SURVEY METHODOLOGY

SURVEY METHODOLOGY

This is the Subtitle

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To my parents

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LIST OF FIGURES

LIST OF TABLES

FOREWORD

This is the foreword to the book.

PREFACE

This is an example preface. This is an example preface. This is an example preface. This is an example preface.

R. K. WATTS

Durham, North Carolina
September, 2007

ACKNOWLEDGMENTS

From Dr. Jay Young, consultant from Silver Spring, Maryland, I received the initial push to even consider writing this book. Jay was a constant "peer reader" and very welcome advisor durying this year-long process.

To all these wonderful people I owe a deep sense of gratitude especially now that this project has been completed.

G. T. S.

ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienists
AEC	Atomic Energy Commission
OSHA	Occupational Health and Safety Commission
SAMA	Scientific Apparatus Makers Association

GLOSSARY

NormGibbs	Draw a sample from a posterior distribution of data with an unknown mean and variance using Gibbs sampling.
pNull	Test a one sided hypothesis from a numberically specified posterior CDF or from a sample from the posterior
sintegral	A numerical integration using Simpson's rule

SYMBOLS

A Amplitude
& Propositional logic symbol
a Filter Coefficient

$\mathcal{B}$ Number of Beats

INTRODUCTION

CATHERINE CLARK, PHD.

Harvard School of Public Health
Boston, MA, USA

The era of modern began in 1958 with the invention of the integrated circuit by J. S. Kilby of Texas Instruments [1]. His first chip is shown in Fig. I. For comparison, Fig. I.2 shows a modern microprocessor chip, [4].

This is the introduction. This is the introduction. This is the introduction. This is the introduction. This is the introduction. This is the introduction.

$$ABC\mathcal{DEF}\alpha\beta\Gamma\Delta\sum_{def}^{abc} \tag{I.1}$$

REFERENCES

1. J. S. Kilby, “Invention of the Integrated Circuit,” *IEEE Trans. Electron Devices,* **ED-23,** 648 (1976).
2. R. W. Hamming, *Numerical Methods for Scientists and Engineers*, Chapter N-1, McGraw-Hill, New York, 1962.
3. J. Lee, K. Mayaram, and C. Hu, “A Theoretical Study of Gate/Drain Offset in LDD MOSFETs” *IEEE Electron Device Lett.,* **EDL-7**(3). 152 (1986).

PART I

SUBMICRON SEMICONDUCTOR MANUFACTURE

CHAPTER 1

THE SUBMICROMETER SILICON MOSFET

> The sheer volumne of answers can often stifle insight...The purpose of computing is insight, not numbers.
>
> —Hamming [2]

1.1 Here is a normal section

Here is some text.

1.1.1 This is the subsection

Here is some normal text. Here is some normal text. Here is some normal text. Here is some normal text. Here is some normal text. Here is some normal text. Here is some normal text. Here is some normal text. Here is some normal text. Here is some normal text. Here is some normal text.

1.1.1.1 This is the subsubsection Here is some text after the subsubsection. Here is some text after the subsubsection. Here is some text after the subsubsection. Here is some text after the subsubsection.

This is the paragraph Here is some normal text. Here is some normal text. Here is some normal text. Here is some normal text.

1.2 Tips On Special Section Heads

Here are some things you can do for a special section head.

1.3 Break Long Section heads with double backslash

Here is some normal text. Here is some normal text. Here is some normal text.

1.4 Here is a Section Title

See this section head for information on how to explicitly break lines in table of contents.

1.5 How to get lower case in section head: pH

Here is some normal text. Here is some normal text. Here is some normal text.

1.6 How to use a macro that has both upper and lower case parts: V_{Txyz}

See the top of this file where the definition and box were set.

1.7 Equation

For optimal vertical spacing, no blank lines before or after equations

$$\alpha\beta\Gamma\Delta \tag{1.1}$$

as you see here.

CHAPTER 2

FIRST EDITED BOOK SAMPLE CHAPTER TITLE

G. ALVAREZ AND R. K. WATTS

Carnegie Mellon University, Pittsburgh, Pennsylvania

2.1 Here is a normal section

Here is some text.

CHAPTER 3

SECOND EDITED BOOK SAMPLE CHAPTER TITLE

George Smeal, Ph.D.[1], Sally Smith, M.D.[2] and Stanley Kubrick[1]

[1]AT&T Bell Laboratories Murray Hill, New Jersey
[2]Harvard Medical School, Boston, Massachusetts

3.1 Sample Section

Here is some sample text.

3.2 Example, Figure and Tables

EXAMPLE 3.1 Optional Example Name

Use Black's law [Equation (6.3)] to estimate the reduction in useful product life if a metal line is initially run at 55°C at a maximum line current density.

illustration here

Figure 3.1 Short figure caption.

Figure 3.2 Oscillograph for memory address access operations, showing 500 ps address access time and superimposed signals of address access in 1 kbit memory plane.

Table 3.1 Small Table

one	two	three	four
C	D	E	F

Table 3.2 Effects of the two types of $\alpha\beta \sum_B^A$ scaling proposed by Dennard and co-workers[a,b]

Parameter	κ Scaling	κ, λ Scaling
Dimension	κ^{-1}	λ^{-1}
Voltage	κ^{-1}	κ^{-1}
Currant	κ^{-1}	λ/κ^2
Dopant Concentration	κ	λ^2/κ

[a] Refs. 19 and 20.
[b] $\kappa, \lambda > 1$.

3.2.1 Side by Side Tables and Figures

Space for figure...

Figure 3.3 This caption will go on the left side of the page. It is the initial caption of two side-by-side captions.

Space for second figure...

Figure 3.4 This caption will go on the right side of the page. It is the second of two side-by-side captions.

The command `\sidebyside{}{}` works similarly for tables:

Table 3.3 Table Caption

one	two	three	four
a	little	sample	table

Table 3.4 Table Caption

A	B	C	D
a	second little	sample	table

When using `\sidebyside`, one must use the cross referencing command `\label{}` after and *outside* of `\caption{}`:

```
\begin{table}
\sidebyside{\caption{Table Caption}\label{tab1}
first table}
{\caption{Table Caption}\label{tab2} second table}
\end{table}
```

or,

```
\begin{figure}
\sidebyside{\vskip<dimen>\caption{fig caption}\label{fig1}}
{\vskip<dimen>\caption{fig caption}\label{fig2}}
\end{figure}
```

3.3 Algorithm

This is a sample algorithm.

Algorithm 3.1

state_transition algorithm {
```
        for each neuron j ∈ {0, 1, . . . , M − 1}
        {
            calculate the weighted sum S_j using Eq. (6);
            if (S_j > t_j)
                    {turn ON neuron; Y_1 = +1}
            else if (S_j < t_j)
                    {turn OFF neuron; Y_1 = −1}
            else
                    {no change in neuron state; y_j remains unchanged;}
        }
}
```

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1. This is the first item in the numbered list.
2. This is the second item in the numbered list. This is the second item in the numbered list. This is the second item in the numbered list.

- This is the first item in the itemized list.
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  This is the first item in the itemized list. This is the first item in the itemized list. This is the first item in the itemized list.

PROBLEMS

3.1 For Hooker's data, Problem 1.2, use the Box and Cox and Atkinson procedures to determine a appropriate transformation of PRES in the regression of PRES on TEMP. find $\hat{\lambda}$, $\tilde{\lambda}$, the score test, and the added variable plot for the score. Summarize the results.

3.2 The following data were collected in a study of the effect of dissolved sulfur on the surface tension of liquid copper (Baes and Killogg, 1953).

x = Weight % sulfur		Y = Decrease in Surface Tension (dynes/cm), two Replicates	
0.	034	301	316
0.	093	430	422
0.	30	593	586

a) Find the transformations of X and Y sot that in the transformed scale the regression is linear.
b) Assuming that X is transformed to $\ln(X)$, which choice of Y gives better results, Y or $\ln(Y)$? (Sclove, 1972).

c) In the case of α_1? d) In the case of α_2?

3.3 Examine the Longley data, Problem 3.3, for applicability of assumptions of the linear model.

3.4 In the case of Γ_1? **3.5** In the case of Γ_2?

EXERCISES

3.1 For Hooker's data, Exercise 1.2, use the Box and Cox and Atkinson procedures to determine a appropriate transformation of PRES in the regression of PRES on

TEMP. find $\hat{\lambda}$, $\tilde{\lambda}$, the score test, and the added variable plot for the score. Summarize the results.

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a) Find the transformations of X and Y sot that in the transformed scale the regression is linear.
b) Assuming that X is transformed to $\ln(X)$, which choice of Y gives better results, Y or $\ln(Y)$? (Sclove, 1972).

c) In the case of Δ_1?
d) In the case of Δ_2?

3.3 Examine the Longley data, Problem 3.3, for applicability of assumptions of the linear model.

3.4 In the case of Γ_1?

3.5 In the case of Γ_2?

3.4 Summary

This is a summary of this chapter. Here are some references: [1], [4].

REFERENCES

1. J. S. Kilby, "Invention of the Integrated Circuit," *IEEE Trans. Electron Devices,* **ED-23,** 648 (1976).
2. R. W. Hamming, *Numerical Methods for Scientists and Engineers*, Chapter N-1, McGraw-Hill, New York, 1962.
3. J. Lee, K. Mayaram, and C. Hu, "A Theoretical Study of Gate/Drain Offset in LDD MOSFETs" *IEEE Electron Device Lett.,* **EDL-7**(3). 152 (1986).
4. A. Berenbaum, B. W. Colbry, D.R. Ditzel, R. D Freeman, and K.J. O'Connor, "A Pipelined 32b Microprocessor with 13 kb of Cache Memory," it Int. Solid State Circuit Conf., Dig. Tech. Pap., p. 34 (1987).

Appendix: This is the Chapter Appendix Title

This is an appendix with a title.

$$\alpha\beta\Gamma\Delta \tag{A.1}$$

Figure 3-A.1 This is an appendix figure caption.

Table 3-A.1 This is an appendix table caption

Date	**Event**
1867	Maxwell speculated the existence of electromagnetic waves.
1887	Hertz showed the existence of electromagnetic waves.
1890	Branly developed technique for detecting radio waves.
1896	Marconi demonstrated wireless telegraph.
1897	Marconi patented wireless telegraph.
1898	Marconi awarded patent for tuned communication.
1898	Wireless telegraphic connection between England and France established.

Appendix

This is a Chapter Appendix without a title.

Here is a math test to show the difference between using Computer Modern math fonts and MathTimes math fonts. When MathTimes math fonts are used the letters in an equation will match TimesRoman italic in the text. (*g, i, y, x, P, F, n, f, etc.*) Caligraphic fonts, used for $\mathcal{ABC}$ below, will stay the same in either case.

$$g_i(y|f) = \sum_x P(x|F_n) f_i(y|x) \mathcal{ABC} \tag{B.1}$$

where $g_i(y|F_n)$ is the function specifying the probability an object will display a value y on a dimension i given F_n the observed feature structure of all the objects.

APPENDIX A

THIS IS THE APPENDIX TITLE

This is an appendix with a title.

$$\alpha\beta\Gamma\Delta \tag{A.1}$$

Figure A.1 This is an appendix figure caption.

Table A.1 Appendix table caption

Alpha	Beta	Gamma	Delta
α	β	Γ	Δ

APPENDIX B

This is an appendix without a title.

Here is a math test to show the difference between using Computer Modern math fonts and MathTimes math fonts. When MathTimes math fonts are used the letters in an equation will match TimesRoman italic in the text. (*g, i, y, x, P, F, n, f, etc.*) Caligraphic fonts, used for $\mathcal{ABC}$ below, will stay the same in either case.

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where $g_i(y|F_n)$ is the function specifying the probability an object will display a value y on a dimension i given F_n the observed feature structure of all the objects.

APPENDIX C

ALTERNATE REFERENCE STYLES

REFERENCES

1. J. S. Kilby, "Invention of the Integrated Circuit," *IEEE Trans. Electron Devices,* **ED-23,** 648 (1976).
2. R. W. Hamming, *Numerical Methods for Scientists and Engineers*, Chapter N-1, McGraw-Hill, New York, 1962.
3. J. Lee, K. Mayaram, and C. Hu, "A Theoretical Study of Gate/Drain Offset in LDD MOSFETs" *IEEE Electron Device Lett.,* **EDL-7**(3). 152 (1986).
4. A. Berenbaum, B. W. Colbry, D.R. Ditzel, R. D Freeman, and K.J. O'Connor, "A Pipelined 32b Microprocessor with 13 kb of Cache Memory," it Int. Solid State Circuit Conf., Dig. Tech. Pap., p. 34 (1987).

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[Kil76] J. S. Kilby, "Invention of the Integrated Circuit," *IEEE Trans. Electron Devices,* **ED-23,** 648 (1976).

[Ham62] R. W. Hamming, *Numerical Methods for Scientists and Engineers*, Chapter N-1, McGraw-Hill, New York, 1962.

[Hu86] J. Lee, K. Mayaram, and C. Hu, "A Theoretical Study of Gate/Drain Offset in LDD MOSFETs" *IEEE Electron Device Lett.,* **EDL-7**(3). 152 (1986).

[Ber87] A. Berenbaum, B. W. Colbry, D.R. Ditzel, R. D Freeman, and K.J. O'Connor, "A Pipelined 32b Microprocessor with 13 kb of Cache Memory," it Int. Solid State Circuit Conf., Dig. Tech. Pap., p. 34 (1987).