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CHAPTER TWO

Rule Following

Chapter 1 portrayed decision making as resulting from intendedly rational calculation. Pure rationality and limited rationality share a common perspective, seeing decisions as based on an evaluation of alternatives in terms of their consequences for preferences. This logic of consequences can be contrasted with a logic of appropriateness by which actions are matched to situations by means of rules organized into identities. This chapter considers a perspective in which decision making is seen as resulting from rule following and the fulfillment of an identity.

2.1 Decision Making as Rule Following

When individuals and organizations fulfill identities, they follow rules or procedures that they see as appropriate to the situation in which they find themselves. Neither preferences as they are normally conceived nor expectations of future consequences enter directly into the calculus.

2.1.1 *The Logic of Appropriateness*

Rule following is grounded in a logic of appropriateness. Decision makers are imagined to ask (explicitly or implicitly) three questions:

1. The question of *recognition*: What kind of situation is this?
2. The question of *identity*: What kind of person am I? Or what kind of organization is this?
3. The question of *rules*: What does a person such as I, or an organization such as this, do in a situation such as this?

The process is not random, arbitrary, or trivial. It is systematic, reasoning, and often quite complicated. In those respects, the logic of appropriateness is quite comparable to the logic of consequences. But rule-based decision making proceeds in a way different from rational decision making. The reasoning process is one of establishing identities and matching rules to recognized situations.

2.1.2 *The Familiarity and Centrality of Identities and Rules*

Rule- and identity-based decision making is familiar to modern experience. Social systems socialize and educate individuals into rules associated with age, gender, and social position identities. Decisions are shaped by the roles played by decision makers—family roles, school roles, organizational roles. Individuals learn what it means to be a mother, a manager, a college student, or a man. Universities teach appropriate rules for members of professions. Individuals learn how a doctor or an engineer acts.

Rule following as a way of decision making is also familiar to theories of behavior. Economists and political scientists talk about the importance of institutions, anthropologists about culture and norms, sociologists about roles, and psychologists about identities, production systems, and schema. Each discipline, in its own way, sees decision making as organized by a logic of appropriateness.

Rules and identities are so obvious that they are more likely to be regarded as a context for behavior than as an interesting phenomenon in their own right. Not only do decision makers take them for granted, so also do observers. Within an ideology of choice, any detectable willfulness is exalted, no matter how circumscribed by rules. The stories told in history and journalism tend to glorify strategies of rational maneuver within the rules. They tend to ignore the rich processes by which identities and rules are created, maintained, interpreted, changed, and ignored. In that spirit, some rational theorists of choice treat rules as the outcome of a higher-order rational process. They endogenize rules by rationalizing them.

Students of rule following, on the other hand, tend to regard the rational model of choice described in Chapter 1 as simply one version of rule following associated with the identity of the decision maker. Rationality is a rule that requires decisions to be made consequentially. It is a common rule, so actions following its structure are also common, as are procedures that reassure actors and observers that rationality is being practiced. Within such conceptions, it is rule following that is fundamental. Rationality is derivative.

2.2 Rules, Identities, and Action

Rules and identities provide a basis for decision making in every aspect of life: in families, informal groups, markets, political campaigns, and revolutions. Individuals and social systems depend on rules and on the standardization, routinization, and organization of actions that they provide. From this perspective, any decision in any context can be seen as being shaped by identities and a logic of appropriateness.

Studying decision making within a rule-following frame involves a set of questions different from those that guide research on the logic of consequence: How are situations interpreted and recognized? How are organizational identities defined? How are those definitions and identities created and changed? How are they preserved and transmitted? How is the match between situations and identities made? Why are the rules what they are?

2.2.1 *Rules and Identities in Organizations*

The ubiquity of rules and identities can be illustrated by considering their role in formal organizations. Most people in an organization execute their tasks most of the time by following a set of well-specified rules that they accept as a part of their identity. This is true of doctors in hospitals, workers on assembly lines, sales representatives in the field, teachers in a classroom, and police officers on a beat. It is also true for those people in organizations whose tasks primarily involve making decisions. Organizational rules define what it means to be an appropriate decision maker.

There are rules about what factors are to be considered in decisions (e.g. return on investment); who has access to a decision process; and how decisions should be timed, reported, and justified. Examples include hiring the applicant with the highest test scores or setting price by totaling costs and adding 40 percent. There are rules controlling information flows and use, specifying how it should be gathered and who should gather it, how it should be summarized and filtered, how it should be communicated and to whom, and how it is to be stored and for how long. Examples are admonitions to go "through channels" with a particular request, or rules about the appropriate forums for announcing meetings or job positions. There are rules specifying the criteria to be used to assess and monitor performance. Examples are performance standards such as production plans and personnel performance contracts.

Organizations select individuals with preexisting identities and rules. When an engineer, machinist, clerk, or truck driver is hired, the organization hires those identities, mixed as they are with an assortment of other identities that any one individual accepts—parent, friend, member of an ethnic or religious group. Organizations also define identities specific to themselves, train individuals in them, and socialize individuals to adopt the identities as their own. Formal and informal organizational rules are woven into, utilize, and help define organizational identities and roles. Tasks are organized around sets of skills, responsibilities, and rules that define a role. Roles and their associated rules coordinate and control organizational activities.

Organizations also have identities. For an organization to be a proper business firm, or a proper military unit, it must organize and act in a particular way. Organizations are described in terms of their legal structures, their national or regional characters, their technological configurations, and sets of individual identities. As organizations seek to confirm such descriptions, they frame organizational forms and procedures in ways consistent with them. They achieve standing as legitimately representing what they are.

To say that individuals and organizations follow rules and identities, however, is not to say that their behavior is always easily predicted. Rule-based behavior is freighted with uncertainty. Situations, identities, and rules can all be ambiguous. Decision makers use processes of recognition to classify situations; they use processes of self-awareness to clarify identities; they use processes of search and recall to match appropriate rules to situations and identities. The processes are easily recognized as standard instruments of intelligent human behavior. They require thought, judgment, imagination, and care. They are processes of reasoned action, but they are quite different from the processes of rational analysis.

2.2.2 *The Concept of Identity and Individual Action*

The logic of appropriateness is tied to the concept of identity. An identity is a conception of self organized into rules for matching action to situations. When Don Quixote says "I know who I am," [1] he claims a self organized around the identity of "knight-errant." When an executive is enjoined to "act like a decision maker," he or she is encouraged to apply a logic of appropriateness to a conception of an identity.

Individuals describe themselves in terms of their occupational, group, familial, ethnic, national, and religious identities.

Identities are both constructed by individuals and imposed upon them. Creating or accepting an identity is a motivational and cognitive process by which order is brought to the concept of self and to individual behavior. It involves learning to act in a particular way. Identity development is a part of individual development, closely linked to the development of language and to an understanding of the physical and social environment.

INDIVIDUALIZATION AND SOCIALIZATION

Conceptions of identity are embedded in a broader cultural context. In many of the cultures found in the United States, for example, defining an identity is pictured as ultimately a task of *individualization.* Individuals are assumed to be independent and unique, defined by the complex assortment of behaviors and roles that they endorse. Identity is seen as a matter of "self," and the metaphors of self are metaphors of discovery and creation. Such expressions as "finding oneself" or "being in touch with oneself" are common. In this process of creation, individuals are encouraged to take an active role in deriving their identities from observations of their own behavior or their internal thoughts, emotions, or motivations. They are seen as struggling to differentiate their identities from others (particularly parents and other figures of authority and convention) by exhibiting distinctive dress, behavior, and thoughts.

Alternatively, identities can be seen as arising from a process of socialization into socially defined relationships and roles. Individuals are taught how to behave as proper accountants or proper soldiers. They learn the rules of accountancy or warfare. They are taught appropriate codings of situations and appropriate responses to them. Educational systems, religions, and legal systems spend a great deal of time educating people on the meaning of identities and on applications of principles of proper behavior to specific life situations.

In a socialization perspective, identity is adopted or imposed rather than discovered or created. The imagery of self is less inclined to emphasize being true to idiosyncratic individual goals and desires, and more inclined to emphasize being true to important relationships and cultural expectations. Individuals see identities as establishing and celebrating their ties with others and their place in a social order of relationships that they honor. Attention is directed outward toward real or imagined groups rather than inward toward individual opinions, abilities, and judgments. Identities shift from situation to situation as each situation highlights a different set of relationships.

The differences between the metaphorical images conjured by these two visions of identity formation are important. In the image of individualization, actions are imagined to arise from self-imposed standards or self-selected roles and rules. In the image of socialization, actions are imagined to arise from learned obligations, responsibilities, or commitments to others. Thus the first perspective, even though it emphasizes the ways identities constrain behavior, portrays identities as in some sense chosen voluntarily. The second perspective sees identities as followed, but not chosen.

The differences are important, but they are as much statements of alternative ideologies as they are alternative descriptions of the world. Most studies of identity formation report an interaction between processes of individualization and processes of belonging. Particular cultures may glorify one or the other side of this interaction, both in their behavior and in their theories of that behavior. But more "individualistic" cultures exhibit strong effects of socialization, and more "social" cultures exhibit strong elements of individual deviance. Moreover, the two are intertwined. As many parents and children in many cultures can testify, the process of adolescent identity formation and revolt is a complicated mixture of individualistic differentiation and socialization into group conformity.

THE SOCIAL BASIS OF IDENTITY

Someone who says, "I am a good accountant. I do what good accountants do," is making a statement that is both a confirmation of an individual identity and a recognition of the social basis of individual action. Individuals adopt rules of behavior from families, schools, religious groups, age cohorts, and com-

panies. They build their own understandings of themselves using socially based distinctions. As collections of individuals define and solve problems posed by their environments, they develop shared rules for behavior and shared attitudes toward experience. Those rules and attitudes are organized in terms of social roles or identities from which individual identities are formed. Being a "good accountant" means knowing, accepting, and following a variety of socially constructed and maintained rules that control individual behavior in considerable detail. The individual self is drawn using social templates.

Socially defined identities are templates for individual identities in three senses. First, they define the *essential nature* of being an accountant, or manager, or plumber, permitting individuals to deal with identities as meaningful things. In this sense, identities are like other labels through which cognition is organized. Individuals in a society distinguish a police officer from a postal carrier in much the same way they distinguish a dog from a cat—by looking for properties and actions that are associated with the label. Recognizing a dentist involves knowing how dentists behave and associating observed behavior with that role. Being a dentist involves knowing how dentists behave and acting appropriately.

The second sense in which social identities are templates is that they are prepackaged *contracts.* Individuals accept them in return for receiving things they value. Groups facilitate the construction of an identity by rewarding behavior consistent with the definition of the identity and penalizing inconsistent behavior. The social specification of what it means to act as an accountant details the terms of the contract by which an individual agrees to assume the accountant role. An individual agrees to behave in a way consistent with the socially defined identity in order to gain certain compensation. The "compensation" will often be monetary in an organizational setting, but it need not be. Individuals also accept identities as long as they receive group approval or love in return. In particular, social acceptance of an individual as a legitimate accountant (father, teacher, etc.) may be precious not only to individual self-esteem but also to the ability to function effectively. Decision makers

who fail in their contractual obligations are likely to lose legitimacy and authority.

In principle, contractual identities could be idiosyncratic—everybody's job could be unique. More commonly, however, identities are, at least to some extent, standardized. The social standardization of identities makes them well-defined clusters of reliable rules, building blocks of a social system. Standardized identities simplify thinking about the structure of an organized system, and they simplify implementing it. They simplify labor markets and management. They simplify education and training. Consider, for example, the dependence of a traffic system on the socially standardized identity of a "proper driver."

The third sense in which social identities are templates for individual action is that they frequently come to be *assertions of morality,* accepted by individuals and society as what is good, moral, and true. An individual "internalizes" an identity, accepting and pursuing it even without the presence of external incentives or sanctions. The identity is protected by a conscience and by such emotions as pride, shame, and embarrassment. Social reactions to inappropriate behavior include accusations of immorality and lack of propriety. Shame and guilt are important components of social control based on a logic of appropriateness. Decision makers can violate a logic of consequence and be considered stupid or naïve, but if they violate the moral obligations of identity, they will be condemned as lacking in elementary virtue. Among other things, the fact that logics of appropriateness are imbued with such moral content increases the emotionality of decision making.

INCENTIVES AND THE INTERNALIZATION OF IDENTITIES

There is a complicated relationship between the provision of incentives for following rules associated with identities and their internalization. On the one hand, there is a strong tendency for individuals (and organizations) to accept identities that are easy or rewarding to perform—that confirm their competences. As learning and experience increase competence at an identity, they simultaneously increase the likelihood of internalization of

the identity. People are likely to internalize roles and rules that they fulfill effectively more than those that they do not. Professionals who feel competent in their profession are more likely to internalize the norms of the profession. Individuals are likely to regard those identities in which they or their friends excel as more important than others.

In hierarchical organizations, for example, top-level executives have experienced their own competence in decision making and tend to internalize the role of decision maker. They are likely to think of themselves as decision makers. They act appropriately as decision makers because they have come to believe that the proper way is not only a way to gain social approval but also a way to conform to their own standards. On the other hand, individuals who have experienced failures in decision making, or who lack experience at it, are less likely to have internalized the role. As a result, experienced, successful decision makers become socially more reliable in their decision making, and inexperienced, unsuccessful decision makers become less reliable.

Since competence leads to internalization of an identity and its rules, one might be tempted to speculate that any rewarded identity will tend to be internalized, that contractual identities inexorably become internalized identities. Such a speculation is not, in general, true. If anything, the data seem to support a "conservation of motivation" hypothesis: The extent to which an identity is internalized (at least in the short run) is inversely related to the strengths of external incentives provided for adopting it. As individuals observe and interpret their own behaviors, they construct internal motives (internalized identities) where coercive external motives (contractual identities) are inadequate to account for their behavior. Strong external threats or dramatic rewards can be used to explain behavior without the need of internal commitment, so fail to stimulate internalization. Internalized identities are likely to be imagined (and thus formed) where external incentives are weak.

Studies of commitment seem to show that internalization of identities is associated with the development of internal interpretations of one's own behavior rather than directly with incentives. One standard strategy for increasing the internalization of an identity is to highlight the identity implications of a certain (typically small) behavior. People are asked, for example, to sign a petition to show they are ecology- or community-minded. The act is minor, but the interpretation of being a certain kind of citizen is made explicit by outsiders. This is, of course, usually in the context of being rewarded for being that kind of citizen, but the key strategy is not rewarding behavior but rewarding an interpretation of identity. Later, a much larger favor requiring a larger sacrifice is solicited. People are willing to engage in a much more onerous task in order to avoid violating their new identity.

Such strategies are often effective. Children are more likely to clean up their classrooms after having been induced to think of themselves as the kind of people who maintain clean places than after being threatened for being unclean. This is a kind of character change by grace: bestowing on an individual an identity that he or she values but has not earned, in hopes that external confimration of an identity will lead to its acceptance and fulfillment. Treat the statue of a young woman as the woman herself and it will come to life.* There are limits to Pygmalionic magic, of course. Like most strategies, strategies of interpretation are well known and often detected as manipulative. Even when an interpretation is accepted, its ultimate stability depends on experiential confirmation, so interpretations that are totally unrealistic will be eroded by subsequent disconfirmation. Since experiential disconfirmation itself is subject to interpretation, Pygmalionic identities can be protected by defining them ambiguously (at the cost of making their mandates less precise also).

For now, however, the strategic elements of identity formation are less important than an awareness of the interplay of social processes that shape individual and collective identities. Identities are created by external incentives and sanctions, by senses of competence or autonomy, and by learning the accepted meanings of roles. Identities are socially constructed con-

*With a little help from Aphrodite, of course.

tracts, motives, and cognitions that connect to organizational rule structures. And this fine tapestry of obligations controls much of what is called decision making.

2.2.3 *Which Identity? Which Situation? Which Rule?*

To make decisions within a logic of appropriateness, decision makers need to be able to determine what their identities are, what the situation is, and what action is appropriate for persons such as they in the situation in which they find themselves. Most decisions could call up a number of relevant identities and rules, and attention is as important in rule following as it is in consequential action. When reminded of the role of citizen, a decision maker may well act in a way that is different from the way that results from being reminded of the role of family member. Motivational, cognitive, and organizational factors all play a role in evoking one identity or rule rather than another. Likewise, since identities and rules rarely specify everything unambiguously, motivational, cognitive, and organizational factors play a role in determining behavior within the identities and rules evoked.

MULTIPLE IDENTITIES, MULTIPLE RULES

The singularity of the term "identity," along with various popular enthusiasms for personal integration and consistency, leads to a tendency to imagine an internally coherent self—"a well-rounded and integrated personality" in which actions reflect stable and consistent qualities of the actor's identity. In fact, of course, any particular actor has multiple identities, not just one. The self is a collection of incompletely integrated identities.

The problem of multiple identities is well known to the literature on human behavior. A decision maker is a parent as well as a police officer, a friend as well as a physician, a lover as well as a woman. The apparent inconsistency between the variety of roles accepted by any one individual and the concept of a coherent self is mitigated by having the multiple identities of any one individual fit together in a mutually supportive way. Such

integration is accomplished partly by clustering consistent identities and partly by interpreting any one identity with a consciousness of the others. Openness in the meaning of being a "decision maker" allows that identity to be made consistent with different other roles at different times.

Although the collection of images that constitute a personal identity achieves a limited amount of structure, the self is not a seamless whole. An individual is likely to have sets of diverse self-images, which shift and alter as the context shifts. More peripheral aspects of the self are less elaborated, less frequently evoked, and less burdened with requirements of consistency than are more central aspects. They may be developing and tentative rather than fully accepted. The pursuit of appropriateness involves experimentation with new identities, inconsistency, and "self-discovery."

In a similar fashion, the rules of an identity are rarely unique or precise. The same identity may evoke inconsistent rules. A parent is expected to be firm and loving. A decision maker is expected to be thoughtful and decisive. The same set of standard operating procedures may mandate and forbid the same behavior. Good practice may be vague, particularly in new domains.

EVOKING IDENTITIES AND RULES

Not all parts of an individual's identity are available at the same time. Different behavior, different attitudes about the self and others, and different motivations may be invoked in different environments or different relationships. Accountants do not act like accountants in all situations, nor do men see "manliness" as equally relevant to all situations. Seemingly subtle environmental changes have a strong impact on behavior. Seemingly clear constraints on behavior can be overcome. For example, in experimental settings, ordinary people have proved themselves willing to deliver electric shocks to other people when instructed in such a way as to evoke a role consistent with such an action.

In the same way, not all potentially relevant rules are evoked. Some rules are overlooked. Noticing the relevance of identities

or rules in a situation comes from an interaction among at least four common psychological mechanisms. The first mechanism is *experiential learning*. Individuals learn to evoke (or not to evoke) an identity in a situation by experiencing the rewards and punishments of having done so in the past. Identities with which they have had extensive positive experience are more likely to be evoked than will those with less extended or less positive experience.

The second mechanism involved in evoking identities and rules is *categorization*. Responses to situations tend to be organized around a few central conceptions of identity. Central aspects of the self are likely to be evoked more frequently and maintained more consistently than others. Thus, people who always see the world in terms of competition are likely to see the central categorizing feature of a situation to be its competitive character, while others may focus on other categorizing features. Individuals judge others on identities that are central to their concept of themselves. They process information about central identities more quickly and in larger chunks. In dealing with a central aspect of their conception of self, they are likely to elaborate more information and to draw more extreme conclusions about their behavior and the behavior of others. Individuals with single-category taxonomies for classifying the world exhibit behavior that is less dependent on the process of evoking (and presumably less carefully calibrated to the world) than do people with richer taxonomies.

The third mechanism is *recency*. Identities and rules that have recently been evoked are likely to be evoked again. This leads to intertemporal and intersituational stability, which may create problems. An individual who has been working in the role of executive all day carries that identity over into the role of spouse when she comes home. An individual who has been negotiating a tough contract as an antagonistic lawyer carries that identity over to the role of diner in a restaurant or driver on a highway.

The fourth mechanism is the social *context of others*. The real or imagined presence of others highlights social definitions of identities and situations rather than personal ones and leads to closer conformity to social expectations. For example, evoking

an identity that emphasizes the presence of others leads people to use a norm of equality in distributing rewards, while a focus on self leads them toward norms of "equity" or "fairness." Distinctiveness is a social setting also evokes identities. A single redhead in a crowd of others is likely to focus on hair color as a salient characteristic. One or two younger people are likely to notice their youth in a group of older people. The first-order effect is for distinctive people to become more aware of their own identities. The second-order effect is for this identity confirmation and differentiation among the small group to evoke the dimension of difference in the predominant group.

ORGANIZATIONAL FACTORS IN THE USE OF IDENTITIES AND RULES

Social institutions, such as formal organizations, play important parts in organizing the application of identities and rules to situations. Organizations shape individual action both by providing the content of identities and rules and by providing appropriate cues for invoking them. They not only define appropriate behavioral rules to attach to appropriate identities (teaching recruits how a proper manager or a proper professor behaves in a wide variety of contexts) but also structure the occasions for evoking one identity or rule or another. The boundaries between organizations and the outside world and among subunits in an organization regulate the awareness of inconsistencies in individual identities and rules.

The organized structure of identities and rules is not static but changes in response to external and internal pressures. For example, in recent years many organizations in the Western world have struggled with the complexity of moving from a segregation of work, gender, and familial identities to various forms of greater integration. In the process, familial, gender, and organizational identities have been reconstructed, the procedures for evoking them have been changed, and ideologies about proper solutions to problems of multiple simultaneous identities have been redefined.

Providing Models. Much of the formal and informal training that occurs in an organization is training in defining identities,

categorizing situations, and applying appropriate rules. This training involves providing models, exemplars of proper behavior. New workers and managers model themselves after more experienced ones. They imitate. They emulate. They learn. Every organization, as every society, provides leaders, teachers, and priests who serve in positions that are socially highlighted to model prototypical behavior and to save others the trouble of deriving it. The modern term is "mentoring," a concept that combines the cognitive and motivational aspects of modeling identities.

As individuals seek models for their own identities and behavior, they draw from the organization's repertoire of examples. They also rely on organizational interpretation of the models. Rules of appropriate behavior are supplied with concrete meaning in concrete situations through elaboration and clarification within an organization. Decision makers coach decision makers and seek coaching. Social workers seek to understand the implications of their identities by talking with their clients and with other social workers.

Providing Cues. Organizations can be pictured not as writers of contracts and providers of incentives, but as writers of scripts and providers of cues and prompts. Organizations are stage managers. They provide prompts that evoke particular identities in particular situations, and they organize the temporal and spatial cues to minimize identity inconsistencies. They manage conflict not by arranging negotiation and bargaining but by managing attention. They reduce the chance that conflicting identities will be evoked at the same time and place by highlighting shared identities at appropriate times.

Organizations highlight identities through language, providing appropriate labels for people ("Mr. President," "Doctor," "Boss") and situations ("This is an engineering . . . finance . . . human resources . . . managerial problem"). Group members use acronyms and jargon to define their community, and formal and informal language to define situations (e.g. using different terminology in a meeting as opposed to a chat at the lunch table). They also use dress to invoke appropriate roles for both

organizational participants and outsiders who interact with organizational members. Common uniforms signal a common fate and may smooth even unpredictable and unscriptable encounters. A doctor's uniform is a marker and a reminder of one's identity as a physician. It also reminds patients of their roles as patients. The act of putting on or taking off "work clothes" thus brings different identities to the surface.

Organizations remind people of their situation by landscaping: Formal locations (e.g. boardrooms) are constructed as a reminder of the appropriateness of formal behavior. Changes in geography invoke different rules. The behavior of a laboratory scientist changes as the scientist moves from the workbench to corporate headquarters. Features of location and physical space are used to segregate personal lives and their associated identities from organizational lives and identities.

Providing Experience. An organization is an arena in which identities and rules are exercised. Identities are evoked, rules are followed, results are monitored. Experience with pursuing an identity produces learning, by which the rules of identity are changed. The experiences are managed to stabilize a consistent set of identities within any given organization. The management is, however, never complete. Experience also develops norms, rules, and identities that thwart managerial control, sharpening their effectiveness through trial and error and differential survival. The experiential elements of rule development are elaborated briefly later in subsections 2.3.3 and 2.3.4.

2.2.4 *Violations of Rules*

Most of the time behavior follows the rules. At the same time, it is hard to imagine a social system without violations of rules. Rules are overlooked or ignored. Decision makers do things they are not supposed to do, and they fail to do things that they are supposed to do. Sometimes violations of rules involve large numbers of individuals. Sometimes they involve single, isolated cases.

IGNORANCE, INCONSISTENCY, AND INCOMPATABILITY

Many deviations from rules are unintentional. Decision makers may lack the ability to follow the rules because of lack of resources or competence. An action may be mandated without the resources required to make it possible, particularly when an action is mandated by one set of authorities and resources are provided by another. Decision makers may be unaware of rules, particularly where the number and complexity of rules is great. The rules may be ambiguous, particularly when they are new or are the result of political compromises.

Many deviations from rules are necessitated by inconsistencies among them. If every situation evoked one and only one identity and every identity evoked one and only one rule, rule-based decision making would be more routine than it is. Situations often evoke several identities or several rules. Sometimes there is clear conflict between the demands of alternative identities. When national interests conflict with class interests, a worker may have a problem. When the demands of work roles conflict with the demands of family roles, a family member may have a problem.

Rules may be imposed by legitimate but independent authorities, as in the conflict between institutional rules and professional standards or the conflict between auditing rules and performance rules. Decision makers may be faced with deadlines that are inconsistent with required procedures. They may be required both to engage in widespread consultation and to maintain secrecy. Violations of rules due to inconsistent demands will increase as rules multiply and become more complex, where devices for coordination are weak, and where independent authorities have the right to impose rules (e.g. company rules versus professional rules in the accounting industry).

Not all deviations from rules are unintentional or the result of inconsistency in rules, however. Many are deliberate, conscious violations of known rules. Rule making and rule enforcing sometimes involve different coalitions. They address different interests and require different mobilization patterns. The forces that have adopted a rule may be different from the forces

that are asked to implement it. Political winners characteristically have a greater stake in the observance of rules that result from a political process than do political losers. The losers are likely to believe that the rules are inappropriate. They may want to continue the political debate through the implementation process. They may be upset by their defeat and want to create trouble.

The conflict of interest of politics is not, of course, the only conflict of interest involving rules. One of the most common reasons for rules is the expectation that individuals might not act "correctly" because it is not in their personal self-interest to do so. In the modern literature, this problem is often labeled "incentive incompatibility" between principals (in this case the ownership, management, or governing body of the organization) and agents (in this case the individual members or workers). Incompatible rules produce similar conflicts. Agents pursuing their own identities and rules may act in ways that are inconsistent with their principals' identities and rules. For example, professional ethics may conflict with organizational profits.

TOLERANCE, COLLUSION, AND CORRUPTION

Sometimes rule violations are justified or sanctioned (even demanded) by an organization or the larger society. Sometimes tolerance for deviation stems from a belief that flexibility is advantageous. Rules cannot fit every situation, and there is need to "fine-tune" them to meet the demands of a variable environment. Knowing when to bend the rules is one of the hallmarks of an experienced decision maker. Tolerance for rule violation is a form of delegation to individuals who have a more refined capability for accomplishing the intent of the rule in a special case. Organizations also allow variation in interpreting rules in order to experiment with what they might come to mean.

Violations in the name of effectiveness are more likely when the rules are relatively rigid than when they are easily changed. They are more likely when it is possible to point to performance measures that demonstrate the good sense of ignoring rules

than where accepted performance measures are lacking. Thus, the bending of rules should be more prevalent in young organizations than in older ones, more prevalent in business organizations than in public organizations.

Social systems also may ignore cheating because rules are less designed to control behavior than to proclaim virtue. "Winking" at violations of virtuous but bothersome rules serves the social function of maintaining the shared values of the system while avoiding the costs of living up to them. In such cases, a social system is likely to be particularly tolerant of cheating if the violations are private. In many such cases implicit, informal agreements are made to accept rule breaking. Participants, in effect, agree that even though not everything is what it appears to be, and even though the parties know it, no party wishes to acknowledge the discrepancy. This kind of hypocrisy preserves the rules, sustains the sense of community within the social system, and allows accommodation to pressures for rule flexibility.

Sometimes this tolerance of variability is less benign. It reflects a way of placing individual actors "at risk." When individuals must violate one rule to serve another, or are allowed to violate rules in order to accomplish personal or group objectives, they are made vulnerable to a subsequent accusation of rule violation. Disparities between the rules that are espoused and the rules that are observed make any significant decision maker liable to exposure and disgrace. In this way, organizations gain a modicum of control over members who are constantly vulnerable by virtue of being in violation of some rule. The possibility of delicate (and often not so delicate) blackmail of this sort is a common feature of modern life.

2.3 Rule Development and Change

Much of the research on rule-based decision making treats rules, forms, procedures, and practices as given. The research identifies decision heuristics, standard organizational practice, or institutionalized norms and explores the implications of those rules for decision behavior. It elaborates how behavior is molded by rules, how decision makers operate within rules, and how they deal with uncertainties about rules. That strategy was reflected in section 2.2.

Examining how rules are evoked, interpreted, and used is , however, only part of the story. The logic of appropriateness is a logic attached to an evolving conception of propriety. Decision makers follow rules, but the rules change. Identities endure, with individuals learning and pursuing the rules of behavior consistent with the roles, but the rules themselves change through a mixture of analysis, negotiation, learning, selection, and diffusion. As the rules change, decision making behavior changes. As a result, the study of rule-based decision making is not only a study of how identities and situations are defined and rules applied but also a study of rule development. Since identities and rules are social constructions, developed within a context of other decision makers and historical experience, understanding the actions of any particular decision maker involves understanding how those social and historical contexts have molded them and how the continued unfolding of history will mold them in the future.

How is the process by which rules come to exist to be understood? How are rules modified as a result of experience; as a consequence of observing the rules used by others; as a result of deliberate strategic action; as a result of political conflict? How are rules maintained in memory and transmitted to new cohorts of decision makers? How does the distribution of rules change over time as a result of differential survival and growth of institutions? In short, how do the rules come to be the way they are?

2.3.1 Alternative Visions of How Rules Change

Identities and rules change as part of the process by which institutions adapt to their environments. The idea that individuals, institutions, and their environments adapt to each other is central to many modern theories of behavior. Such theories presume that individuals and institutions survive and prosper as their standard practices come to match environmental requirements. In the case of an institution, those requirements include both the demands of an institution's internal structures and

coalitions and the demands and opportunities of the external world.

Rules and their environments adapt to each other by means of several intertwined processes:

1. *Analysis,* through the anticipation and evaluation of future consequences by intentional decision makers
2. *Bargaining,* through negotiation, conflict, and compromise among decision makers with inconsistent preferences and identities
3. *Imitation*, through the copying of rules, practices, and forms used by others
4. *Selection*, through differential birth and survival rates of unchanging rules and the decision making units that use them
5. *Learning,* through experience-based changes of routines and of the ways routines are used

Those are the processes by which identities and rules come to anticipate the future or reflect the past. Analysis is forward looking. Theories based on analysis as the primary mechanism of adaptation presume that rules reflect expectations of the future. Selection and learning are backward looking. Theories based on selection or learning presume that rules reflect history. Bargaining is either forward looking or backward looking (or both), depending on the bases of the behavior of the bargainers. Imitation is either forward looking or backward looking (or both), depending on the bases of the behavior of those who are imitated.

2.3.2 Capturing the Future: Plans and Contracts

Much modern thinking about decision making presumes that the expectations and willful actions of human beings enact the future in the present. The presumption is reflected in theories of rational action and power, including theories of strategic action. Rational actor models explain adaptation in organizational rules and form as a result of the preferences of actors and their calculations of future consequences. In this view, actors

compete for resources and adjust rationally to each other's strategies over time. Identities, rules, and forms change as a result of a consequential action in the context of competition. From this perspective, individuals and groups create rules consciously as instruments of control. They construct identities and conceptions of proper behavior in order to control the actions of others as well as their own. They accept their own obligations as part of the process of creating a coherent system of social relationships that can enact an attractive future.

In these perspectives, change stems from imagining the future and imposing it on the present. Visions of the future, or destinies, are confirmed by following courses of action necessary for their fulfillment. The visions may be seen as extrahuman, in which case the theory links adaptation to destiny within some ultimate purpose or design. Alternatively, the visions are sometimes portrayed as inventions of human decision makers, in which case the theory is one of anticipatory individual or institutional choice. Adaptation is seen as reflecting wills and desires and the conscious intention to achieve them.

In traditions of studies of organized action, the future is captured particularly in plans and contracts. Contracts are made in order to avoid the uncertainty implicit in the future. Plans are developed on the basis of expectations of the future, then are implemented in such a way as to enact the future they anticipate. Budgets are a conspicuous example. Budgets are based on forecasts of income and expenditures. Sometimes the world changes so much that a budget cannot be achieved, but the usual situation is that budgets become self-confirming. If income or expenditures start to deviate from the plan, actions are taken to bring them back. If sales lag, new marketing efforts are initiated. If expenditures lag, new uses of funds are discovered. The prototype is the flurry of expenditures to exhaust a budget at the end of a budget period.

2.3.3 Capturing the Past: Experiential Learning

Although ideas of *future*-dependent adaptation of rules are common in social science, they are usually subsumed under the

general rubric of rational action. In contrast, theories of identities, rules, and institutions tend to emphasize *history*-dependent adaptation. Ideas of history-based development have been used to understand the birth, death, and change of organizational forms and routines, cultures, institutions, or systems of knowledge. The past is seen as imposing itself on the present through retention of experience in routines. Rules are seen as a residue of the past.

Historical processes by which the present encapsulates the past are the mechanisms of theories of change, including theories of learning, culture, and natural selection. The theories differ in the way they imagine the informational consequences of history to be sustained and diffused within an evolving population, but they belong to a common family. In each case, the past is experienced through a combination of exploration and exploitation. Exploration produces variety in experience (experimentation, variation, diversity). Exploitation produces reliability in experience (selection, consistency, unity). The engines of development include mechanisms for interpreting, retaining, transmitting, and retrieving these lessons of the experienced past.

In this section *learning* processes, ideas about how rules change as a result of experience, are considered. In subsection 2.3.4 processes of environmental selection are considered. In a learning process, the rules change. In a selection process, the rules themselves do not change, but the mix of rules does. Despite this difference, the two perspectives share a number of common problems and ideas, and most modern students of decision making see the development of rules as an intertwining of these two history-dependent processes with processes of choice, bargaining, and imitation.

BASIC IDEAS OF EXPERIENTIAL LEARNING

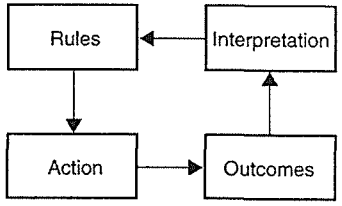
The basic idea of experiential learning is that rules are modified on the basis of direct experience. Social systems create, suspend, and refine their rules in response to their own experiences. In that way, rules capture the past. Theories of direct experiential learning describe how inferences derived from historical experience are folded back into the actions that create subsequent history. Such theories normally postulate a cycle of four stages: (1) Action is taken using existing rules. (2) That action results in various kinds of outcomes. (3) Inferences are made from those outcomes. (4) Those inferences are used to modify the rules. The cycle is displayed in Figure 2.

The first step in this cycle has been discussed above in subsection 2.2.3. It depends on mechanisms that recognize situations, define identities, and retrieve and apply rules. Some aspects of the second step will be discussed below in subsection 2.3.5, particularly those associated with learning that occurs in the context of other learners. This subsection considers some features of the last two steps, the processes that convert feedback from outcomes into rules. Understanding how rules are modified by learning involves perceiving how small samples of ambiguous experience are converted into inferences about the world and how those inferences are used to change routines.

MAKING EXPERIENCE USEFUL FOR LEARNING

In order to shape learning, interpretations of experience must provide information about what happened, why it happened, and whether what happened was satisfactory or unsatisfactory. Ordinary experience, however, provides only a small sample of events on which to base an interpretation of a possibly complex

Figure 2
The Experiential Learning Cycle



Source: James G. March and Johan P. Olsen, "The Uncertainty of the Past: Organizational Learning under Ambiguity," *European Journal of Political Research*, 3 (1975): 147–71.

world. Experience consists in a set of *observed* events (and interpretations of them). Observed events are a sample of actual *realized* events. Some of the events of history never enter experience because they are not observed. Realized events, in turn, are a sample of *potential* events. The realizations of history are draws from the set of all possible events that might be produced by historical processes.

This double sampling makes observed history a noisy representation of historical possibilities. Events are often difficult to observe precisely or to understand fully. Many interconnected things happen simultaneously, and information about them is incomplete and biased. Organizations are complex mixtures of individuals with different interests, competences, identities, and sentiments. Different individuals learn different things from the same ambiguous history. Those various learnings are combined to produce changes in rules. This subsection provides a brief introduction to the ways rules learn from experience, an introduction that focuses on a few basic features of how experience is recorded and recalled, interpreted, augmented, and evaluated.

Recalling Experience. In recalling experience, decision makers are likely to be affected by the *availability* of the event in memory. Among the many factors that make an event available, three are particularly relevant here:

First, personally experienced events are more available than events not personally experienced. Even though subsequent historians have considerably extended our collective knowledge about the Nazi era in Germany, events of German history from 1937 to 1945 are more available to people who were living in Germany during that period than they are to non-Germans or Germans born after 1945. The pains of failure and the joys of success are remembered more vividly and recalled more readily when they have been experienced in person than when they have been experienced vicariously. Individuals tend to recall their own experiences more readily than the experiences of others. Thus, the availability heuristic tends to lead successful decision makers (who have had generally good experiences with risk taking) to underestimate the risks they face, and to lead unsuccessful decision makers to overestimate them.

Availability biases are also observed in studies of how individuals assess individual contributions to joint projects. Asking partners in a marriage to asses independently the percentage of the housework they perform or asking participants in joint projects at work to estimate their percentage contribution to the success of a project almost always leads to responses totaling more than 100 percent. Since each individual recalls his or her contributions more easily than the contributions of others, the availability heuristic leads each individual to see his or her own contribution as greater than it is seen by others.

Second, the experiences of others with whom individuals share an identity are more readily available than are the experiences of more distant others. Women record and recall the reported experiences of other women more easily than do men. Physicians record and recall the reported experiences of other physicians more easily than do people who are not physicians. Reporters following a particular political candidate systematically overestimate the prospects of "their" candidate. When husbands are asked to estimate the contribution to housework of husbands in general (rather than just themselves), and wives are asked to estimate the contribution to housework of wives in general , the numbers still total more than 100 percent.

Third, people seem to record and recall vivid, concrete information more readily than pallid, abstract, statistical information. Television advertisements reflect awareness of this principle on the part of advertisers. They are more likely to tell a vivid story about one satisfied customer than to present tables of data about customer satisfaction. They are more likely to provide examples of the effects of a product's properties than data on those properties. Teachers report a distinctive feature of student examination answers: Relative to the frequency with which teachers present them, students recall stories and vivid slogans much more frequently than they recall abstract models or data.

Interpreting Experience. Learning processes do not reliably lead to valid interpretations of experience. Some fairly general biases exist in the interpretation of experience. For example, humans tend to attribute events to the intentions of human actors,

even when such an attribution appears difficult to sustain. They are inclined to see historical events as necessary events, rather than as draws from a probability distribution of possibilities. They fail to take effective advantage of the information available in the world. They are insensitive to the quality and amount of data on which their inferences are based.

Three general features of the interpretation of experience are particularly relevant to learning: First, interpretations *conserve belief*. That is, experience is interpreted in ways that sustain prior understandings. Events that disconfirm prior theories or schemata are less likely to be recalled than those that support prior beliefs. Arguments that contradict prior conclusions are less likely to be considered relevant than those that reinforce them.

For example, individuals interpret relationships among variables according to their favorite theory instead of looking for other mediating factors that could also explain a relationship. Lower rates of heart attacks in Mediterranean countries are interpreted by the manufacturers of olive oil as a statement about the effectiveness of certain kinds of fats in the diet, by winemakers as testimony to the therapeutic values of wine, and by hedonists as a statement about the effectiveness of living in a culture with more family connections, a slower-paced lifestyle, and better weather.

Advocates of a particular decision can often use almost any outcome to confirm their belief in the decision's efficacy. If the outcomes are positive, the decision is seen as demonstrably effective. If the outcomes are negative, the results are seen as showing that the decision did not go far enough or was not implemented with enough vigor. This resilience of belief in the face of experience is an obvious feature of social movements, political and religious faiths, and equipment purchases.

Second, individuals use *simple causal theories* to interpret experience. They assume that most of the time causes will be found in the neighborhood of their effects. Thus, they associate actions and outcomes by their temporal and spatial proximity. If prices are raised today and sales fall tomorrow, decision makers are likely to think the two events are connected. If prices are raised today and ten years later the competition hires a new accounting firm, the two events are less likely to be connected.

The assumption that causes are to be found in the neighborhood of effects is not a foolish assumption. It is often true. Even when it is not true, the connection between nearby effects and distant causes is often mediated by a chain of proximate cause and effect links. Moreover, in an organizational context the assumption of proximity is a basis for organizational control. When a manager is held responsible for outcomes realized within his or her division, the organization acts as though it believes that causes lie in the organizational neighborhood of effects. By so acting, it perhaps increases the likelihood that the assumption will be made true.

Third, the interpretation of experience is a *social interpretation*. Ideas about the causes of events are developed and shared within a network of social connections. Individuals elaborate an understanding of history by following standard socially approved procedures for telling stories about events and by "sounding out" other individuals about ideas. They confirm their interpretations by establishing the credibility of those interpretations in the minds of others. Reality is certified by a shared confidence in it. For example, the spatial proximity that individuals often use to establish cause and effect relations is defined socially. Organization charts create a presumption that cause–effect distances are related to distances measured in organization charts, and organizational relations and resources are arranged through a negotiation in which managers seek to gain control over the outcomes that are to be viewed as "near" to them.

The classic socially validated outcome in a business setting is the income (or profit and loss) statement. Most decision makers construct such statements and use them to modify actions and rules. Ideas about outcomes found in income statements are developed and validated through interaction with others. The key actors in the construction of an income (profit and loss) statement are typically business firms and their associations, accounting firms and their associations, public agencies, and the courts. In the United States, some agencies are strictly

governmental (e.g. the Securities Exchange Commission, the Congress). Others are public–private hybrids (e.g. the Financial Accounting Standards Board).

All the participants act within a mix of rules and incentives. Their roles demand certain actions. Their professional identities demand others. Their personal incentives include concerns about the consequences of having one kind of income statement or another for individual and organizational prosperity. For example, although accountants are presumed to be independent of management and are assumed to be accountable to the profession, to government officials, and to shareholders for painting an accurate picture of a client's performance, they are hired by management. They cannot help but be conscious that a continued relationship requires a certain delicacy in constructing an account.

Income statements are social combinations of problem solving, coalition formation, and imagination in the development of accounting conventions, and parallel combinations of problem solving, coalition formation, and imagination as decision makers try to live within the conventions and apply them to concrete situations to produce an income statement. The social understandings that are formed are continually being renegotiated, and both the rules of accounting and the specifics of a particular accounting statement gradually change.

Augmenting Experience. Since history ordinarily provides only small samples of experience, direct learning from experience involves assessing the validity of small samples, increasing them when possible, and augmenting the information in them. Small samples are often increased, but individuals tend to be insensitive to sample size, accepting small samples of information as being no less useful in their estimates than large samples. They place greater emphasis on assessing the quality of data drawn from experience than on the size of the sample.

In particular, individuals "overinterpret" experience, treating the events they have experienced as providing more information than standard theories of statistics would assume. The emphasis is on experiencing a limited history richly rather than on extending experience. For example, decision makers learn from

the process of making a decision and taking an action as well as from its outcomes. Since learning from the process ordinarily occurs substantially before any possible learning from outcomes, it is frequently the former that makes a greater difference. Thus, if the process of making a particular kind of decision, or taking the resulting action, is painful, decision makers learn not to do such things. If the process is rewarding, they learn to make such decisions. These decision process effects are often independent of final decision outcomes. Because they are gained sooner, the lessons from the process of making a decision serve to frame later learning derived from its outcomes.

Similarly, decision makers learn from their expectations of outcomes before they learn from the outcomes themselves. Anticipations reinforce actions from which good things are expected and extinguish actions from which bad things are expected. Since decisions are ordinarily made with positive expectations, the immediate lessons of a decision tend to be positive. Because those prior anticipations have a positive bias, they will, on average, be more positive than actual realizations. As a result, in the absence of reinterpretation of aspirations or of experience, there is a tendency for the early lessons from a particular set of decisions to be more positive than the later ones.

Evaluating Experience. Learning from experience requires not only understanding how experience stems from actions but also evaluating the outcomes of action. Is the outcome positive or negative? Is the policy a success or a failure? Did the action improve performance or degrade it? Often there is ambiguity associated with determining "success" or "failure."

In general, people seem to learn to like what they get. This behavioral tendency to interpret outcomes in a positive light provides an important counterbalance to a statistical tendency toward postdecision disappointment stemming from exaggerated expectations (see subsection 4.3.2). More generally, the adaptation of desires to realizations is an important feature of learning. If the definition of what is desired is affected by what is received, the basic learning distinction between success and failure becomes endogenous to the process of decision.

This can be seen particularly by considering the way a satis-

ficing decision maker distinguishes outcomes that are above an aspiration level from those that are below. It was noted in Chapter 1 that decision makers seem to have targets or aspiration levels for performance, and that they distinguish more sharply between being above and being below an aspiration level than they do among various degrees of success or failure. The same basic idea can be carried over to ideas about the evaluation of outcomes in experiential learning.

Suppose decision makers have (possibly changing) aspirations for their performance. Results that exceed their aspirations are treated as "successes," reinforcing their inclination to maintain the rules on which the actions were based. Results that fall short of their aspirations are treated as "failures," encouraging them to change the rules on which the actions were based. The learning process, then, depends critically not only on the association of outcomes to actions (and thereby to rules) but also on the aspirations for such outcomes.

If aspirations do not adjust to changes in performance produced by a changed environment, decision makers will experience long runs of success or failure, depending on whether the environmental change was positive or negative in its effects. On the other hand, if aspirations adjust instantaneously to changes in performance, decision makers will experience success and failure as essentially random events. In either case, the learning process will produce relatively little improvement.

"Success" and "failure" are also partly social constructions. Late in the history of the involvement of the United States in the Vietnam War, one U.S. Senator proposed that the army "declare a victory and come home." The response to the proposal demonstrated that there are limits to arbitrary unilateral evaluations of outcomes, but "success" and "failure" are not uniquely defined by the outcomes. Not only do decision makers adjust their aspiration levels, they also adjust their definitions of what is valuable. Typically, the adjustment is self-congratulatory in the sense that decision makers come to value what they achieve. If sales are up and market share is down, then sales are treated as the appropriate target. If overseas markets are unrewarding, they are devalued in subjective importance.

The social construction of success and failure may mirror the social structure of an organization or society, with different groups defining the same outcomes differently and learning different things from the same history. Internal conflict and competition provide a basis for persistent differences in the interpretation of events. The same outcomes will be seen as successes or failures, depending on whether they are attributed to one's own group or to a competitive group. When one product is successful and another is not, the advertising campaign that preceded the events is defined as a success by one product group and a failure by another. One faction's victories are another faction's defeats.

INCOMPLETE LEARNING CYCLES

The simple learning cycle displayed in Figure 2 is not necessarily achieved. One or more of the links portrayed in the figure may be broken, producing incomplete learning cycles with distinctive features. First, *rules are often rigid.* Individual inferences from experience are not immediately translated into changes in rules. This incomplete cycle is, of course, a very standard situation. Rules do not change to match every change in individual cognitions or beliefs. In many ways, that is the point of rules. The inhibition of rule adjustment to individual knowledge makes rule-based action predictable to others. It facilitates coordination. It makes rules capable of accumulating history across individuals.

Second, *learning is often superstitious*. That is, the link between past action and environmental response (outcomes) does not exist or is ambiguous. For example, imagine decision makers choosing among rules in a world in which almost any reasonable rule will lead to successful outcomes (an approximation to the situation in an expanding market or economy). Although decision makers will be successful regardless of what rules they use, learning is likely to lead them to believe in the efficacy of whatever rules they happen to follow. They are unlikely to notice that many other rules would also bring success. In such a superstitious world, successful decision makers are likely to

publish books revealing their "secrets" of success; but other decision makers will have quite different perceptions of the right rules to follow. And few of them will notice that almost anything would work.

On the other hand, consider the case in which none of the available rules for action are followed by good results. A possible example would be a decision maker facing a contracting market or economy. In this case, decision makers are likely to find themselves oscillating among rules, looking for one that works, perhaps not noticing that nothing has. They would probably not publish books.

These two cases are examples of pure superstitious learning. The association between actions and outcomes is misunderstood, but learning takes place nevertheless. Rules are adopted and beliefs and actions are shaped by interpretations of experience. There is little chance of self-correction, because the learning and interpretations are internally consistent. They are wrong, but wrong in ways that do not easily reveal themselves and often may not make much difference. If a talented tennis player or a talented politician believes that the reason for her success is the bracelet she wears, the ritual of wearing the bracelet (or any number of other rules that decision makers may come to follow) will probably not affect the outcomes adversely, and its irrelevance may well be discovered slowly.

Although pure cases of superstitious learning are probably relatively rare, almost all learning from experience has elements of supersition. Beliefs in the effectiveness of various strategies, products, technologies, or rules are often learned in conditions that make it hard to determine causal relations. When individuals use simple models to learn about complex interacting worlds—which they ordinarily must do because of the limitations of information and experience—much of what is learned is likely to be based on associations between actions and outcomes that are more fortuitous than causal.

Third, *memory is often imperfect.* Rules do not reliably determine action. They must be conserved and retrieved. Memory is difficult to maintain. Transmission and socialization processes are not always perfect. Those responsible for socialization may

have limits on their time. They may be more accepted by some groups than by others. Some rules may be overlooked or ignored because they conflict with rules imposed by subcultures or organizational subunits. Geographic or cultural distances may prohibit effective transmission of information and effective modeling of correct behavior.

Rules are also sometimes difficult to retrieve. The individual and organizational availability of a rule depends on the frequency and recency of use. Recently evoked rules are more likely to be retrieved than rules that have not been used for a while. This leads to flurries of rule use, like the flurries in application of particular criteria to the selection of political appointees. Rules "reside" in some part of a social or organizational structure and are more easily retrieved by parts of the structure that are near their location than parts that are far from them. Retrieval of home office rules is often difficult in a distant outpost.

Fourth, *history is often obscure*. It may be obscure at the time it occurs because of the small samples and causal complexity of experience. Even if it is clear at the time it occurs, history may become obscure with the passage of time. The primary form in which decision making memory is recorded is in the rules, procedures, and forms that encode experience. A characteristic feature of those memories is the way in which they record the lessons of history but not the history itself. As a result, uncertainty is absorbed by inferences, and the experiential basis for rules tends to disappear. To some extent the details of the history may be preserved by shared stories or individual memories, but both are subject to substantial distortion, social differentiation, and doubt.

2.3.4 Capturing the Past: Environmental Selection

Experiential learning is one procedure by which the past is encoded into rules, procedures, and forms. A second procedure is environmental selection. The two procedures represent parallel forms of adaptation, and they share many common features. However, they differ fundamentally in the mechanisms they

postulate for creating a match between environmental requirements and organizational rules.

The basic idea of environmental selection is that populations adapt to their environment not by changing the attributes of individual members of the population but by a changing mix of fixed attributes. The distribution of rules and forms in a population of decision makers or decision making organizations changes through differential births, deaths, and growth of rules and of the institutions and individuals using them. In short, the composition of the rule pool changes, not the individual rules.

THE EVOLUTIONARY ANALOGY

The vision of adaptation through selection is taken from evolutionary biology, and many contemporary discussions and issues in population biology have direct analogs in the study of decision making forms and rules. In standard evolutionary theory, evolution requires three things: (1) *variation:* some method for producing variety in forms, (2) *selection:* some method for selecting the most appropriate forms, and (3) *retention:* some method for retaining selected forms over time (generations).

In the classical Darwinian model of natural selection, variation occurs through mutations—rare, random changes in the genetic endowment of the organism—and through the statistical combinations produced by sexual reproduction. Change in the population comes through selection. Organisms increase in numbers relative to their fellows because of higher fertility or lower mortality (differential survival rates through reproduction age) produced by superior "fit" with their particular environment. Attributes that result in a survival advantage are retained by being passed on to subsequent generations through inheritance of genes (subject to mutations and statistical sampling).

The basic model can be complicated by factors that affect the variation process, the selection process, or the retention process. Mixes of types in an ecology are affected by migration patterns that control who is geographically available to mate

with whom and by social hierarchies that control who is socially available to mate with whom. Mixes of types may also be affected by complementarities among types—symbiosis, predation, and competition—and by altruism, interactions in which the sacrifice of one organism's ability to contribute to the gene pool from which descendants are drawn preserves the genetic contributions of others.

Mutation and the statistical sampling of genes through reproduction give chance a powerful role in such a conception of adaptation. Because the models predict probability distributions of attributes, they have very little to say about the success of individuals. There is always some chance that a favorable mutant will be eliminated and an unfavorable mutant will be stabilized. The possibilities for combinations through reproduction are numerous. In addition, as chance accumulates over generations, persistent and irreversible genetic drift is likely, and accurate long-run predictions are extremely unlikely.

Subject to chance, the model is one of environmental control through competition for resources. As organisms compete for resources in the environment, the distribution of types in the gene pool comes to "match" the environment. Until fairly recently, the relevant environment has been treated as exogenous, its effects changing in response to changing competitive conditions but its basic resource structure and character given by some natural processes unaffected by evolution at the gene pool level.

VARIATION, SELECTION, AND RETENTION IN RULES

Students of the adaptation of rules through environmental selection focus not on the gene pool but on pools of rules, forms, and procedures within a population of decision makers or organizations. The biological metaphor is clearly useful, but the processes of variation, selection, and retention in rules differ in important ways from their analogs in the evolution of gene pools.

Consider first the process for varying forms and rules, since without variation, the adaptive power of selection is small. Fun-

damental innovations in rules, like mutations in genes, are comparatively rare and unlikely to be successful, but variation in rules is probably not as chance-like as the process in biological organisms. Variation is often goal-directed, it results from a process of problem solving by decision makers confronted with poor performance, and it tends to consist of refinements of current rules and technology more commonly than recombinations. Variation may come from imperfect imitation or from individual deviations from rules.

Variation in rules also comes from various kinds of "foolishness"—doing things for no good reason. Practices that stimulate variation include those that create arenas in which normal controls are relaxed, protecting playfulness from the usual pressures toward reliability and conformity. These "skunk works" generate ideas, most of which—like most mutations—are bad ones. But they are also a source of the occasional effective change. Thus variation is closely related to risk taking, a topic considered in Chapter 1, since risk taking is defined in terms of introducing or accepting variability. Ideas about how to stimulate (or retard) variation are implicit in the discussion there of how to stimulate or retard risk taking.

Most (but not all) theories of variation and selection in social institutions assume that inheritable changes in attributes can arise through experiential learning. In that sense, such theories are more Lamarckian than Darwinian. By consciously disseminating information and rules, social systems, including organizations, transmit learned attributes to generations of changing personnel. Organizations grow and spread their rules (e.g. a growth in the number of locations within a restaurant chain). Organizations merge and thereby allow one to transplant its rules to another. New firms and units copy old ones. Organizations imitate organizations that occupy more prestigious positions in the social hierarchies (e.g. state legislatures imitating the national legislature). Consultants and professional associations carry rules from well-established clients to newly founded ones.

Finally, consider differences in the selection mechanisms. In this case, there is somewhat more overlap between models of

selection among genes and selection among rules. Most variation / selection models in the study of rules and organizations cite the importance of competition and differential survival as a selection mechanism. Organizations and rules die. Indeed, most new organizations seem to die relatively early, and the pattern of survival rates seems generally consistent with the idea that there is considerable heterogeneity among new starts. The birth, death, and transformation of rules has been less studied, but selection seems also likely to be a factor there.

Thus, special features of the process by which rules evolve through variation and selection include a reduced role of chance, an increased role of social diffusion, and a different role for the environment. Characteristics are not passed along through the Mendelian sampling of sexual reproduction (although something like that could be invented for a theory of imitation). In addition, mutations are less random. They are influenced by directed search and problem solving and by the conscious manipulation of slack. Forms spread through growth and social diffusion. The effects of migration and social hierarchy are more obvious, and traits can be acquired by learning. While the environment still determines survival, social systems appear to have power to enact their environments in some circumstances, to create a social reality. In addition, coevolution takes on a much greater role.

2.3.5 The Ecological Basis of Rule Development

A distinctive feature of rule development is its ecological, coevolutionary character. Ecologies of rules are tied together by links in almost every important aspect of learning and selection. Experiential learning depends on the link between actions and outcomes and on an evaluation of those outcomes. Each of those is affected by the interactions within an ecology of learning. Environmental selection depends on survival outcomes and on processes for reproducing or varying rules. Each of those is affected by interaction within an ecology of selection.

For example, as a decision maker learns a new set of lessons from experience, the learning of one lesson interacts with the

learning of other sets of lessons by the same decision maker. Learning in one part of an organization interacts with learning in other parts. Learning in one organization interacts with learning in other organizations. These interactions make understanding and evaluating learning in a system of social institutions considerably more difficult than it would be in a simpler world.

As will be elaborated somewhat in Chapter 6, the coevolutionary features of rules complicate simple intuitions about the "survival of the fittest." They make the population of rules that are observed (and therefore the population of decisions observed) history-dependent. The rules followed today are not simply a solution to some kind of optimization problem involving the current environment but are an interactive, path-dependent representation of a history of coevolution among rules.

COMPETENCY TRAPS

One of the more common effects of the ecology of adaptation in rules is a phenomenon called the competency trap or lock-in. It arises in various forms in many adaptive systems and reflects the ways in which improving capabilities with one rule, technology, strategy, or practice interferes with changing that rule, technology, strategy, or practice to another that is potentially superior (but with which the decision maker has little current competence).

Decision makers learn from experience what rule to use and simultaneously learn how to improve any rule that they use. The two forms of learning interact. The more a particular rule is used, the better becomes the performance using that rule, so the more likely it is that that rule will be reinforced by experience. The more a rule is reinforced, the more likely it is to be used. This positive feedback loop produces considerable competence in using a current rule and makes substitution of another (potentially superior) rule difficult through a learning process. In this way, the natural processes of learning can easily lead to a competency trap, a stable suboptimal solution.

Competency traps are manifested in technological lock-ins at an individual, organizational, and societal level. Individuals find it difficult to shift from one computer or word processor to another (superior) one. In the short run, their performance would decline with such a shift. Organizations pursue and refine product and marketing strategies that work, gaining competence at them, and thereby exclude potentially superior strategies that involve new competencies. Societies sustain technologies (the QWERTY keyboard, the internal combustion engine) that are arguably inferior but on which competence has been developed to such a level that a shift to a new technology cannot easily be achieved.

INTERACTIVE EFFECTS ON OUTCOMES

The interactions among the lessons of learning are further complicated by interactions among learning decision makers. Each decision maker adapts to an environment comprising other learning decision makers, each embedded in organizations of interacting learning individuals and subgroups. Thus the dynamics of rule change cannot be understood simply by focusing on the development of rules by a single decision maker or decision making institution. The outcomes for any particular action depend on what other decision makers do.

This insight about the effects of an environment that is not only changing but changing endogenously is a recurrent theme in the study of decision making. When decision systems made up of multiple actors are considered, as in Chapters 3 and 4, the decisions by any individual actor become much more complex, because they have to take into account the preferences, identities, and likely actions of others. This ecological context of decision making is also significant to understanding the development of rules. As rules evolve, their interactions make their outcomes jointly determined. The rewards for the use of one rule are affected by the use of a second rule, and the rewards of the second are similarly affected by use of the first. Consider, for example, rules of the road, specifically rules about driving on one side of the road or another on a two-lane, two-way road.

The interactive character of rule development is seen con-

spicuously in competition. The effectiveness of particular strategies, rules, or technologies depends on attributes of the competitors, the competition, and the environment. Consider a set of competitors each learning how to allocate resources to a set of alternative activities. The outcomes for any particular competitor will be a joint consequence of the potentials of the alternative activities, the changing capabilities of the various competitors within the various activities, and the allocations of effort by the various competitors to the various activities. Such a situation results in patterns of behavior that are strongly influenced by the ecological structure. The learning outcomes depend on the number of competitors, their learning rates, their rates of adjustment of their aspirations, the extent to which each competitor learns from the experience of others, and the differences among the potentials of the activities.

The relations among decision makers and their rules are not necessarily symmetrical. Some decision makers may interfere with or facilitate other decision makers while themselves remaining unaffected. Decision makers may also act as predators and prey (e.g. brokerage firms and investment innocents). Nor are they necessarily competitive. The interactive nature of rule development is seen conspicuously in cooperative activities. The evolution of communication rules, languages, and technologies is affected substantially by the cooperative, interactive character of communication. There are many different ways to communicate "yes," but (among people who want to talk to one another) language tends to coevolve so that all say "yes" in the same way. There are many different forms of communication technology, but the frequency with which one individual uses any particular technology will depend heavily on the frequency with which others do, and vice versa. These network externalities dictate important features of the learning process and make any theory of autonomous learning misleading.

ASPIRATIONS, DIFFUSION, LEGITIMACY

These interactive factors in outcomes are paralleled by interactive effects that affect other aspects of the adaptation of rules.

Consider three of those:

First, aspirations (and therefore definitions of subjective success and failure) are *social.* They are affected not only by a decision maker's own performance but also by the performance of others. When aspirations are tied to the performances of others, the evaluation of a given performance depends on the performances of others. This reduces the effects of self-referential indexing of performance, thus (on average) increases the chance that outcomes will deviate significantly from aspirations and decreases the likelihood of changing from success to failure or from failure to success. Both effects have consequences for learning. If aspirations in a population converge to the mean of the performances of the members of the population and there are structural reasons why some members of the population persistently do better than others, the population will tend to be partitioned into two groups, one that persistently achieves its aspirations and another that persistently fails to do so. In either case, learning tends to become superstitious.

Second, in both learning and environmental selection, rules "reproduce" by *diffusion.* Lessons gained from experience by one decision maker diffuse among other decision makers through the transfer of routines and the exchange of knowledge. As a result, theories of rule development need to attend to the structure of social networks and the ways in which knowledge is transferred through those networks. The structure includes associations (e.g. trade associations), networks of consultants and employees who move from one organization to another, and educational institutions and publications. Imitative diffusion can account for substantial elements of the spread of decision making rules, conventions, and technologies.

Third, in both learning and environmental selection, the *legitimacy* of rules is affected by the use of rules by others. Within a population of decision makers, the definition of appropriate behavior tends to be socially constructed by interpretations of observed behavior. What constitutes a proper

decision maker? A decision maker who does what decision makers do. What constitutes a proper decision making rule? A rule that is used by proper decision makers. How does a decision maker know what a proper decision maker does or what decision making rule is proper? By observing what other decision makers do.

Practices, forms, and rules become more legitimate as more decision makers use them. Commonly used practices become institutionalized as myths defining legitimate decision making routines. Legitimacy is not, of course, determined entirely by use on the part of others. There are frequently official and semiofficial bodies responsible for legitimating particular practices. When a professional group defines standard operating procedures for engineers or professional standards for physicians, it makes those rules legitimate. This sometimes happens even before the practices are widely used, although professional certification of legitimacy is as likely to follow general acceptance as it is to precede it. Similarly, legal requirements may anticipate, or even seek explicitly to force, subsequent practice. The general point is that one of the main ways a rule becomes legitimate in one place is by being used in another.

2.4 Appropriate Rules or Consequential Choice?

As should be clear from comparing this chapter with Chapter 1, there is a substantial chasm between those students who see decisions as choices made in the name of consequences and preferences and those students who see decisions as rule following in the name of appropriateness. Some interpretations of the chasm have already been suggested and will not be repeated extensively here. However, it may be useful to note two versions of the interpretations and to reiterate the position reflected in this book.

2.4.1 Reason and Reasoning

Standard contemporary discourse, particularly in the traditions of decision theory, tends to equate reason with a logic of consequence. The idea is that a reasoning decision maker will consider alternatives in terms of their consequences for preferences. Thoughtful discussion about action is expected to illuminate a decision maker's expectations and preferences. Deviations from a logic of consequence are treated as deviations from reason. Within that tradition, the claims of duty, obligation, identity, and rules are inferior claims. Rule following is portrayed as unthinking and automatic, identities as arbitrary and imposed. The glory of choice is seen in its links to independence and thought. The shame of rules is seen in their links to dependence and thoughtlessness.

It should be clear that such judgments are not reflected here. A logic of appropriateness is different from a logic of consequence, but both logics are logics of reason. Just as a logic of consequence encourages thought, discussion, and personal judgment about preferences and expectations, a logic of appropriateness encourages thought, discussion, and personal judgment about situations, identities, and rules. Both processes organize an interaction between personal commitment and social justification.

The two logics are not distinguished by differences in their status as thoughtful action. They are distinguished by the demands they make on the abilities of individuals and institutions. One makes great demands on the abilities of individuals and institutions to anticipate the future and to form useful preferences. The other makes great demands on the abilities of individuals and institutions to learn from the past and to form useful identities. Both processes picture human beings and human institutions as having a relatively high order of reasoning skill. Each logic is consistent with the glorification of the human estate and with high hopes for human action. Both are plausible processes for reasoning, reasonable decision makers.

2.4.2 Mutual Subsumesmanship

In arguments between theorists of consequential choice and theorists of rule following, each group sees the other's perspective as a special case of its own. For theorists of consequential

choice, rules are constraints derived from rational action at a higher level. For theorists of rule following, consequential choice is simply one of many possible rules that may be evoked and followed when deemed appropriate.

The approach here is conscious of, but largely indifferent to, these displays of subsumesmanship. Empirical observations of decisions provide ample examples of behaviors that are hard to understand without attention to both perspectives, and neither (at least in its present incarnation) explains enough of the phenomena to claim exclusive rights to truth. In the cultures and contexts (e.g. much of contemporary economics, psychology, and political science) where enthusiasts for consequential analysis and the pursuit of preferences are dominant, ordinary good sense probably calls for reminders of logics of appropriateness, identities, and rules. In cultures and contexts (e.g. much of contemporary sociology and anthropology) where enthusiasts for roles, rules, and institutions are dominant, ordinary good sense probably calls for reminders of logics of consequences, preferences, and calculation.

Since students of decision making straddle the standard disciplinary boundaries to some extent, it may be appropriate for them to try to fit these contentious cultures of disciplinary interpretation into a single world view. They also have incentives to do so. In this effort, they have allies among decision makers. Since most decision makers are more bemused by disciplinary disputes than inclined to join them, they are likely to find multiple visions complementary rather than contending..

CHAPTER THREE

Multiple Actors: Teams and Partners

In Chapter 1 decision makers were portrayed as rational actors, searching for alternatives in a world of limited knowledge and evaluating those alternatives in terms of their preferences. The focus was on the ways incomplete knowledge of alternatives and consequences imposed limits on rationality, on how decision makers cope with those limitations through satisficing and problem solving heuristics, and on some of the consequences of those coping mechanisms for the accumulation of slack and the occasions of innovation in organizations.

In Chapter 2 decision makers appeared as rule followers, matching appropriate behavior to situations and trying to fulfill their identities. The focus was on the processes involved in creating, maintaining, and acting within conceptions of self that are multiple and sometimes unclear, on the ways in which rules encode history, and on some of the complications in capturing the past through experiential learning and environmental selection.

In both Chapter 1 and Chapter 2, the portrayal was implicitly of a single decision maker. In this chapter and the next, the focus shifts to processes involving multiple actors.