

Decision Tree Primer

Craig W. Kirkwood

*Department of Supply Chain Management
Arizona State University*

COPYRIGHT © 2002 by Craig W. Kirkwood

Microsoft is a registered trademark of Microsoft Corporation in the United States of America and other countries.

All rights reserved. No part of this work covered by the copyright hereon may be reproduced or used in any form or by any means graphic, electronic, or mechanical, including photocopying, recording, taping, or information storage and retrieval systems without the written permission of the copyright holder.

Craig W. Kirkwood (480-965-6354; e-mail craig.kirkwood@asu.edu)
Department of Supply Chain Management
Arizona State University
Tempe, AZ 85287-4706

Contents

1	Decision Trees	1
1.1	Decision Trees	1
1.2	Expected Value	5
1.3	Dependent Uncertainties	9
1.4	Sequential Decisions	11
1.5	Exercises	14
2	Risk Aversion	19
2.1	Risk Attitude	19
2.2	Utility Functions	20
2.3	The Exponential Utility Function	22
2.4	Assessing the Risk Tolerance	23
2.5	Certainty Equivalent for an Exponential Utility Function	24
2.6	Exercises	26
3	The Value of Information	27
3.1	Calculating the Value of Perfect Information	27
3.2	The Value of Imperfect Information	28
3.3	Flipping a Probability Tree	30
3.4	Calculating Flipped Probabilities	33
3.5	Finding the Expected Value of Imperfect Information	34
3.6	Exercises	34
4	Solutions for Exercises	39
4.1	Chapter 1 Exercise Solutions	39
4.2	Chapter 2 Exercise Solutions	42
4.3	Chapter 3 Exercise Solutions	45

