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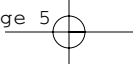
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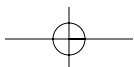
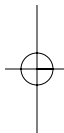
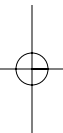
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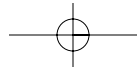
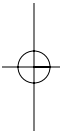
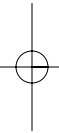
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Many contributed to this book, but none more than my
good friend Lisa Deitz – to whom it is dedicated





PREFACE

This is a primer on foraging models relevant to the study of hunter-gatherers. It is intended for students new to the subject matter—especially those with little mathematical training and similarly challenged ethnographers, ethnologists, and archaeologists who are familiar with the principles of foraging theory but have never mastered any of its individual models. There are more of them than one might think. The diet breadth model is the backbone of hunter-gatherer foraging research, for example, but I would wager that of the many scholars who have referred to it in print or applied its logic to interpret their data, fewer than one in ten has ever worked through a diet breadth problem with real numbers. I doubt the others are lazy: it is simply that no existing source provides instructions for calculating diet breadth. As my colleague Bruce Winterhalder likes to point out, the biological types have presented several quite similar but not exactly identical variations of the diet breadth model that codify slightly different assumptions by means of formulas that are correct but generally incomplete, failing to specify all the operations required for a solution. Winterhalder has mastered these complexities, but too many without his considerable mathematical skills give up without even trying, convinced that the best they can do is gather the gist of the diet breadth model and use its more intuitively obvious implications to help them think about hunter-gatherer behavior.

This is unsatisfactory for several reasons, not the least of which is that it makes foraging theory seem at once more simple and more complicated than it really is—so simple that the math doesn't matter, so complicated that only the mathematically gifted can really do it. Neither is true: the math does matter and is simple enough that anyone who mastered elementary high school algebra can do it. The math matters because, to draw an analogy with cooking, reading the recipe is not the same as cooking the dish. One cannot really know how any foraging model works (i.e., what it does) without actually performing the mathematical operations needed to solve a specific problem. The models presented here are so simple that this is easily done; anyone sufficiently inclined can work through a whole battery of problems and in this way come to understand the relationship between data input and model output—that is, how much the data must change to produce a fundamentally different outcome. The minimal computation required can be done with pencil and paper or hand calculator, but most efficiently on a computer.

I do virtually all my statistical and quantitative work using Microsoft® Excel and strongly recommend using that (or a similar spreadsheet application) to program the equations presented here. As far

as I am aware, there are no commercial or freeware applications for most of these models, and I ultimately rejected the idea of providing a CD with my versions because doing so would deprive readers of a valuable learning experience. There is no substitute for developing your own spreadsheet treatments: you will know exactly what went into them and exactly how they work.

Since we're on this subject, it is worth noting that while these models are simple, they are very powerful precisely because of that. They argue that human foraging behavior can be explained with reference to the interaction between a few important variables. While these models oversimplify the real world, they are surely the right place to start when attempting to understand it. They make straightforward, relatively easy-to-test predictions. Complex models, on the other hand, make complex predictions that are correspondingly more difficult to test. This difference is crucial in archaeology, where taphonomic and other processes continually degrade the resolution of the material record—hence our ability to assess the kind of fine-grained test implications that complex models typically generate. I have never felt the need to apologize for using simple models to explain human behavior, nor should the reader. After all, isn't this what science is supposed to be about: making the world simpler and easier to understand?

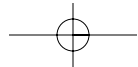
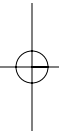
A word of caution is in order. Because this primer is designed for readers with limited mathematical background and experience with quantitative modeling, I have consistently opted for clarity in presentation and explication of formulas and data, sometimes at variance with accepted conventions. Results are sometimes expressed to more significant digits than would normally be warranted, for example, because it has been my experience that this makes it easier for students to check their work (and more rewarding when the numbers actually match!). For this reason, while my purpose in writing this primer is to encourage its readers to pursue research using these models and present their results to professional audiences at scholarly meetings or in published form, this primer should not be used as a style guide. I strongly urge readers to run all their work by a knowledgeable reviewer who is willing to take the time to check their math and the form in which it is presented, a practice that is standard even among experts, who are as mistake-prone as anyone else. As my colleague Donald Grayson quips, "We have friends check our work to keep the rest of the world from finding out how stupid we really are." While I followed that advice here, having others double-check my work for errors, I am naturally responsible for any that remain.

This is where I thank people who contributed to this primer. Among all these individuals, Lisa Deitz certainly ranks first, having read several versions of the manuscript, checking them for grammar, logic, and computational accuracy and making me look smarter than I really am. I am

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equally indebted to my editor and publisher Eliot Werner, who helped me get my first book into print almost two decades ago and was foolish enough to undertake this project. In a world filled with outrageously priced books, Eliot is one of a rare few individuals dedicated to publishing good books at a reasonable price—we worked hard to keep the price down on this one. Thanks are also due to Bruce Winterhalder, who read an early draft of the manuscript and encouraged me to get it into print; and two anonymous reviewers who, on the basis of reading this same early draft, urged Eliot to go ahead with getting a more polished version of it published.



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