UNIVERSITY OF CALIFORNIA

Santa Barbara

The Effect of Time-Variant Acoustical Properties on Orchestral Instrument Timbres

A dissertation submitted in partial satisfaction of the

requirements for the degree Doctor of Philosophy

in Music

by

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Committee in charge:

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June 2014

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May 2014

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ACKNOWLEDGEMENTS

[Begin typing your acknowledgements here. This would be the section in which you dedicate your manuscript to someone or acknowledge the people who helped you.]

VITA OF JOHN MICHAEL TRUTTY

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ABSTRACT

The Effect of Time-Variant Acoustical Properties on Orchestral Instrument Timbres

by

John Michael Trutty

[The abstract begins here. It should be double-spaced. The abstract should consist of a short statement of the problem, a brief exposition of the methods and procedure employed in gathering the data, and a condensed summary of the findings of the study. The recommended length is 1-2 pages.]

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# I. Page Patterns and Potentials

To achieve a unified editorial product, it is necessary to have a clearly defined and clearly patterned breakup of the space on editorial pages.[[1]](#footnote-1) This rhythmic patterning (which is based on the structural foundation of columns spaced within their surrounding margins) becomes a signal that helps distinguish editorial pages from advertising pages.

## A. Column

Live-matter page column structure has traditionally been the two-column and three-column break-up. There’s nothing wrong with this arrangement — it works very well,[[2]](#footnote-2) people are used to it, and it is coordinated with the ad spaces which have been sold. The traditional three-column makeup is also ideal for running stories in fast closing news magazines, or for stories where there is neither the time or the need for special layout treatment. But its very efficiency and overuse makes this format unexciting unless particularly clever graphic materials are added to play down the makeup pattern. There is no functional reason why a four-column page arrangement should not be perfectly usable, even on a standard 8.25”–wide[[3]](#footnote-3) page. Even five columns are perfectly practicable. Nor is there any reason why columns should be of equal width or why various column widths cannot be mixed, so that a number of different page arrangements can be achieved.

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## B. Working with the Page

Live-matter page column structure has traditionally been the two-column and three-column break-up. There’s nothing wrong with this arrangement — it works very well, people are used to it, and it is coordinated with the ad spaces which have been sold. The traditional three-column makeup is also ideal for running stories in fast closing news magazines, or for stories where there is neither the time or the need for special layout treatment. But its very efficiency and overuse makes this format unexciting unless particularly clever graphic materials are added to play down the makeup pattern. There is no functional reason why a four-column page arrangement should not be perfectly usable, even on a standard 8.25”–wide page. Even five columns are perfectly practicable. Nor is there any reason why columns should be of equal width or why various column widths cannot be mixed, so that a number of different page arrangements can be achieved (see Figure 1).



Figure 1. Caption for Figure 1 – The caption can be placed above or below the image. The font can be as small as 10pt for captions, and the caption can be single spaced. Images can be placed on their own page or within the text of the document.

# II. . New Chapter;

## A. Margins

Possibly the most crucial element that can make the editorial spaces look like editorial spaces is the fame that surrounds the type — the margin around the “live matter page.” Margins can be of various sizes, but they should be consistent. Narrow margins are common in technical literature, but not in dissertations. Ample margins on the other hand give the feeling of freedom, and lightness that are highly desirable whenever economics are not an over-riding concern.

### 1. Advertising Margins

The great majority of ads are not designed to parallel the edge of the space that has been purchased; they have instead an irregular outline with no visible means of support. Besides, each ad is designed to be as different from its neighbor as its creators can devise it to be.

### 2. Editorial Margins

Each editorial page has a major asset in the fact that it is one of a series, just one link in a long chain of events. It must take advantage of that asset by making sure that its outline is as regular as possible, in order to contrast with the irregular perimeter of the ads.

## B. Continuity

Above all the pages must be conceived as a sequence of images with design continuity. The reader should experience the pages as a flow of related events rather than as separate isolated entities.

At the initial stage of planning a design the editor can greatly assist the designer by explaining the nature of the work and the audience for whom it is intended. The editor should also stipulate the placement of notes, the kind and number of tables, graphs, or charts, and how many levels of subheads are necessary, what the running heads will consist, of what material is to be in the preliminary pages and what in the back matter, and any other special problems peculiar to the work (see Figure 2).

Many publishing houses, the University of Chicago Press among them, provide the

Figure 2. Caption for Figure 2 goes here



editor with a form transmittal sheet upon which to list such information; the sheet goes with the copy of the manuscript to the production and design department. Such fact sheets are often not enough, however and subsequent conferences between designer and editor are helpful and productive.

Before a book can be designed, the designer must know not only the nature of the subject and the contents of the book but also its length. The editor’s rough estimate of the number of words is not usually enough, nor is the number of manuscript pages. The designer must have an accurate castoff (or character count), prepared by the production department (in some publishing houses by the editor), giving him the characters in (a) text, (b) extracts, (c) footnotes, (d) appendixes, glossary, bibliography.

# References

1. A. V. Aho, B. W. Kernighan, and P. J. Weingberger, *Awk—A Pattern Scanning and Processing Language (Second Edition)*, Bell Laboratories internal memorandum, Murray Hill, New Jersey (1978)

2. G. T. Garter and K. L. Rinehart, Jr., “Acarnidines, novel antiviral and antimicrobial compounds from the sponge *Acarnus erithacus* (de Laubenfels),” *J. Am. Chem. Soc., Vol. 100*, p. 4303 (1978).

3. W. Joy, *An Introduction to the C Shell,* University of California internal memorandum, Berkeley, California (1979).

4. R. Kazlauskas, P. T. Murphy, and R. J. Wells, “New diterpene isocyanides from a sponge,” *Tetrahedron Lett.,* vol.21, p. 315 (1980).

5. R. Kazlauskas, P. T. Murphy, and R. J. Wells, “A new diterpene isocyanides from the sponge *Aplysilla rosea*,” *Tetrahedron Lett.,* p. 903 (1979).

6. B. W. Kernighan and L. L. Cherry, “A System for Typesetting Mathematics,” *Comm. Assoc. Comp. Mach.*, vol. 188, pp. 151-157 (1975).

7. M. E. Lesk, *Some Applications of Inverted Indexes on the UNIX System*, Bell Laboratories internal memorandum, Murray Hill, New Jersey (1978).

1. J. F. Ossanna, *Nroff/Troff User’s Manual,* Bell Laboratories internal memorandum, Murray Hill, New Jersey (1976).

# Appendix

[Appendices typically contain supporting material such as data sheets, questionnaire samples, illustrations, maps, charts, etc. Students may need to photocopy some items at less than 100% in order to fit them within the margins. Other oversize items may be folded to fit within the margins or may be put in special pockets in the back.]

1. This is a demonstration of the use of footnotes. In this example, a multiple line footnote with a numbered label will be printed at the bottom of the page. The numbered label is automatically generated. [↑](#footnote-ref-1)
2. Here is the second footnote. Again, a multiple line footnote with a numbered label will be printed at the bottom of the page. Note that there is a line of space between footnotes on the same page. Also note the — that appeared in the text. This is called an *em* dash and is created on the PC by pressing CTRL+ALT+ - (use the minus sign on the number pad). [↑](#footnote-ref-2)
3. Note the –. This is an *en* dash and is created on the PC by pressing CTRL+ - (use the minus sign on the number pad). [↑](#footnote-ref-3)