

Preface

What Does it Mean to be a Behavior Analyst?

Are you a behavior analyst, or at least studying to become one? What are the characteristics of researchers and practitioners who describe themselves as behavior analysts that differentiate them from individuals who identify with other disciplines? Behavior analysts have considered ways of answering this question since the earliest days of the field, and for good reason. Shared views about the nature of behavior as a scientific subject matter and the methods by which we investigate it greatly influence what the field discovers. In turn, what we learn about how behavior works serves as the foundation of a practical technology for changing behavior in everyday life. Furthermore, how we talk about behavior, study its underlying mechanisms, and change behavior for practical purposes serves as a curriculum in which new members of the field are trained. Their careers drive the field's evolution and preparation of still more behavior analysts, and so it goes.

Over the years, some defining features of the field have emerged on which there is widespread agreement. Perhaps the most fundamental feature of behavior analysis is its focus on behavior as the sole subject matter of the science and the target of practitioner interest. Although this consensus may seem both obvious and simple, it is neither. In fact, it will take the whole of this book to consider the nature of behavior and distinguish it from the implications of a colloquial vocabulary about behavior that we unavoidably bring to the discussion. As we will see, this unwavering focus on behavior sets behavior analysts apart from others who are interested in behavior more as a basis for interpretations about the mental qualities suggested by everyday language.

Behavior analysts are especially interested in **operant behavior**. This focus flows from the central role of operant behavior in an organism's repertoire and the crucial adaptive relation between operant behavior and the environment. Decades of both basic and applied research have provided a remarkably clear picture of how operant behavior works (see, for example, Catania, 2007), and respect for this literature is therefore another key characteristic of the field. Behavior analysts accept this scientifically based understanding of operant behavior as a limiting condition on speculations about behavior. They understand that both general proposals about behavioral phenomena and guesses about particular instances of behavior must be consistent with what our science has already established.

Still another important area of agreement that defines this field is its reliance on a collection of research methods that have proven effective in studying behavior under both laboratory and field conditions (e.g., Johnston & Pennypacker, 2009; Sidman, 1960). These practices emerged from early laboratory experience and are more similar to those of the natural sciences than to social science methods. Direct measurement of the behavior of individual participants is the centerpiece of this approach, and it is complemented by ways of arranging experimental comparisons and analyzing the resulting data that are especially effective at isolating the effects of environmental variables. Behavior analyst practitioners have even integrated these methods into best practice requirements for routine applied interventions.

Finally, what ties these features of behavior analysis together is agreement on a conceptual framework for how we talk about behavior as a scientific subject matter and as a focus of more practical interests. This conceptual approach, which B. F. Skinner labeled **radical behaviorism**, grew out of a scientific understanding of the nature and workings of operant behavior (Skinner, 1945). The ability to explain particular instances of behavior based on sound science has been vital in helping behavior analysts avoid the pitfalls associated with culturally invented causes of behavior. The defining features of radical behaviorism are the focus of this book's chapters and are summarized in Chapter 10.

In sum, the field of behavior analysis is defined by a particular set of characteristics: a predominant focus on behavior guided by an established scientific literature using methods specifically suited to describing how operant behavior works and integrated with a conceptual framework that is consistent with these research findings. The history of behavior analysis has shown that these three characteristics have powerful consequences for the effectiveness of its researchers and practitioners. The pervasive influence of these characteristics in one's professional repertoire is what it means to be a behavior analyst.

Widespread agreement that these features are the foundation of the field's effectiveness means students must acquire a basic mastery of each of these areas. Regardless of a student's interests, core coursework should focus on how operant behavior works, how behavior can most effectively be measured and evaluated,

and how we can talk about behavior in a way that is consistent with what research has already revealed. This book addresses the last of these topics.

Why Do Practitioners Need to Understand Conceptual Issues?

Practitioners representing physical science disciplines work at the interface between their science-based specialties and society. For example, physicians bring the fruits of basic and applied research to their patients, who are not expected to understand the scientific findings underlying their medical treatment. In fact, patients' convictions about their medical problems are often rooted in ignorance and misunderstanding, and part of the physician's job is to explain what is really going on and how a proposed treatment will help. Given the encouraging track record of the medical profession, patients are usually predisposed to accept their doctors' explanations and recommendations. Were patients to prefer their own convictions about their medical issues, they would be less inclined to accept or cooperate with recommended treatment regimens and might not benefit from medical technology.

Applied behavior analysis (ABA) practitioners confront a similar challenge. Their job is to bring decades of basic and applied research to bear on behavioral problems presented by individuals who are unlikely to understand how their problems originated and why they seem so difficult to resolve. Unlike medical patients, however, individuals, families, and even other professionals facing behavioral issues are not usually predisposed to unquestioningly accept the ABA practitioner's recommendations and the underlying science. Of course, the field of behavior analysis does not yet have the widespread recognition and acceptance enjoyed by more mature disciplines such as medicine and engineering.

Applied behavior analysts face this challenge because the culture provides a wealth of invented explanations woven into our language about how behavior works. For example, we are used to assigning the causes of behavior to internal, mental processes, as when we say "I made up my mind to lose some weight." Everyone brings these implicit convictions to discussions of behavioral problems, which means that applied behavior analysts must shoulder a burden their physician counterparts are largely able to avoid. ABA practitioners must convince their clients to accept an explanation and course of treatment that is unfamiliar and that probably conflicts with widely held views that otherwise seem obvious and comfortable. Furthermore, the fact that the field of behavior analysis is not yet broadly accepted as the default discipline for addressing behavioral needs means that alternative approaches likely to appeal to uncritical consumers are also available in the marketplace. This competition only adds to the behavior analysts' task of selling their point of view and methods.

Experienced ABA practitioners are all too familiar with these circumstances. For example, an applied behavior analyst holding a contract with a school district to help teachers address behavioral problems with selected students is asked to

assist a third grade teacher. The student in question is frequently disruptive in various ways and has often been remanded to the school's alternative classroom and even suspended for periods of time. The teacher is convinced that the student is frustrated by his inability to do assigned school work and that his acting out is a reaction to this frustration. The teacher believes that the disruptive behavior will therefore decrease if his academic skills improve but simply cannot find additional time to devote to this child's academic needs.

After conducting a functional behavioral assessment, the ABA practitioner develops a somewhat different view. She finds that although the student is weak in certain academic skills, these weaknesses are not so severe as to prevent him from doing assigned work. She also finds that the teacher frequently responds to the child when he is acting out but pays little attention to him when he is behaving appropriately. Knowing the considerable research literature pertinent to this kind of situation, the practitioner is confident that changing the **reinforcement contingencies** will result in less disruptive behavior and more academic behavior. She suspects that once the child is spending more time on academic tasks, it will be much easier for the teacher to address his specific skill needs.

The ABA practitioner recognizes that the teacher's focus on frustration as the underlying cause for the problem behavior is a misguided colloquial explanation. At a minimum, the challenge of the practitioner is to guide the teacher toward changing his interactions with the student, regardless of his assumptions. Depending on the teacher's level of cooperation and interest, however, the practitioner may also be able to help the teacher appreciate the general role of operant learning in understanding student behavior.

In this case, the teacher's belief that frustration is the cause of the child's disruptive behavior stems from an explanatory framework that encourages people to refer to an almost limitless variety of **invented mental events**, such as frustration, as causes for patterns of behavior. It is important that the ABA practitioner understand the pitfalls of this kind of faulty reasoning and be able to apply a conceptual framework that offers an alternative explanation about the real causes of behavior that is consistent with the established scientific literature. If the ABA practitioner shares the teacher's convictions about the causal role of invented mental events, she might focus on ways of decreasing frustration instead of selecting procedures that directly address problematic reinforcement contingencies and reduce disruptive behavior. As we will see, attempting to address frustration raises some significant challenges and will probably not decrease disruptive behavior anyway.

In other words, it is important for ABA practitioners to understand the field's conceptual framework because it avoids problems resulting from the **mentalistic** framework implicit in everyday language. This colloquial perspective is endlessly at odds with the way behavior actually works. It explains behavior in ways that are not only incorrect but that suggest solutions that will usually be unsuccessful. Even

worse, these apparent solutions are often incompatible with interventions based on the basic and applied science that is the foundation of ABA technology.

ABA practitioners must confront this conflict in their efforts to guide others toward effective solutions to behavioral problems. In order to be an effective interface between science and society, they must not only be able to offer a coherent science-based framework for understanding behavior but be skilled at persuading others to consider, if not adopt, this point of view as it applies to the circumstances of each case. This is an important competency for practitioners to master. In sum, one reason for ABA practitioners to learn about the field's conceptual framework is that it allows them to be more effective in working with clients, families, and other professionals.

Another reason for practitioners to master this material is that it helps ensure consistency between the field's science and the resulting technology. Maintaining close relations among basic research, applied research, and service delivery areas of the field is a long-standing concern in behavior analysis (for example, see Moore & Cooper, 2003). A shared way of looking at behavior as both a scientific subject matter and a focus of practical interventions is a key mechanism for maintaining mutual influences among otherwise diverse interests within the field. It is the glue that binds together the different elements of the discipline.

The risk is that over time the evolution of ABA practice might be influenced less by the findings of basic and applied research and their associated measurement and evaluation methods and more by outside influences such as the demands of the marketplace. There are many ways this could happen. Basic researchers might fail to appreciate the fundamental behavioral questions implicated in daily practice. Applied researchers might focus on issues that gradually drift away from a foundation in the basic research literature. Practitioners might be inadequately trained in the findings of basic research or well-established measurement and evaluation procedures. They might even be seduced by the financial demands of clinical practice and drift away from best practice standards.

A particularly worrisome risk is that practitioners might succumb to the familiarity of everyday language and abandon much of the field's conceptual orientation. This kind of backsliding can be difficult to resist. After all, practitioners must retain their professional dialect and its underlying philosophy while communicating effectively with clients and other professionals in the common parlance that is so often an impediment to understanding the real causes of behavior. Other professionals face a similar challenge. For example, physicians talk with each other about their cases using a technical vocabulary that must be put aside when talking with patients and families. ABA practitioners face an even greater challenge, however, because their professional vocabulary involves more than just some technical terms. It is based on a fundamentally different conception of behavior and its causes than the point of view implicit in everyday language. Furthermore, ABA practitioners continue to speak this everyday language under non-professional cir-

cumstances. There is no point in trying to speak in this technical dialect when ordering a meal at a restaurant or chatting with friends, for example.

The only way to be sure that ABA practitioners continue to approach behavioral problems with the full power of the field's conceptual framework is to make sure that they are especially well-trained in this area and have acquired a deep appreciation of its importance to their effectiveness. In effect, their training must "vaccinate" them against the seductions of the familiar and comfortable dialect that otherwise surrounds them. This book offers them a means of beginning to acquire this mastery and appreciation.

What This Book Will Do

This book presents an argument. The essence of the argument concerns why it is important for ABA practitioners to learn how to talk about behavior in a way that is fully consistent with what the science of behavior has revealed about its nature. Laying out this argument involves describing this specialized dialect and its rationale (Hineline, 1980). Part of the rationale is based on the characteristics of behavior and their implications for how we describe and explain it. However, the justification for this science-based dialect is also based on the many problems presented by everyday language, which is for everyone else the default way of talking about behavior. As a result, much of the book's discussion focuses on how we all learn to talk about behavior from our families and other **verbal communities**.

At times, the intellectual challenge posed by this argument may seem much like learning to speak a foreign language—you have to assimilate many new words and linguistic constructions that can replace those you already know. The task is actually even more difficult, however. Putting aside matters of syntax, if you already know French and are trying to learn to speak Russian, there is usually a word or phrase in Russian that more or less substitutes for most French words or expressions. In learning this new way of talking about behavior, however, there are few such simple substitutions. Instead, the vocabulary of ordinary talk contains many terms and phrases for which there is no straightforward translation in technical behavioral dialect. In fact, we will see that everyday conversation about behavior and other purported human qualities is overflowing with meanings and implications that are not supported by scientific evidence.

The analogy to learning a foreign language is weak for another reason as well. Learning to talk about behavior from a scientific perspective, and without allowing the implications of everyday language to intrude, requires acknowledging the fact that talking about behavior is itself behavior. Although this might seem obvious, viewing verbal behavior as fundamentally the same kind of phenomenon as other kinds of behavior (such as driving a car or eating a cheeseburger) has some disconcerting consequences for how we approach it.

For example, when we talk about behavior, such talk, as with other behavior, is the result of a **learning history**. This means that our convictions—our verbal behavior—about how behavior works come from how we have learned to talk about behavior and must therefore be explained in terms of our learning history. This view contrasts with the more familiar colloquial assumption that verbal behavior, unlike most other behavior, originates in our minds and therefore allows explanation from a mental rather than a physical or environmental framework.

The challenge of learning to replace our everyday way of talking about behavior with a technical scientific dialect is accordingly not so much a matter of vocabulary as it is mastering a view of what behavior is and where it comes from that is fundamentally different from commonly accepted views. Unlike the task of learning a foreign language, we cannot use the familiar vernacular as a foundation for understanding this new dialect. In other words, this is truly a journey to places you have never been.

If all this makes your head hurt, rest assured that as one chapter leads to another, everything will fall into place and you will feel better. Generations of behavior analysts before you have made the same journey and discovered the excitement of arriving at a cohesive framework for talking about behavior that is free of the burden of colloquial inventions and their distractions. The revelations of a science-based dialect about behavior are so pivotal, so broadly valuable, so personally meaningful, that senior behavior analysts can relate the story of their own epiphany as if it occurred just the other day.

Given that this book is one big argument, its style is explicitly persuasive. Because the discussion is as much about our own behavior as it is about the behavior of others, the writing is personal and informal. This is not the kind of material that can be mastered merely by studying a carefully outlined exposition and a list of key points at the end of each chapter. After all, this is a retelling of the story of behavior from the perspective of its science. There are far too many issues, details, and implications to wrestle to the ground; the resulting volume would be far too long. Every point unavoidably raises questions and issues that require reflection and discussion. As a result, each chapter's content should be viewed as a prompt for enthusiastic discussion—and not just in the classroom. This is the kind of material that you need to think about as you are driving to a practicum assignment or the grocery store and to argue about with your peers over some brews on a Friday night.

In other words, what happens in class is only the beginning of figuring out what this all means. Yes, this is what teachers always say about a course of study. In this case, however, the task of discovering all of the ways in which our colloquial dialect has infected our understanding of behavior is more daunting than it might seem. As well, your ability to exercise your new technical vocabulary will initially be modest. (Actually, you are going to be pretty lousy at it at first.) The right interpretations and phrases will not come easily. This book will only show you the

way, not leave you with mastery. After all, you have had decades of exposure to the colloquial dialect. Learning a different dialect that is based on a fundamentally different perspective about the nature and causes of behavior will take continuing effort and time.

What This Book Will Not Do

This book is primarily written for applied behavior analysts, particularly those who work in some capacity as practitioners, and especially students planning careers delivering ABA services. In choosing what to cover and how to approach each topic, I have favored the interests of professionals who deliver behavior change services, whether as clinicians or in supervisory or administrative capacities, over those of more diverse readerships.

I have already noted that ABA practitioners work at the boundary between the science and society. This interfacing role means they must first understand the conceptual issues that are important to the field, their foundation in the science of behavior, and their implications for efforts to resolve behavioral problems. As well, they need to be particularly familiar with the colloquial assumptions about the nature and causes of behavior brought to them by clients, families, and other professionals. They further need to be skilled at preventing these assumptions from interfering with the consideration of each case. When appropriate, they need to know how to gently persuade others to view particular instances of behavior in terms of environmental variables instead of assumed mental causes.

With these interests, the book does not delve deeply into some topics that might be appropriate for more comprehensive instructional objectives. For instance, it does not review the historical evolution of various versions of behaviorism, nor does it pursue the many connections with philosophical traditions. These are important topics for an in-depth command of this material, but leaving them aside will not prevent practitioners from dealing effectively with the conceptual issues that routinely arise in applied settings. The text also does not succumb to the temptation to probe all of the implications of each topic, which would often lead too far away from more central interests. Nor does it exhaustively engage the considerable literature in this area that has developed over the years, although it will give you more than passing familiarity with it. Although these omissions may seem significant, they will not interfere with readers attaining a coherent, faithful, and useful understanding of the conceptual framework of the field of behavior analysis.

On the other hand, this book does not attempt to reduce its subject matter to a set of simple rules that might guide an ABA practitioner's reactions to different types of conceptual challenges. Such rules would be ineffective in any case. Being able to identify and respond appropriately to conceptual issues concerning behavior, especially those raised by everyday discourse, requires a level of under-

standing that integrates the various features of this framework into a complex but coherent world view.

Furthermore, this picture must be sufficiently broad and deep to accommodate all conceptual challenges in an internally consistent manner. In fact, one of the most notable features of the field's conceptual framework is its comprehensive and internally consistent reach. It addresses any and all conceptual issues posed by the characteristics of behavior that science has revealed and the conflicting assumptions embedded in everyday language. Furthermore, it does so without exceptions, that is, without violating the core features of its conceptual positions.

Describing the essential features of this conceptual system, but without probing its full complexity, has required countless decisions about what to include and thereby exclude. My choices will likely bother most instructors at one point or another. After all, each will have acquired his or her command of this material in other contexts and can argue why certain topics or points should have been included or even left behind. I share this frustration. I avoided including issues that are interesting to me and arguably important in some ways. My overriding criterion for what material to cover, however, was based on the necessity of describing a coherent conceptual framework that would be not less, but not much more, than ABA practitioners need to know in order to effectively deal with conceptual issues in their daily work. If every topic and implication was fully pursued and every possible confusion was avoided with more discussion, this would be a different book for a different audience—and a much longer one at that.

A persistent challenge in writing this book was to tread a fine line between the conceptual matters of primary interest and the underlying science and technology they support. After all, these topics should all come together in painting a comprehensive and integrated picture of the field of behavior analysis. Again and again, it was tempting to digress from the conceptual agenda toward discussion of related research and practical techniques. It is not that these digressions might not be useful, but at what point would the temptations result in a different (and much longer) book for a different audience? If conceptual discussions sometimes fail to go as far as you might like in pursuing their experimental and practical implications, I certainly sympathize with any disappointment. However, the goal of this book is necessarily modest—to present practitioners with a limited treatment of the conceptual foundation of behavior analysis. Thoroughly integrating this material with its scientific origins and practical implications would require many more pages and more time than a semester or a curriculum offers.

The result of my choices is a book that will be useful not just for ABA practitioners but for all behavior analysts who need something less than advanced training in this area. This book presents the heart of the conceptual framework that underlies behavior analysis. It explains the key elements of this perspective in a way readers can retain as a coherent point of view ready for practical use as needed. However, it avoids expanding each topic to the point that the goal of comprehension is burdened

by the challenge of remembering. The goal is to teach you how to talk about behavior in a certain way, not to teach you things you will soon enough forget.

Prerequisites

Compared to other topics in behavior analysis, this material does not require lots of novel terminology and technical phrasing that would prevent unprepared readers from understanding its essential features. Nevertheless, the more background in behavior analysis you bring to these issues, the more you will profit from your efforts. In a coordinated program of study in the field of behavior analysis, this material should therefore come late in the schedule. The reason for this delay has to do with the fact that this conceptual orientation originated in scientific discoveries about the characteristics of operant behavior. You must have a solid understanding of these characteristics and a deep appreciation for the power and pervasiveness of **operant selection** processes in explaining behavioral repertoires. If you lack this background, it will be difficult to accept the role of learning in instances of behavior that convincingly replace culturally invented mentalistic causes.

Another prerequisite is more difficult to arrange because it does not strictly depend on prior coursework. The challenge of understanding this material lies not so much in comprehending the arguments in each chapter as in dealing with the conflict between these positions and everything we have learned from our culture about the causes for behavior. What we learned from our families and our other verbal communities has long since become so familiar that it can be difficult to recognize its shortcomings or even consider alternative points of view. These culturally based explanations of behavior are so thoroughly embedded in everyday language that it can be hard to imagine other ways of talking about an issue. Some of you may be reluctant to abandon familiar terms and phrases and their implied explanations. Even those who are willing may balk at the initial awkwardness of a new dialect.

This challenge means that you will profit most from this book if you are sufficiently confident in your development as a behavior analyst to question prior convictions and to consider alternative views. It is not clear what training history assures this particular preparation. Some are readied by their experiences to find this intellectual summons exciting and relish the journey. Others need more encouragement along the way. In my experience, however, all students find that this material pulls together what they have learned in other courses and leaves them with a more integrated understanding of the field.

Teaching

Teaching this material requires that instructors take a somewhat different approach than they might in addressing other topics in the field. Presenting and explaining

principles of operant learning or research methods, for example, often requires little more than the right reading material, good lectures, and focused discussion. Although some time will need to be spent describing and explaining these conceptual issues, encouraging students to confront seemingly endless instances of mentalism in everyday language is an even more important instructional task.

This challenge can be eased by creating a classroom atmosphere that balances acknowledgment of the shared struggle with high intellectual standards. That is, it is important that students feel comfortable admitting their discomfort with challenging familiar viewpoints. They need to know that speaking out about their concerns is not only acceptable but useful. On the other hand, they should understand that familiarity is not an adequate defense for retreating to vernacular phrasing or resisting new concepts. It is particularly important to establish a good standard of intellectual honesty in examining colloquial explanations of behavior. It should not be acceptable to accept the credibility of an everyday explanation of a particular behavior merely because “it seems right.” Defending such a position should require describing the mechanisms of operant selection that are necessary to make it credible. This insistence will often lead away from the colloquial position and toward a science-based explanation.

Of course, instructors cannot require that students pledge unending devotion to the features of radical behaviorism described in this book. They can only insist that students at least understand this framework and be able to explain its details, mechanisms, and rationale. A course of study in this area can only create some new learning history, which, when done well, might begin to supplant the effects of a much longer history of a mentalistic explanatory model. A more fulfilling instructional goal might be that students become excited about how this conceptual system ties together everything else they have learned, which then motivates them to accept the challenge of figuring out these issues and modifying their verbal repertoire accordingly. Some students will get to this place, but others will not make it all the way. The pedagogic approach to this material can have a big impact on the relative size of these two groups.

Organization and Learning Aids

It is customary to begin a book about the conceptual framework of behavior analysis with an historical explanation of how this point of view evolved and how it relates to other conceptual systems. Instead, this book’s early chapters introduce you to some assumptions, facts, and arguments that form the foundation of all that follows. The sequence of topics from one chapter to another has been chosen to make this way of talking about behavior increasingly appealing and ultimately convincing. As Chapter 7 recommends, effective arguments begin with easily accepted premises, which are followed by other premises that might be seen as at least reasonable, and then still others that may be less obvious but that should be

found plausible, if not appealing, when their turn comes. Conclusions upon conclusions will accumulate to form a coherent conceptual framework. Throughout, the interests of ABA practitioners serve as a touchstone for selecting topics, framing discussions, and developing examples.

This book is primarily written to serve as a text for courses offered by college and university programs focused on training ABA practitioners. It should also be useful for ABA practitioners already established in their careers who want to bring more depth to their clinical skills, as well as for professionals in other disciplines interested in broadening their perspective about behavior and the field of behavior analysis. Whether serving as a textbook or a professional volume, the book includes some features that should make learning easier and more effective.

Perhaps most importantly, each chapter contains a number of text boxes that address specific issues. The topics treated in the boxes are relevant to the chapter's focus but might distract from the flow of discussion if included as regular text. Some raise particular points that supplement the chapter's themes. Others address a topic that might be too specialized to include in the chapter outline. Collectively, these text boxes are an important component of the book's content and should not be neglected or assigned secondary status.

In addition, the chapters end with some useful supplements. A summary of main points is followed by a study guide. Discussion topics and exercises are designed to probe students' understanding of the chapter and encourage them to engage with its issues. Facilitating discussion among peers should be an important component of each class meeting. There is also a list of recommended readings that acknowledge some of the background for the chapter's material, recognize some well-known publications, and help readers find sources for further study. Throughout the book, terms that might benefit from clarification have been bolded and are defined in a glossary at the end of the book. Finally, a bibliography compiles references to all citations and is supplemented by additional references to important publications in this area.

Two Verbal Repertoires

This book challenges you to learn a new dialect of the English language. In contrast to the colloquial dialect we grew up with, this one originated in the science of behavior analysis. As with other scientific dialects, it serves the needs of the science for a way of talking about its subject matter that accommodates what the science has revealed, offers a precise vocabulary devoid of surplus or unintended meanings, and helps scientists develop effective research questions and interpret results clearly. In other words, the function of this dialect is to improve the quality of the science, and that is the standard by which it must ultimately be judged.

By extension, this dialect offers similar benefits to those who apply scientific findings to practical ends. As already argued, speaking the field's technical dia-

lect helps ABA practitioners prevent conceptual misunderstandings embedded in everyday language from intruding on evidence-based decision making about the behavioral problem at issue. The availability of a technical dialect helps practitioners confront everyday misconceptions about the nature and causes of behavior. It also provides an alternative way of talking, especially among colleagues, that reduces the likelihood of practitioners giving in to their long history with vernacular terms and expressions and failing to recognize their sometimes subtle but mistaken implications about behavior.

You should therefore complete this book with a rudimentary command of a new dialect that not only represents an understanding of certain conceptual issues but facilitates professional discussion with your peers. With continued effort, you should grow increasingly skilled at switching from one dialect to the other, depending on the audience. In a discussion with the parents of a child with autism, for example, colloquial dialect will often be appropriate, even though you are aware of its embedded misunderstandings about the child's behavior. However, your familiarity with these confusions allows you to judge how to encourage the parents to appreciate the role of the environment in understanding how to address their child's needs. On the other hand, in discussing the case with a supervisor trained in behavior analysis, the professional dialect will be appropriate, thereby avoiding misleading references and focusing on relevant issues.

Of course, colloquial dialect is always preferred in talking with family, friends, and everyone else who is not trained in behavior analysis, if only because attempts to speak technically in daily social situations are likely to be punished. Scientific dialects are always laborious and awkward for ordinary conversations. After all, they have evolved under the contingencies associated with clarity and precision, not convenience. In other words, as with individuals who are bilingual, different verbal repertoires are maintained by different audiences.

Admitting that the task posed by this book is largely a matter of learning a scientific dialect about behavior may ease the strain of challenging the familiar colloquial dialect. Although it is important to understand the conceptual basis for conflicts between scientific and everyday ways of talking about behavior, it is not as if the objective is for you to speak and write only in technical language or to replace one dialect with the other. The objective in any conversation is to be effective, which in part means accommodating the listener's repertoire.

In fact, even conversations with other behavior analysts involve a certain amount of professional slang as a way of simplifying discussion among participants who all already share the same conceptual point of view. Technically correct phrasings often purchase precision at the cost of wordiness. There is no need for conversations among colleagues to sound like everyone is reading from a textbook. As a practical matter, some sloppiness in technical language may be acceptable as long as it stops short of accommodating conceptual misunderstandings that would otherwise be avoided by scientific dialect. Nevertheless, you should be able

to use the scientific dialect appropriately as needed in conversations with professional peers. This includes being ready, if your bluff is called, to replace everyday words and phrases with more technical language that shows understanding and appreciation for the underlying conceptual issues.

What is All This Fuss About?

With all this vague reference to conceptual issues and scientific versus colloquial dialects, you should be pretty curious about the reasons for all the fuss. What I have emphasized so far is that this material is really different from what you are used to and really important as well. How different? Well, you are going to be asked to question quite a lot of things concerning your own behavior and the behavior of others that you have never before thought about. You are going to discover that much of what you, and everyone else, have been taught about the causes of behavior is largely a sham. You are going to be surprised at the pervasiveness of the problem and how powerfully it misdirects us. You are going to wonder again and again how it is that people fail to figure this stuff out, while forgetting that you failed to do so as well. And you are going to get used to being the only one in the room who gets it.

On the up side, you are going to be excited by your new-found freedom from mentalism. Does “excited” seem too strong a word? Well, the satisfaction you get from having a way of interpreting instances of behavior that both avoids even a hint of mentalism and is consistent with sound science is going to be pretty powerful. Even if you think of yourself as a “nuts and bolts” kind of practitioner who is not into philosophical niceties, you will realize that this is going to be a big part of what you have to offer. And as with all who have gone before you, you will discover that this conceptual framework is also a big part of your respect for the field of behavior analysis and for yourself as a member of it.

But Before We Get Started...

Have you ever taken a foreign language course in which the teacher announces on the first day of class that she is going to speak only the new language in class? And that you have to follow suit? You probably joined your classmates in a collective groan.

You will be relieved to know that this approach is not an option in writing a book like this. It is probably impossible, and certainly undesirable, to introduce readers to radical behaviorism and all of the attendant issues without writing in more or less plain everyday dialect. This means that in order to present ideas and argue points in a clear and convincing way, I must often use everyday terms and phrases that may themselves be problematic. For example, a sentence may begin, “Keeping this point in mind, let us go on to...” (Actually, I think I successfully

avoided this phrase throughout the book.) As we will see, references to the “mind” are seriously problematic, but such phrases are familiar, comfortable, and unlikely to be misleading in your effort to understand the point of the paragraph.

In a way, this apparent inconsistency only emphasizes the observation that mentalism is inextricably intertwined in everyday language. In any event, the mentalistic allusions of ordinary English should not distract you from the primary focus of what you are reading. You will quickly come to appreciate the necessity of everyday phrasing in discussing the material yourself. The key is to make sure that your inclusion of everyday words and phrases in otherwise technical discussions is based on convenience of exposition, not failure to recognize mentalism and its challenges.

With that, let us begin.



Chapter One

An Unavoidable (but Reasonable) Assumption

Zoey has a consulting contract with a provider agency that serves individuals with various developmental disabilities. She is a Board Certified Behavior Analyst (BCBA), and her contract calls for her to be on site for 10 hours each week. Her activities usually revolve around developing, implementing, and monitoring programmatic interventions for individuals served at different sites, although she is also involved with staff training and management, not to mention troubleshooting systemic problems within the agency's service components.

Today she is attending a meeting with agency staff concerning an individual named Robert. He attends a day program and gets back to his group home around 3:00 p.m. Although the afternoon schedule includes various activities, he typically refuses to participate. Instead, he pesters other residents, and staff have to spend a disproportionate amount of their time dealing with him and the disruptions he instigates.

In addition to Zoey, the meeting includes the usual cast of characters. Liz, the psychologist based in the agency's central office, is there, along with Sharon, a social worker. Of course, the group home manager is present, as is the behavior specialist whose assignment includes this group home, among others. The purpose of the meeting is to consider what to do about Robert's uncooperative and disruptive behavior in the afternoons.

In discussing the fact that Robert refuses to participate in scheduled activities, it doesn't take too long before Liz observes that Robert is free to choose not to participate in activities in which he's not interested, and Sharon agrees. Zoey acknowledges that he should not be forced to participate but tactfully wonders about the reasons for his lack of interest. However, Liz takes the position that he

doesn't have to have a reason; he can choose to ignore staff prompts to participate for no reason at all. Zoey counters with the idea that there must be something that makes him prefer bothering his peers rather than participating in planned activities. She even throws out a couple of possibilities based on what might be reinforcing his behavior more or less.

Liz, perhaps feeling that her status as the agency's psychologist is being threatened, doesn't warm to the implication that reinforcement, or the lack thereof, might be at the root of Robert's behavior. She doesn't want to let go of the idea that there doesn't always have to be a reason for his actions. He may simply not want to participate, just as he may simply want to hassle other individuals. Sharon is no more interested than Liz in the notion that reinforcement might be at work. She argues that although Robert is intellectually disabled, he is no less free than she is to choose one course of action over another. She insists that she can choose to have a salad or a baked potato for lunch today and that the choice is solely hers.

At this point, the group home manager and behavior specialist are more than happy to sit back and stay out of the way. Zoey can now see that this isn't the time to debate philosophical issues and that the discussion certainly isn't helping the group figure out what to do about Robert's problems. She backs off any consideration of whether his behavior represents choices that are free of outside influences and instead tactfully shifts to the nature of the consequences for his behavior that the home manager and behavior specialist have observed, thereby bringing them into the now more practical discussion.

FREE OR DETERMINED?

Inside versus Outside

The convictions of Liz and Sharon about the causes of Robert's behavior raise an issue that has been around for a very long time. Their view is that he is free to choose one course of action over another, regardless of the different consequences associated with these choices. Another way of describing their position is that his uncooperative and disruptive behavior is not the result of outside influences but of the choices he makes.

This view implies an "inside" versus "outside" distinction about the causes of behavior. The implication is that the causes for behavior originate from inside the person in some way or at least are internally modulated. Even though there might be obvious external influences, such as environmental consequences that would seem to make one course of action more or less likely than another, this view holds that it is what goes on inside the person that ultimately controls the behavior that others see. We seem to implicitly assume that any outside considerations are secondary to the individual's deliberations, which are what lead to action. When

someone has behaved in a way that to others was obviously unwise, for instance, we might ask, incredulously, “What were you thinking?”

In other words, from this perspective some sort of mental activity precedes public behavior and may override any influence that environmental consequences might have. If true, this would mean that behavior can at least sometimes be free of outside influences. Of course, we have no way of directly accessing the mental activity of others, so we can only turn to our own experiences to evaluate the credibility of this argument. Taking Sharon’s example, if you are trying to decide whether to have a salad or a baked potato for lunch, it certainly seems that the choice is yours. You might consider reasons for one alternative over the other, but the way you have learned to observe and describe what you are doing leads you to insist that the outcome is yours alone to determine. In fact, you might decide on the salad but, just as the waiter is about to walk away, switch your order to the potato (loaded, of course). You have learned to see yourself making a seemingly free choice.

This apparent ability to change our minds, or to come up with even more options than we started with, makes it seem that we are truly free to choose what we want to do. If someone dares to confront us with an explanation of our choice based on outside factors, we can simply change our minds again, thereby emphasizing the point that we control our own behavior. Under these conditions, denying the role of mental deliberation as the final arbiter of public action is just not credible. After all, we can plainly see that this is exactly what we do much of the time. Right?

Are We Free to Choose?

The assumption that we can make choices that are free of outside influences is the essence of a long-standing philosophical position called **free will**. This position implies that choices are not caused by environmental or even hereditary factors but are free of such influences. In this context, choice is said to be free because it is not determined by physical variables. The assumption that the individual can make decisions that are independent of physical influences leaves only mental deliberation as the source of the resulting behavior.

The expression “free will” means that our will, our ability to control our own actions, is entirely our own, which means that it is not susceptible to other influences. When we talk about our “willpower,” for instance, we imply that our capacity to make ourselves do something is the result of something internal, a power that is uniquely our own. That is, what determines whether we can resist ordering a big fat slice of coconut cream pie as dessert is a personal choice controlled by something indefinable that is at the root of who we are as an individual. Although our decision may take our waistline or cholesterol level into consideration, the actual choice may ignore such unpleasantness and is therefore free.

Of course, most people do not think about these matters as they describe or explain their own behavior. We casually say we've "made up our mind" or "changed our mind." We proudly report that we "made ourselves" go to the gym yesterday. We talk about "deciding" to do this or that. Everyday language includes countless phrases that suggest that individuals act in ways that are ultimately the result of mental deliberation, no matter how obvious other possible influences might be. This mental deliberation may be labeled as thinking, deciding, or choosing, but the key is that the outcome is ultimately free of any influences we can identify.

Sometimes there is no reference to a mental process at all. We may explain the actions of ourselves or others without any implication of careful thought or decision making. We may report that we "decided on the spur of the moment" or "simply decided" to do something as a way of tacitly admitting we are not aware of having made a considered choice. Often we simply report that we "don't know" why we did something, which carries with it the insinuation that there was no reason for doing it. We are especially likely to make this assessment for others, given that we are not privy to their thinking anyway. For example, we might describe a friend's behavior as unthinking, capricious, or irrational. However, lack of awareness of a deliberative process involves the same assumption we make when we refer to having deliberately chosen a course of action—that the behavior of interest occurs without influence by known or unknown variables.

This is all terribly familiar. We grew up learning to describe our behavior and the actions of others as if behavior can be free of environmental influences. We are quite comfortable with the idea that we alone decide what we are going to do, overriding the possible contribution of other factors. This does not mean that most people would not be willing to concede that some portion of our behavior is influenced by physical variables. After all, behavior such as breathing is obviously largely controlled by biological processes, and most would admit that many daily activities such as driving a car are influenced by environmental factors. Whether we put our foot on the brake or steer one way or another is certainly not independent of what is going on around us. However, if someone were to argue that we *never* have the luxury of free choice, most people would be offended. In rejoinder, they might point to choices involving the future, such as where to go for dinner, and argue that no matter what realities might intrude (for example, one restaurant could be closed, another too expensive, etc.) we are still free to choose. They might "prove" our point by changing their mind at the last minute. And how could anyone provide convincing evidence that our choices are not free?

Or Is Our Behavior Determined?

To deny that we can make choices that are free of hereditary or environmental influences is to take the position that our behavior is determined by such factors.

This position is called **determinism**, and it is just as much a fundamental assumption as is the argument for free will. Fortunately, assuming that behavior is determined by physical variables does not require knowing exactly what variables are at work in each instance. In fact, it might be wise to concede that just because we are able to point to certain environmental factors as possible causes for our behavior does not mean we are right or that other factors are not also operating. After all, we are often not especially aware of our behavior and its environmental context. Even when we are paying attention to our actions, any convictions about their causes are hardly the result of skilled and unbiased observation.

The assumption that behavior is determined by physical variables is usually interpreted as allowing no exceptions. In this view, all behavior has such causes, even though we are usually unaware of the details. When confronted with this argument, most people seem threatened by what appears to be an unavoidable loss of autonomy. The assumption that we have free will seems to put us in control of our own behavior, whereas the deterministic assumption means this is only an illusion. It means our behavior is fully controlled instead by variables of which we are usually unaware.

Not surprisingly, it is difficult for most people to accept that the choices they make to behave one way or another are not free but are actually controlled by physical variables. This would mean there is no such thing as free choice or free will. After a lifetime of explaining behavior in terms of such apparent freedom, it is understandably difficult to accept what appears to be a helpless or passive role, instead of a controlling responsibility, as we are pushed this way and that by forces we are likely unaware of and might not be able to control anyway. It simply makes sense to us that whether to adopt a puppy from the shelter, for example, is an act that is ours to decide, rather than a behavior that is entirely the result of current environmental variables in tandem with our cumulative learning history.

In spite of any discomfort with the implications of determinism, the assumption that physical events are fully explainable in terms of other physical events has a long and respected position in the natural sciences. After all, if your job is to explain how the physical universe works, it makes little sense to start with the assumption that the phenomena you are trying to explain may sometimes occur or vary for no reason at all. Scientists assume that there are physical causes for whatever they are studying because they have a long track record of finding such causes and because to assume otherwise would mean their work is pointless. If a cause-effect relation discovered today might not hold tomorrow, scientists could not accumulate a body of reliable findings that could serve as the basis for practical technologies. Behavior is a physical event, of course, and there is no scientific reason to assume it should be an exception to this general assumption of determinism.

Competing Assumptions

These beliefs about the nature of behavior are unavoidably assumptions. It is not possible to gather direct evidence proving that behavior can be free of physical causation or that it is always determined by physical variables. Proving free will would require showing that behavior can occur without influence by hereditary or environmental factors. Not only is it impossible to eliminate the role of these variables, we cannot rule out the possibility that we are simply unaware of their possible contributions, even if they are not obvious, and searching for them would require an endless scientific effort.

On the other hand, proving determinism would require demonstrating the physical causes for any behavior, an impossibly exhausting task as well. Even with the advantages of studying behavior in a laboratory setting using non-human species, the challenge is daunting. Although you might be able to show that when a rat will press the right lever versus the left lever depends on a specific training history, the animal's behavior will usually vary somewhat from otherwise regular patterns. In order to show that these variations are themselves determined by other factors, we would have to identify them and their contribution. Trying to identify all of the influences on behavior in our everyday environments is doomed from the start.

The fact that one position cannot be proven over the other gives us the latitude to consider which assumption is the most useful. Perhaps utility should be the criterion guiding our decision about which assumption we should make. The issue comes down to how one assumption or the other affects our ability to understand behavior and live happily ever after. What, then, are some of the implications of assuming that behavior can be free of physical causation versus assuming that it is always influenced by physical variables?

First, consider what it means to say we have free will. It means that we can control our own actions, we can make choices about what we do, and those choices are not influenced by any other factors. If behavior can occur independently of hereditary and environmental variables, it follows that it may be capricious or random and therefore without explanation. Although it might be argued that "you" are the source of control over what you do, in order for your choice to be free, there must not be any factors influencing your decision. "You" must be completely free to choose. If your choice is influenced by similar experiences in the past or by your assessment of the outcomes of behaving one way or another, it will not be free.

The assumption of free will, if true, has other consequences as well. Researchers would not be able to understand all of the factors influencing behavior, no matter how thorough their efforts. No matter what they discovered or how much they learned about operant selection, for example, it would always be possible for behavior to occur for no reason. This limitation means that our ability to resolve behavioral problems is constrained as well. For instance, we might learn from a functional analysis about some of the variables apparently controlling self-injuri-

BOX 1.1

Variations of Free Will and Determinism

In his book, *Understanding Behaviorism*, Baum (2005) summarizes some variations of the free will and determinism positions. Philosophers call the everyday assumption that we can make choices that are free of our past experiences “libertarian free will.” It is this position that explicitly conflicts with determinism. Baum suggests that this view evolved exactly to confront the deterministic argument that all behavior has physical causes.

On the other hand, the philosopher Daniel Dennett (1984) views free will as deliberating prior to actions. In Baum’s example of Dennett’s reasoning, if you think about the pros and cons of eating a bowl of ice cream, your decision is therefore freely chosen. Baum describes this position as compatible with determinism in the sense that such deliberations are themselves behavior that might be influenced by heredity and environmental history. As he notes, however, this is not what people generally mean by free will.

A variation of the deterministic position attributed to the early psychologist Donald O. Hebb (Hebb, 1949) is called “soft determinism.” In this argument, free will is the dependence of behavior on heredity and past environmental history. However, this position does not hold that free will involves the individual causing his or her actions and instead implies that free will is just an experience or illusion.

ous behavior in a child with autism and design an intervention that takes advantage of this information. However, the assumption of free will means we must admit our efforts to reduce the occurrence of the target behavior might be unsuccessful simply because the behavior can occur for no reason, regardless of any intervention. In other words, this would be a discouraging assumption for practitioners and those they are trying to help, not to mention our culture in general.

In contrast, the assumption of determinism means there are always causes for behavior, regardless of the characteristics of the particular behavior of interest. Whether it is a life-changing act such as getting married or the seemingly trivial act of combing your hair, the position of determinism assumes that all actions are the result of hereditary or environmental factors. The causes may be multifaceted and complex, and it may be wise to accept that we do not yet fully understand them, but the assumption of determinism allows for no exceptions. No instance of behavior is considered free of physical causation.

It is also wise to admit that we are rarely in the position of being able to explain with any certainty what factors are at work for a particular behavior at a particular moment or to predict what a person will do in a specific instance. This inability is not a weakness in the argument for determinism. In addition to the possibility that we still lack a full understanding of the underlying laws involved, we always lack

information about the variables operating in a specific instance. Other sciences face comparable limitations. Even if we were specialists in fluid dynamics, we could not predict the path of a leaf falling from a tree or exactly where it will land, but we do understand the laws of fluid dynamics well enough to bet our lives on the science underlying airfoil design when we get on an airplane. The limitation is simply one of having enough information on the relevant variables in a specific instance.

The assumption of determinism also means that we must steadfastly resist the temptation to assign causal status to a non-physical universe. Eliminating the familiar roster of explanations that specify or at least imply mental causes for behavior is quite disconcerting at first, but it has the advantage of avoiding interpretations that distract us from considering the real variables that might be at work. Avoiding fanciful, unsupported, or unnecessarily complicated explanations of events is an important feature of scientific method. Scientists are **parsimonious** in their approach to explaining how things work because it helps them avoid unnecessary research, wild goose chases, and dead ends. In offering explanations of a phenomenon, they have learned that it is wise to exhaust well-established variables and relations before turning to possibilities that are novel, overly complex, or difficult to evaluate.

Explaining behavior in terms of **mental “events”** that by definition have no physical status clearly violates parsimony as a scientific value. How would scientists investigate such supposed phenomena? How can you measure something that has no physical dimensions? How do you conduct experiments in which you must control the features of mental events as the independent variable? The solution to

BOX 1.2

Are Scientists Stingy?

Even though it is not often spoken of, parsimony is one of the most respected attitudes of science. In a word, it means to be stingy. Scientists are parsimonious in their preference for exhausting simple and well-established explanations of phenomena before turning to complex and less well-understood explanations. Scientists follow this strategy because they have learned that it makes science more efficient. It helps avoid wild goose chases and blind alleys, which are always a risk in scientific research. Instead of offering fanciful explanations of some event, scientists cautiously insist on trying to explain the event in terms of empirical evidence that they already understand fairly well because the odds of successful resolution are usually better than with more “far out” notions.

This approach urges us to explain the observable facts of behavior with reference to variables in the physical world, which the natural sciences understand pretty well, before inventing a non-physical world of the psyche, which certainly goes beyond the laws of nature as we understand them. We need to remember the principle of parsimony when we theorize about human qualities and their explanation.

these challenges cannot depend on verbal reports from the person whose mental activity is under consideration. This indirect source of information has weaknesses that have long been documented. The solution is to avoid inventing mental explanations for behavior in the first place.

A Few More Issues

Non-physical causation. In considering free will and determinism, here are a few more issues to think about. For instance, if behavior is assumed to be at least sometimes free of physical causes and susceptible to our choices, what is the mechanism by which our behavior results from these choices? That is, how can non-physical factors (that is, mental qualities) influence physical events such as behavior? We understand different means of physical causation, but it is hard to understand how “events” in a “non-physical universe” can cause events *in* the physical universe. If they have no physical dimensions, they cannot involve the same kinds of causation that apply with physical events; if they do, they would have to have physical dimensions.

Responsibility. Another issue that often comes up when discussing this topic concerns the notion of personal responsibility. Much of our culture is rooted in the idea that each person is responsible for his or her own behavior. We teach

BOX 1.3

Talking About Freedom: Freedom From Physical Constraints

Our everyday language includes many ways of talking about freedom. Perhaps the most obvious sense of freedom has to do with the absence of physical constraints on our behavior. We say we are free if we are able to do what we want. If we are prevented from doing something because our actions are not physically possible, we say that we are not free to act in that situation. Someone who is in jail is unlikely to say he or she is free. Other physical limitations may lack bars and locks, but the effect is the same. We are not free to get a dish from the top shelf of the kitchen cabinet if we do not have something to stand on. We cannot drive to the store if we cannot find the car keys.

This way of talking about freedom may be extended to situations in which we are not free to act because of less obvious limitations that are beyond our immediate control. For example, we may lack a required skill, thereby preventing us from acting in some way. Without training, we are not free to walk a tightrope, fly a plane, or solve a quadratic equation. These ways of talking about freedom do not conflict with the position of determinism because they only refer to situations in which some action is not possible.

this value to our children and enforce it in our legal system. If we assume that behavior is determined by outside factors, does this mean that the individual is not responsible for his or her behavior? Could we behave without thinking about the consequences of our actions? Could we plead that we are not in control of our own behavior when our actions cause problems for others? Would not the position of determinism mean that our behavior cannot be blamed on a personal failure to behave in an acceptable way?

Well, yes and no. It is true that the position of determinism means that each person's behavior, including the behavior we label as "making choices," is fully influenced by hereditary and environmental variables. In this sense, we can always point to such factors that might have influenced our actions, and we must acknowledge that there is no inner controlling agent that is independently in charge of our behavior. So, yes, we are not responsible for our behavior in a scientific sense because the individual is not a controlling authority who makes decisions about his or her behavior that are independent of physical variables.

On the other hand, another way of talking about responsibility is in terms of consequences. We cannot avoid confronting the effects of our behavior on the environment, which in turn greatly impacts the kind of behavior that produced these effects. This means we are responsible for our behavior in the sense that we must live with its consequences. If we have too much to drink when out with friends and act out in ways that offend them, they may be less inclined to ask us to join them next time. In this instance, we may not be able to avoid the social consequences of our behavior.

This sense of responsibility is also enshrined in cultural mores and laws, which insist that individuals should consider the possible consequences of their behavior before they act and then deal with these consequences after the fact. For behavior that is especially important to the culture, rules are established that hold individuals responsible for the outcomes of certain behavior. Consequences are also established for abiding by or violating those rules. Sometimes these **behavior-consequence contingencies** are informal and personal, as when a parent requires a teenager to be home by a certain hour at night. Of course, we are all familiar with rules sanctioned by government in the form of laws that prohibit certain kinds of behavior and set out penalties for breaking those laws. These contingencies are important in helping to manage behavior that is especially important to society.

The reality of consequences therefore means that the question of whether we can dispense with the obligation of personal responsibility can also be answered in the negative. Accepting that behavior is determined does not mean we can abandon the everyday notion of responsibility. Although we do not control our behavior independently of environmental influences, we cannot avoid dealing with the consequences of it. By arranging particular consequences for different kinds of behavior, we (both individually and collectively) encourage or discourage others to behave in certain ways. So, when parents tell their teenage daughter she has

BOX 1.4

Talking About Freedom: Feeling Free

Another way we talk about freedom has to do with how we feel about constraints on our behavior. If we are threatened into behaving a certain way, we are unlikely to say that we feel free. If someone holds a gun on us and asks for our money, we will certainly not feel free to refuse or walk away. We may feel no less free when the threat is less direct, immediate, and personal. If we are driving to the beach and notice police using radar guns and stopping speeders, we are not likely to feel free to drive above the speed limit.

Sometimes the threat is not about encountering unpleasant consequences but about losing something we enjoy. Social relationships often embody this kind of contingency. A husband may offer social positive reinforcers for his wife behaving in a certain way with the hope that she will feel compelled to comply with his wishes. Even if his enthusiasm does not carry any suggestion that she might lose these reinforcers were she to act differently, our experience in social relationships helps us understand this risk. In other words, the “soft” coercion of positive reinforcement may feel no less constraining than a more obvious risk of punishment. As a more obvious example, just because we might earn a high salary in a job does not mean that we may not feel trapped doing work we do not enjoy.

to be home by midnight or she will be grounded for a month, this contingency is likely to affect her behavior, given a history of her parents following through on similar contingencies in the past. Although we may describe the parents as holding their daughter responsible or the daughter as being responsible for her behavior, it is the past and current contingencies that are responsible for her compliance.

That is, in accepting that behavior is determined, we assign the responsibility for behavior not to the individual but to sources of control in the physical environment. From this perspective, holding individuals responsible for their behavior by specifying the consequences for certain actions remains an important contingency because it helps manage those tendencies to act in one way or another. The outcome—behavior that complies with cultural values—results not from choices by each individual but from a history of consequences for behaving appropriately. (Chapter 7 considers the topic of responsibility further.)

Choice. Another outcome of assuming that behavior is fully determined by physical variables is that it conflicts with everything we have been taught about our ability to make choices. As already pointed out, determinism unavoidably means that the idea that we can make choices that are free of environmental influences is an illusion. The decisions we make are not our own in the sense that they are free from outside influences. When we cast our vote for a particular political candidate,

BOX 1.5

Choice versus Preference

If someone asks you to make a choice or state your preference, it seems they are asking the same thing because the terms choice and preference are often used interchangeably in daily discourse. This chapter argues that both terms purchase a serious conceptual problem if they imply that the origins of the behavior involved in choosing or preferring lies in mental deliberations. Although we do not typically characterize a preference as “free,” as we might a choice, we seem to mean the same thing when we refer to a “personal” preference. If describing preferences as personal implies the same mental origins as free choice, the same conceptual problems arise.

In spite of these similarities, everyday dialect also seems to allow for a distinction between the two terms. For example, we say someone has a preference when he or she is more likely to choose one alternative over another. Our reference to this preference is merely a tact of a behavioral tendency, whether transient or relatively stable. Although we may allow a role for mental deliberation in explaining the origin of a preference, we may at least acknowledge the influence of different consequences in a history of choosing from alternatives. In fact, this history is all that is necessary to explain a preference. The way we behave when faced with alternatives comes from our previous experiences with those alternatives. Any mental attributions are gratuitous.

In contrast with the idea of an existing preference, the everyday notion of choice—the behavior of choosing—implies a decisive action, presumably based on a preference. However, if preference is taken as no more than a behavioral tendency rooted in our experience with the alternatives, there is no reason to view the act of choosing as having different influences. That is, making a choice (an instance of preferring) may be viewed as behavior fully explained by the past consequences of such behavior under similar circumstances. Of course, this view conflicts with the idea that the behavior of choosing can be free of environmental influences.

we may believe this is a free choice, but we are simply unaware, or unwilling to acknowledge, all of the factors that influence our voting behavior. By seeming to put the cause for action inside the person, the language of choice conveniently avoids the need to specify outside influences.

At the least, this way of talking is efficient; it is much simpler to describe ourselves merely as agents for an action than to list all of its possible influences. The price of this efficiency is that we fail to appreciate the factors that are actually responsibly for our behavior. In learning the language of our culture, we satisfy the grammatical necessity of specifying a noun associated with a verb by identifying ourselves as the cause for much of our behavior (“I decided to go to the movies”). In doing so, however, we fail to consider the implications of putting causes for our

BOX 1.6**Talking About Freedom: Making Choices**

Our vocabulary of freedom is often based on having choices. If we can identify alternatives when facing decisions, we are more likely to talk in terms of our freedom to choose a course of action. Conversely, if we see only one course of action available, we would probably not say we are free to act as we wish. The more choices we have, the more we might describe the freedom of our situation.

Problem solving is often seen in this light. As Chapter 5 explains, problem solving involves situations in which someone is not able to act in a way that resolves a condition of deprivation or aversive stimulation (Skinner, 1953). Put another way, we have a problem when we cannot choose a course of action that will solve the problem. Even one choice may do the trick, but more than one option may provide what we describe as even greater freedom. So, if you misplace your apartment key and cannot open the door, you would not say you are free to get into your apartment. If you do not have a spare key available, live on the second floor, and the apartment complex office is closed, you may have no reasonable way to get in. If you left a key with a neighbor, or live on the first floor and can (worse case) break a window, or the office is open, you have choices that might encourage you to say you are still free to get in your apartment.

behavior in a mental or non-physical universe. What does it mean to say that the behavior occurred because “I decided,” or “I made up my mind,” or “I chose”?

If we are interested in a science of behavior, we cannot ignore this question or its implications. I have already mentioned the methodological complications of studying events that cannot be directly measured. Nevertheless, the physical sciences successfully address this challenge when there is empirical evidence supporting the existence of the events in question. The field of physics spends huge sums of money to identify and understand various subatomic entities, even though they might never have been observed. Although their existence might be theoretical, the depth and precision of the supporting evidence is such that this investment is deemed worthwhile. What physicists do not do, however, is pursue purported phenomena that apparently do not have physical dimensions at all and for which there is no empirical evidence of their existence.

This is the case when we specify ourselves as the cause for behavior. The mere fact that it seems obvious we make decisions or choices that are entirely up to us does not constitute scientifically credible empirical evidence for the existence of free will. We talk about making decisions or choices and defend this perspective because that is how we learned to describe our behavior as we were growing up. In the Renaissance and Elizabethan times, you would have learned that there were four humors (sanguine, choleric, phlegmatic, and melancholic) that were respon-

sible for both medical conditions and personality. This view no doubt seemed perfectly obvious at the time, although in light of modern scientific knowledge, it now seems quite naive.

Even if you understand and appreciate why it is not a good idea to assume we can make choices about our actions that are free of outside influences, it is difficult to let go of the notion that we have free will. This view is so pervasive in our culture and language that putting it aside is more than a little bit disconcerting. At first, you will find that avoiding phraseology that implies freedom of choice makes it more difficult to talk about behavior because you have not yet developed a more appropriate way of talking. You will develop this facility as you read the following chapters. For now, focus on identifying those words and phrases that place causes for behavior in a non-physical, mental universe. Try replacing that language with simple descriptions of actual behavior and past and present environmental factors that might be responsible for it. For example, instead of saying “I made up my mind” as a way of both describing and explaining some action, identify the behavior that actually occurred (going to a particular movie) and consider its possible influences (similarity to other movies you have enjoyed, a review you read, a friend’s recommendation, and so forth).

BOX 1.7

Talking About Freedom: Spiritual Freedom

We may sometimes talk about a kind of spiritual freedom. This sense of freedom is not about having religious choices but about freedom from material or worldly attachments or from social pressures or pursuits. This kind of freedom is often expressed in terms of liberation from things and experiences that may be strong reinforcers, such as expensive houses and furnishings, nice clothes, fine cars, eating at fancy restaurants, taking far-flung vacations, or achieving lofty social status. Pursuing such reinforcers is likely to be constraining for most because it may require sacrifices in the kind of work we do, how much time we spend working, and how we allocate our time. Spiritual freedom tends to connote release from chasing social reinforcers or approval.

Spiritual freedom is said to be available when our behavior is more influenced by non-material reinforcers such as helping others, especially to the point of self-sacrifice. Such actions benefit particular individuals or society at large and not, apparently, ourselves. If the consequences for our actions benefit us in some obvious way, we (and others) may be less inclined to say they lead us to an experience of spiritual freedom. If helping others seems to depend on a history in which we have learned this social value, especially if such behavior is stronger than more materially motivated behavior, we may be more likely to talk about experiencing a kind of spiritual freedom.

Yes, Your Assumption Is Itself Determined

It may have occurred to you by now that if our behavior is determined, it means your “decision” concerning where you stand regarding free will versus determinism is not your choice but is determined by various influences. Of course, the arguments in this and succeeding chapters are likely to be one such influence, as will be the discussions you have about these issues in class and with your friends. In any event, how you talk about free will and determinism is, after all, just verbal behavior. The way behavior works will not be changed by how you talk about it. However, the position on this issue taken by you and other behavior analysts will greatly impact the effectiveness of our science and our technology.

Just remember, you cannot have it both ways. It is either possible that our behavior can at least sometimes be free of outside influences, or it is always the case that whatever we do is determined by hereditary or environmental factors, although we should acknowledge that such influences are complex and usually not fully appreciated in individual instances. People who are most comfortable with the idea that we have free will may admit that our behavior may often be controlled by physical variables but insist that they can still make choices that are independent of outside influences. A conviction that our behavior is fully determined allows no such equivocation, however. This position means that choice is an illusion. In other words, if you want to decide moment by moment whether particular actions are susceptible to physical influences or available for your free choice, you do not accept the assumption that behavior is determined.

CONSEQUENCES FOR PRACTITIONERS

So why does it matter what practitioners think about this issue? As the preface emphasized, practitioners talk with clients, families, and other professionals every day. The ordinary dialect of these conversations is rooted in a causal model in which individuals are assumed to be able to control their own behavior at least some of the time. This assumption that we are free to choose to behave one way or another is at least implicit, and often explicit, in discussions about the behavior of both clients and caregivers. Because such behavior is seen as originating from within the individual, it complicates ABA practitioners’ efforts to convince all concerned to focus on environmental factors that may be important in changing the behavior of interest.

The vignette at the beginning of this chapter highlights this challenge. The view held by Liz and Sharon that Robert’s disruptive behavior may be the result of his free choice, rather than environmental factors, quickly gets in the way of Zoey’s effort to generate a discussion focusing on those factors. Her ability to lead the group toward possible environmental interventions depends on her familiarity

with this issue. She must be able to recognize the underlying philosophical issue, have already figured out her position based on her professional training, and know how to lead others to see that focusing on environmental variables is likely to be useful. If Zoey was unfamiliar with this issue, she would be less likely to be able to lead the discussion in a clinically beneficial direction. Worse, she might wind up agreeing with Liz and Sharon and fail to consider constructive environmental options for intervention planning.

Consider the approach to treatment that might follow from an assumption that Robert's misbehavior is the result of his choices, which are free of outside influences. The focus of intervention would likely be on Robert's behavior of choosing, not his disruptive behavior. If this behavior were truly free, there is nothing anyone can do that will impinge on his decisions. Caregivers may try presenting choices differently or teaching him to choose one course of action over another when presented with the opportunity, but these approaches imply that his choice is not free but can be influenced by the learning experiences arranged for him.

A focus on the behavior of choosing is not necessarily a problem, however, as long as we reframe the way we approach choosing. If we recognize that Robert's choosing behavior is merely the result of different contingencies for cooperative versus disruptive behavior, then a focus on choosing *per se* is merely misleading. He does not choose in the sense of having the option of selecting behavior A or behavior B independent of his history and the present contingencies. He simply engages in one or the other because of the history of consequences for each alternative. Describing this as choosing is gratuitous, tends to focus on the individual rather than the environment, and comes from how we have been taught to label his actions. If he engages in behavior A, we are taught to say that he chooses to behave this way instead of the other way, though we do not observe any private behavior of choosing. Even if we formally present both options ("Robert, would you like to do A or B?"), describing his response as belonging to a particular response class called "choosing" can be misleading if we attribute characteristics to it that are different from any other behavior.

In other words, the assumption of free will makes a focus on the behavior of choosing pointless. A deterministic assumption accommodates a focus on choosing as long as it is seen as a behavior like any other—that is, fully influenced by environmental variables. This perspective quickly leads to consideration of why Robert engages in ("chooses") disruptive behavior instead of more desirable behavior, which leads to an analysis of the past and present consequences for both ways of behaving. Out of this comes ideas for ways of changing behavior-environment contingencies that will change his behavior at the day program.

There is much more that can be written on the issue of free will and determinism, a topic that has occupied philosophers, psychologists, and other ne'er-dowells for ages. Because we cannot prove either position, debating the issue might be taken as a pointless exercise, and in a sense it is. Intellectual calisthenics aside,

however, there are real consequences that follow from each assumption. Moreover, this is not a matter on which one can have no conviction. The nature of the two assumptions ensures that everyone takes one view or the other, even if they are unaware of their philosophical posture. Absent reflection, most people probably follow the implications of everyday dialect and assume that at least some behavior is free of physical causation. You are now aware of some of the consequences of this perspective, and the assumption that all behavior has physical causes should therefore be more appealing.

Have you arrived at this point? Are you reasonably comfortable with the deterministic assumption? Are you willing to accept this assumption as the foundation of a philosophy of science and behavioral technology? Your answers to these questions are important as this first chapter comes to a close. If you find it too difficult to let go of free will and its implications, you will struggle mightily with the content of the remaining chapters. Worse, you may be tempted to retreat to the argument that particular instances of behavior under discussion do not have hereditary or environmental causes, thereby enabling you to speculate about mental possibilities. The material in upcoming chapters may bring you around on this issue, but the going will be much easier if you can appreciate at this stage that it is possible that all behavior has hereditary or environmental causes, even though we may often be uncertain what they are. Where do you stand?

CHAPTER SUMMARY

1. Assuming that one is free to choose how to behave implies that causes of behavior may lie both inside the person and outside in the environment. The notion that we control our own behavior means that some form of mental activity may precede public behavior and that our behavior can at least sometimes be free of outside influences.
2. The assumption that we can make choices that are free of outside influences is a philosophical position called *free will*. This position implies that choices are not caused by environmental or even hereditary factors and are therefore assumed to be free of such influences. The assumption that the individual can make decisions that are independent of physical influences leaves only mental deliberation as the source of the resulting behavior.
3. To deny that we can make choices that are free of hereditary or environmental influences is to take the position that our behavior is instead determined by such factors. This position is called *determinism*, and it is just as much an assumption as is the argument for free will. The assumption that behavior is determined by physical variables is usually interpreted as allowing no exceptions. In this view, it is assumed that all behavior has physical causes, even though we are usually unaware of the details. The assumption that physical events are fully

explainable in terms of other physical events has a long and respected position in the natural sciences.

4. It is not possible to gather direct evidence proving that behavior can be free of physical causation or that it is always determined by physical variables. Proving free will would require showing that behavior can occur without influence by hereditary or environmental factors. It would be impossible to eliminate the role of these variables. On the other hand, proving determinism would require demonstrating the causes for any behavior, an impossibly exhausting task as well. Practical utility should be the criterion guiding our decision about which assumption we should make.
5. Assuming free will means we can control our own actions, we can make choices about what we do, and those choices are not influenced by any other factors. It means behavior may occur without physical causation. If behavior can occur independently of hereditary and environmental variables, it follows that it may be capricious or random and therefore without explanation. This position would also mean that researchers would not be able to understand all of the factors influencing behavior, no matter how thorough their efforts.
6. Determinism means there are always causes for behavior, regardless of the characteristics of the particular behavior of interest. This position assumes that all actions are the result of hereditary or environmental factors. The causes may be multifaceted and complex, and it may be wise to accept that we do not yet fully understand them, but the assumption of determinism allows for no exceptions. No instance of behavior is considered free of physical causation. The assumption of determinism also means that we must resist the temptation to assign causal status to a non-physical universe. This has the advantage of avoiding interpretations that distract us from considering the real variables that might be at work.
7. One challenge for the assumption of free will is to explain the mechanism by which our behavior results from those choices. That is, how could non-physical factors influence physical events such as behavior?
8. A second issue is to rationalize the notion of responsibility. If we assume that behavior is determined by outside factors, does this mean that the individual is not responsible for his or her behavior? In one sense, we are not responsible for our behavior in a scientific sense because the individual is not a controlling authority who makes decisions about his or her behavior that are independent of physical variables. On the other hand, we cannot avoid confronting the effects of our behavior on the environment, which in turn greatly impacts the kind of behavior that produced these effects. This means we are responsible for our behavior in the sense that we must live with its consequences.
9. A third issue concerns choice. Determinism unavoidably means that the idea that we can make choices that are free of environmental influences is an illusion. It

is much simpler to merely describe ourselves as agents for an action than to list all of its possible influences. However, the price of this efficiency is that we fail to appreciate the factors that are actually responsible for our behavior.

10. Practitioners talk with clients, families, and other professionals every day. The ordinary dialect of these conversations is rooted in a causal model in which individuals are assumed to be able to control their own behavior at least some of the time. This assumption that we are free to choose to behave one way or another is at least implicit, and often explicit, in discussions about the behavior of both clients and caregivers. Because such behavior is seen as originating from within the individual, it complicates practitioners' efforts to convince all concerned to focus on environmental factors that may be important.

TEXT STUDY GUIDE

1. What does it mean to say that being free to choose one course of action over another implies an "inside" versus an "outside" distinction about the causes of behavior?
2. If mental activity of some sort precedes public behavior, why would that mean behavior can be free of environmental influences?
3. If someone challenged your view that you can change your mind, how might you defend your conviction?
4. Explain the philosophical position called free will.
5. Identify some common expressions that imply a belief in free will.
6. Explain the philosophical position called determinism.
7. Why can the position of determinism allow for no exceptions?
8. Explain why in each case the positions of free will and determinism can only be assumptions.
9. List some of the practical consequences of assuming that we have free will.
10. List some of the practical consequences of assuming that our behavior is determined.
11. What is the problem of explaining non-physical causation presented by the assumption of free will?
12. How can you answer the question of whether the individual is responsible for his or her behavior if we assume behavior is determined?
13. How might you defend the argument that there is no such thing as choice?
14. If assuming free will versus determinism is just verbal behavior, why does it matter what view one holds as a behavior analyst?
15. Why is it important that practitioners understand this issue?

BOX STUDY GUIDE

1. Distinguish among libertarian free will, Dennett's version of free will, and Hebb's soft determinism.
2. Explain the scientific attitude of parsimony. Why is it an important value in science?
3. Distinguish among the following everyday uses of the term freedom: a) freedom from physical constraints, b) feeling free, c) having choices, and d) spiritual freedom.
4. What is the problem in explaining instances of behavior in terms of preference or choice?

DISCUSSION TOPICS AND EXERCISES

1. List some everyday phrases you hear as a practitioner that imply free will.
2. Pick some of these phrases and make reasonable guesses about environmental factors that might be influencing behavior.
3. There are important legal ramifications for the conflict between the everyday notion of personal responsibility and the assumption that behavior is always determined by physical causes. Discuss this issue in the context of different examples of criminal behavior.
4. Choose some examples of situations in which it might seem that you can make free choices and then consider alternative explanations of your behavior in terms of environmental factors.

SUGGESTED READINGS

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