

## PREPARATION OF MANUSCRIPTS FOR JEAB

The *Journal of the Experimental Analysis of Behavior* (*JEAB*) is primarily for the original publication of experiments relevant to the behavior of individual organisms. Review articles and theoretical papers also are considered for publication. Manuscripts submitted to *JEAB* should conform to the style and organization described in the 2001 (5th) edition of the *Publication Manual of the American Psychological Association* (hereafter, *Publication Manual*). Authors should not submit the same manuscript to more than one journal concurrently. The following comments supplement the *Publication Manual* by highlighting some points that are especially germane to submissions to *JEAB*. Authors should consult the *Publication Manual* for detailed discussion of these and other matters. Adherence to these guidelines will make the task of the scientists and other professionals who handle the manuscript easier and will be greatly appreciated.

### SUBMISSION INFORMATION

Manuscripts may be submitted by regular or carrier mail to the address indicated on the masthead, or, preferably, they may be submitted electronically in Word format to [jeab@artsci.wustl.edu](mailto:jeab@artsci.wustl.edu). **If submitting nonelectronically, provide four copies to the Editor.**

Authors should format the manuscript based on U.S. standard paper size (8½ inches by 11 inches). Each figure of electronically submitted manuscripts should be labeled in the front, upper-right corner with the figure number and last name of the first author of the manuscript. Manuscripts submitted electronically but not conforming to these requirements will be returned to the author with a request to reformat the manuscript in accord with the requirements. The cover E-mail should indicate the number of figures and tables.

Correspondence between the Editor and submitting author on matters related to the review process will be via E-mail whenever possible, unless an author requests in the cover letter accompanying submission of the manuscript that such correspondence be by conventional mail.

### FORMAT AND ORGANIZATION

Type the manuscript with 1.25-in. (3.2-cm) margins, double spaced throughout (including references, figure captions, and tables).

Use a standard, simple, easy-to-read font such as Courier or Times-New Roman in a size that allows 10 characters per inch (about a 12 point size for the two fonts listed). Please leave the right margins ragged rather than right-justified.

Organize the manuscript in the sequence indicated below.

- First page: Cover page including title (no longer than 85 characters and spaces), author(s), affiliation(s), suggested running head (which will appear at the top of odd-numbered pages and should not exceed 50 characters and spaces), and address, telephone number, FAX number, and E-mail address of corresponding author.
- Second page: title, author(s), abstract, and key words.
- Third and successive pages: The text including an Introduction (not labeled as such) followed by Method, Results, and Discussion. Depart from this organization only when necessary for clarity.
- After the text, start each of the following in order on a separate page: References, Author Note, Footnotes, Tables, Appendixes, and Figure Captions.
- Figures: See the section below, *Figures and Figure Captions*.

### ADDITIONAL INFORMATION ABOUT EACH SECTION (see the *Publication Manual*, pp. 10–30)

#### Abstract

This account of the paper will appear in *Psychological Abstracts* as well as in other places, including the database on the *JEAB/JABA* website (see the November 1996 issue of *JEAB*) and therefore should be complete in itself. Summarize the general procedure, the major findings and, most important, the conclusions drawn from your experimental work in no more than 200 words (about 18 to 20 typewritten lines). Do not use abbreviations unless they provide clarity, and avoid reference citations except when necessary to make an important point. Avoid uninformative sentences such as: *Several possible explanations of the data were discussed.*

#### Key Words for Indexing

List no more than seven key words in descending order of importance, with the only exception being that the response under study (e.g., key peck) should be next to last and the species of the subjects (e.g., pigeons, humans) listed last. Consult the annual Subject Index in the November issue of *JEAB* for suggestions.

#### Introduction

The Introduction (not labeled as such) should provide a succinct rationale for the study. That is, it should make clear what questions about principles are being addressed and why those questions might be interesting to answer. The Introduction should make contact with the relevant literature and identify gaps that the research is designed to fill.

#### Method

The description of the method should enable an interested reader to comprehend what was done and to replicate the study.

*Subjects.* This section should describe the relevant characteristics of the subjects. As noted in the *Publication Manual* (p. 19), nonhuman animal subjects should be identified by genus, species, and strain or by the name and location of the supplier (stock designation). Provide relevant information about the number, age, weight, physiological condition, and the general treatment and handling of animals. Include information about the animals' experimental histories and the manner of determining reduced weights. For human subjects, include information, as relevant, on such factors as gender, use of psychoactive drugs, clinical diagnosis, and measures of intellectual functioning for individuals likely to be outside the normal range.

*Apparatus.* Provide enough information to permit replication. Be sure to include information about the characteristics of the response (e.g., the force, in newtons, needed to activate the operandum) and the stimuli. Include pictures or diagrams of difficult-to-describe stimuli.

*Procedure.* This section should provide a well-organized description of what was done. It often helps to indicate briefly the rationale for the various conditions. For human subjects, include a verbatim copy of any instructions given.

#### Results

This section should provide a coherent, organized, and objective description of the important effects of the

independent variables (e.g., trends and functional relations). In light of *JEAB*'s purpose and tradition, it is important that the effects be shown to hold *reliably* at the level of the individual subjects. Usually, the most straightforward way to assess reliability is through direct replication—that is, by exposing each subject at least twice to the baseline and experimental conditions, allowing performance to stabilize under each. At issue is the degree to which the effects are, indeed, replicable under ostensibly similar conditions (see Sidman, 1960).

#### Discussion

The Discussion should focus on how the data answer the questions raised in the Introduction and how they help clarify or extend principles.

#### References

The text should make adequate contact with relevant literature through references. *Check each reference against the original source.* Do not depend on other reference lists; they can be wrong. Double check for discrepancies between citations in the text and the reference list, including the year of publication. Also, be sure all references in the text appear on the list, and vice versa.

Follow the guidelines in the *Publication Manual* (pp. 215–281) for the format of citations and the reference list. Please note that hanging indentation is used for the Reference section, and the complete name of a journal should be written out. Also, when several references are cited in a series in the body of the paper, they should be listed in alphabetical, not chronological, order.

Unpublished data from dissertations may be cited in the reference list, but it is not appropriate to appeal to other unpublished data, such as those presented at meetings, to support an argument; those kinds of data are not available in archival form for readers to examine. A contribution at a meeting that established a researcher's priority in devising a procedure or introducing a concept, however, should be acknowledged in the text and referenced in a footnote instead of in the reference list.

#### Footnotes

On a separate page following the references, include a footnote labeled "Author Note." This is the place to include acknowledgments and an address (including E-mail) so that readers can request a reprint or additional information about the research.

Avoid other footnotes unless absolutely necessary for clarity or for reasons given in the last sentence of *References* above. In general, if the material is important, include it in the text; if it is unimportant, delete it.

#### Tables

Tables should be used sparingly because figures better show trends in a set of data. When the graphed results are in the form of relative response rates (i.e., ratios or proportions), however, a table must be included that shows the absolute response rates from which the relative measures were calculated. Such information enhances the journal's archival character and permits readers to explore alternative conceptualizations and analyses. (Sometimes, it may be sufficient to give the absolute values of baseline performance in the text or in the relevant figure caption.)

Where a table is appropriate, the title and headings should make the contents intelligible without reference to the text. For complex tables, brief but detailed descrip-

tions may be appropriate, to be presented as part of the table title.

Data in tables should be chosen for comprehensibility and rounded appropriately. For example, if 4,004 responses occurred in a session of 58 min, the rounded response rate of 69 responses per minute is preferable both to the original raw numbers and to the unrounded 69.03 responses per minute.

For a full discussion on how to prepare tables, see the *Publication Manual*.

#### Figures and Figure Captions

Figures are especially effective for revealing trends and, appropriately, are often the focus of the Results section. It is important, therefore, that they be prepared carefully, with an eye toward effective design. Ideally, a figure should be complete and clear enough to be understood without the caption.

The ready availability of powerful graphing programs and laser printers has made preparing high-quality figures quite convenient. Yet, this very convenience may be responsible for the surprisingly high frequency of ill-considered and poorly designed graphical work (see Iversen, 1988; Petroski, 1995; see also Tufte, 1983). The following points should be considered when preparing figures.

*Dimensions and proportions.* Figures for *JEAB* should be prepared keeping in mind the dimensions and proportions of the journal's page:

*Height* is 19.6 cm.

*Single-column width* is 7.0 cm.

*Double-column width* is 14.6 cm.

*Proportions, width to height:*

single column, 1:2.8

double column, 1:1.3

When preparing a full-page illustration, please consider that space must be allowed for the caption (see *Captions*, below). If space is not allowed, either the figure will have to be reduced to accommodate the caption or the caption will have to appear at the foot of the page facing the figure.

Use space efficiently; place legends in white space within the borders of the figure. (Symbols, curves, and cumulative-record markings should be appropriately labeled.)

*Lettering.* Avoid squat, heavy-lined, boldface type. Tall, narrow letters and numbers having thin lines reproduce well (e.g., Helvetica or Universal font). Lettering will reproduce best if printed as uniformly sized, uncrowded capitals, but upper and lower cases may be used when needed to fit in the area available. It is better to use upper and lower cases in a readable size than it is to use all capitals in a smaller, more-difficult-to-read size. The same font style should be used consistently on all figures.

Where possible to do so without obscuring the data presented, keep explanatory matter (subject identification, session number, and so on) within the body of the figure rather than above, below, or to one side.

*Data points.* Unfilled data points must be constructed of thin lines and must be large enough so that reduction will neither make different shapes indistinguishable nor fill in unfilled circles, triangles, and squares.

*Axes and lines.* Avoid heavy lines for axes because they may make thin-lined lettering and data points appear disproportionately light. Crop the vertical and horizontal axes, and do not frame the figure. Make sure that axes meet at a right angle, and that labels parallel their axes. Provide scale marks along both axes spaced sufficiently to avoid a crowded appearance but to permit a reasonably accurate reading of the *x* and *y* values of the data points.

Avoid heavy lines to represent theoretical functions or to connect data points. If different kinds of lines are used to connect data points, choose broken lines carefully; the spaces at the breaks must be open enough to be readily evident when reduced.

*Reduction and paper stock.* It is best to submit figures in the actual size for publication in one-column or two-column width so that reviewers and editors can judge their adequacy. One set should be first-quality prints (e.g., laser printed, clean, sharp, black-and-white drawings on high-quality paper).

*Identification of figures.* Number all figures consecutively with arabic numerals in the order in which they appear in the manuscript, making certain that their placement is also indicated in the text. Write the appropriate number lightly, in pencil, **on the back** of each figure (unless the figures are being submitted electronically, in which case the information should be printed in the front, upper-right corner of each figure), along with the first author's name and (in the case of manuscripts returned after revisions) the manuscript number. Also write "top" along the edge to indicate proper orientation of the figure. For electronic submission of figures, see Submission Information section above.

*Captions.* Figure captions should be concise but complete enough that figures can be understood without reference to the text. One line of caption for a single-column figure will accommodate 53 characters and spaces; for a double-column figure, 111 characters and spaces. The height of each line of caption is 0.3 cm. An additional 0.3 cm is needed between the bottom of a figure and its caption.

In the published version of the paper, figures will be placed close to the corresponding passages in the text. Consequently, the text should not duplicate material in the captions.

#### STYLE AND CONVENTIONAL USAGE

An article communicates new procedures and findings and therefore should be clear and concise. The impact and clarity of an article improve when short, direct statements replace long, indirect ones (Strunk & White, 1979). For example: *Each lever press produced food* instead of *Lever pressing was reinforced with food according to a continuous reinforcement schedule, Figure 1 shows that . . .* instead of *It can be seen from Figure 1 that . . .*

Certain usages have become standard. Procedures and the resulting behavior are described as having occurred in the past. General principles, presumably true for all time, are discussed in the present tense. In current usage responses are reinforced rather than rewarded; also, stimuli control responses rather than organisms. If an author can justify violating a convention, the resulting usage should be consistent throughout the text.

The *Publication Manual* (pp. 70–76) presents techniques for reducing bias in many conventional expressions.

Decimals are preferable to fractions (except where an approximation is intended).

*Hyphenation.* Ordinarily, hyphens are used only when a compound term serves as a modifier and precedes its subject. (See the *Publication Manual*, pp. 89–94, for a complete discussion.) For example: *a 20-s timeout*, but *a timeout of 20 s*; *the fixed-interval schedule*, but *a response at the end of the fixed interval*. Schedule abbreviations do not take hyphenation: *fixed-ratio*, but *FR*, schedule.

Some compound terms that are not usually hyphenated include: *houselight, keylight, blackout, interresponse, interreinforcement, changeover, timeout*.

Include units when specifying the values of schedules of reinforcement. Also, note the use of capital and lower case

letters. For example, *DRL 30 s*; *a multiple VI 3-min EXT schedule*; *the FI 10-min and the FR 33 components*.

*Technical terms.* Technical terms are not familiar to everyone. Such terms are necessary for precision and cannot be eliminated, but they should be explained. This explanation usually can be incorporated into the text when a term is first used. For example:

*In the presence of one stimulus, the S<sup>D</sup>, pecks were reinforced; in the presence of the other, the S<sup>A</sup>, pecks were not reinforced.*

Do not introduce unnecessary technical terms. In the Method section, for example, *every response was reinforced* is preferable to *responses were continuously reinforced* if no reference to this training procedure is needed later in the text. It may be useful to consult a glossary of technical terms, such as that by Catania (1991).

*Abbreviations.* Do not use abbreviations in the title; they may be used sparingly in the abstract to improve clarity. Do not begin sentences with abbreviations (or numerals). Do not abbreviate experimenter as E, subject as S, number as N, or response as R.

Do not introduce abbreviations unnecessarily. Space saving rarely justifies abbreviations, though abbreviations sometimes may be useful for conciseness, such as with common Latin phrases (i.e., e.g., etc.) used parenthetically, and with standard physical units (cc, dB, kg, ml, N, mA, s) when accompanied by numbers. The latter are not followed by periods except to avoid confusion, as in. for inch. (For a fuller discussion of the use of abbreviations, see pp. 103–111 of the *Publication Manual*, in particular, pp. 106–108 for a listing of common abbreviations for units of measurement.) The words *Figure* and *Experiment*, even when followed by a number, are not abbreviated in the text. Do not abbreviate terms for combinations of schedules (e.g., multiple, concurrent).

A few technical abbreviations have become conventional; even these must be explained, however. For example:

*The tone was a conditional stimulus (CS).*

*The shortest interresponse time (IRT) was 0.4 s.*

*The pigeon's pecks were reinforced according to a variable-interval (VI) schedule.*

Nonstandard abbreviations should be avoided, because even sophisticated readers must then memorize idiosyncratic definitions. For example, *response-dependent procedure* should not be abbreviated *RD procedure*; *the punishment condition*, *the suppression condition*, and *the escape condition* should not be coded as conditions *A, B, C*. Also, *TO* should not be used to abbreviate *timeout*. (For a fuller discussion of the use of abbreviations, see pp. 103–111 of the *Publication Manual*.)

*Description of subjects.* When using nonhuman subjects, the subject should be described by its species rather than its phylum. For example, "pigeon" should be used rather than "bird" when describing the former subjects.

*Units of measurement.* The journal favors the standard international system of units (SI). There is a conversion table on pages 135–136 in the *Publication Manual*, which may be useful in preparing manuscripts. (For a fuller discussion, see the January 2006 issue of *JEAB*, p. 94.)

#### ETHICAL CONSIDERATIONS

##### *Treatment of Subjects*

Any unusual procedural features of reported experiments that may have stressed the experimental subjects should be justified in the stated rationale for the experiment. Reviewers are encouraged to comment on the ap-

propriateness or inappropriateness of such features when they are encountered. Further, it is assumed that research submitted for publication in *JEAB* conforms to the APA *Ethical Principles of Psychologists*. Manuscripts suspected of violating these principles will require revision justifying the methods and techniques used. See the March 1986 issue of *JEAB* for additional information and for the APA *Guidelines for Ethical Conduct in the Care and Use of Animals*.

#### *Retaining and Sharing Data*

It is not uncommon for authors of published papers to receive requests for the original (raw) data from which the summary data in the paper were derived. The requesting individual might want to analyze the data in a different way, perhaps to examine the adequacy of a model or to consider the plausibility of an alternative interpretation. Authors are expected to comply with such requests cooperatively and promptly; and authors should retain the original data for a period of at least 5 years from the time of publication.

#### REFERENCES

- Catania, A. C. (1991). Glossary. In I. Iversen & K. A. Lattal (Eds.), *Experimental analysis of behavior* (Part 2, pp. G1–G44). Amsterdam: Elsevier.
- Iversen, I. H. (1988). Tactics of graphic design: A review of Tufte's *The Visual Display of Quantitative Information*. *Journal of the Experimental Analysis of Behavior*, *49*, 171–189.
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