20	75	25	104237,200	1,234	100977,200	1,195	114480,400	1,354
20	75	35	105720,400	1,232	104433,200	1,217	124422,400	1,442
20	75	45	109487,600	1,257	104499,600	1,204	125556,000	1,445
20	75	55	110088,400	1,250	107424,400	1,220	136518,000	1,532
20	75	65	113612,400	1,274	108217,600	1,209	134815,600	1,521
20	75	75	114909,200	1,278	108910,000	1,211	144643,600	1,589
20	75	85	121853,600	1,347	109052,400	1,201	152510,800	1,677
20	75	95	123991,600	1,366	109512,800	1,202	150257,600	1,655
20	85	5	100314,400	1,271	87332,400	1,108	102498,400	1,294
20	85	15	101706,800	1,260	91674,000	1,134	108068,000	1,336
20	85	25	103170,800	1,263	95938,400	1,165	106457,600	1,300
20	85	35	105367,200	1,273	97892,800	1,177	113130,400	1,368
20	85	45	108384,000	1,298	99562,000	1,187	110837,600	1,330
20	85	55	108653,600	1,294	99355,200	1,180	124655,600	1,484
20	85	65	109071,200	1,292	101324,800	1,198	127492,400	1,515
20	85	75	109386,800	1,286	102123,200	1,200	132138,400	1,557
20	85	85	109959,600	1,290	100378,000	1,180	129993,600	1,532
20	85	95	111158,400	1,302	100899,600	1,184	135739,200	1,593
20	95	5	98322,400	1,261	87082,800	1,118	104568,400	1,342
20	95	15	99262,000	1,260	87742,400	1,116	105168,800	1,329
20	95	25	98591,600	1,244	88322,000	1,118	107315,200	1,353
20	95	35	100026,000	1,260	88516,400	1,118	114388,400	1,431
20	95	45	100970,800	1,264	88722,000	1,118	105235,600	1,321

Table Y.1 continued from previous page

n	f	w	CI O.	CI G.	NN O.	NN G.	App. Obj.	App. G.
20	95	55	100663,600	1,260	88916,800	1,118	109355,200	1,373
20	95	65	100164,400	1,251	89111,200	1,118	111521,200	1,393
20	95	75	100358,800	1,251	89305,600	1,118	110932,000	1,383
20	95	85	101226,800	1,259	89500,000	1,118	114464,400	1,426
20	95	95	101226,800	1,255	89694,400	1,118	110400,000	1,361
25	5	5	111674,800	1,288	105942,000	1,218	116918,800	1,347
25	5	15	115824,800	1,321	109634,800	1,247	115704,000	1,315
25	5	25	116858,000	1,323	109152,800	1,231	116562,800	1,310
25	5	35	117479,200	1,318	108954,400	1,221	121976,400	1,365
25	5	45	117988,800	1,324	108954,400	1,221	125773,600	1,402
25	5	55	118207,600	1,328	108954,400	1,221	117854,400	1,319
25	5	65	117709,600	1,324	108954,400	1,221	127002,400	1,417
25	5	75	117709,600	1,324	108954,400	1,221	127972,400	1,428
25	5	85	117709,600	1,324	108954,400	1,221	137485,200	1,542
25	5	95	117709,600	1,324	108954,400	1,221	136498,000	1,520
25	15	5	111076,400	1,271	100050,000	1,148	113506,400	1,303
25	15	15	111561,600	1,252	104379,600	1,173	118487,200	1,332
25	15	25	114978,400	1,271	107358,800	1,191	125676,000	1,392
25	15	35	115929,600	1,275	108751,600	1,199	132861,200	1,460
25	15	45	115541,200	1,263	110661,200	1,211	132897,600	1,442
25	15	55	116771,600	1,271	110872,000	1,209	137406,000	1,492
25	15	65	117169,200	1,273	111082,800	1,209	146883,200	1,589
25	15	75	117566,800	1,275	111293,600	1,209	146699,200	1,590
25	15	85	117964,000	1,279	111504,000	1,211	151726,400	1,643
25	15	95	118361,600	1,283	111003,600	1,204	160376,800	1,738
25	25	5	115607,600	1,302	108758,400	1,223	117007,600	1,309
25	25	15	118755,200	1,261	113683,200	1,209	133768,400	1,420
25	25	25	126336,800	1,298	120652,000	1,242	137094,800	1,406
25	25	35	130211,600	1,304	123589,600	1,239	144944,800	1,451
25	25	45	132981,600	1,305	126798,400	1,244	155355,200	1,526
25	25	55	134002,800	1,285	128450,800	1,234	163005,200	1,563
25	25	65	141223,600	1,337	131713,200	1,248	179353,600	1,677
25	25	75	145271,200	1,362	137720,000	1,296	181026,800	1,688
25	25	85	147958,400	1,382	143353,200	1,340	207648,400	1,922
25	25	95	151246,000	1,407	139255,600	1,294	216667,200	2,017
25	35	5	113336,400	1,269	106372,800	1,192	120297,200	1,349
25	35	15	120894,800	1,276	118538,400	1,252	122400,000	1,296
25	35	25	128641,600	1,308	117558,000	1,194	137219,600	1,394
25	35	35	135710,000	1,349	117960,000	1,170	145073,200	1,440
25	35	45	140066,000	1,371	126532,000	1,243	164874,800	1,610
25	35	55	148872,800	1,444	127267,600	1,234	160306,000	1,551
25	35	65	153152,800	1,470	135236,800	1,297	178898,000	1,709

Table Y.1 continued from previous page

n	f	w	CI O.	CI G.	NN O.	NN G.	App. Obj.	App. G.
25	35	75	155998,400	1,483	136458,800	1,294	185435,600	1,757
25	35	85	158874,000	1,496	137679,600	1,297	202696,000	1,904
25	35	95	162772,800	1,528	138901,200	1,304	204014,800	1,906
25	45	5	112917,200	1,269	105014,800	1,180	125102,800	1,398
25	45	15	118731,200	1,263	114019,600	1,212	128878,400	1,370
25	45	25	128601,200	1,306	119488,800	1,217	140482,400	1,432
25	45	35	128545,600	1,268	126822,800	1,253	153307,200	1,509
25	45	45	136607,600	1,322	130152,000	1,260	164397,200	1,585
25	45	55	144053,600	1,375	136004,400	1,298	164741,200	1,576
25	45	65	152854,800	1,440	148819,600	1,409	188343,200	1,775
25	45	75	160181,200	1,499	147750,800	1,383	199968,400	1,876
25	45	85	166070,000	1,537	149206,800	1,383	205560,800	1,904
25	45	95	170348,000	1,565	150238,000	1,378	230353,600	2,122
25	55	5	113713,200	1,277	108281,200	1,215	118277,200	1,319
25	55	15	122586,000	1,300	114280,400	1,212	129105,200	1,373
25	55	25	126379,200	1,289	120084,800	1,222	144623,600	1,475
25	55	35	132439,200	1,308	125944,800	1,244	152480,800	1,498
25	55	45	140884,800	1,361	128331,200	1,238	162024,800	1,563
25	55	55	141536,000	1,338	133322,800	1,265	179218,400	1,682
25	55	65	149665,600	1,394	137600,000	1,285	185786,000	1,727
25	55	75	157743,200	1,445	145729,200	1,332	204307,200	1,866
25	55	85	162238,800	1,468	144102,400	1,302	210034,800	1,889
25	55	95	166967,200	1,492	147227,600	1,313	229052,800	2,038
25	65	5	113802,800	1,289	103790,400	1,172	114148,000	1,288
25	65	15	119507,200	1,291	113760,400	1,227	122372,400	1,322
25	65	25	123630,800	1,285	121626,400	1,264	135442,400	1,403
25	65	35	131872,800	1,339	119442,800	1,210	150210,000	1,520
25	65	45	131862,400	1,315	123965,200	1,236	172021,200	1,716
25	65	55	139699,600	1,372	124812,400	1,227	176716,000	1,734
25	65	65	145312,400	1,415	128852,400	1,256	167651,600	1,630
25	65	75	148854,400	1,437	129673,200	1,250	205169,200	1,957
25	65	85	148500,000	1,418	130492,800	1,250	192067,600	1,837
25	65	95	151398,400	1,435	131313,200	1,247	214638,000	2,041
25	75	5	110833,600	1,257	105484,400	1,196	116445,600	1,319
25	75	15	117439,600	1,289	108884,800	1,189	122181,600	1,341
25	75	25	119317,600	1,279	112779,200	1,202	122933,200	1,314
25	75	35	126284,800	1,329	117993,200	1,242	134669,200	1,417
25	75	45	128223,200	1,335	123790,800	1,289	147809,600	1,542
25	75	55	134111,600	1,387	125219,600	1,292	155978,000	1,606
25	75	65	136807,200	1,401	124007,200	1,267	167993,600	1,723
25	75	75	136573,200	1,393	125225,600	1,274	184104,800	1,874
25	75	85	136894,400	1,390	126442,400	1,281	175173,600	1,766

Table Y.1 continued from previous page

n	f	w	CI O.	CI G.	NN O.	NN G.	App. Obj.	App. G.
25	75	95	137049,600	1,382	127660,400	1,286	190036,800	1,915
25	85	5	109149,200	1,248	103703,600	1,183	114160,000	1,307
25	85	15	117656,400	1,314	111282,400	1,236	120375,600	1,343
25	85	25	119013,200	1,309	108984,800	1,191	125810,400	1,384
25	85	35	123284,800	1,339	114623,200	1,239	132738,400	1,440
25	85	45	123745,600	1,331	115192,800	1,234	139948,800	1,502
25	85	55	124330,800	1,325	116661,200	1,241	148316,800	1,587
25	85	65	124899,600	1,327	114582,800	1,213	150556,800	1,597
25	85	75	126007,200	1,333	114582,800	1,209	150398,400	1,590
25	85	85	127008,000	1,341	114582,800	1,205	164101,200	1,735
25	85	95	125946,000	1,325	117026,000	1,227	173357,600	1,811
25	95	5	112820,000	1,303	104699,600	1,207	114218,400	1,317
25	95	15	113010,400	1,293	106749,200	1,222	117331,200	1,336
25	95	25	112344,400	1,276	107330,400	1,224	115286,400	1,310
25	95	35	115401,600	1,311	106594,400	1,214	122898,000	1,395
25	95	45	115608,000	1,311	105296,800	1,195	125306,800	1,403
25	95	55	115247,200	1,303	105296,800	1,193	125962,400	1,417
25	95	65	115247,200	1,301	105296,800	1,191	128206,000	1,443
25	95	75	115247,200	1,301	105296,800	1,191	125838,800	1,419
25	95	85	115247,200	1,301	105296,800	1,191	132454,800	1,489
25	95	95	115247,200	1,301	105296,800	1,191	134111,600	1,506
30	5	5	119657,600	1,279	111758,000	1,189	128417,600	1,369
30	5	15	121912,400	1,287	112049,200	1,182	127883,600	1,333
30	5	25	122954,800	1,285	112505,200	1,174	123310,800	1,282
30	5	35	124524,400	1,298	113131,200	1,177	128584,400	1,333
30	5	45	124734,400	1,300	113757,600	1,185	123513,600	1,276
30	5	55	124944,400	1,302	114383,600	1,191	133146,800	1,383
30	5	65	125154,400	1,304	115010,000	1,197	126767,600	1,317
30	5	75	125364,400	1,306	115636,000	1,203	136217,200	1,419
30	5	85	124416,400	1,298	118106,000	1,227	139946,000	1,454
30	5	95	125506,000	1,308	118527,600	1,234	138044,000	1,433
30	15	5	123376,000	1,305	109470,000	1,153	125606,000	1,322
30	15	15	127744,800	1,330	110750,000	1,147	134345,600	1,393
30	15	25	130641,200	1,338	116311,200	1,185	139432,000	1,427
30	15	35	132466,000	1,341	113822,800	1,148	144918,800	1,467
30	15	45	134050,400	1,348	115635,600	1,157	154654,000	1,534
30	15	55	136950,400	1,374	117630,000	1,171	160894,000	1,608
30	15	65	139054,800	1,387	115426,400	1,148	172148,400	1,720
30	15	75	141470,000	1,406	114506,800	1,137	167608,400	1,670
30	15	85	142700,800	1,414	114716,400	1,135	178511,200	1,778
30	15	95	146558,400	1,444	114926,400	1,135	184225,600	1,830
30	25	5	123852,800	1,301	113353,600	1,187	124932,800	1,292

Table Y.1 continued from previous page

n	f	w	CI O.	CI G.	NN O.	NN G.	App. Obj.	App. G.
30	25	15	128802,800	1,315	110626,800	1,126	127910,400	1,297
30	25	25	133211,200	1,323	121271,200	1,202	142609,600	1,415
30	25	35	136374,400	1,327	122640,000	1,195	157098,400	1,523
30	25	45	143313,200	1,373	125488,400	1,204	171824,000	1,636
30	25	55	147549,200	1,402	127123,600	1,210	173794,800	1,654
30	25	65	149065,200	1,412	124212,000	1,179	194299,200	1,840
30	25	75	148695,600	1,407	124657,600	1,181	208922,400	1,959
30	25	85	151259,200	1,430	125076,800	1,185	243542,800	2,296
30	25	95	152838,400	1,444	125496,400	1,189	229192,400	2,159
30	35	5	127692,000	1,322	114872,000	1,186	124816,800	1,287
30	35	15	127387,600	1,244	120826,400	1,183	141042,000	1,374
30	35	25	136260,000	1,275	125146,400	1,173	153600,000	1,432
30	35	35	147709,200	1,339	134209,600	1,221	162344,400	1,474
30	35	45	153412,000	1,363	133432,800	1,187	176745,200	1,570
30	35	55	156144,000	1,371	141954,400	1,245	196764,800	1,720
30	35	65	159130,800	1,381	145202,400	1,259	196895,600	1,712
30	35	75	170402,800	1,471	149206,400	1,290	206666,400	1,779
30	35	85	175770,800	1,517	151825,200	1,304	236886,400	2,028
30	35	95	178794,000	1,537	153053,600	1,312	240878,000	2,057
30	45	5	127134,800	1,319	115392,800	1,192	137600,400	1,415
30	45	15	134998,800	1,334	125561,200	1,239	137030,800	1,355
30	45	25	139523,200	1,335	135461,600	1,295	151734,400	1,453
30	45	35	148161,600	1,384	140024,000	1,302	163256,400	1,523
30	45	45	154373,200	1,413	142809,600	1,307	193660,400	1,765
30	45	55	162768,000	1,472	145084,800	1,309	187704,000	1,691
30	45	65	169920,000	1,520	151394,000	1,355	217820,000	1,953
30	45	75	172818,800	1,535	156438,400	1,388	222442,800	1,974
30	45	85	177812,000	1,575	162889,600	1,438	240866,000	2,121
30	45	95	184554,400	1,624	169427,200	1,481	256794,800	2,253
30	55	5	127667,200	1,325	114403,600	1,182	133217,200	1,375
30	55	15	133869,600	1,308	122456,000	1,193	139491,200	1,360
30	55	25	140438,000	1,315	128935,600	1,201	147704,400	1,374
30	55	35	146949,200	1,339	137759,200	1,252	170318,400	1,545
30	55	45	151150,400	1,349	142971,200	1,271	186915,600	1,656
30	55	55	155579,200	1,363	156972,800	1,370	202656,000	1,772
30	55	65	166270,400	1,437	157946,000	1,358	208776,800	1,802
30	55	75	174212,400	1,490	155510,000	1,325	230795,200	1,968
30	55	85	179332,400	1,517	157519,200	1,329	246079,200	2,071
30	55	95	184162,400	1,543	158537,600	1,324	273796,000	2,297
30	65	5	124903,600	1,304	116687,600	1,215	130357,200	1,363
30	65	15	132869,600	1,333	121816,000	1,215	134087,600	1,342
30	65	25	139538,800	1,368	127058,400	1,239	145408,800	1,423

Table Y.1 continued from previous page

n	f	w	CI O.	CI G.	NN O.	NN G.	App. Obj.	App. G.
30	65	35	146988,000	1,405	134621,200	1,288	168956,800	1,613
30	65	45	153404,400	1,436	138579,200	1,304	175169,200	1,653
30	65	55	158537,200	1,459	144725,200	1,341	177742,000	1,636
30	65	65	161058,800	1,465	140687,200	1,284	202787,200	1,856
30	65	75	169027,200	1,525	141506,400	1,279	210973,600	1,912
30	65	85	171557,200	1,536	142325,200	1,277	240171,600	2,157
30	65	95	174339,200	1,552	144348,800	1,283	233770,000	2,092
30	75	5	125227,200	1,317	115336,400	1,209	131219,600	1,380
30	75	15	130864,400	1,328	121328,400	1,227	148366,000	1,497
30	75	25	136510,800	1,349	127366,400	1,260	149424,000	1,479
30	75	35	140827,600	1,371	127338,800	1,242	155782,000	1,515
30	75	45	140134,000	1,341	130014,000	1,249	166421,600	1,596
30	75	55	147180,400	1,394	132939,600	1,261	194956,800	1,845
30	75	65	148803,200	1,404	133748,400	1,263	206106,000	1,943
30	75	75	147657,600	1,389	129112,000	1,216	194172,800	1,820
30	75	85	147710,400	1,391	129506,800	1,220	215823,200	2,030
30	75	95	148664,800	1,400	129901,200	1,224	232726,400	2,184
30	85	5	123838,400	1,310	113484,800	1,198	127683,200	1,345
30	85	15	126491,200	1,304	113914,000	1,171	135126,400	1,390
30	85	25	125600,800	1,270	115968,000	1,169	136254,000	1,379
30	85	35	126328,800	1,260	118588,000	1,177	133871,200	1,337
30	85	45	126252,400	1,258	122639,200	1,207	144910,400	1,444
30	85	55	130771,600	1,299	121810,000	1,195	142782,400	1,423
30	85	65	132371,200	1,316	125309,600	1,230	155027,600	1,526
30	85	75	130557,600	1,301	125709,200	1,233	165939,200	1,638
30	85	85	130992,400	1,307	128866,400	1,265	176666,000	1,749
30	85	95	129861,600	1,295	126316,400	1,239	163607,600	1,611
30	95	5	122364,800	1,310	111555,200	1,194	122526,400	1,310
30	95	15	126014,400	1,342	112283,200	1,191	127617,600	1,353
30	95	25	125486,400	1,332	110928,800	1,178	131044,000	1,381
30	95	35	126010,400	1,337	111518,400	1,186	137605,600	1,457
30	95	45	126410,000	1,341	110018,000	1,169	140563,600	1,491
30	95	55	128830,400	1,367	110227,600	1,171	140457,200	1,489
30	95	65	128843,600	1,367	110437,200	1,173	136138,000	1,441
30	95	75	127751,600	1,354	110646,800	1,175	145970,400	1,539
30	95	85	127751,600	1,354	109048,000	1,158	137193,600	1,455
30	95	95	127751,600	1,354	109048,000	1,158	144794,400	1,534
35	5	5	129237,200	1,307	118857,200	1,199	131691,600	1,328
35	5	15	135532,800	1,360	118979,600	1,187	146178,800	1,448
35	5	25	133706,000	1,333	118073,600	1,174	151252,000	1,501
35	5	35	135105,600	1,344	117826,800	1,170	137058,800	1,353
35	5	45	134188,000	1,331	118479,200	1,172	141764,800	1,408

Table Y.1 continued from previous page

n	f	w	CI O.	CI G.	NN O.	NN G.	App. Obj.	App. G.
35	5	55	134326,800	1,331	123630,400	1,222	138575,200	1,379
35	5	65	135400,000	1,342	123860,400	1,224	137506,400	1,363
35	5	75	135626,400	1,344	124090,000	1,225	135554,000	1,339
35	5	85	135852,400	1,346	124320,000	1,227	134746,400	1,329
35	5	95	136078,400	1,348	124549,600	1,229	141228,400	1,399
35	15	5	129689,200	1,298	122692,400	1,222	137100,400	1,364
35	15	15	131256,400	1,285	121586,400	1,187	139507,600	1,356
35	15	25	132214,400	1,275	122658,400	1,180	157684,000	1,509
35	15	35	133284,400	1,277	124148,800	1,187	159661,600	1,514
35	15	45	134570,000	1,282	124779,200	1,187	161068,800	1,522
35	15	55	136727,200	1,298	125425,200	1,193	187950,800	1,757
35	15	65	138448,400	1,314	126055,600	1,197	171060,400	1,604
35	15	75	139350,800	1,322	126686,400	1,205	195742,800	1,819
35	15	85	138226,400	1,312	126692,400	1,205	219508,800	2,041
35	15	95	138898,400	1,318	127120,400	1,209	219614,400	2,032
35	25	5	130440,800	1,297	121542,800	1,207	149461,600	1,481
35	25	15	136743,200	1,301	130583,200	1,238	145438,400	1,383
35	25	25	142091,600	1,320	132722,000	1,226	158972,800	1,460
35	25	35	143466,400	1,310	134075,200	1,224	162678,000	1,472
35	25	45	147455,600	1,329	135529,600	1,219	179174,000	1,603
35	25	55	149596,400	1,342	136771,200	1,225	197895,200	1,761
35	25	65	152820,000	1,370	138726,800	1,243	209590,000	1,868
35	25	75	156042,800	1,397	140860,800	1,261	235197,600	2,081
35	25	85	159055,600	1,425	141508,400	1,265	229888,800	2,049
35	25	95	162277,200	1,455	144473,600	1,290	243423,600	2,154
35	35	5	133331,600	1,312	118688,000	1,164	142548,800	1,396
35	35	15	140003,200	1,321	126302,000	1,190	153325,600	1,445
35	35	25	147850,400	1,354	135361,200	1,239	174420,400	1,590
35	35	35	155579,200	1,384	143757,200	1,279	174449,200	1,552
35	35	45	159441,200	1,402	153359,600	1,344	207474,400	1,819
35	35	55	164790,800	1,413	158348,400	1,358	225421,200	1,905
35	35	65	170442,800	1,442	160848,800	1,363	250901,200	2,118
35	35	75	180681,200	1,515	162155,600	1,359	294267,600	2,458
35	35	85	180960,000	1,503	163461,600	1,360	290839,600	2,420
35	35	95	186020,000	1,533	164767,600	1,358	313084,800	2,575
35	45	5	131037,200	1,281	119282,000	1,164	141712,800	1,381
35	45	15	142588,800	1,297	137323,600	1,247	155373,200	1,413
35	45	25	154424,400	1,336	145802,800	1,264	180036,400	1,543
35	45	35	168310,000	1,405	154178,400	1,289	189189,600	1,572
35	45	45	177300,800	1,446	156524,800	1,276	210885,200	1,720
35	45	55	185703,200	1,487	155589,600	1,250	226195,200	1,807
35	45	65	193476,400	1,525	159258,800	1,258	253215,200	2,004

Table Y.1 continued from previous page

n	f	w	CI O.	CI G.	NN O.	NN G.	App. Obj.	App. G.
35	45	75	201302,400	1,570	166621,600	1,300	272972,800	2,127
35	45	85	210008,400	1,624	170307,200	1,316	299371,600	2,317
35	45	95	218876,400	1,678	173924,800	1,332	296974,400	2,265
35	55	5	130354,000	1,276	126082,400	1,228	139433,600	1,359
35	55	15	141783,600	1,305	135525,600	1,249	157482,000	1,449
35	55	25	150340,400	1,334	146351,200	1,292	175447,600	1,546
35	55	35	156035,600	1,346	154798,800	1,337	186803,600	1,605
35	55	45	166222,000	1,402	159170,000	1,346	212576,000	1,795
35	55	55	175084,800	1,451	161985,600	1,341	220587,600	1,828
35	55	65	180400,800	1,479	163692,400	1,339	251354,000	2,041
35	55	75	189595,200	1,535	169353,200	1,369	253892,400	2,037
35	55	85	197628,800	1,586	170455,600	1,368	292612,000	2,338
35	55	95	199805,200	1,593	170173,600	1,356	302347,600	2,397
35	65	5	134584,800	1,323	122848,800	1,203	147364,400	1,447
35	65	15	139541,200	1,295	130150,800	1,205	156042,800	1,435
35	65	25	144311,600	1,289	136604,000	1,220	164889,200	1,466
35	65	35	150632,400	1,304	149769,200	1,294	188601,200	1,630
35	65	45	158416,800	1,345	157482,400	1,325	219388,400	1,846
35	65	55	166732,400	1,397	158793,200	1,321	235897,600	1,973
35	65	65	172237,200	1,431	160103,600	1,323	246715,600	2,047
35	65	75	180368,800	1,488	161918,000	1,327	265282,800	2,189
35	65	85	185130,400	1,521	162998,000	1,330	306444,400	2,518
35	65	95	193047,200	1,575	164078,000	1,332	305554,800	2,497
35	75	5	130622,400	1,285	121382,000	1,194	139486,000	1,374
35	75	15	142545,200	1,341	130203,600	1,218	146738,000	1,374
35	75	25	145958,000	1,335	135580,000	1,240	161779,200	1,474
35	75	35	147872,400	1,331	135822,800	1,225	170882,800	1,541
35	75	45	151851,200	1,349	137540,400	1,225	181358,800	1,606
35	75	55	155285,600	1,365	138174,400	1,219	189997,200	1,671
35	75	65	158613,200	1,382	136851,600	1,198	228366,400	1,977
35	75	75	164058,400	1,430	137283,600	1,200	233465,200	2,038
35	75	85	167180,000	1,455	136901,200	1,195	254622,400	2,204
35	75	95	169826,800	1,479	137333,200	1,199	255444,400	2,219
35	85	5	131357,200	1,319	122462,000	1,227	138134,400	1,381
35	85	15	137585,200	1,353	120104,400	1,182	140000,000	1,374
35	85	25	141165,600	1,374	125589,200	1,221	143296,000	1,390
35	85	35	143620,000	1,390	125057,200	1,210	159599,600	1,549
35	85	45	141447,200	1,365	126465,600	1,216	156182,800	1,514
35	85	55	141899,600	1,366	127371,200	1,222	169555,200	1,629
35	85	65	143944,400	1,382	124906,000	1,199	189969,600	1,814
35	85	75	142242,400	1,366	125582,000	1,203	190761,600	1,829
35	85	85	143130,800	1,374	125250,800	1,203	214039,600	2,018

Table Y.1 continued from previous page

n	f	w	CI O.	CI G.	NN O.	NN G.	App. Obj.	App. G.
35	85	95	144018,400	1,382	125696,800	1,207	221665,200	2,123
35	95	5	129273,600	1,312	119435,600	1,207	142100,000	1,435
35	95	15	128568,000	1,293	118816,400	1,192	136261,600	1,366
35	95	25	129500,000	1,299	120700,800	1,208	139546,800	1,394
35	95	35	131019,600	1,315	120768,400	1,208	149721,600	1,487
35	95	45	131019,600	1,313	120517,200	1,203	143675,200	1,436
35	95	55	131019,600	1,313	120743,200	1,205	147795,600	1,482
35	95	65	131019,600	1,313	121046,800	1,207	148948,400	1,486
35	95	75	131019,600	1,313	121158,400	1,207	155562,400	1,549
35	95	85	131019,600	1,313	121990,400	1,215	165697,600	1,653
35	95	95	131019,600	1,313	121990,400	1,215	160454,400	1,603
40	5	5	138794,000	1,366	126398,800	1,241	155164,000	1,529
40	5	15	138788,800	1,352	124738,800	1,212	153234,400	1,495
40	5	25	137426,800	1,335	128904,000	1,246	153891,600	1,494
40	5	35	136052,800	1,321	123978,800	1,200	159521,600	1,549
40	5	45	136164,000	1,323	124167,200	1,202	165916,400	1,607
40	5	55	136738,400	1,327	124355,200	1,204	170606,400	1,650
40	5	65	136926,800	1,329	124543,600	1,207	179406,400	1,728
40	5	75	137281,600	1,333	124732,000	1,209	183439,200	1,782
40	5	85	137469,600	1,335	122821,200	1,188	191570,800	1,837
40	5	95	137658,000	1,337	122821,200	1,188	183440,400	1,777
40	15	5	139779,600	1,359	122130,800	1,188	173722,800	1,668
40	15	15	143768,000	1,356	129513,200	1,223	156969,600	1,481
40	15	25	144675,200	1,351	137794,800	1,290	156006,000	1,459
40	15	35	146358,400	1,355	139639,600	1,296	179079,200	1,654
40	15	45	148387,200	1,370	138346,400	1,277	176666,000	1,627
40	15	55	148671,200	1,373	139426,000	1,285	178094,800	1,639
40	15	65	149626,000	1,377	140248,000	1,295	214459,600	1,966
40	15	75	150649,200	1,387	140455,200	1,295	206767,200	1,875
40	15	85	151371,600	1,395	140662,400	1,297	208408,800	1,909
40	15	95	153714,800	1,417	140869,600	1,299	235295,200	2,162
40	25	5	139109,200	1,332	128262,000	1,231	158493,200	1,523
40	25	15	145582,400	1,328	136286,000	1,238	166538,000	1,518
40	25	25	154473,200	1,366	137864,800	1,214	184202,400	1,631
40	25	35	158484,000	1,370	140985,200	1,220	196251,200	1,698
40	25	45	158856,800	1,357	143463,600	1,229	202242,800	1,725
40	25	55	164345,600	1,396	144184,800	1,224	229176,000	1,952
40	25	65	168370,800	1,426	145184,800	1,230	257976,000	2,184
40	25	75	172245,600	1,450	148700,000	1,254	280795,200	2,368
40	25	85	179188,800	1,505	149328,800	1,260	290945,200	2,450
40	25	95	183061,600	1,536	150688,400	1,273	291206,400	2,443
40	35	5	140981,200	1,341	127766,400	1,219	159440,000	1,519

Table Y.1 continued from previous page

n	f	w	CI O.	CI G.	NN O.	NN G.	App. Obj.	App. G.
40	35	15	149565,600	1,336	136393,200	1,217	171850,400	1,541
40	35	25	155488,800	1,331	155357,200	1,326	184172,400	1,572
40	35	35	166677,200	1,387	159940,400	1,332	207493,600	1,718
40	35	45	177127,200	1,451	158366,400	1,290	230764,400	1,873
40	35	55	182486,800	1,474	162076,000	1,305	243002,800	1,963
40	35	65	188369,200	1,504	167168,400	1,329	277912,000	2,212
40	35	75	194434,800	1,544	168320,400	1,334	280776,800	2,228
40	35	85	199449,200	1,577	169421,600	1,336	289568,400	2,276
40	35	95	205954,800	1,624	171428,400	1,348	325714,800	2,571
40	45	5	144300,000	1,370	126432,000	1,199	154420,400	1,461
40	45	15	154977,600	1,374	136447,200	1,215	176100,800	1,564
40	45	25	162227,600	1,381	150464,400	1,276	198301,200	1,685
40	45	35	169132,000	1,395	152891,600	1,266	225851,200	1,850
40	45	45	177459,200	1,438	166033,600	1,344	222209,200	1,797
40	45	55	191257,200	1,528	165949,600	1,327	244618,800	1,940
40	45	65	195923,200	1,549	170886,800	1,345	271312,800	2,132
40	45	75	203979,600	1,599	172537,600	1,347	282343,200	2,203
40	45	85	210405,200	1,634	176414,800	1,367	308632,000	2,385
40	45	95	216263,200	1,671	177860,000	1,371	308470,800	2,369
40	55	5	143542,000	1,358	128470,800	1,220	167709,200	1,594
40	55	15	155794,000	1,389	142488,400	1,270	176206,800	1,573
40	55	25	165066,400	1,409	147811,200	1,271	185509,600	1,588
40	55	35	171794,800	1,426	150015,600	1,253	210241,600	1,749
40	55	45	178140,400	1,451	157720,000	1,288	226887,600	1,848
40	55	55	186294,800	1,495	163473,200	1,309	260481,200	2,095
40	55	65	194087,600	1,545	164486,400	1,302	264121,200	2,096
40	55	75	201346,400	1,589	166670,800	1,307	294941,200	2,321
40	55	85	207138,800	1,623	167394,400	1,307	325937,600	2,564
40	55	95	218472,400	1,702	167994,800	1,304	329050,800	2,568
40	65	5	140667,200	1,342	121755,600	1,160	166321,200	1,586
40	65	15	146912,800	1,321	135723,600	1,224	173282,400	1,559
40	65	25	154841,200	1,348	144075,200	1,259	183220,000	1,596
40	65	35	160962,400	1,370	146791,200	1,250	193346,400	1,646
40	65	45	170963,200	1,443	141894,800	1,193	212262,800	1,784
40	65	55	178376,000	1,497	142921,200	1,196	213139,600	1,780
40	65	65	184776,000	1,538	148155,200	1,236	254106,800	2,108
40	65	75	189971,600	1,573	149726,400	1,243	266206,400	2,186
40	65	85	196653,600	1,621	154465,200	1,270	289156,400	2,367
40	65	95	200686,800	1,647	155636,800	1,274	311894,000	2,556
40	75	5	141317,600	1,344	131742,000	1,253	165665,200	1,580
40	75	15	148417,200	1,339	133808,000	1,207	159234,800	1,436
40	75	25	157546,800	1,379	138074,400	1,208	184714,000	1,610

Table Y.1 continued from previous page

n	f	w	CI O.	CI G.	NN O.	NN G.	App. Obj.	App. G.
40	75	35	163144,000	1,403	140483,600	1,209	189836,000	1,624
40	75	45	164987,200	1,407	141978,800	1,210	206218,400	1,759
40	75	55	170637,200	1,442	143219,600	1,212	213810,400	1,807
40	75	65	173849,600	1,457	141758,000	1,190	244722,800	2,020
40	75	75	181049,200	1,501	147455,200	1,224	257980,400	2,126
40	75	85	182736,800	1,508	150631,600	1,240	272113,600	2,234
40	75	95	185662,800	1,527	149671,600	1,226	283225,200	2,307
40	85	5	139004,000	1,345	124892,800	1,209	154582,400	1,499
40	85	15	141922,000	1,330	132611,600	1,243	169862,800	1,587
40	85	25	146116,800	1,344	127790,800	1,181	176980,000	1,628
40	85	35	148099,200	1,353	133968,800	1,221	173739,600	1,586
40	85	45	149450,000	1,355	135835,200	1,231	182154,400	1,649
40	85	55	151764,000	1,371	134522,800	1,214	197416,800	1,774
40	85	65	152389,200	1,375	132836,000	1,198	206160,400	1,863
40	85	75	153808,000	1,387	132836,000	1,196	223378,400	2,003
40	85	85	155692,800	1,403	132836,000	1,196	236718,400	2,130
40	85	95	158258,800	1,426	132836,000	1,196	248819,600	2,205
40	95	5	139863,200	1,374	126100,800	1,243	159004,800	1,565
40	95	15	139817,200	1,361	126928,400	1,231	164986,400	1,598
40	95	25	139204,000	1,351	127652,000	1,234	165692,800	1,597
40	95	35	141173,200	1,366	128280,800	1,238	163844,800	1,586
40	95	45	141361,600	1,364	128469,200	1,238	170618,400	1,643
40	95	55	141549,600	1,366	131517,600	1,268	182002,400	1,730
40	95	65	142242,400	1,373	131517,600	1,268	172208,400	1,662
40	95	75	142242,400	1,373	131517,600	1,268	173312,400	1,661
40	95	85	142242,400	1,373	128402,400	1,236	180382,400	1,740
40	95	95	143993,200	1,389	128422,400	1,238	181010,400	1,750

Table Y.1: Results for Heuristics

Appendix Z

Results for Existing Reload Instances

NOTE:

p - Fixed probability, if edge is included in the graph

d - Number of different edge types in a graph

n - Number of nodes in the graph

RI₁ - Edge transition cost of 1

RI₂ - Edge transition cost of 1-10

o - Average optimum of instances

t - Average solving time in seconds

s - Average number of SECs used to solve instances

r - Average number of solver runs to solve instances

p	d	n	RI_1				RI_2			
			(2.3)o	(2.3)t	(2.3)s	(2.3)r	(2.3)o	(2.3)t	(2.3)s	(2.3)r
0,5	5	10	6,000	0,07	0,88	1,38	26,300	0,08	1,10	1,50
		15	4,400	0,39	1,30	1,60	16,200	0,57	4,20	2,80
		20	4,100	6,30	10,80	4,90	11,400	18,44	28,90	12,80
	10	10	6,000	0,09	1,00	1,50	25,889	0,09	0,89	1,44
		15	7,500	0,46	2,90	2,20	24,200	0,29	1,10	1,50
		20	6,900	2,72	3,80	2,50	22,900	2,40	3,80	2,60
	20	10	8,000	0,10	1,33	1,67	34,000	0,09	0,80	1,40
		15	8,900	0,26	1,30	1,50	30,200	0,62	2,80	2,30
		20	9,700	1,74	2,70	2,20	28,700	2,97	3,70	2,50
1	5	10	2,000	0,33	3,20	2,40	5,800	0,78	6,40	4,00
		15	1,800	35,82	50,20	20,00	2,400	53,67	73,50	31,10
		20	-	-	-	-	-	-	-	-
	10	10	3,400	0,17	1,80	1,90	10,900	0,37	3,30	2,60
		15	3,100	3,19	8,40	4,20	6,100	5,33	16,00	7,10
		20	-	-	-	-	-	-	-	-
	20	10	5,000	0,10	0,60	1,30	12,900	0,24	2,30	2,00
		15	5,900	2,00	4,30	2,80	12,300	4,05	10,00	4,70
		20	-	-	-	-	-	-	-	-

Table Z.1: Result for Constraint (2.3) for Existing Instances

p	d	n	RI_1				RI_2			
			(2.9)o	(2.9)t	(2.9)s	(2.9)r	(2.9)o	(2.9)t	(2.9)s	(2.9)r
0,5	5	10	6,000	0,07	0,88	1,38	26,300	0,10	1,50	1,70
		15	4,400	0,51	1,90	1,90	16,200	0,53	3,30	2,40
		20	4,100	4,56	8,00	3,70	11,400	13,64	22,40	9,80
	10	10	6,000	0,09	1,00	1,50	25,899	0,09	0,89	1,44
		15	7,500	0,53	3,50	2,40	24,200	0,30	1,10	1,50
		20	6,900	2,71	3,20	2,40	22,900	2,35	3,70	2,50
	20	10	8,000	0,11	1,78	1,89	34,000	0,08	0,80	1,40
		15	8,900	0,33	1,90	1,80	30,200	0,62	2,70	2,20
		20	9,700	1,26	2,20	2,00	28,700	3,07	4,20	2,70
1	5	10	2,000	0,38	3,40	2,50	5,800	0,69	5,90	3,80
		15	1,800	29,68	46,60	18,50	2,400	45,96	64,50	27,70
		20	-	-	-	-	-	-	-	-
	10	10	3,400	0,17	1,80	1,90	10,900	0,33	3,00	2,50
		15	3,100	3,67	9,40	4,60	6,100	7,52	19,60	8,50
		20	-	-	-	-	-	-	-	-
	20	10	5,000	0,11	0,80	1,40	12,900	0,20	2,10	1,90
		15	5,900	1,67	3,60	2,40	12,300	4,08	9,60	4,60
		20	-	-	-	-	-	-	-	-

Table Z.2: Result for Constraint (2.9) for Existing Instances

p	d	n	RI_1				RI_2			
			(2.10)o	(2.10)t	(2.10)s	(2.10)r	(2.10)o	(2.10)t	(2.10)s	(2.10)r
0,5	5	10	6,000	0,07	0,88	1,38	26,300	0,08	1,10	1,50
		15	4,400	0,45	1,70	1,80	16,200	0,60	4,30	2,80
		20	4,100	6,69	10,90	5,10	11,400	19,12	28,80	12,50
	10	10	6,000	0,09	1,00	1,50	25,899	0,09	0,89	1,44
		15	7,500	0,51	3,30	2,40	24,200	0,29	1,10	1,50
		20	6,900	2,80	4,00	2,60	22,900	2,34	3,80	2,60
	20	10	8,000	0,10	1,33	1,67	34,000	0,07	0,80	1,40
		15	8,900	0,26	1,30	1,50	30,200	0,74	3,30	2,50
		20	9,700	2,09	3,50	2,60	28,700	3,07	3,70	2,50
1	5	10	2,000	0,32	3,20	2,40	5,800	0,77	6,40	4,00
		15	1,800	31,86	48,80	19,20	2,400	67,07	85,90	36,70
		20	-	-	-	-	-	-	-	-
	10	10	3,400	0,16	1,80	1,90	10,900	0,36	3,30	2,60
		15	3,100	2,82	7,50	3,80	6,100	4,41	13,10	6,00
		20	-	-	-	-	-	-	-	-
	20	10	5,000	0,10	0,60	1,30	12,900	0,24	2,30	2,00
		15	5,900	1,74	3,70	2,50	12,300	3,89	9,40	4,50
		20	-	-	-	-	-	-	-	-

Table Z.3: Result for Constraint (2.10) for Existing Instances

p	d	n	RI_1				RI_2			
			(2.11)o	(2.11)t	(2.11)s	(2.11)r	(2.11)o	(2.11)t	(2.11)s	(2.11)r
0,5	5	10	6,000	0,07	0,88	1,38	26,300	0,09	1,30	1,60
		15	4,400	0,45	1,70	1,80	16,200	0,43	2,50	2,00
		20	4,100	4,69	7,30	3,70	11,400	11,64	15,30	7,20
	10	10	6,000	0,10	1,25	1,63	25,889	0,09	0,89	1,44
		15	7,500	0,51	2,90	2,20	24,200	0,33	1,10	1,50
		20	6,900	2,70	3,20	2,30	22,900	1,99	3,00	2,20
	20	10	8,000	0,08	0,89	1,44	34,000	0,07	0,80	1,40
		15	8,900	0,29	1,50	1,60	30,200	0,59	2,60	2,20
		20	9,700	2,13	3,30	2,50	28,700	3,00	3,70	2,50
1	5	10	2,000	0,25	2,30	1,90	5,800	0,41	3,20	2,50
		15	1,800	28,67	35,20	14,30	2,400	23,87	37,50	15,80
		20	-	-	-	-	-	-	-	-
	10	10	3,400	0,14	1,40	1,70	10,900	0,32	2,60	2,30
		15	3,100	2,63	6,70	3,40	6,100	5,83	14,70	6,50
		20	-	-	-	-	-	-	-	-
	20	10	5,000	0,09	0,40	1,20	12,900	0,20	2,00	1,90
		15	5,900	1,87	3,90	2,60	12,300	3,54	8,10	4,00
		20	-	-	-	-	-	-	-	-

Table Z.4: Result for Constraint (2.11) for Existing Instances

p	d	n	RI_1				RI_2			
			(2.12)o	(2.12)t	(2.12)s	(2.12)r	(2.12)o	(2.12)t	(2.12)s	(2.12)r
0,5	5	10	6,000	0,08	0,88	1,38	26,300	0,09	1,10	1,50
		15	4,400	0,48	1,70	1,80	16,200	0,51	3,10	2,30
		20	4,100	4,58	7,80	3,60	11,400	12,14	15,90	7,20
	10	10	6,000	0,09	1,00	1,50	25,899	0,09	0,89	1,44
		15	7,500	0,58	3,50	2,50	24,200	0,30	1,10	1,50
		20	6,900	3,18	4,20	2,90	22,900	2,19	3,60	2,40
	20	10	8,000	0,08	0,89	1,44	34,000	0,08	0,80	1,40
		15	8,900	0,28	1,50	1,60	30,200	0,61	2,40	2,10
		20	9,700	1,57	2,70	2,20	28,700	3,44	4,50	2,80
1	5	10	2,000	0,35	3,50	2,50	5,800	0,49	3,90	2,90
		15	1,800	28,09	33,40	13,80	2,400	20,83	33,80	14,60
		20	-	-	-	-	-	-	-	-
	10	10	3,400	0,19	2,00	2,00	10,900	0,29	2,20	2,10
		15	3,100	3,59	8,40	4,20	6,100	5,48	13,50	6,10
		20	-	-	-	-	-	-	-	-
	20	10	5,000	0,09	0,40	1,20	12,900	0,20	2,10	1,90
		15	5,900	1,95	3,80	2,60	12,300	3,43	7,70	3,90
		20	-	-	-	-	-	-	-	-

Table Z.5: Result for Constraint (2.12) for Existing Instances

p	d	n	RI_1				RI_2			
			(2.14)o	(2.14)t	(2.14)s	(2.14)r	(2.14)o	(2.14)t	(2.14)s	(2.14)r
0,5	5	10	6,000	0,08	0,88	1,38	26,300	0,09	1,30	1,60
		15	4,400	0,50	1,70	1,80	16,200	0,51	3,50	2,40
		20	4,100	4,41	7,20	3,50	11,400	11,13	17,60	7,80
	10	10	6,000	0,10	1,25	1,63	25,899	0,09	0,89	1,44
		15	7,500	0,57	3,20	2,30	24,200	0,30	1,10	1,50
		20	6,900	2,82	4,00	2,80	22,900	2,05	3,20	2,30
	20	10	8,000	0,08	0,89	1,44	34,000	0,07	0,80	1,40
		15	8,900	0,29	1,60	1,60	30,200	0,59	2,40	2,10
		20	9,700	1,72	3,10	2,30	28,700	3,34	4,50	2,80
1	5	10	2,000	0,31	2,60	2,10	5,800	0,64	4,60	3,20
		15	1,800	31,89	41,80	17,00	2,400	16,57	38,80	16,40
		20	-	-	-	-	-	-	-	-
	10	10	3,400	0,15	1,60	1,80	10,900	0,34	2,40	2,20
		15	3,100	3,63	8,60	4,30	6,100	4,47	12,60	5,80
		20	-	-	-	-	-	-	-	-
	20	10	5,000	0,10	0,60	1,30	12,900	0,28	2,80	2,30
		15	5,900	1,51	3,00	2,20	12,300	3,84	8,30	4,20
		20	-	-	-	-	-	-	-	-

Table Z.6: Result for Constraint (2.14) for Existing Instances

p	d	n	RI_1				RI_2			
			(2.15)o	(2.15)t	(2.15)s	(2.15)r	(2.15)o	(2.15)t	(2.15)s	(2.15)r
0,5	5	10	6,000	0,08	1,13	1,50	26,300	0,10	1,30	1,60
		15	4,400	0,43	1,30	1,60	16,200	0,55	3,30	2,40
		20	4,100	4,29	6,50	3,30	11,400	12,25	16,30	7,50
	10	10	6,000	0,10	1,25	1,63	25,899	0,09	0,89	1,44
		15	7,500	0,44	2,50	2,00	24,200	0,30	1,10	1,50
		20	6,900	2,47	3,20	2,30	22,900	2,11	3,40	2,40
	20	10	8,000	0,09	1,11	1,56	34,000	0,07	0,80	1,40
		15	8,900	0,49	2,70	2,20	30,200	0,56	2,20	2,00
		20	9,700	1,84	3,60	2,60	28,700	2,79	3,50	2,40
1	5	10	2,000	0,32	2,80	2,20	5,800	0,61	4,70	3,20
		15	1,800	22,82	30,80	12,50	2,400	26,30	37,60	16,10
		20	-	-	-	-	-	-	-	-
	10	10	3,400	0,17	1,80	1,90	10,900	0,35	2,80	2,40
		15	3,100	2,89	7,20	3,60	6,100	4,88	12,90	5,90
		20	-	-	-	-	-	-	-	-
	20	10	5,000	0,10	0,60	1,30	12,900	0,20	1,80	1,80
		15	5,900	1,98	4,20	2,70	12,300	3,92	8,50	4,20
		20	-	-	-	-	-	-	-	-

Table Z.7: Result for Constraint (2.15) for Existing Instances

p	d	n	RI_1				RI_2			
			(2.16)o	(2.16)t	(2.16)s	(2.16)r	(2.16)o	(2.16)t	(2.16)s	(2.16)r
0,5	5	10	6,000	0,08	1,13	1,50	26,300	0,09	1,30	1,60
		15	4,400	0,39	1,10	1,50	16,200	0,43	2,70	2,10
		20	4,100	4,44	7,40	3,50	11,400	9,49	15,60	6,90
	10	10	6,000	0,09	1,00	1,50	25,899	0,09	0,89	1,44
		15	7,500	0,44	2,60	2,00	24,200	0,29	1,10	1,50
		20	6,900	2,47	3,20	2,30	22,900	2,04	3,40	2,40
	20	10	8,000	0,09	1,33	1,67	34,000	0,07	0,80	1,40
		15	8,900	0,26	1,30	1,50	30,200	0,60	2,40	2,10
		20	9,700	1,97	3,20	2,50	28,700	3,00	3,70	2,50
1	5	10	2,000	0,27	2,30	1,90	5,800	0,59	4,90	3,40
		15	1,800	21,60	34,20	13,90	2,400	25,02	37,40	16,20
		20	-	-	-	-	-	-	-	-
	10	10	3,400	0,17	1,80	1,90	10,900	0,30	2,40	2,20
		15	3,100	3,10	7,20	3,70	6,100	5,62	16,20	7,20
		20	-	-	-	-	-	-	-	-
	20	10	5,000	0,09	0,40	1,20	12,900	0,23	2,50	2,10
		15	5,900	1,78	3,80	2,50	12,300	4,48	10,20	4,80
		20	-	-	-	-	-	-	-	-

Table Z.8: Result for Constraint (2.16) for Existing Instances

p	d	n	RI_1				RI_2			
			(2.17)o	(2.17)t	(2.17)s	(2.17)r	(2.17)o	(2.17)t	(2.17)s	(2.17)r
0,5	5	10	6,000	0,07	0,88	1,38	26,300	0,10	1,50	1,70
		15	4,400	0,48	2,00	1,90	16,200	0,73	4,10	2,80
		20	4,100	5,25	9,00	4,10	11,400	13,15	18,30	8,30
	10	10	6,000	0,09	1,00	1,50	25,899	0,09	0,89	1,44
		15	7,500	0,54	3,50	2,40	24,200	0,30	1,10	1,50
		20	6,900	2,60	3,20	2,40	22,900	2,66	3,80	2,60
	20	10	8,000	0,08	0,89	1,44	34,000	0,07	0,80	1,40
		15	8,900	0,33	2,10	1,90	30,200	0,62	2,40	2,10
		20	9,700	1,29	2,30	2,00	28,700	3,10	4,10	2,70
1	5	10	2,000	0,36	3,10	2,30	5,800	0,59	5,00	3,30
		15	1,800	34,82	46,70	18,80	2,400	30,81	50,00	21,00
		20	-	-	-	-	-	-	-	-
	10	10	3,400	0,15	1,60	1,80	10,900	0,25	2,20	2,10
		15	3,100	3,10	7,30	3,90	6,100	6,42	17,60	7,90
		20	-	-	-	-	-	-	-	-
	20	10	5,000	0,09	0,40	1,20	12,900	0,21	2,00	1,90
		15	5,900	1,62	3,20	2,30	12,300	3,75	9,20	4,40
		20	-	-	-	-	-	-	-	-

Table Z.9: Result for Constraint (2.17) for Existing Instances

p	d	n	RI_1				RI_2			
			(2.18)o	(2.18)t	(2.18)s	(2.18)r	(2.18)o	(2.18)t	(2.18)s	(2.18)r
0,5	5	10	6,000	0,07	0,88	1,38	26,300	0,08	1,10	1,50
		15	4,400	0,55	2,10	2,00	16,200	0,53	3,60	2,50
		20	4,100	4,22	6,90	3,30	11,400	12,23	17,10	7,90
	10	10	6,000	0,09	1,00	1,50	25,899	0,09	0,89	1,44
		15	7,500	0,55	3,50	2,40	24,200	0,30	1,10	1,50
		20	6,900	2,23	2,90	2,20	22,900	1,96	3,20	2,30
	20	10	8,000	0,09	1,11	1,56	34,000	0,07	0,80	1,40
		15	8,900	0,26	1,30	1,50	30,200	0,64	2,40	2,10
		20	9,700	2,04	3,90	2,80	28,700	3,16	4,20	2,70
1	5	10	2,000	0,47	3,70	2,60	5,800	0,47	3,90	2,90
		15	1,800	31,72	38,00	15,70	2,400	23,07	38,60	16,50
		20	-	-	-	-	-	-	-	-
	10	10	3,400	0,17	1,80	1,90	10,900	0,33	2,60	2,30
		15	3,100	3,74	8,60	4,30	6,100	5,42	14,20	6,40
		20	-	-	-	-	-	-	-	-
	20	10	5,000	0,11	0,80	1,40	12,900	0,20	2,10	1,90
		15	5,900	1,98	3,90	2,60	12,300	3,67	8,30	4,20
		20	-	-	-	-	-	-	-	-

Table Z.10: Result for Constraint (2.18) for Existing Instances

p	d	n	RI_1				RI_2			
			(2.19)o	(2.19)t	(2.19)s	(2.19)r	(2.19)o	(2.19)t	(2.19)s	(2.19)r
0,5	5	10	6,000	0,08	1,13	1,50	26,300	0,09	1,30	1,60
		15	4,400	0,50	1,90	1,90	16,200	0,55	3,60	2,50
		20	4,100	5,55	9,10	4,20	11,400	18,58	26,50	11,30
	10	10	6,000	0,09	1,00	1,50	25,899	0,09	0,89	1,44
		15	7,500	0,56	3,80	2,50	24,200	0,30	1,10	1,50
		20	6,900	2,46	3,20	2,30	22,900	2,28	3,60	2,50
	20	10	8,000	0,09	1,11	1,56	34,000	0,07	0,80	1,40
		15	8,900	0,29	1,50	1,60	30,200	0,65	2,40	2,10
		20	9,700	1,48	2,50	2,10	28,700	2,95	3,50	2,40
1	5	10	2,000	0,26	2,70	2,10	5,800	0,86	7,00	4,30
		15	1,800	33,13	46,10	18,50	2,400	51,42	58,70	24,90
		20	-	-	-	-	-	-	-	-
	10	10	3,400	0,18	1,80	1,90	10,900	0,35	3,00	2,50
		15	3,100	3,59	9,00	4,60	6,100	5,24	15,30	6,60
		20	-	-	-	-	-	-	-	-
	20	10	5,000	0,09	0,40	1,20	12,900	0,23	2,50	2,10
		15	5,900	1,72	3,60	2,40	12,300	3,85	9,30	4,50
		20	-	-	-	-	-	-	-	-

Table Z.11: Result for Constraint (2.19) for Existing Instances

p	d	n	RI_1				RI_2			
			(2.20)o	(2.20)t	(2.20)s	(2.20)r	(2.20)o	(2.20)t	(2.20)s	(2.20)r
0,5	5	10	6,000	0,07	0,88	1,38	26,300	0,09	1,30	1,60
		15	4,400	0,44	1,50	1,70	16,200	0,55	3,60	2,50
		20	4,100	4,98	8,20	4,00	11,400	12,42	18,70	8,30
	10	10	6,000	0,09	1,00	1,50	25,899	0,09	0,89	1,44
		15	7,500	0,50	3,10	2,20	24,200	0,29	1,10	1,50
		20	6,900	2,39	2,90	2,20	22,900	2,41	4,00	2,60
	20	10	8,000	0,09	1,33	1,67	34,000	0,07	0,80	1,40
		15	8,900	0,29	1,60	1,60	30,200	0,60	2,40	2,10
		20	9,700	1,80	3,40	2,50	28,700	3,32	4,10	2,60
1	5	10	2,000	0,29	2,40	2,00	5,800	0,71	5,90	3,80
		15	1,800	25,44	38,50	15,60	2,400	26,50	42,40	18,00
		20	-	-	-	-	-	-	-	-
	10	10	3,400	0,18	2,00	2,00	10,900	0,33	2,60	2,30
		15	3,100	3,13	7,70	3,90	6,100	5,30	14,60	6,70
		20	-	-	-	-	-	-	-	-
	20	10	5,000	0,09	0,40	1,20	12,900	0,23	2,50	2,10
		15	5,900	1,70	3,60	2,40	12,300	4,08	9,10	4,40
		20	-	-	-	-	-	-	-	-

Table Z.12: Result for Constraint (2.20) for Existing Instances

p	d	n	RI_1				RI_2			
			(2.21)o	(2.21)t	(2.21)s	(2.21)r	(2.21)o	(2.21)t	(2.21)s	(2.21)r
0,5	5	10	6,000	0,08	1,13	1,50	26,300	0,10	1,50	1,70
		15	4,400	0,43	1,50	1,70	16,200	0,60	4,10	2,80
		20	4,100	5,75	9,40	4,30	11,400	15,58	22,20	10,00
	10	10	6,000	0,09	1,00	1,50	25,899	0,09	0,89	1,44
		15	7,500	0,58	4,00	2,60	24,200	0,30	1,10	1,50
		20	6,900	3,99	4,90	3,00	22,900	2,47	4,00	2,70
	20	10	8,000	0,09	1,11	1,56	34,000	0,07	0,80	1,40
		15	8,900	0,36	2,30	2,00	30,200	0,60	2,40	2,10
		20	9,700	1,90	3,20	2,50	28,700	3,44	4,70	2,90
1	5	10	2,000	0,32	2,80	2,20	5,800	0,64	5,30	3,50
		15	1,800	38,69	49,70	19,40	2,400	42,31	60,90	25,60
		20	-	-	-	-	-	-	-	-
	10	10	3,400	0,15	1,60	1,80	10,900	0,36	3,00	2,50
		15	3,100	3,25	8,40	4,30	6,100	6,62	18,20	7,80
		20	-	-	-	-	-	-	-	-
	20	10	5,000	0,09	0,40	1,20	12,900	0,22	2,20	2,00
		15	5,900	1,99	4,00	2,60	12,300	4,71	10,90	5,10
		20	-	-	-	-	-	-	-	-

Table Z.13: Result for Constraint (2.21) for Existing Instances

p	d	n	RI_1				RI_2			
			(2.22)o	(2.22)t	(2.22)s	(2.22)r	(2.22)o	(2.22)t	(2.22)s	(2.22)r
0,5	5	10	6,000	0,08	1,13	1,50	26,300	0,08	1,10	1,50
		15	4,400	0,51	1,90	1,90	16,200	0,50	3,20	2,30
		20	4,100	4,84	7,80	3,70	11,400	12,48	17,30	8,00
	10	10	6,000	0,09	1,00	1,50	25,899	0,09	0,89	1,44
		15	7,500	0,47	2,70	2,10	24,200	0,30	1,10	1,50
		20	6,900	2,70	3,00	2,30	22,900	2,12	3,40	2,40
	20	10	8,000	0,09	1,11	1,56	34,000	0,07	0,80	1,40
		15	8,900	0,33	1,70	1,70	30,200	0,63	2,60	2,20
		20	9,700	1,44	2,50	2,10	28,700	3,19	4,00	2,60
1	5	10	2,000	0,37	3,40	2,50	5,800	0,58	4,60	3,20
		15	1,800	31,31	38,10	15,30	2,400	29,28	41,00	17,70
		20	-	-	-	-	-	-	-	-
	10	10	3,400	0,20	2,20	2,10	10,900	0,35	2,60	2,30
		15	3,100	3,23	7,50	3,90	6,100	5,98	15,50	6,90
		20	-	-	-	-	-	-	-	-
	20	10	5,000	0,10	0,60	1,30	12,900	0,24	2,70	2,20
		15	5,900	1,78	3,40	2,40	12,300	4,39	9,40	4,60
		20	-	-	-	-	-	-	-	-

Table Z.14: Result for Constraint (2.22) for Existing Instances

p	d	n	RI_1				RI_2			
			(2.23)o	(2.23)t	(2.23)s	(2.23)r	(2.23)o	(2.23)t	(2.23)s	(2.23)r
0,5	5	10	6,000	0,08	1,13	1,50	26,300	0,10	1,50	1,70
		15	4,400	0,41	1,30	1,60	16,200	0,60	3,70	2,60
		20	4,100	6,11	9,80	4,50	11,400	13,06	20,00	8,70
	10	10	6,000	0,09	1,00	1,50	25,899	0,09	0,89	1,44
		15	7,500	0,49	3,10	2,20	24,200	0,30	1,10	1,50
		20	6,900	2,73	3,70	2,50	22,900	2,27	3,50	2,40
	20	10	8,000	0,09	1,33	1,67	34,000	0,08	0,80	1,40
		15	8,900	0,38	2,10	1,90	30,200	0,70	2,60	2,20
		20	9,700	1,92	3,50	2,60	28,700	3,32	4,20	2,70
1	5	10	2,000	0,32	2,80	2,20	5,800	0,57	4,50	3,10
		15	1,800	52,16	50,70	20,30	2,400	44,82	58,00	24,40
		20	-	-	-	-	-	-	-	-
	10	10	3,400	0,17	1,60	1,80	10,900	0,38	3,00	2,50
		15	3,100	3,17	7,90	4,10	6,100	6,04	16,00	7,10
		20	-	-	-	-	-	-	-	-
	20	10	5,000	0,09	0,40	1,20	12,900	0,19	1,80	1,80
		15	5,900	1,79	3,80	2,50	12,300	4,19	9,60	4,60
		20	-	-	-	-	-	-	-	-

Table Z.15: Result for Constraint (2.23) for Existing Instances

p	d	n	RI_1				RI_2			
			(2.24)o	(2.24)t	(2.24)s	(2.24)r	(2.24)o	(2.24)t	(2.24)s	(2.24)r
0,5	5	10	6,000	0,08	0,88	1,38	26,300	0,09	1,10	1,50
		15	4,400	0,49	1,90	1,90	16,200	0,45	2,70	2,10
		20	4,100	4,37	7,30	3,50	11,400	12,93	19,20	8,60
	10	10	6,000	0,09	1,00	1,50	25,899	0,09	0,89	1,44
		15	7,500	0,57	3,20	2,30	24,200	0,31	1,10	1,50
		20	6,900	2,29	2,60	2,10	22,900	2,04	3,20	2,30
	20	10	8,000	0,10	1,11	1,56	34,000	0,08	0,80	1,40
		15	8,900	0,34	1,70	1,70	30,200	0,53	2,20	2,00
		20	9,700	1,72	3,00	2,30	28,700	3,18	4,20	2,70
1	5	10	2,000	0,26	2,20	1,90	5,800	0,64	4,90	3,30
		15	1,800	38,10	40,90	16,80	2,400	30,40	44,30	18,60
		20	-	-	-	-	-	-	-	-
	10	10	3,400	0,17	1,80	1,90	10,900	0,34	2,40	2,20
		15	3,100	3,25	7,70	3,90	6,100	6,21	17,00	7,50
		20	-	-	-	-	-	-	-	-
	20	10	5,000	0,10	0,60	1,30	12,900	0,21	2,20	2,00
		15	5,900	1,21	2,30	1,80	12,300	4,28	9,50	4,60
		20	-	-	-	-	-	-	-	-

Table Z.16: Result for Constraint (2.24) for Existing Instances

Glossary

ILP Integer Linear Programm.

QIP Quadratic Integer Programm.

QTSP Quadratic Traveling Salesman Problem.

SEC Subtour Elimination Constraint.

SQTSP Symmetric Quadratic Traveling Salesman Problem.

TSP Traveling Salesman Problem.