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Preface

The primary motivation for adaptive memory programming, therefore, is to group and unify all these emerging optimization techniques for enhancement of the computational capabilities that they offer to combinatorial problems which are encountered in real life in the area of production planning and control.

We confront this pitfall technically, by introducing explicit remarks about the generality of results at appropriate places; methodologically, by accumulating enough applications for every major idea to make its validity and generality stand out; and philosophically, observing that physics moves forward most of its ideas by analogies to cleverly chosen simple systems for which profound intuitions have been formed.

Special attention has also been paid to the wave-current interaction problems. Several models are evaluated by comparing the numerical results with laboratory data. It is quite clear that these higher-order modified equations are adequate for modeling the wave propagation from deep water to shallow water. However, to apply these models in the surf zone further study of breaking waves and the proper parameterization of wave breaking processes are essential.

One of most surprising findings is coastal engineering research in the last two decades is the robustness of the shallow-water equation models in calculating the wave runup in swash zone. Although the wave breaking process is usually not considered in the shallow-water equations, with a proper tuning of the numerical dissipation as well as the bottom friction, these models can predict the time history of runup heights for various types of incident waves with impressive accuracy. These models have also been extended to examine the interactions between water waves and coastal structures, which are either impermeable or protected by a layer...

The factors which have contributed most towards this are the growth of the uranium industry, the acceptance of solvent extraction as a process suitable for industrial use on a large scale, the development of techniques of

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leaching and reduction at temperatures up to 240°C at moderate pressures, and the demand for numerous less-common metals and other elements.

To model wave slamming and ringing as mentioned above and other nonlinear phenomenon, it is necessary to undertake fully nonlinear transient analyses, usually involving numerical time marching. At present many such numerical models exist. One of common difficulties faced by these models is the procedure to track the location of free surface, especially in the case of wave breaking. Different applications associated with each method, especially in wave hydrodynamics are discussed. More than one hundred references are cited in the paper.

T. M. Chan

Contents

Chapter 1

Using World Scientific's Review Volume Master File

First Author

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`ws-rv9x6.tex` is the master file to input all the chapters. Class option `master` must be used, to integrate all the chapters, e.g. `\documentclass[master]{ws-rv9x6}`.

Contents

1. Master File

You can obtain these files from our web pages at:
`http://www.wspc.com.sg/style/review_style.shtml` and
`http://www.icpress.co.uk/authors/stylefiles.shtml#review`.

The class file, `ws-rv9x6.cls` provides the following options:

`master`	To combine all chapters
`addchapnum`	Adds chapter number, e.g. 1.1. Section, Theorem 1.1., Table 1.1., etc
	Default: 1. Section, Theorem 1., etc.,
`onethmnum`	To number all theorem-like objects in a single sequence, e.g. Theorem 1, Definition 2, Lemma 3, etc.
	Default: individual numbering on different theorem-like objects, e.g. Theorem 1, Definition 1, Lemma 1, etc.

2   *F. Author*

> **draft** To draw border line around text area.
>   Default: no border line around text area.

In-house packages used for customizing the Citations/References.

> **Vancouver (numbered)**
>   `\usepackage{ws-rv-van}`   – Superscript[1] (Default style)
>   `\usepackage[square]{ws-rv-van}`   – Bracketed [1]
> **Harvard (author-date)**
>   `\usepackage{ws-rv-har}`   – (Author, 1994)

If the managing editor is using the master file to compile all the chapters, he/she must decide on which style to use for theorems, citations and references, and inform the contributors to use the chosen style.

All the chapters are arranged in this master file in the following sequence:

```
\documentclass[master]{ws-rv9x6}
\usepackage{ws-index}          % multiple indexes
\usepackage{ws-rv-van}         % numbered citation/references
\makeindex
\newindex{aindx}{adx}{and}{Author Index}        % author index
\renewindex{default}{idx}{ind}{Subject Index}  % subject index
\begin{document}
\titlepages                    % please do not remove this line
\preface                       % requires preface.tex
\mastertoc                     % combined toc
%\part{My Part Title}{}        % optional divider page
\include{ch1}
\include{ch2}
\include{ch3}
%\part{Sample Part Title}{}  % optional divider page
\include{ch4}
\printindex[aindx]             % to print author index
\printindex                    % to print subject index
\end{document}
```

2. Combining the Chapters Using Master File

The following changes should be made in all the contributions provided by the individual contributors before including them in the master document.

Using World Scientific's Review Volume Master File   3

Contribution provided by an
individual contributor:

```
\documentclass{ws-rv9x6}
\usepackage{ws-rv-van}
\begin{document}
\chapter[Short]{Full Title}
\author[F. Author]{First ...}

\address{World Scientific ...}
\begin{abstract}
The abstract should ...
\end{abstract}



\body
\section{Using Other Packages}
The class file has...
%\begin{thebibliography}{9}
%\bibitem{jarl88} ...
%\end{thebibliography}
%for BIBTeX users
\bibliographystyle{ws-rv-van}
\bibliography{ws-rv-sample}
\end{document}
```

Modified contribution, ready
to get included in the master
document:

```
%\documentclass{ws-rv9x6}
%\usepackage{ws-rv-van}
%\begin{document}
\chapter[Short]{Full Title}
\author[F. Author]{First ...}
\index[author]{Author, F.}
\address{World Scientific ...}
\begin{abstract}
The abstract should ...
\end{abstract}
\smalltoc
\tableofcontents

\body
\section{Using Other Packages}
The class file has...
%\begin{thebibliography}{9}
%\bibitem{jarl88} ...
%\end{thebibliography}
%for BIBTeX users
\bibliographystyle{ws-rv-van}
\bibliography{ws-rv-sample}
%\end{document}
```

3. Compiling the Master File in LaTeX2e

To complete the job, compile your file as follows:

```
(1) latex ws-rv9x6
(2) latex ws-rv9x6
(3) bibtex ch2            % Chapters using BIBTeX database should
(4) bibtex ch3            % be compiled individually in 'bibtex'.
(5) makeindex ws-rv9x6                    % general index
(6) makeindex -o ws-rv9x6.and ws-rv9x6.adx   % author index
(7) latex ws-rv9x6
(8) latex ws-rv9x6
```

4   *F. Author*

4. Pagination

Pages i–iv are always the same and are prepared by the publisher. The pagination of the rest of the front matter depends on the length of the various sections (preface, contents). Each front matter section should start on an odd right-hand page. The following is an example of review volume pagination:

(i) Front matter:
    page i   —   half-title page, prepared by publisher
    page ii   —   blank page
    page iii   —   full-title page, prepared by publisher
    page iv   —   copyright page, prepared by publisher
    pages v–ix   —   preface text
    page xi   —   contents text (TOC)
    The first available front matter page is page v.

(ii) Body text:
    odd page   —   First article, followed by remaining articles

(iii) Back matter (optional):
    odd page   —   combined index

If the organization of the contributors' manuscripts is different from the above pagination guidelines, please e-mail the respective desk-editor for advice.

References

1. L. Lamport, *LaTeX, A Document Preparation System*, 2nd edn. Addison-Wesley, Reading, MA (1994).

Chapter 2

Using World Scientific's Review Volume Document Style

First Author and Second Author*

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The abstract should summarize the context, content and conclusions of the paper in less than 200 words. It should not contain any references or displayed equations. Typeset the abstract in 9 pt Times roman with baselineskip of 11 pt, making an indentation of 1.5 pica on the left and right margins.

Contents

*Author footnote.

†Affiliation footnote.

1. Using Other Packages

The WSPC class file has already loaded the packages `amsfonts,` `amsmath, amssymb, cite, epsfig, rotating,` and `url` at the startup. `Check.tex` is an utility to test for all the files required by World Scientific review volume project are available in your present LaTeX installation.
Usage: `latex check.tex`

Please try to limit your use of additional packages. They frequently introduce incompatibilities. This problem is not specific to the WSPC styles, it is a general LaTeX problem. Check this manual whether the required functionality is already provided by the WSPC class file. If you do need third-party packages, send them along with the paper. In general, you should use standard LaTeX commands as much as possible.

2. Layout

In order to facilitate our processing of your article, please give easily identifiable structure to the various parts of the text by making use of the usual LaTeX commands or by your own commands defined in the preamble, rather than by using explicit layout commands, such as `\hspace, \vspace, \large`, etc. Also, do not redefine the page-layout parameters. For more information on layout and font specifications please refer `http://www.wspc.com.sg/style/rv-instruction9x6_2e.pdf`.

3. User Defined Macros

User defined macros should be placed in the preamble of the article, and not at any other place in the document. Such private definitions,

i.e. definitions made using the commands \newcommand, \renewcommand, \newenvironment or \renewenvironment, should be used with great care. Sensible, restricted usage of private definitions is encouraged. Large macro packages and Definitions that are not used in the article should be avoided. Do not change existing environments, commands and other standard parts of LaTeX.

4. Using ws-rv9x6

4.1. *Input used to produce a chapter*

```
\documentclass{ws-rv9x6}
\usepackage{ws-rv-van}
\begin{document}
\chapter[Short Title]{Full Title}
\author[F. Author]{First Author}
\address{World Scientific Publishing...}
\begin{abstract}
The abstract should ...
\end{abstract}
\body
\section{Using Other Prepackages}
The class file has...
\begin{appendix}[Optional Appendix Title]
\section{Sample Appendix}
Text...
\end{appendix}
%\begin{thebibliography}{9}
%\bibitem{ams04} \AmS, \emph{\AmS-\LaTeX{} ...
%\end{thebibliography}
\bibliographystyle{ws-rv-van} %for BIBTeX users
\bibliography{ws-rv-sample}
\end{document}
```

4.2. *Class options and extra packages*

The class file, `ws-rv9x6.cls` provides the following options:

> draft   To draw border line around text area.
>   Default: no border line around text area.

addchapnum Adds chapter number, e.g. 1.1. Section, Theorem 1.1., Table
                1.1., etc
                Default: 1. Section, Theorem 1., etc.,

 onethmnum To number all theorem-like objects in a single sequence, e.g.
                Theorem 1, Definition 2, Lemma 3, etc.
                Default: individual numbering on different theorem-like objects, e.g. Theorem 1, Definition 1, Lemma 1, etc.

Apart from the packages mentioned in Sec 1, the WSPC class also requires the following inhouse packages for customizing the citations and references.

Vancouver (numbered)
  `\usepackage{ws-rv-van}`   – Superscript[1] (Default style)
  `\usepackage[square]{ws-rv-van}` – Bracketed [1]
Harvard (author-date)
  `\usepackage{ws-rv-har}`   – (Author, 1994)

The contributors are advised to consult the managing editor for the chosen style.

5. Running Head

Running heads are obtained by the arguments supplied in the square brackets of `\chapter[#1]{#2}` and `\author[#1]{#2}` commands, e.g.,

```
\chapter[Short Title for Running Head]{Full title}
\author[F. Author and S. Author]{First Author and Second Author}
```

Table 1. This table shows how the author names should appear in the running head and TOC depending upon the number of authors contributing that paper.

No. of Authors	Author Names
1	L. Hatcher
2	I. A. Pedrosa & I. Guedes
3	B. Feng, X. Gong & X. Wang
4 and more	S. R. Choudhury *et al.*

For TOC and Running Heads, the author names should appear in initial and surname format, e.g. Lee Hatcher should be abbreviated as L. Hatcher.

When more than one `\author` command is used, the names are combined and included as the last `\author`'s argument, e.g.,

```
\chapter[Short Title for Running Head]{Full title}
\author{First Author}
\address{First author's address}
\author[F. Author and S. Author]{Second Author}
\address{Second author's address}
```

6. Chapters

Each chapter should normally be in a separate file. The chapter title is typeset by using the `\chapter[#1]{#2}` command, where `[#1]` is an optional short title to be used as a running head if the title is too long and `#2` is the full title of the chapter. The short, edited version of the title appears in the table of contents and running head. The chapter title should be typed in a way such that only the initial character is in upper case and the rest is in lower case.

7. Sectional Units

Sectional units are obtained with the LaTeX instructions `\section`, `\subsection`, `\subsubsection`, and `\paragraph`.

8. Section

Text...

8.1. *Subsection*

Text...

8.1.1. *Subsubsection*

Text...

Unnumbered Section

Unnumbered sections can be obtained by `\section*`.

9. Lists of Items

Lists are broadly classified into four major categories that can randomly be used as desired by the author:

(a) Numbered list.
(b) Lettered list.
(c) Unnumbered list.
(d) Bulleted list.

9.1. *Numbered and lettered list*

(1) The `\begin{arabiclist}[]` command is used for the arabic number list (arabic numbers appearing within parenthesis), e.g., (1), (2), etc.
(2) The `\begin{romanlist}[]` command is used for the roman number list (roman numbers appearing within parenthesis), e.g., (i), (ii), etc.
(3) The `\begin{Romanlist}[]` command is used for the capital roman number list (capital roman numbers appearing within parenthesis), e.g., (I), (II), etc.
(4) The `\begin{alphlist}[]` command is used for the alphabetical list (alphabetical characters appearing within parenthesis), e.g., (a), (b), etc.
(5) The `\begin{Alphlist}[]` command is used for the capital alphabetical list (capital alphabetical characters appearing within parenthesis), e.g., (A), (B), etc.

Note: For all the above mentioned lists (with the exception of alphabetic list), it is obligatory to enter the last entry's number in the list within the square bracket, to enable unit alignment.

Items numbered with lowercase Roman numerals:

  (i) item one
 (ii) item two

      (a) lists within lists can be numbered with lowercase alphabets
      (b) second item.

(iii) item three.

9.2. *Bulleted and unnumbered list*

The `\begin{itemlist}` command is used for the bulleted list.

The \begin{unnumlist} command is used for creating the unnumbered list with the turnovers hangindent by 1 pica.

Lists may be laid out with each item marked by a dot:

- item one
- item two
- item three.

9.3. *Proofs*

The WSPC document styles also provide a predefined proof environment for proofs. The proof environment produces the heading 'Proof' with appropriate spacing and punctuation. A 'Q.E.D.' symbol, □, can be appended at the end of a proof with the command \qed, e.g.,

```
\begin{proof}
This is to test.
\end{proof}
```

produces

Proof. This is to test.   □

The proof environment takes an argument in curly braces, which allows you to substitute a different name for the standard 'Proof'. If you want to display, 'Proof of Lemma', then write

```
\begin{proof}[Proof of Lemma]
This is to test.
\end{proof}
```

produces

Proof of Lemma. This is to test.   □

10. Theorems and Definitions

The WSPC document styles contain a set of pre-defined environments for theorems, definitions, proofs, remarks etc.

All theorem-like objects use individual numbering scheme by default. To number them in a single sequence, load the class option onethmnum in the preamble., e.g., \documentclass[onethmnum]{ws-rv9x6}.

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The following environments are available by default with WSPC document styles:

Environment	Heading
algorithm	Algorithm
answer	Answer
assertion	Assertion
assumption	Assumption
case	Case
claim	Claim
comment	Comment
condition	Condition
conjecture	Conjecture
convention	Convention
corollary	Corollary
criterion	Criterion
definition	Definition
example	Example
lemma	Lemma
notation	Notation
note	Note
observation	Observation
problem	Problem
proposition	Proposition
question	Question
remark	Remark
solution	Solution
step	Step
summary	Summary
theorem	Theorem

```
\begin{theorem}[Longo, 1998]
For a given $Q$-system...
\[
N = \{x \in N; T x = \gamma (x) T, T x^* = \gamma (x^*) T\}\,,
\]
and $E_\Xi (\cdot) = T^* \gamma (\cdot) T$ gives ...
\end{theorem}
```

generates

Theorem 1 (Longo, 1998). *For a given Q-system...*

$$N = \{x \in N; Tx = \gamma(x)T, Tx^* = \gamma(x^*)T\}\,,$$

and $E_\Xi(\cdot) = T^*\gamma(\cdot)T$ gives a conditional expectation onto N.

```
\begin{theorem}
We have $\# H^2 (M \supset N) < \infty$ for an inclusion ...
\end{theorem}
```

produces

Theorem 2. *We have $\#H^2(M \supset N) < \infty$ for an inclusion $M \supset N$ of factors of finite index.*

LaTeX provides `\newtheorem` to create new theorem environments. To add a new theorem-type environments to a chapter, use

```
\newtheorem{example}{Example}[section]
\let\Examplefont\upshape
\def\Exampleheadfont{\bfseries}
```

11. Mathematical Formulas

Inline: For in-line formulas use `\( ... \)` or `$ ... $`. Avoid built-up constructions, for example fractions and matrices, in inline formulas. Fractions in inline can be typed with a solidus, e.g., `x+y/z=0`.

Display: For numbered display formulas use the displaymath environment `\begin{equation} ... \end{equation}`.

And for unnumbered display formula use `\[ ... \]`. For numbered displayed one line formulas always use the `equation` environment. For example, the input for:

$$\mu(n,t) = \frac{\sum\limits_{i=1}^{\infty} 1(d_i < t, N(d_i) = n)}{\int\limits_{\sigma=0}^{t} 1(N(\sigma) = n)d\sigma} \,. \tag{1}$$

is:

```
\begin{equation}
\mu(n, t)=\frac{\sum\limits^\infty_{i=1}1 (d_i < t, N(d_i)=n)}
{\int\limits^t_{\sigma=0}1(N(\sigma)=n)d\sigma}\,.\label{ra_eq1}
\end{equation}
```

For displayed multi-line formulas use the eqnarray environment.
`\begin{eqnarray} ... \end{eqnarray}`.

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```
\begin{eqnarray}
\zeta\mapsto\hat{\zeta}&=&a\zeta+b\eta\label{ra_eq2}\\
\eta\mapsto\hat{\eta}&=&c\zeta+d\eta\label{ra_eq3}
\end{eqnarray}
```

$$\zeta \mapsto \hat{\zeta} = a\zeta + b\eta \qquad (2)$$
$$\eta \mapsto \hat{\eta} = c\zeta + d\eta \qquad (3)$$

Superscripts and subscripts that are words or abbreviations, as in π_{low}, should be typed as roman letters; this is done as \(\pi_{\mathrm{low}} \) instead of π_{low} done by \(\pi_{low} \).

For geometric functions, e.g. exp, sin, cos, tan, etc. please use the macros \sin, \cos, \tan. These macros gives proper spacing in mathematical formulas.

It is also possible to use the $\mathcal{AMS}$-LaTeX package,[1] which can be obtained from the $\mathcal{AMS}$, from various TeX archives.

12. Floats

12.1. *Tables*

Typeset the tables and figures with the table and figure environments, and place them near their first reference in the text. Do not put them at the end of the article. Please avoid long caption texts in figures and tables.

```
\begin{table}[h]
\tbl{Sample table caption.}
{
    \begin{tabular}{@{}cccc@{}} \toprule
    Piston mass$^{\text a}$ & Analytical ...\\
    & (Rad/s) & (Rad/s) \\ \colrule
    1.000 & ... \\
    0.001 & ...\\ \botrule
    \end{tabular}
}
\begin{tabnote}
$^{\text a}$Sample table footnote.
\end{tabnote}
\label{ra_tbl2}
\end{table}
```

Table 2.   Sample table caption.

Piston mass[a]	Analytical frequency (Rad/s)	TRIA6-S_1 model (Rad/s)	% Error
1.000	281.0	280.81	0.07
0.010	2441.0	2441.00	0.00
0.001	4130.0	4129.30	0.16

[a]Sample table footnote.

For most tables, the horizontal rules are obtained by:

toprule one rule at the top
colrule one rule separating column heads from data cells
botrule one bottom rule
Hline one thick rule at the top and bottom of the tables with multiple column heads

To avoid the rules sticking out at either end of the table add `@{}` before the first and after the last descriptors, e.g. @llll@. Please avoid vertical rules in tables. But if you think the vertical rule is must, you can use the standard LaTeX `tabular` environment.

By using `\tbl` command in table environment, long captions will be justified to the table width while the short or single line captions are centered. `\tbl{table caption}{tabular environment}`.   If we need the fixed width for the tables, the command is `\begin{tabular*}{#1}{@{}ll@{}}` and `\end{tabular*}`. In the argument `#1` the width of the table has to be given. For example if we need the table to be of 25pc width, then the command is `\begin{tabular*}{25pc}{@{\extracolsep{fill}}ll@{}}`.

Headings which span for more than one column should be set using `\multicolumn{#1}{#2}{#3}` where `#1` is the number of columns to be spanned, `#2` is the argument for the alignment of the column head which may be either c — for center alignment; l — for left alignment; or r — for right alignment, as desired by the users. Use c for column heads as this is the WS style and `#3` is the heading. A simplified alternative version is `\centre{#1}{#2}` where `#1` is the number of columns to be spanned and `#2` the heading. There should be a rule spanning the same columns below the heading. Termed as spanner or bridge rule, it is generated using the command `\cline{n-m}` where `n` is the number of the first spanned column and `m` that of the last spanned column. `\cline` should not be part of a row but follow immediately after a `\\`.

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If a table contains note(s), as a universal thumb-rule they should appear beneath the table set to its width and seldom at the foot of the page.   For the footnotes in the table environment the command is `{\begin{tabnote}<text>\end{tabnote}}`. Appropriate symbols should be included in the body of the table matching their corresponding symbols in the footnotes where the footnotes are to be placed immediately after the `{\begin{tabnote}` command and terminated before `\end{tabnote}}\end{table}` command.

The tables are designed to have a uniform style throughout the whole book. We prefer the border lines to be of the style as shown in our sample Tables. For the inner lines of the table, it looks better if they are kept to a minimum.

12.2. *Figures*

The preferred graphics are tiff and Encapsulated PostScript, eps in short, for any type of graphic. Our TeX installation requires eps, but we can easily convert tiff to eps. Many other formats, e.g. pict (Macintosh), wmf (Windows) and various proprietary formats, are not suitable. Even if we can read such files, there is no guarantee that they will look the same on our systems as on yours.

Next adjust the scaling of the figure until it's correctly positioned, and remove the declarations of the lines and any anomalous spacing.

If instead you wish to use some other method, then it's most important to leave the right amount of vertical space in the figure declaration to accommodate your figure (i.e. remove the lines and change the space in the example).
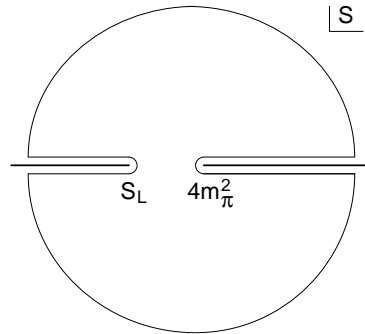

Fig. 1.   ... caption here ...

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```
\begin{figure}
\centerline{\includegraphics[width=4.8cm]{rv-fig1.eps}}
\caption{ ... caption here ... }\label{ra_fig1}
\end{figure}
```

Sub-figures are obtained with the following commands

```
\begin{figure}[ht]
\centerline{
  \subfigure[]
     {\epsfig{figure=rv-fig2a.eps,width=2in}\label{ra_fig2a}}
  \hspace*{4pt}
  \subfigure[Optional subcaption]
     {\epsfig{figure=rv-fig2b.eps,width=2in}\label{ra_fig2b}}
}
\caption{Common caption here.} \label{ra_fig2} % common label
\end{figure}
```
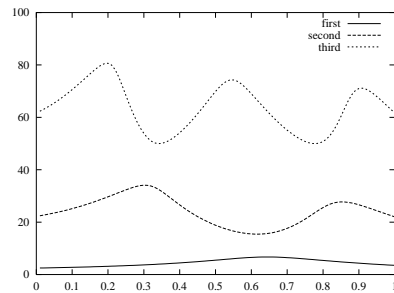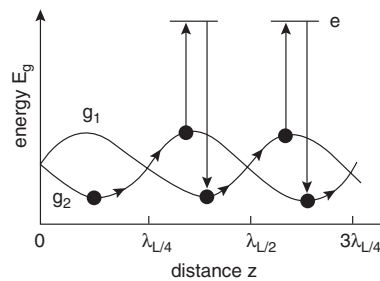

        (a)   (b) Optional subcaption.

Fig. 2.   Common caption here.

Sub-figures Fig. 2(a) and Fig. 2(b) are referred with `\fref{ra_fig2a}` and `Fig.~\ref{ra_fig2b}` commands.

Landscape tables and figures can be typeset with following environments `sidewaystable` and `sidewaysfigure`.

```
\begin{sidewaysfigure}
\centerline{\includegraphics[width=6.6in]{rv-fig3.eps}}
\caption{The bifurcating response ...}\label{ra_fig3}
\end{sidewaysfigure}
```
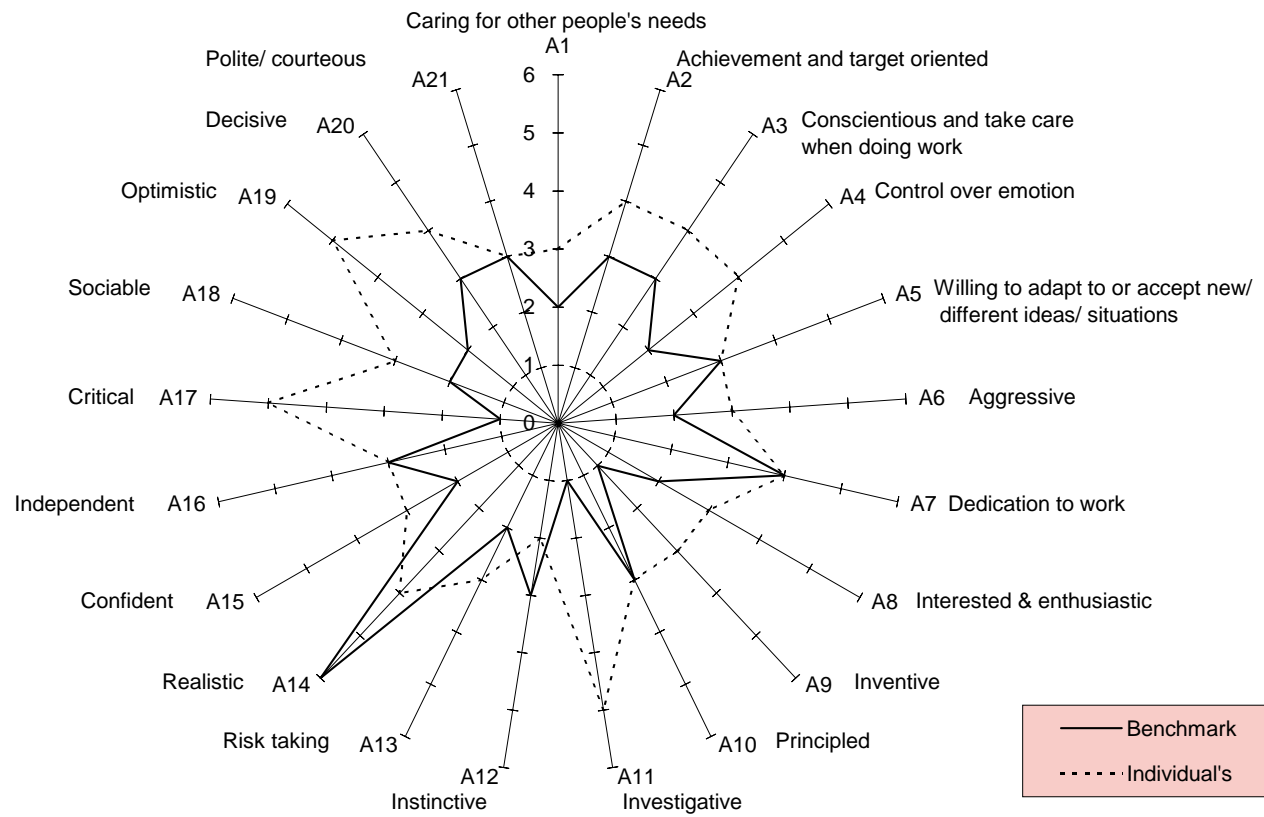
Fig. 3.   The bifurcating response curves of system $\alpha = 0.5$, $\beta = 1.8$; $\delta = 0.2$, $\gamma = 0$: (a) $\mu = -1.3$; and (b) $\mu = 0.3$.

Table 3.   Positive values of X_0 by eliminating Q_0 from Eqs. (15) and (16) for different values of the parameters f_0, λ_0 and α_0 in various dimension.

f_0	λ_0	α_0	Positive roots (X_0)							
			4D	5D	6D	7D	8D	10D	12D	16D
−0.033	0.034	0.1	6.75507, 1.14476	4.32936, 1.16321	3.15991, 1.1879	2.44524, 1.22434	1.92883, 1.29065	0.669541, 0.415056	—	—
−0.1	0.333	0.2	3.15662, 1.24003	1.72737, 1.48602	—	—	—	—	—	—
−0.301	0.302	0.001	2.07773, 1.65625	—	—	—	—	—	—	—
−0.5	0.51	0.001	—	—	—	—	—	—	—	—
0.1	0.1	2	1.667, 0.806578	1.1946, 0.858211	—	—	—	—	—	—
0.1	0.1	10	0.463679	0.465426	0.466489	0.466499	0.464947	0.45438	0.429651	0.35278
0.1	1	0.2	—	—	—	—	—	—	—	—
1	0.001	2	0.996033, 0.414324	0.968869, 0.41436	0.91379, 0.414412	0.848544, 0.414489	0.783787, 0.414605	0.669541, 0.415056	0.577489, 0.416214	—
	0.001	0.2	0.316014, 0.275327	0.309739, 0.275856	—	—	—	—	—	—
	0.1	5	0.089435	0.089441	0.089435	0.089409	0.08935	0.089061	0.088347	0.084352
	1	3	0.128192	0.128966	0.19718, 0.41436	0.169063, 0.414412	0.142103, 0.414489	—	—	—

```
\begin{sidewaystable}
\tbl{Positive values of ...}
{\begin{tabular}{@{}cccccccccc@{}}...\end{tabular}}\label{ra_tbl3}
\end{sidewaystable}
```

Side-by-side figures Fig. 4 and Fig. 5 are obtained with `\minifigure`
commands.

```
\begin{figure}[ht]
\centerline{
  \minifigure[Sample caption.]
     {\epsfig{figure=rv-fig2a.eps,width=2in}\label{ra_fig4}}
  \hspace*{4pt}
  \minifigure[Sample caption.]
     {\epsfig{figure=rv-fig2b.eps,width=2in}\label{ra_fig5}}
}
\end{figure}
```


Fig. 4. Sample caption.
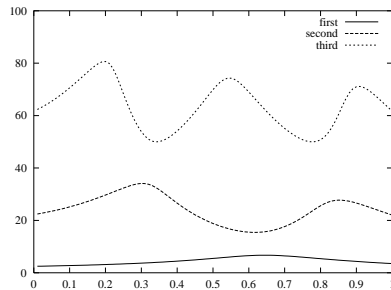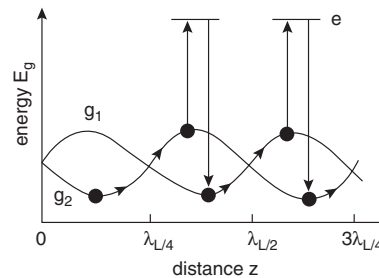

Fig. 5. Sample caption.

13. Cross-references

Numbered parts such as equations, figures, tables, sections, subsections,
etc., to which one wants to refer, should be labelled with the instruction
`\label`. For example:

```
\begin{equation}
\mu(n, t)=\frac{\sum\limits^\infty_{i=1}1(d_i < t, N(d_i)=n)}
{\int\limits^t_{\sigma=0}1(N(\sigma)=n)d\sigma}\,.
\label{ra_eq2}
\end{equation}
```

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With `\ref` one can refer to a numbered part that has been labelled:

```
..., see also Eq. (\ref{ra_eq1})
```

- labels should not be repeated.
- only for chapters, labels should be placed inside `\chapter` argument, e.g., `\chapter{Title\label{ch2}}`. For other number-generating instructions such as `\section` or `\caption`, labels should be typed immediately after or one line below, e.g., `\caption{ ... caption ... }\label{ra_fig2}`.

Some useful shortcut commands.

Shortcut command	Equivalent TeX command	Output
In the middle of a sentence:		
`\eref{ra_eq1}`	Eq. (`\ref{ra_eq1}`)	Eq. (1)
`\sref{ra_sec1}`	Sec. `\ref{ra_sec1}`	Sec. 1
`\cref{ra_ch2}`	Chap. `\ref{ch2}`	Chap. 2
`\fref{ra_fig1}`	Fig. `\ref{ra_fig1}`	Fig. 1
`\tref{ra_tbl1}`	Table `\ref{ra_tbl1}`	Table 1
At the starting of a sentence:		
`\Eref{ra_eq1}`	Equation (`\ref{ra_eq1}`)	Equation (1)
`\Sref{ra_sec1}`	Section `\ref{ra_sec1}`	Section 1
`\Cref{ra_ch2}`	Chapter `\ref{ra_ch2}`	Chapter 2
`\Fref{ra_fig1}`	Figure `\ref{ra_fig1}`	Figure 1
`\Tref{ra_tbl1}`	Table `\ref{ra_tbl1}`	Table 1

14. Citations

World Scientific's preferred style for Review Volume is the Vancouver (numbered) system, unless if the text is not heavily referenced in which case the Harvard (author-date) system may be used.

System	Package
Vancouver (numbered)	
• Bracketed [1]	`\usepackage[square]{ws-rv-van}`
• Superscript[1]	`\usepackage{ws-rv-van}` (Default style)
Harvard (author-date)	`\usepackage{ws-rv-har}`

Citations in the text use the labels defined in the bibitem declaration, for example, the first paper by Jarlskog[2] is cited using the command `\cite{jarl88}`. The bibitem labels should not be repeated.

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When superscripted citations are used, there should not be a space before `\cite{key}`, e.g.,

citation: `see\cite{zipf}`
             ↑
       no character space here

Reference:
```
\bibitem{zipf} E. C. Zipf, {\it Bull. Am. Phys.Soc.} {\bf 15},
418 (1970).
```

Output:

citation: ...text.[1]

     ...
Reference
1. E. C. Zipf, *Bull. Am. Phys. Soc.* **15**, 418 (1970).

For multiple citations do not use `\cite{1}\cite{2}`, but use `\cite{1,2}` instead.

14.1.   *Vancouver Style*

Reference citations in the text are to be numbered consecutively in Arabic numerals, in the order of first appearance. The numbered citations can appear in two ways:

 (i) bracketed
(ii) superscript (default style)

14.1.1.   *Bracketed*

References cited in the text are within square brackets, e.g.,

(1) ``One can deduce from Ref.~\cite{benh93} that...''
    "One can deduce from Ref. [3] that..."

(2) ``See Refs.~\cite{ams04,bake72,benh93,brow88} and
    \cite{davi93} for more details.''
    "See Refs. [1–3, 5] and [7] for more details."

14.1.2.   *Superscript*

References cited in the text appear as superscripts, e.g.,

(1) ``...in the statement.\cite{ams04}''
    "...in the statement.[1]"

(2) ``...have proven\cite{bake72} that this equation...''
    "...have proven[2] that this equation..."

When the reference forms part of the sentence, it should appear with "Reference" or "Ref.", e.g.,

(1) ``One can deduce from Ref.~\refcite{benh93} that...''
    "One can deduce from Ref. 3 that..."

(2) ``See Refs.~\refcite{ams04}--\refcite{benh93},
    \refcite{brow88} and \refcite{davi93} for more details.''
    "See Refs. 1–3, 5 and 7 for more details."

14.2. *Harvard Style*

Citations in the text use the labels defined in the `bibitem` declaration, for example, the first paper by [Jarlskog (1988)] is cited using the command `\cite{jarl88}`. See Sec. 18 for more details on coding references in Vancouver and Harvard style.

15. Footnote

Footnotes are denoted by a Roman letter superscript in the text. Footnotes can be used as

```
... total.\footnote{Sample footnote text.}
```
Output:
... in total.[a]

16. Acknowledgments

Acknowledgments to funding bodies etc. may be placed in a separate section at the end of the text, before the Appendices. This should not be numbered so use `\section*{Acknowledgements}`.

17. Appendix

Appendices should be used only when absolutely necessary. They should come before the References.

---

[a]Sample footnote text.

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```
\begin{appendix}[Optional Appendix Title]
\section{Sample Appendix}
\subsection{Appendix subsection}
Text...
\begin{equation}
\mu(n, t) = ...\label{appen1}
\end{equation}
\end{appendix}
```

18. Bibliography

18.1. *BIBTEX users*

BIBTEX users should use our bibliography style file `ws-rv-van.bst` or `ws-rv-har.bst`. Chapter 3 of this document has more on BIBTEX.

18.2. *Non-BIBTEX users*

Use `\bibitem` to produce the bibliography. The bibitem labels should not be repeated.

For Vancouver (numbered) style users, references are to be listed in the order cited in the text. Use the style shown in the following examples.

```
\begin{thebibliography}{9}
\bibitem{ams04}
   \AmS, \emph{\AmS-\LaTeX{} Version 2 User's Guide},
   American Mathematical Society, Providence (2004).
   \url{http://www.ams.org/tex/amslatex.html}.
\bibitem{jarl88}
   C.~Jarlskog, \emph{CP Violation}. World Scientific,
   Singapore (1988).
\bibitem{best03}
   B.~W. Bestbury, {$R$}-matrices and the magic square,
   \emph{J. Phys. A}. {\bf 36}(7), 1947--1959, (2003).
\bibitem{pier02}
   P.~X. Deligne and B.~H. Gross, On the exceptional series,
   and its descendants, \emph{C. R. Math. Acad. Sci. Paris}.
   {\bf 335}(11), 877--881, (2002).
\bibitem{bake72}
  D.~W. Baker and N.~L. Carter, \emph{Seismic Velocity
```

```
  Anisotropy Calculated for Ultramafic Minerals and
  Aggregates}, In eds. H.~C. Heard, I.~V. Borg, N.~L. Carter,
  and C.~B. Raleigh, \emph{Flow and Fracture of Rocks},
  vol.~16, \emph{Geophys. Mono.}, pp. 157--166.
\end{thebibliography}
```

For Harvard (author-date) style users, the references are to be listed in alphabetical order according to the surname of the first author. Use the style shown in the following examples.

```
\begin{thebibliography}{9}
\bibitem[{Baker and Carter(1972)}]{bake72}
   Baker, D.~W. and Carter, N.~L. (1972). \emph{Seismic
   Velocity Anisotropy Calculated for Ultramafic Minerals
   and Aggregates}, \emph{Geophys. Mono.}, Vol.~16,
   Am. Geophys. Union, pp. 157--166.
\bibitem[{Benhamou and Colmerauer(1993)}]{benh93}
   Benhamou, F. and Colmerauer, A. eds. (1993).
   \emph{Constraint Logic Programming, Selected Research},
   MIT Press.
\bibitem[{Bestbury(2003)}]{best03}
   Bestbury, B.~W. (2003). {$R$}-matrices and the magic square,
   \emph{J. Phys. A} \textbf{36}, 7, pp. 1947--1959.
\bibitem[{Brown(1988)}]{brow88}
   Brown, M.~E. (1988). \emph{An Interactive Environment for
   Literate Programming}, Ph.D. thesis, Texas A\&M University,
   TX, USA.
\bibitem[{Churchill and Brown(1990)}]{chur90}
   Churchill, R.~V. and Brown, J.~W. (1990). \emph{Complex
   Variables and Applications}, 5th edn., McGraw-Hill.
\end{thebibliography}
```

Appendix A. Appendix Title

A.1. Appendices

Appendices should be used only when absolutely necessary. They should come before the References. If there is more than one appendix, number them alphabetically. Sectional units are obtained in the usual way, i.e. with the LaTeX instructions \section, \subsection.

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Table A.1.   Commonly used macros.

Macro name	Purpose
`\chapter[#1]{#2}`	Chapter title
`\author[#1]{#2}`	Author Name(S)
`\address{#1}`	Address
`\begin{abstract}`	Start Abstract
`\end{abstract}`	End Abstract
`\bigtoc`	For longer TOCs (e.g. 1.99. Section Title)
`\smalltoc`	For smaller TOCs (e.g. 1.9. Section Title)
`\tableofcontents`	Table of Contents
`\body`	Start Body Text
`\section{#1}`	Section heading
`\subsection{#1}`	Subsection heading
`\subsubsection{#1}`	Subsubsection heading
`\section*{#1}`	Unnumbered Section head
`\begin{itemlist}`	Start bulleted lists
`\end{itemlist}`	End bulleted lists
`\begin{arabiclist}`	Start arabic lists (1, 2, 3...)
`\end{arabiclist}`	End arabic lists
`\begin{romanlist}`	Start roman lists (i, ii, iii...)
`\end{romanlist}`	End roman lists
`\begin{Romanlist}`	Start roman lists (I, II, III...)
`\end{Romanlist}`	End roman lists
`\begin{alphlist}`	Start alpha lists (a, b, c...)
`\end{alphlist}`	End alpha lists
`\begin{Alphlist}`	Start alpha lists (A, B, C...)
`\end{Alphlist}`	End alpha lists
`\begin{proof}`	Start of Proof
`\end{proof}`	End of Proof
`\begin{theorem}`	Start of Theorem
`\end{theorem}`	End of Theorem (see Page 15 for detailed list)
`\begin{appendix}[#1]`	Start Appendix
`\end{appendix}`	End Appendix
`\begin{thebibliography}{#1}`	Start of reference list
`\end{thebibliography}`	End of reference list
`\bibitem[{#1}]{#2}`	reference item in author-date style
`\bibitem{#1}`	reference item in numbered style
`\bibliographystyle{#1}`	To include BIBTEX style file
`\bibliography{#1}`	To include BIBTEX database

A.1.1. *Appendix sectional units*

Number displayed equations occurring in the Appendix in this way,
e.g. (A.1), (A.2), etc.

$$\zeta \mapsto \hat{\zeta} = a\zeta + b\eta \qquad\qquad (A.1)$$

$$\eta \mapsto \hat{\eta} = c\zeta + d\eta \qquad\qquad (A.2)$$

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Table A.2.   Macros available for Tables/Figures.

Environment name	Purpose
`figure`	figures
`sidewaysfigure`	landscape figures
`table`	tables
`sidewaystable`	landscape tables
`\tbl{#1}{#2}`	#1 - table caption;
	#2 - tabular environment
Horizantal Rules for tables	
`\toprule`	one rule at the top
`\colrule`	one rule separating column heads from data cells
`\botrule`	one bottom rule
`\Hline`	one thick rule at the top and bottom of the tables with multiple column heads

References

1. $\mathcal{AMS}$, $\mathcal{AMS}$-$\LaTeX$ *Version 2 User's Guide.* American Mathematical Society, Providence (2004). `http://www.ams.org/tex/amslatex.html`.
2. C. Jarlskog, *CP Violation.* World Scientific, Singapore (1988).

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Chapter 3

BIBTEXing
in
WSPC BIBStyle

F. Author, S. Author and T. Author

University Department, University Name, Address
City, State ZIP/Zone, Country
firstauthor_id@domain_name

The abstract should summarize the context, content and conclusions of the paper in less than 200 words. It should not contain any references or displayed equations. Typeset the abstract in 9 pt Times roman with baselineskip of 11 pt, making an indentation of 1.5 pica on the left and right margins.

Contents

1. BIBTEX

If you use the BIBTEX program to maintain your bibliography, you don't use the `thebibliography` environment. Instead, you include the lines

```
\bibliographystyle{ws-rv-van}
\bibliography{bibfile}
```

where `ws-rv-van` refers to a file `ws-rv-van.bst`, which defines how your references will look.

The argument to `\bibliography` refers to the file `bibfile.bib`, which should contain your database in BIBTEX format. Only the entries referred to via `\cite` will be listed in the bibliography.

`\usepackage{ws-rv-van}` is used in the preamble.

To use Harvard (author-date) system `ws-rv-van.bst` is used with `\usepackage{ws-rv-har}`.

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To complete the job, compile your file as follows:

(1) latex ws-rv9x6
(2) latex ws-rv9x6
(3) bibtex ch2   `% individually run bibtex on those`
(4) bibtex ch3   `% chapters which uses BIBTeX database`
(5) makeindex ws-rv9x6
(6) latex ws-rv9x6
(7) latex ws-rv9x6

2. Citations

BIBTeX Database entry type	Sample citation
article	... text.[1,2]
proceedings	... text.[3]
inproceedings	... text.[4]
book	... text.[5,6]
edition	... text.[7]
editor	... text.[8]
series	... text.[9]
tech report	... text.[10,11]
unpublished	... text.[12]
phd thesis	... text.[13]
masters thesis	... text.[14]
incollection	... text.[15]
misc	... text.[16]

When the reference forms part of the sentence, it should not be typed in superscripts, e.g.: "One can show from Ref. 12 that ...", "See Refs. 15 and 16 for more details." This is done using the LaTeX command: "Ref. `\refcite{name}`".

References

1. B. W. Bestbury, *R*-matrices and the magic square, *J. Phys. A*. **36**(7), 1947–1959 (2003). ISSN 0305-4470.
2. P. X. Deligne and B. H. Gross, On the exceptional series, and its descendants, *C. R. Math. Acad. Sci. Paris.* **335**(11), 877–881 (2002). ISSN 1631-073X.
3. G. H. Weiss, ed., *Contemporary Problems in Statistical Physics.* SIAM, Philadelphia (1994).

4. R. K. Gupta and S. D. Senturia. Pull-in time dynamics as a measure of absolute pressure. In *Proc. IEEE Int. Workshop on Microelectromechanical Systems (MEMS'97)*, pp. 290–294, Nagoya, Japan (Jan, 1997).

5. L. F. Richardson, *Arms and Insecurity*. Boxwood, Pittsburg (1960).

6. C. Jarlskog, *CP Violation*. World Scientific, Singapore (1988).

7. R. V. Churchill and J. W. Brown, *Complex Variables and Applications*, 5th edn. McGraw-Hill (1990).

8. F. Benhamou and A. Colmerauer, eds., *Constraint Logic Programming, Selected Research*. MIT Press (1993).

9. D. W. Baker and N. L. Carter, *Seismic Velocity Anisotropy Calculated for Ultramafic Minerals and Aggregates*, In eds. H. C. Heard, I. V. Borg, N. L. Carter, and C. B. Raleigh, *Flow and Fracture of Rocks*, vol. 16, *Geophys. Mono.*, pp. 157–166. Am. Geophys. Union (1972).

10. J. D. Hobby. A User's Manual for MetaPost. Technical Report 162, AT&T Bell Laboratories, Murray Hill, New Jersey (Apr, 1992).

11. B. W. Kernighan. PIC—A graphics language for typesetting. Computing Science Technical Report 116, AT&T Bell Laboratories, Murray Hill, New Jersey (1984).

12. H. C. Heard, I. V. Borg, N. L. Carter, and C. B. Raleigh. VoQS: Voice Quality Symbols. Revised to 1994 (1994).

13. M. E. Brown. *An Interactive Environment for Literate Programming*. PhD thesis, Texas A&M University, TX, USA (Aug, 1988).

14. G. S. Lodha. Quantitative interpretation of ariborne electromagnetic response for a spherical model. Master's thesis, University of Toronto, Canada (1974).

15. D. Jones. The term 'phoneme'. In eds. W. E. Jones and J. Laver, *Phonetics in Linguistics: A Book of Reading*, pp. 187–204. Longman, London (1973).

16. B. Davidsen. NetPBM (1993). `ftp://ftp.wustl.edu/graphics/graphics/packages/NetPBM`.

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Chapter 4

Single and Multiple Indexing

An Author

University Department, University Name, Address
City, State ZIP/Zone, Country
firstauthor_id@domain_name

The abstract should summarize the context, content and conclusions of the paper in less than 200 words.

Contents

1. Single Indexing

The first step in producing the index is to put the necessary `\index` commands in your document. The following example shows some simple `\index` commands and the index entries that they produce.

Page ii:	`\index{Alpha}`	Alpha, ii
Page viii:	`\index{alpha}`	alpha, viii, ix, 22
Page ix:	`\index{alpha}`	bites
Page 7:	`\index{gnat!size of}`	animal
Page 8:	`\index{bites!animal!gnats}`	gnats, 8, 10
Page 10:	`\index{bites!animal!gnats}`	gnus, 10
Page 10:	`\index{bites!animal!gnus}`	vegetable, 12
Page 12:	`\index{bites!vegetable}`	gnat, 32
Page 22:	`\index{alpha}`	anatomy, 35
Page 32:	`\index{gnat}`	size of, 7
Page 35:	`\index{gnat!anatomy}`	gnus
	`\index{gnus!good}`	bad, 38
Page 38:	`\index{gnus!bad}`	good, 35

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You then run LaTeX on your entire document, causing it to generate the file `ws-rv9x6.idx`. Next, run the `MakeIndex` program by typing the command, `makeindex ws-rv9x6`. This produces the file `ws-rv9x6.ind`. If `MakeIndex` generated no error messages, you can now rerun LaTeX on your document and the index will appear.

Compile your file as follows:

```
(1)  latex ws-rv9x6
(2)  latex ws-rv9x6
(3)  bibtex ch2              % individually run bibtex on those
(4)  bibtex ch3              % chapters which uses BIBTeX database
(5)  makeindex ws-rv9x6
(6)  latex ws-rv9x6
(7)  latex ws-rv9x6
```

Reading the index, you may discover mistakes, which should be corrected by changing the appropriate `\index` commands in the document and regenerating the `ind` file. If there are problems that cannot be corrected in this way, you can edit the `ind` file directly. However, such editing is to be avoided because it must be repeated every time you generate a new version of the index.

If you are making changes in the .toc or .ind files directly, then include `\nofiles` before `\begin{document}` to avoid overwriting. However, the command `\nofiles` should be used as the last option.

2. Multiple Indexes

To create a "subject" and an "author" index, the following packages and declarations should be included in the master TeX file:

```
...
\usepackage{ws-index}
\makeindex
\newindex{aindx}{adx}{and}{Author Index}        % author index
\renewindex{default}{idx}{ind}{Subject Index}  % subject index
...
\printindex[aindx]                 % to print author index
\printindex                        % to print subject index
```

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In text, the subject or default index entries are tagged with `\index{entry}`, and the author index entries are marked with `\index[aindx]{entry}` or `\aindx{entry}`.

```
\index[aindx]{Author, F.}  % or \aindx{Author, F.}
...
\index{FAQ}                % or \index{FAQ}
```

To complete the job, compile your file as follows:

(1) latex ws-rv9x6
(2) latex ws-rv9x6
(3) bibtex ch2   `% individually run bibtex on those`
(4) bibtex ch3   `% chapters which uses BIBTeX database`
(5) makeindex ws-rv9x6
(6) makeindex -o ws-rv9x6.and ws-rv9x6.adx
(7) latex ws-rv9x6
(8) latex ws-rv9x6

For more details on index generation, see.[1,2]

References

1. L. Lamport, *Make Index: An Index Processor For LaTeX* (1987).
2. D. K. Jones, *A new implementation of LaTeX's indexing commands* (1995). `ftp://theory.lcs.mit.edu/pub/tex/index/`

Subject Index