HOW TO PREPARE YOUR FINAL MANUSCRIPT FOR JORSJ

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(Received September 29, 2010)

Abstract  This note contains the instructions to help you prepare your final manuscript for Journal of the Operations Research Society of Japan (JORSJ). Basic format is explained in Section 2. Section 3 and 4 provide examples of the usage of \TeX commands and environments.

Keywords: Optimization, second-order cone, Slater constraint qualification, KKT condition, nonlinear programming

1. Introduction
Authors are requested to prepare a \TeX file of their final manuscript by using the style file ejorsj-t3.sty, which is available from the Society’s web site when their paper is accepted for publication. After a small revision is made by the editorial office to conform the manuscript to the JORSJ style, the corresponding author will be asked to proofread the final manuscript before sent to the printing house.

The JORSJ style does not change any standard \TeX commands, so that the authors can freely define their own new commands by placing those definitions in the preamble before \begin{document}. However, please avoid changing the formatting parameters such as margins, line spacing and font sizes.

2. Basic Format
2.1. Title
Give the title by \texttt{title}{} command in all capital letters such as \texttt{title{HOW TO PREPARE YOUR ... JORSJ}}.

2.2. Name(s) and affiliation(s) of author(s)
List the names and institutional affiliations of all authors separated by & in the \texttt{tabular} environment within the brace brackets of \texttt{author}{} command. The affiliations should be in italics and go to the second line.

2.3. Abstract
Give an abstract of 100 to 200 words by using \texttt{abstract} environment. Avoid mathematical formulas, undefined abbreviations and literature citations.

2.4. Keywords
Provide two to six keywords in the brace brackets of \texttt{keyword}{} command. Select the first keyword out of the Keyword list for JORSJ in Table 1, and capitalize its first letter. Other keywords should be wholly uncapitalized except for proper nouns and acronyms.
Table 1: Keyword list for JORSJ

| A  | AHP, algorithm, applied probability |
| C  | combinatorial optimization, computer, control |
| D  | data analysis, DEA, decision making, discrete optimization, dynamic programming |
| E  | economics, education, energy, environment |
| F  | facility planning, finance, forecasting, fuzzy set |
| G  | graph theory, game theory |
| H  | health care, |
| I  | information technologies, inventory, |
| L  | linear programming, logistics |
| M  | maintenance, manufacturing, marketing, Markov process, mathematical modeling |
| N  | network flow, nonlinear programming |
| O  | optimization, organization theory, OR practice |
| P  | project planning, public service |
| Q  | quality control, queue |
| R  | reliability, risk management |
| S  | scheduling, search, simulation, statistics, stochastic optimization, system dynamics |
| T  | telecommunication, transportation |

2.5. Date
Fill out the parentheses of \( \text{date\{()\}} \) with the date provided by the editorial office, e.g., \( \text{date\{(Received December 12, 2008; Revised June 8, 2009)\}} \).

2.6. Sections and subsections
Use \( \text{section\{} \) or \( \text{subsection\{} \) command for the (sub)section title. Capitalize the first letter of each word of the section title, e.g., \( \text{section\{Basic Format\}} \). Only the first letter of subsection title should be capitalized, e.g., \( \text{subsection\{Sections and subsections\}} \).

2.7. Corresponding author
Provide the corresponding author’s name, complete mailing address and e-mail address at the end of the paper. Use \( \text{\texttt{\}} \) command for the e-mail address.

2.8. Pages and formulas
No page number is necessary. Use \( \\[\), \( \text{equation\}, \( \text{eqnarray\), \( \text{align\}, \( \text{alignat\} \) environments or their variations to display formulas. Formulas, if referred to in the text, should be numbered consecutively throughout the paper such as (1), (2) or (1.1), (1.2).

2.9. Theorem etc.
Use \( \text{theorem\} \) environment to present theorems, lemmas, corollaries, remarks, definitions, e.g., \( \text{begin\{theorem\}\label\{thm:1\}\text{rm ...\end\{theorem\}} \). The environments should be defined in the preamble before \( \text{title\} \). Place your proof in \( \text{proof\} \) environment, which automatically puts \text{Proof}. and a QED symbol \( \square \).

2.10. Artwork and tables
It is strongly recommended that the artwork be submitted in EPS format. Make sure that it will convey full information when printed in black and white. Use \( \text{figure\} \) environment to create a figure and give an explanatory legend in the brace brackets of \( \text{caption\} \). For tables use \( \text{table\} \) environment and give a caption explaining the components of the table in \( \text{caption\} \). Capitalize only the first letter of the legend and the caption and do not follow them with a period.
2.11. References
Provide a complete list of references arranged in alphabetical order by the first author’s surname. Use \cite{} command when you cite a literature in the list of references, e.g., Fujishige\cite{Fu89} for “Fujishige [1].” When you cite more than one reference paper, separate each label with a comma and do not leave a space, e.g., \cite{Fu89,KlTa05} for “[1, 2].” When you refer a literature accessed online, provide a digital object identifier (DOI) whenever possible or a stable URL as well as the date that you retrieved the literature.

In the list of references [3], [4], and [5] are examples for the reference to a journal paper, [1] to a paper in a contributed volume, and [2] to a book.

Section 3 and Section 4 will provide some examples of the usage of \LaTeX commands and environments.

3. Clustering Problem
3.1. Clustering polytope
Thus the clustering problem on \( N := \{1, 2, \ldots, n\} \) is formulated as a linear optimization problem on the clustering polytope.

**Definition 3.1** (Clustering polytope). We refer to the convex hull of the incidence vectors of all the clusterings of \( N \) as *clustering polytope*. We denote it by \( P \), i.e.,

\[
P := \text{co} \left\{ x \in \mathbb{R}^{n(n-1)} \mid x \text{ is the incidence vector of a clustering of } N \right\},
\]

where \( \text{co} \) means the convex hull.

**Lemma 3.1.** A binary vector \( x \in \mathbb{R}^{n(n-1)} \) is the incidence vector of a clustering if and only if it satisfies

\[
x_{ij} - x_{ji} = 0 \quad \text{for all } (i, j) \in N^2 \quad \text{(symmetry)}
\]
\[
x_{ij} + x_{jk} - x_{ki} \leq 1 \quad \text{for all } (i, j, k) \in N^3 \quad \text{(transitivity)}
\]

**Proof.** It is clear from definition that the incidence vector satisfies (3.2). \( \square \)

**Theorem 3.1.** The transitivity condition (3.3) is a facet-defining valid inequality of the clustering polytope \( P \).

**Proof.** We prove the assertion by induction over \( n \). \( \square \)

4. Acyclic Graph Game
They showed in [4] that

\[
x_i^* = v(\text{des}(i)) - \sum_{j \in \text{suc}(i)} v(\text{des}(j))
\]

holds for all \( i \in N \). Figure 1 illustrates a tree and its subtrees.
Figure 1: Tree and subtrees

References


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