Style Sheet for the SUMSRI Journal
Created by Dr. Chawne Kimber for SUMSRI 2001
Based largely on the London Mathematical Society and AMS stylesheets

Contents:

I.   Formatting the Manuscript

❑   Papers should be printed on **one side** of (8.5" x 11") paper. The copy submitted should be clean, not a blurred photocopy. Also submit the **computer file** to via email attachment or floppy disk to the Program Coordinator.

❑   Use a font no smaller than 10 pt and preferably **12 pt Times New Roman**.

❑   **Margins** should be at least 1 inch wide.

❑   The text should be **full justified**, exhibiting clean lines down both margins.

❑   **The first paragraph of a section should not be indented**. Subsequent paragraphs of prose should be indented 0.3".

❑   **Number** each page, centered at the bottom of the page.

❑   The paper should begin with a self-contained single-spaced **abstract** of no more than 100 words, not counting the formulas. Margins for the abstract should be one-half inch less than those of the body of the paper.

❑   The **first page** should contain the article *title* centered, *author* and coauthor names centered and footnoted (indicated by superscript Arabic numerals) with complete *affiliation*(s) (names of institutions with complete professional mailing and email addresses). The authors' names should be followed by the word 'Abstract' and then the *abstract*. Following the abstract, should be the beginning of the paper. At the bottom of the page 1 place all footnotes.

❑   **Footnotes** must be avoided as far as possible. Any that are absolutely necessary should be clearly marked and should be separated from the text by ruled horizontal lines. Do not attach footnote markers to formulae or symbols.

❑   Introduce a theorem, lemma, or proposition with boldface '**Theorem 3.1:**' for example. Such results are numbered consecutively and keyed to the section. Use italics for statements

of theorems, lemmas, and propositions, but not for definitions (except for the term being defined), not for examples, nor for conjectures.

❑ To signify the start of a proof, type the non-indented boldface word '**Proof:**'. The end of proof symbol is an open box, immediately following the end of the proof.

❑ All **variables** must be italicized. **Numerals**, however, should not be italicized.

❑ **Display equations**, centered on lines alone, unless they are simple. Equations in running text often cause problems with the line spacing.

❑ **Figures and tables** should be supplied in a form suitable for reproduction. Label each figure and table.

❑ **References** should be collected at the end of your paper, listed in alphabetical order and numbered consecutively. For our house style, see below.

II. References

❑ The bibliography should be printed in the **same sized font** and with the **same spacing** as the rest of your paper.

❑ Only standard **abbreviations** of journal titles should be used (if in doubt, do not abbreviate).

❑ **Check** the spelling of names, the spelling of titles (especially those in foreign languages) and other bibliographical details.

❑ References to unpublished material and **ephemera** are not helpful to your readers, and facts that are available only in obscure references should be explained reasonably fully in the text. Reference to work `in progress' may never be cited in a bibliography, but may be referred to in the course of the text.

❑ Please make sure that in the text, numbers indicating references are enclosed in **square brackets**. That is, when citing references in the paper, use for example "The authors of [5] prove that yada yada" or "...all important groups are abelian, according to [2, Theorem 3.4]," or "...the standard texts for and introduction to the field are [3, 6]."

❑ References should be listed in **alphabetical** order, with papers by the same author being listed in chronological order, and **numbered** consecutively. Authors who provide a LaTeX file should use \bibitem.

❑ Please use our **house style**: in particular, do <u>not</u> invert names (as in Smith, J.), type titles of papers and of textbooks in italics, and type volume numbers in bold type. Neither italicize nor underline the title of a journal. If you must refer to a preprint and do not know whether

or where it is to be published, then give the date and place of issue or an address on the World-Wide Web where it may be accessed.

❑ The house style is demonstrated in the following list. It contains a paper in a journal [5], a book [3], an article in a collection that is not part of a series [1], an article in a book that is part of a series [2], a preprint [4], and a thesis [6].

[1] M. F. Atiyah and F. Hirzebruch, *Spin-manifolds and group actions*, Essays on topology and related topics, Memoires dedies a George de Rham (eds A. Haefliger and R. Narasimhan, Springer, New York, 1970), pp. 18--28.

[2] B. J. Birch and H. P. F. Swinnerton-Dyer, *Elliptic curves and modular functions*, Modular functions of one variable IV (eds B. J. Birch and W. Kuyk), Lecture Notes in Mathematics 476 (Springer, Berlin, 1972), pp. 2--32.

[3] O. Bratteli and D. W. Robinson, *Operator algebras and quantum statistical mechanics I* (Springer, Berlin, 1979).

[4] S. J. Edixhoven, *On a result of Imin Chen*, preprint, Universite de Rennes I, 1996; Duke algebraic geometry preprint server, http://eprints.math.duke.edu /archive/alg-geom/.

[5] J. C. Jantzen and G. M. Seitz, *On the representation theory of the symmetric groups*, Proc. London Math. Soc. **65** (1992) 475--504.

[6] B. S. Spahn, *Measurable selection problems in general Borel structures*, doctoral thesis, Warsaw University, 1981.

III.   Writing Mathematics[1]

❑ A paper should be written in **clear**, unambiguous and grammatically correct language. It is up to you to write correctly and to be understood.

❑ Choose the **title** with care. A good title will indicate what area of mathematics is discussed in the paper, and attract specialists in that area to read on. Try to avoid using symbols or formulae in titles: this looks clumsy and deters the reader. Furthermore they present problems in bibliographies, which can lead to your paper being hard to find.

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[1] Adapted from the The London Mathematical Society: http://www.lms.ac.uk/publications/writing.pdf
The following works give further advice about the presentation of mathematics.
[1] N. E. Steenrod, P. R. Halmos, M. M. Schiffer and J. R. Dieudonne, *How to write mathematics,* American Mathematical Society, Providence, RI, 1973.
[2] *A Manual for Authors,* published in 1962 (and revised in 1980) by the American Mathematical Society, P.O. Box 6248, Providence, RI 02904

❑ Write the **introduction** so that a mathematician whose specialty is different from your own can understand it. It should explain what the paper is about, summarize the main results, and for longer papers explain the plan of the paper.

❑ An **abstract** should never be regarded as a part of the paper and is no substitute for a well-written introduction.

❑ Organize your writing so that sentences **read naturally** even when they incorporate formulae. In particular, arrange sentences so that they begin with words, not symbols. Formulae should not be separated merely by punctuation marks except in lists; authors should arrange for at least one word to come between two different formulae.

❑ Words such as *assume, suppose, show*, and *imply*, should usually be followed by the word *that*, but *have, get* and *obtain* should not be.

❑ Use **abbreviation** sparingly; mathematical writing is already very concentrated. We always use the full form of words like *respectively, Theorem* and *Corollary*. Over-abbreviation, such as the use of 'l. i.' for *linearly independent*, which is commonly seen on the blackboard in lectures, should not be used in print. Do not use standard abbreviations such as *e.g.*, and *i.e.*, adjacent to formulae or symbols. The abbreviation *iff* is better not used in print. In text the full form *if and only if* is easier to read; in formulae a double-headed arrow $\Leftrightarrow$, is more suggestive. Do not use symbols such as $\forall, \exists, =, <$ as abbreviations in text.

❑ The scope of a binary relation such as $=$ or $<$ should be clear: usages like 'The number of prime divisors of $30 = 3$' are unnecessarily disturbing. **Nonsensical abbreviations** like '$\exists 0 < i < n$' and misleading constructions like 'Let $f(g)$ be the left (right) quotient' are not justifiable by the space that they save. Do not use constructions of the form 'where S (respectively T) is the kernel of ϕ (respectively ψ)'. It is much easier to read 'where S and T are the kernels of ϕ and ψ respectively'. When longer statements are involved, repetition or even two sentences should be used.

❑ Avoid **quotation marks** adjacent to formulae. Do not use '**apostrophe s**' with symbols: 'the functions ϕ' is clearer than 'the ϕ's.'

❑ Avoid the use of over-elaborate symbols. Avoid also **complicated subscripts**, superscripts and ranges of summation or integration. Third-order superiors and inferiors cannot normally be printed, and even if printed cannot be read. Superscript and subscript expressions involving fractions should be written using a solidus, as, for example, $n/(q + 1)$.

❑ Please **check** your work very carefully, and perhaps even ask a colleague to read it critically. Responsibility for the accuracy of your results and for the quality of your exposition rests with you, not with the editors or the referee. Ideally, it should be a pleasure for the referee who reads your work.

IV.   Sample Paper

A Proof of Weinberg's conjecture on lattice-ordered matrix algebras

J. Ma[2] and P. Wojciechowski[3]

February 2001

Abstract

Let F be a subfield of the field of real numbers and let F_n ($n \geq 2$) be the $n \times n$ matrix algebra over F. It is shown that if F_n is a lattice-ordered algebra over F in which the identity matrix is positive then F_n is isomorphic to the lattice-ordered algebra F_n with the usual lattice order. In particular, Weinberg's conjecture is true.

1.   Introduction

Let L be a totally ordered field, and let L_n ($n \geq 2$) be the $n \times n$ matrix algebra over L. Then L_n may be lattice-ordered by saying that a matrix in L_n is positive exactly when each of its entries is positive, that is, the positive cone is $(L^+)_n$. This lattice order is called the *usual lattice order* of L_n.

Let Q be the field of rational numbers. In 1966, Weinberg conjectured that $(Q^+)_n$ is the only lattice order of Q_n (up to isomorphism) such that Q_n is a *lattice-ordered algebra* over Q in which 1 is positive, and he proved it for $n = 2$; see [4, Theorem 5.6]. Recently, some conditions have been obtained to ensure that a lattice-ordered algebra L_n in which 1 is positive is isomorphic to the lattice-ordered algebra L_n with the usual lattice order; refer to [2, 3].

In this paper we show that Weinberg's conjecture is true for a lattice-ordered matrix algebra over any subfield of real numbers. More precisely, blah blah blah.

We begin by collecting some definitions. The reader is referred to Fuchs' text [1] for the general theory of *lattice-ordered rings*. yada yada yada

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2.   Partially ordered algebras

With the preliminaries in place we are now prepared to prove our claims.

Definition 2.1: The *positive cone* of a partially ordered vector space is given by the set $P = \{v \in V \mid v > e\}$.

It is clear that C_F is in F_n precisely when blah blather thunk. There are many interesting properties of the cones. They are easily verified.

Theorem 2.2: *Every nontrivial partial order P of F_n has a nontrivial P-invariant cone in F^n .*

Proof: Consider the collection N of all the null spaces in F^n of the nonzero matrices from P. Let σ denote an element of N with maximum dimension, and let $\tau \notin N$. Define the lorax of the hypoquentuplicationator blah yada blah yada. $\square$

Below are listed some basic necessary properties of the *P*-invariant sets and cones. Let S be a subset of R^n . The *topological closure* of S in the Euclidean space R^n will be denoted by $\overline{S}$.

Proposition 2.3: *If S is a P-invariant set, then $\overline{S}$ is also a P-invariant set. Moreover, if O is a P-invariant cone, then $\overline{O}$ is closed under addition and multiplication by nonnegative real scalars.*

Proof: Gobbledy gook and stuff. $\square$

Okay, okay, we're done.

Acknowledgements

Thanks and shout out to my friends...

References

[1]   L. Fuchs, *Partially ordered algebraic systems,* Akademia Kiado: Budapest, 1953.

[2]   J. Ma, *Lattice-ordered matrix algebras with the usual lattice order,* J. of Algebra **228** (2000) 406—416.

[3]   S. A. Steinberg, *On the scarcity of lattice-ordered matrix algebras II,* Proc. Amer. Math. Soc. **128** (2000), 1605—1612.

[4]   E. C. Weinberg, *On the scarcity of lattice-ordered matrix rings,* Pacific J. Math. **19** (1966), 561—571.