transaction cost economics mainly involves a comparative institutional assessment of discrete institutional alternatives—of which classical market contracting is located at one extreme; centralized, hierarchical organization is located at the other; and mixed modes of firm and market organization are located in between.

5. Any attempt to deal seriously with the study of economic organization must come to terms with the *combined* ramifications of bounded rationality and opportunism in conjunction with a condition of asset specificity.

Note, with respect to this last, that the main differences in the four concepts of contract that are discussed in the text can be traced to variations in one or more of these three conditions. Thus contract as comprehensive *ex ante* planning and contract as promise both make heroic assumptions about human nature—the absence of bounded rationality being featured by the one (planning); the absence of opportunism being presumed by the other (promise). By contrast, concepts of contract as competition and contract as governance make less severe demands in behavioral respects. Both accommodate and/or make express provision for bounds on rationality and the hazards of opportunism.

Thus it is the condition of asset specificity that distinguishes the competitive and governance contracting models. Contract as competition works well where asset specificity is negligible. This being a widespread condition, application of the competitive model is correspondingly broad. Not all investments, however, are highly redeployable. Use of the competitive model outside of the circumstances to which it is well-suited can be and sometimes is misleading.

Whereas the competitive model of markets has been developed to a refined degree, the formidable difficulties that attend contracting in the context of nonredeployable investments have only recently come under scrutiny. This is largely because the sources and economic importance of asset specificity had previously been undervalued. Extending the theory of economic organization to deal with asset specificity has been a central preoccupation of the New Institutional Economics research agenda. This book advances and employs a private ordering approach to economic organization in which the concept of contract as governance is featured.

CHAPTER 2

Contractual Man

Complex systems are usefully studied from several points of view. Among those that have been productively employed are economic man, working man, political man (Rawls, 1983, p. 13), and even hierarchical man. The approach to the study of economic organization employed in this book is that of contractual man.

As set out in Chapter 1, a variety of economic approaches have been employed in assessing contract. Those different approaches are distinguished by (1) the behavioral assumptions imputed to contractual man, (2) the attributes of transactions believed to be of economic importance, and (3) the degree to which the courts are relied upon for settling disputes. This chapter elaborates on the first two. The private ordering versus legal centralism issue is developed further in Chapter 3.

The behavioral assumptions on which transaction cost economics relies are described in section 1. The principal dimensions for characterizing transactions are examined in section 2. The "fundamental transformation," which is responsible for a widespread condition of bilateral contracting is discussed in section 3. Although there are no substantive results in this chapter, asset specificity and the fundamental transformation both play leading roles in the chapters that follow. Note should be taken of them, therefore, even by those who regard behavioral assumptions as unimportant.

1. Behavioral Assumptions

Many economists treat behavioral assumptions[1] as a matter of convenience. This reflects a widely held opinion that the realism of the assumptions is unimportant and that the fruitfulness of a theory turns on its implications (Friedman, 1953).[2] As noted earlier, however, Bridgeman urges that an understanding of the actions of men requires more self-conscious attention to the study of how the minds of men work (1955, p. 450). Iredell Jenkins concurs. He observes that "human institutions—including law—inherit their major problems and purposes from the general condition of man" and holds that the study of mind and of social process is needed to get at the roots (1980, p. 5). As Coase puts it, "Modern institutional economics should study man as he is, acting within the constraints imposed by real institutions. Modern institutional economics is economics as it ought to be" (1984, p. 231).

Transaction cost economics characterizes human nature as we know it by reference to bounded rationality and opportunism.[3] The first acknowledges limits on cognitive competence. The second substitutes subtle for simple self-interest seeking.

1.1 *Rationality*

Three levels of rationality are usefully distinguished. The strong form contemplates maximizing. Bounded rationality is the semistrong form.[4] The weak form is organic rationality.

[1]Beauty, it is said, is in the eye of the beholder. There is a sense in which the same is true of behavioral assumptions. Those who are impatient with such matters may therefore want to skip directly to Section 2. Plainly, however, many of differences among alternative approaches to the study of economic organization owe their origins to underlying differences in the behavioral assumptions (see Section 1.3).

[2]For a recent and informed critique of this "official methodology," see Donald McCloskey (1983). For a recent endorsement, see Baiman (1982, p. 177).

[3]I originally intended also to include a discussion of dignitarian values and how these influence economic organization. The effort was not successful, however. I regard this as a regretable shortfall and hope that it will be remedied. Occasional reference to dignity appears in the text (mainly in conjunction with the employment relation and informal organization), and the issues are discussed in a more general way in Chapter 15. A more complete and systematic treatment of the ramifications of dignity for economic organization is sorely needed. The possibility that economic organization is sometimes distorted by excesses of optimism is introduced in section 5.2 of Chapter 1. This too needs development.

[4]Note that this does not exhaust the rationality categories. Nonrationality and irrationality might also be included. Their exclusion here reflects the view expressed in Chapter 1 that the study of economic organization is better advised to focus on the purposes served.

a. MAXIMIZING

Neoclassical economics maintains a maximizing orientation. That is unobjectionable, if all of the relevant costs are recognized.[5] The maximizing tradition does not, however, encourage such recognitions. Instead, the role of institutions is suppressed in favor of the view that firms are production functions, consumers are utility functions, the allocation of activity between alternative modes of organization is taken as given, and optimizing is ubiquitous (DeAlessi, 1983). Contingent claims contracting of the Arrow–Debreu kind is an especially ambitious form of maximizing. The occasion to study alternative means of contracting vanishes upon assuming that comprehensive intertemporal trading of this kind is feasible. The world being reduced to a single gigantic once-for-all higgle-haggle (Meade, 1971, p. 166), technology, initial endowments, and risk preferences and perceptions are fully determinative.

b. BOUNDED RATIONALITY

Bounded rationality is the cognitive assumption on which transaction cost economics relies. This is a semistrong form of rationality in which economic actors are assumed to be "*intendedly* rational, but only *limitedly* so" (Simon, 1961, p. xxiv). Note the simultaneous reference to both intended and limited rationality. That conjunction has been resisted by both economists and other social scientists, albeit for different reasons. Economists object to it because limits on rationality are mistakenly interpreted in nonrationality or irrationality terms. Regarding themselves as they do as the "guardians of rationality" (Arrow, 1974, p. 16), economists are understandably chary of such an approach. Other social scientists demur because reference to intended rationality makes too great a concession to the economists' maximizing mode of inquiry. The upshot is that bounded rationality invites attack from both sides.

Transaction cost economics acknowledges that rationality is bounded and maintains that both parts of the definition should be respected. An economizing orientation is elicited by the intended rationality part of the definition, while the study of institutions is encouraged by conceding that cognitive competence is limited.

[5]Not all skeptics of maximizing analysis would agree with this. I am nevertheless persuaded that most of the matters with which this book is concerned can be dealt with more formally. Often, however, formal efforts to introduce the relevant costs pull up short and/or do so in a way that lacks operational significance. Despite this, progress with formalization has occurred and is in prospect.

Comprehensive contracting is not a realistic organizational alternative when provision for bounded rationality is made (Radner, 1968). If mind is the scarce resource (Simon, 1978, p. 12), then economizing on claims against it is plainly warranted. Respect for limited rationality elicits deeper study of both market and nonmarket forms of organization. Given limited competence, how do the parties organize so as to utilize their limited competence to best advantage? Views to the contrary notwithstanding, the set of issues on which economic reasoning can usefully be brought to bear is enlarged rather than reduced when bounds on rationality are admitted.

Economizing on bounded rationality takes two forms. One concerns decision processes, and the other involves governance structures. The use of heuristic problem-solving—both in general (Simon, 1978) and in conjunction with specific problems, such as Rubic's cube (Heimer, 1983)—is a decision process response. Transaction cost economics is principally concerned, however, with the economizing consequences of assigning transactions to governance structures in a discriminating way. Confronted with the realities of bounded rationality, the costs of planning, adapting, and monitoring transactions need expressly to be considered. Which governance structures are more efficacious for which types of transactions? *Ceteris paribus*, modes that make large demands against cognitive competence are relatively disfavored.[6]

c. ORGANIC RATIONALITY

The weak form of rationality is process or organic rationality, the type of rationality with which modern evolutionary approaches (Alchian, 1950; Nelson and Winter, 1982) and Austrian economics (Menger, 1963; Hayek, 1967; Kirzner, 1973) are associated. But whereas Nelson and Winter deal with evolutionary processes within and between firms, the Austrian approach is concerned with processes of the most general kinds—the institutions of money, markets, aspects of property rights, and law being examples. As Louis Schneider puts it, such institutions "are not planned. A general blueprint of the institutions is not aboriginally in anyone's mind. [Indeed], there are situations in which ignorance . . . works more 'effectively' toward certain ends than would knowledge of and planning toward those same ends" (1963, p. 16). Although transaction cost economizing is surely an important contributor to the viability of the institutions with which Austrian economics is concerned, and a joinder of the two approaches would be useful, the research agenda of organic rationality and transaction cost economics are currently rather different. They are nevertheless complementary; each can expect to benefit from the insights of the other (Langlois, 1982, p. 50).

[6] It is sometimes argued that bounded rationality is merely a convoluted way of stating that information is costly. Once this has been acknowledged, maximizing modes of analysis can deal with all of the issues with which bounded rationality is concerned. There is something to be said for this: As Simon observes, a large "plot of common ground is shared by optimizing and satisficing analysis" (1978, p. 8, n. 6). Although one might, on grounds of parsimony, recommend that "we prefer the postulate that men are reasonable to the postulate that they are supremely rational when either one of these assumptions will do" (Simon, 1978, p. 8), it is easy to understand how others can decide differently. Working within an extended neoclassical framework is not a benefit that will be sacrificed lightly.

As Richard Nelson and Sidney Winter argue, however, fundamental tensions remain:

> There is . . . a fundamental difference between a situation in which a decision maker is uncertain about the state X and a situation in which the decision maker has not given any thought to whether X matters or not, between a situation in which a prethought event judged of low probability occurs and a situation in which something occurs that never has been thought about. . . . Most complex models of maximizing choice do not come to grips with the problem of bounded rationality. Only metaphorically can a limited information model be regarded as a model of decision with limited cognitive abilities. [1982, pp. 66–67]

Evolutionary economics, of the kind with which Nelson and Winter are associated, relies less on intended rationality and more on the limits of rationality than do I.

1.2 *Self-interest Orientation*

Three levels of self-interest seeking can also be distinguished. The strongest form, the one to which transaction cost economics appeals, is opportunism. The semistrong form is simple self-interest seeking. Obedience is the weak (really null) form.

a. OPPORTUNISM

By opportunism I mean self-interest seeking with guile. This includes but is scarcely limited to more blatant forms, such as lying, stealing, and cheating. Opportunism more often involves subtle forms of deceit. Both active and passive forms and both *ex ante* and *ex post* types are included.

Ex ante and *ex post* opportunism are recognized in the insurance literature under the headings of adverse selection and moral hazard, respectively. The first is a consequence of the inability of insurers to distinguish between risks and the unwillingness of poor risks candidly to disclose their true risk condition. Failure of insureds to behave in a fully responsible way and take appropriate risk-mitigating actions gives rise to *ex post* execution problems. Both conditions are subsumed under the heading of opportunism.

More generally, opportunism refers to the incomplete or distorted disclosure of information, especially to calculated efforts to mislead, distort, disguise, obfuscate, or otherwise confuse. It is responsible for real or contrived conditions of information asymmetry, which vastly complicate prob-

lems of economic organization. Both principals and third parties (arbitrators, courts, and the like) confront much more difficult *ex post* inference problems as a consequence. It is not necessary, moreover, that all parties be given to opportunism in identical degree. Indeed, problems of economic organization are compounded if the propensity to behave opportunistically is known to vary among members of the contracting population, since now gains can be realized by expending resources to discriminate among types.

Nicholas Georgescu-Roegen's reference to behavior that deviates from the rules is consonant with this view of human nature. As he puts it:

> [O]bservation of what happens in the economic sphere of organizations, or between organizations and individuals, [reveals] phenomena that do not consist of tatonnement with given means toward ends *according to the rules*. They show beyond any doubt that in all societies the typical individual continually pursues also an end ignored by the standard framework: the increase of that [which] he can claim as his. . . . It is the pursuit of this end that makes the individual a true agent of the economic process. [1971, pp. 319–20; emphasis added]

Plainly, were it not for opportunism, all behavior could be rule governed. This need not, moreover, require comprehensive preplanning. Unanticipated events could be dealt with by general rules, whereby the parties agree to be bound by actions of a joint profit-maximizing kind. Thus problems during contract execution could be avoided by *ex ante* insistence upon a general clause of the following kind: I agree candidly to disclose all relevant information and thereafter to propose and cooperate in joint profit-maximizing courses of action during the contract execution interval, the benefits of which gains will be divided without dispute according to the sharing ratio herein provided.

It is noteworthy that Niccolò Machiavelli's efforts to deal with "men as they are" (Gauss, 1952, p. 14) makes prominent provision for opportunism. Upon observing that humans have a propensity to behave opportunistically, Machiavelli advised his prince that "a prudent ruler ought not to keep faith when by so doing it would be against his interest, and when the reasons which made him bind himself no longer exist. . . . [L]egitimate grounds [have never] failed a prince who wished to show colourable excuse for the promise" (Gauss, 1952, pp. 92–93). But reciprocal or preemptive opportunism is not the only lesson to be gleaned from an awareness that human agents are not fully trustworthy. Indeed, that is a very primitive response.

The more important lesson, for the purposes of studying economic organization, is this: Transactions that are subject to *ex post* opportunism will benefit if appropriate safeguards can be devised *ex ante*. Rather than reply to opportunism in kind, therefore, the wise prince is one who seeks both to give and to receive "credible commitments." Incentives may be realigned, and/or

superior governance structures within which to organize transactions may be devised. The ramifications are developed more completely in subsequent chapters.

As discussed below, opportunism is a troublesome source of "behavioral" uncertainty in economic transactions—which uncertainty would vanish either if individuals were fully open and honest in their efforts to realize individual advantage or, alternatively, if full subordination, self-denial, and obedience could be presumed. Open or simple self-interest seeking is the motivational assumption on which neoclassical economics relies. It is the semistrong form of self-interest seeking. Obedience is tantamount to non-self-interest seeking.

b. SIMPLE SELF-INTEREST SEEKING

Although neoclassical man confronts self-interested others across markets, this merely presumes that bargains are struck on terms that reflect original positions. But initial positions will be fully and candidly disclosed upon inquiry, state of the world declarations will be accurate, and execution is oath- or rule-bound in the manner described above. Accordingly, whereas parties realize all advantages that their wealth, resources, patents, know-how, and so forth lawfully entitle them, those are all evident from the outset. Inasmuch as there are no surprises thereafter, a condition of simple self-interest seeking may be said to obtain. Issues of economic organization thus turn on technological features (e.g. scale economies), there being no problematic behavior attributable to rule deviance among human actors.[7]

c. OBEDIENCE

Obedience is the behavioral assumption that is associated with social engineering (Georgescu-Roegen, 1971, p. 348). Adolph Lowe puts it as follows: "One can imagine the limiting case of a monolithic collectivism in which the prescriptions of the central plan are carried out by functionaries who fully identify with the imposed macrogoals. In such a system the economically relevant processes reduce almost completely to technical manipulations" (1965, p. 142). The full identification to which Lowe refers contemplates stewardship of an extreme kind in which self-interestedness vanishes. Although it is a recurrent theme throughout utopian and related literatures, to

[7]As Peter Diamond puts it, standard economic models treat "individuals as playing a game with fixed rules which they obey. They do not buy more than they can pay for, they do not embezzle funds, they do not rob banks" (1971, p. 31).

project such "mechanistic orderliness" is even more unwarranted than "the basic position of standard economics" (Georgescu-Roegen, 1971, p. 348). Problems of economic organization would nevertheless be greatly simplified if that condition were satisfied or even closely approximated. Robots have the feature that they satisfy obedience requirements at zero social conditioning cost, albeit within a limited range of responsiveness.

1.3 *Some Comparisons*

The main behavioral assumptions which contingent claims, mechanism design, transaction cost economics, evolutionary (or organic) economics, team theory, and utopian approaches employ are summarized in Figure 2–1. Of special importance is that transaction cost economics pairs a semistrong form of cognitive competence (bounded rationality) with a strong motivational assumption (opportunism). Without *both*, the main problems of economic organization with which this book is concerned would vanish or be vastly transformed.

Thus there would be relatively little scope for organizational design and analysis if either high-powered or organic rationality prevailed. Comprehensive contracting would rule in the first instance, while conscious efforts give way to evolutionary processes in the second. Were it not for opportunism, moreover, the general clause device—whereby parties agreed to be bound by

	Behavioral Assumptions	
	Rationality	Self-Interest Orientation
Strong	CC; MD	TC;MD
Semi-strong	TC; T	CC
Weak	E	U; T

CC: CONTINGENT CLAIMS
MD: MECHANISM DESIGN
TC: TRANSACTION COST
E: EVOLUTIONARY
U: UTOPIAN
T: TEAM THEORY

FIGURE 2–1. Behavioral Assumptions of Alternative Approaches to Economic Organization

actions of a joint profit-maximizing kind—would also support ubiquitous contracting. There simply is no occasion to supplant market exchange by other modes of economic organization if promises to behave in a joint profit-maximizing way are self-enforcing and if sharing rules are agreed to at the outset. These issues are discussed further in the Appendix.

Mechanism design theory couples a variant of unbounded rationality with opportunism. The rationality variant is this: An information impactedness condition exists, whereby the principal and agent have knowledge of different and essentially private information and engage in complex contracting. Mechanism design theory is thus located between contingent claims contracting and transaction cost economics in rationality respects. Imputing high-powered computational capacity is consonant with the former, while an information asymmetry condition places it closer to the latter. With respect to self-interest seeking, however, mechanism design and transaction cost economics are wholly congruent. To be sure, there are language differences—mechanism design theory refers to the propensity of human agents to behave opportunistically as "moral hazard"—but both assume deep problems of veracity and truth revelation.[8] Inasmuch as information may be disclosed strategically rather than candidly upon request, initial information disparities between the parties will not be assuredly overcome by proposals that all relevant information be pooled. Instead, initial information asymmetries persist. Indeed, additional asymmetries develop as events unfold.

Team theory acknowledges bounded rationality but assumes that agents have identical preferences, which is equivalent to weak form self-interestedness (Marschak and Radner, 1972). Although interesting problems of informational decentralization are thereby posed, the presumed absence of opportunism simplifies matters considerably.

Utopian modes of organization are intendedly humanistic and are gener-

[8] I have resisted substituting the term "moral hazard" for opportunism for two reasons. For one thing, moral hazard is plainly distinguishable from adverse selection. Both are subsumed under opportunism. Second, and more important, reference to moral hazard sometimes discourages deeper inquiry.

To be sure, the term "moral hazard" may be legitimately extended to reach outside of its narrow insurance context—where it refers to the possibility that insureds will fail to take appropriate loss-mitigating actions in the insurance interval and will not candidly accept accountability—to include all failures of "due care." But it does not ordinarily elicit sensitivity to the full set of *ex ante* and *ex post* efforts to lie, cheat, steal, mislead, disguise, obfuscate, feign, distort, and confuse. If everyone who uses the term moral hazard both recognizes and is prepared to plumb the contractual ramifications of those attributes of human nature, the general term (opportunism) and the technical term (moral hazard) are interchangeable. To the extent, however, that moral hazard focuses attention narrowly on the analytically more tractable features of contracting, foreshortening can result. It is no accident that the formal principal–agent literature uses "moral hazard" while transaction cost economics uses "opportunism."

ally nonmarket. Whether they are democratic or hierarchical, utopian modes require deep commitment to collective purposes and commonly involve personal subordination. The history of social and economic organization records repeated efforts to craft such structures. But utopian societies are especially vulnerable to the pound of opportunism.[9]

The new man of socialist economics is endowed with a high level of cognitive competence (hence the presumed efficacy of planning) and displays a lesser degree of self-interestedness (a greater predisposition to cooperation) than his capitalist counterpart. The "cooperation and solidarity" on which socialism is based are "introduced by social planning", which "not only improves macroeconomic efficiency but [also adds these new qualities] to the economic process" (Horvat, 1982, p. 335).

2. Dimensions

Transaction cost economics maintains that there are rational economic reasons for organizing some transactions one way and other transactions another. But which go where and for what reason? A predictive theory of economic organization requires that the factors responsible for differences among transactions be identified and explicated.

The principal dimensions with respect to which transactions differ are asset specificity, uncertainty, and frequency. The first is the most important and most distinguishes transaction cost economics from other treatments of economic organization, but the other two play significant roles.

2.1 *Asset Specificity*

An awareness of the condition that is herein described as asset specificity can be traced at least to Alfred Marshall.[10] The contracting and organizational

[9]The experience of utopian societies is examined by Frank and Fritzie Manuel (1979). There is a brief discussion of the issues in Chapter 10 herein.

[10]Consider Marshall's discussion of idiosyncratic employment:

> The point of view of the employer . . . does not include the whole gains of the business: for there is another part which attaches to his employees. Indeed, in some cases and for some purposes, nearly the whole income of a business may be regarded as a quasi-rent, that is an income determined for the time by the state of the market for its wares, with but little reference to the cost of preparing for their work the various things and persons engaged in it. . . . Thus the head clerk in a business has an acquaintance with men and things, the use of which he could in some cases sell at a high price to rival firms. But in other cases it is of a kind to be of no value save to the business in which he already is; and then his departure would perhaps injure it by several times the value of his salary, while probably he could not get half that salary elsewhere. [1948, p. 626]

The employees to whom Marshall refers are evidently specialized to the work of a particular firm. Discrete contracting is poorly suited for such transactions. Transaction cost economics predicts that contracts that have superior properties for safeguarding employment will appear.

ramifications, however, went unremarked. Indeed, the quasi-rent condition to which Marshall referred played a lesser rather than a greater role as neoclassical economics progressed.

To be sure, Michael Polanyi's remarkable study of "personal knowledge" included several illustrations of industrial arts and craftsmanship in which the skills in question are so deeply embedded in the experienced workforce that they can be known or inferred by others only with great difficulty—if at all (Polanyi, 1962, pp. 52–53). Jacob Marschak likewise recognized that assets can be idiosyncratic and expressed concern with the readiness of economists to accept or employ assumptions of fungibility: "There exist almost unique, irreplaceable research workers, teachers, administrators: just as there exist unique choice locations for plants and harbors. The problem of unique or imperfectly standardized goods . . . has been indeed neglected in the textbooks" (Marschak, 1968, p. 14). It was widely believed that those uniqueness conditions were rare and/or unimportant, however. The nuances to which Polanyi and Marschak referred could thus safely be relegated to footnotes.

That viewpoint has been dramatically reversed in the past decade. Alchian, who once held otherwise,[11] now contends that "the whole rationale for the employer-employee status, and even for the existence of firms, rests on [asset specificity]; without it there is no known reason for firms to exist."[12]

The proposition that the idiosyncratic attributes of transactions have large and systematic organizational ramifications first appeared in conjunction with the study of vertical integration (Williamson, 1971). Transactions that are supported by investments in durable, transaction-specific assets experience "lock in" effects, on which account autonomous trading will commonly be supplanted by unified ownership (vertical integration). Thus although there may be large numbers of qualified bidders at the outset, if the "winner of an original contract acquires a cost advantage, say by reason of . . . unique

[11]Alchian and Demsetz originally maintained that "neither the employee nor the employer is bound by any contractual obligations to continue their relationship. Long term contracts between employer and employee are not the essence of the organization we call a firm" (1972, p. 177). Alchian has since rejected this position (1984, pp. 38–39).

[12]Alchian, "First National Maintenance vs. National Labor Relations Board," unpublished manuscript, 1982, pp. 6–7. Alchian goes on generously to observe that "*Markets and Hierarchies* [is] by far the most elegant, though abstruse, statement of the [asset specificity] principle" (p. 7).

location or learning, including the acquisition of undisclosed or proprietary technical and managerial procedures and task-specific labor skills," bidding parity at contract renewal intervals will be upset—with the result that (comparative or remediable) *ex post* contracting strains predictably develop if discrete contracting is attempted (Williamson, 1971, p. 116).

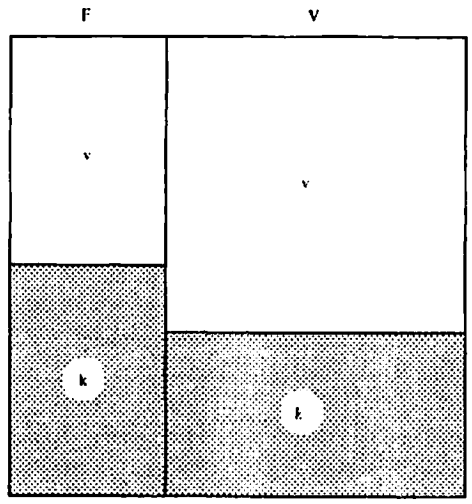
a. EXPLICATION

Asset specificity arises in an intertemporal context. As set out in the contractual schema in Chapter 1, parties to a transaction commonly have a choice between special purpose and general purpose investments. Assuming that contracts go to completion as intended, the former will often permit cost savings to be realized. But such investments are also risky, in that specialized assets cannot be redeployed without sacrifice of productive value if contracts should be interrupted or prematurely terminated. General purpose investments do not pose the same difficulties. "Problems" that arise during contract execution can be solved in a general purpose asset regime by each party going his way. The following issue thus needs to be evaluated: Do the prospective cost savings afforded by the special purpose technology justify the strategic hazards that arise as a consequence of their nonsalvageable character?

A tradeoff is thus posed and needs to be evaluated. Unlike earlier treatments of economic organization, transaction cost economics is centrally concerned with that condition. Also, the nature of the tradeoff is not invariant but varies systematically with the governance structure to which the transactions in question are assigned. A comparative organizational assessment of tradeoffs is thus needed.

It is common to distinguish between fixed and variable costs, but this is merely an accounting distinction. More relevant to the study of contracting is whether assets are redeployable or not (Klein and Leffler, 1981). Many assets that accountants regard as fixed are in fact redeployable, for example, centrally located general purpose buildings and equipment. Durable but mobile assets such as general purpose trucks and airplanes are likewise redeployable. Other costs that accountants treat as variable often have a large nonsalvageable part, firm-specific human capital being an illustration. Figure 2–2 helps to make the distinction.

Thus costs are distinguished as to fixed (F) and variable (V) parts. But they are further classified as to the degree of specificity, of which only two kinds are recognized: wholly specific (k) and nonspecific (v). (That only two specificity classes are distinguished does not imply that assets must be entirely one kind or the other. Semi-specific assets involve a mixture of k and v.) The shaded region at the bottom of the figure is the troublesome one for purposes



Accounting: Fixed (F) and Variable (V)
Contracting: Specific (k) and nonspecific (v)

FIGURE 2–2. Cost Distinctions

of contracting. That is where the specific assets are located. Such specificity is responsible for what is referred to as the "fundamental transformation" in Section 3 below.

At least four different types of asset specificity are usefully distinguished: site specificity; physical asset specificity; human asset specificity; and dedicated assets. The organizational ramifications, moreover, vary with each. The details are best developed in the context of specific organizational issues—vertical integration, nonstandard contracting, employment, corporate governance, regulation, and the like, which are the subjects of subsequent chapters. Suffice it to observe here that (1) asset specificity refers to durable investments that are undertaken in support of particular transactions, the opportunity cost of which investments is much lower in best alternative uses or by alternative users should the original transaction be prematurely terminated, and (2) the specific identity of the parties to a transaction plainly matters in these circumstances, which is to say that continuity of the relationship is valued, whence (3) contractual and organizational safeguards arise in support of transactions of this kind, which safeguards are unneeded (would be the source of avoidable costs) for transactions of the more familiar neoclassical (nonspecific) variety. Thus whereas neoclassical transactions take place within markets where "faceless buyers and sellers . . . meet . . . for an instant to exchange standardized goods at equilibrium prices" (Ben-Porath,

1980, p. 4), exchanges that are supported by transaction-specific investments are neither faceless nor instantaneous. The study of governance owes its origins to that condition.[13]

b. SIGNIFICANCE

The importance of asset specificity to transaction cost economics is difficult to exaggerate. Just as the absence of differential risk aversion would diminish if not vitiate much of the recent incentive work on contracting (Akerlof and Miyazaki, 1980; Bull, 1983), so would the absence of asset specificity vitiate much of transaction cost economics.[14] It is the source both of striking commonalities among transactions and of numerous refutable implications.

To be sure, asset specificity only takes on importance in conjunction with bounded rationality/opportunism and in the presence of uncertainty. It is nonetheless true that asset specificity is the big locomotive to which transaction cost economics owes much of its predictive content. Absent this condition, the world of contract is vastly simplified; enter asset specificity, and nonstandard contracting practices quickly appear. Neglect of asset specificity is largely responsible for the monopoly preoccupation of earlier contract traditions.

2.2 *Uncertainty*

a. GENERAL

Many of the interesting issues with which transaction cost economics is involved reduce to an assessment of adaptive, sequential decision-making. Contingent on the set of transactions to be effected, the basic proposition here is that governance structures differ in their capacities to respond effectively to

[13]Others who are persuaded of the importance of asset specificity include Klein, Crawford, and Alchian, who develop the argument in the context of what they refer to as "appropriable quasi-rents," where the quasi-rent value of an asset is the value in its next best use and the "potentially appropriable specialized portion of the quasi-rent is the portion, if any, in excess of its value to the second highest-valuing user" (1978, p. 298). Also see Klein (1980), Klein and Leffler (1981), Goetz and Scott (1981), and Alchian (1984).

[14]Markets are thoroughly contestable—in the sense of Baumol, Panzer, and Willig (1982)—if asset specificity is presumed to be absent. In this sense contestability theory and transaction cost economics are looking at the very same phenomenon—the condition of asset specificity—through opposite ends of the telescope.

disturbances. To be sure, those issues would vanish were it not for bounded rationality, since then it would be feasible to develop a detailed strategy for crossing all possible bridges in advance.[15] It would likewise be possible to adapt effectively using the "general rule" device described above were it not for opportunism. Confronted, however, by the need to cope with both bounded rationality and opportunism, comparative institutional assessments of the adaptive attributes of alternative governance structures must necessarily be made.

As Hayek maintained, interesting problems of economic organization arise only in conjunction with uncertainty: The "economic problem of society is mainly one of adaptation to changes in particular circumstances of time and place" (Hayek, 1945, p. 524). Disturbances, moreover, are not all of a kind. Different origins are usefully distinguished. Behavioral uncertainty is of special importance to an understanding of transaction cost economics issues.

Although there is a hint in the earlier discussions that uncertainty can have behavioral origins (Williamson, 1975, pp. 26–37), it generally goes unremarked. Even Tjalling Koopmans, whose distinction between primary and secondary uncertainty goes beyond most treatments and who describes the core problem of the economic organization of society as that of facing and dealing with uncertainty (1957, p. 147), does not deal with behavioral issues. Primary uncertainty is of a state-contingent kind, while secondary uncertainty arises "from lack of communication, that is from one decision maker having no way of finding out the concurrent decisions and plans made by others"—which Koopmans judges to be "quantitatively at least as important as the primary uncertainty arising from random acts of nature and unpredictable changes in consumer's preferences" (1957, pp. 162–63).

The secondary uncertainty to which Koopmans refers is of a rather innocent or nonstrategic kind, however. There is a lack of communication, but no reference is made to uncertainty that arises because of strategic nondisclosure, disguise, or distortion of information (note that information distortion involves not a lack of information but the conscious supply of false and misleading signals). Also, the plans to which Koopmans refers are merely unknown. The possibility that parties make strategic plans in relation to each

[15]Simon has taken the somewhat extreme position that the distinction between deterministic complexity and uncertainty is inessential. What is referred to as "uncertainty" in chess is "uncertainty introduced into a perfectly certain environment by inability—computational inability—to ascertain the structure of the environment. But the result of uncertainty, whatever its source, is the same: approximation must replace exactness in reaching a decision" (1972, p. 170).

other[16] that are the source of *ex ante* uncertainty and *ex post* surprises is nowhere suggested.

Uncertainty of a strategic kind is attributable to opportunism and will be referred to as *behavioral uncertainty*. Such uncertainty is presumably akin to what Ludwig von Mises refers to as case probability, where "case probability is a peculiar feature of our dealing with problems of *human action*. Here any reference to frequency is inappropriate, as our statements always deal with *unique events*" (1949, p. 112; emphasis added).[17] Thus even if it were possible to characterize the general propensity of a population to behave opportunistically in advance and perhaps even to screen for trustworthiness, knowing that one is dealing with a trader who comes from one part of the opportunism distribution rather than another does not fully describe the uncertainties that arise on this account. Those added uncertainties can be evaluated only upon projecting the devious responses (and own replies) that opportunism introduces. And those can be evaluated only in conjunction with the particulars of the contract. Even knowledge of particulars, moreover, does not preclude surprises. The capacity for novelty in the human mind is rich beyond imagination.[18] The issues here are nicely put by Leif Johansen, who observes that the study of economic behavior between motivationally complex economic agents is complicated by the fact that the "ranges of possible messages, offers, threats, etc. which can be given during the process, including the timing of moves, are hard to delimit. Imagination and ability to surprise the opponents may be important points, and very often the 'agenda' will be expanded during the process" (1979, p. 511). Surprise moves often elicit complex replies. Bounded rationality limits are quickly reached—since the entire decision tree cannot be generated for even moderately complex problems (Feldman and Kanter, 1965, p. 615).[19]

To be sure, behavioral uncertainties would not pose contractual problems if transactions were *known* to be free from exogenous disturbances, since then there would be no occasion to adapt and unilateral efforts to alter contracts could and presumably would be voided by the courts or other third party appeal. Insistence on original terms would thus everywhere be observed. The ease of enforcing contracts vanishes, however, once the need for adaptation appears (or can be plausibly asserted). Questions of the following kind arise: Should maladaptations to changed circumstances be tolerated lest efforts to effect an adaptation give rise to complex behavioral responses by opposite parties with the prospect of realizing net losses? Can a governance structure that attenuates such behavioral uncertainties be devised?[20] Such issues do not arise within the context of primary uncertainty but are nontheless germane to the study of economic organization.

b. INTERACTION EFFECTS

The influence of uncertainty on economic organization is conditional. Specifically, an increase in parametric uncertainty is a matter of little consequence for transactions that are nonspecific. Since new trading relations are easily arranged, continuity has little value, and behavioral uncertainty is irrevelant. Accordingly, market exchange continues and the discrete contract-

[16]The Holmes-Moriarity dilemma described by Oskar Morgenstern is an illustration:

> Sherlock Holmes, pursued by his opponent, Moriarity, leaves London for Dover. The train stops at a station on the way, and he alights there rather than travelling on to Dover. He has seen Moriarity at the railway station, recognizes that he is very clever and expects that Moriarity will take a faster special train in order to catch him in Dover. Holmes' anticipation turns out to be correct. But what if Moriarity had been still more clever, had estimated Holmes' mental abilities better and had foreseen his actions accordingly? Then, obviously, he would have travelled to the intermediate station. Holmes, again, would have had to calculate that, and he himself would have decided to go on to Dover. Whereupon, Moriarity would again have "reacted" differently. Because of so much thinking they might not have been able to act at all or the intellectually weaker of the two would have surrendered to the other in the Victoria Station, since the whole flight would have become unnecessary. [1976, pp. 173–74]

[17]G. L. S. Shackle likewise remarks that "in a great multitude and diversity of matters the individual has no record of a sufficient number of sufficiently similar acts, of his own or other people's, to be able to construct a valid frequency table of the outcomes of acts of this kind. Regarding these acts, probabilities are not available to him" (1961, p. 55). Georgescu-Roegen evidently agrees. He observes that "a measure for all uncertainty situations . . . has absolutely no meaning, for it can be obtained only by an intentionally mutilated representation of reality. We hear people almost every day speaking of 'calculated risk,' but no one yet can tell us how he calculated it so that we can check on his calculations" (1971, p. 83). Events that involve "novelty" cannot be described by probability distributions (Georgescu-Roegen, 1971, p. 122).

[18]"By saying that everybody was surprised at the announcement by President Johnson not to seek or accept the 1968 presidential nomination we do not simply mean that the ex ante belief in his move had been extremely small: we simply mean that nobody else had thought of it" (Georgescu-Roegen, 1971, p. 123).

[19]Inasmuch as a great deal of the relevant information about trustworthiness or its absence that is generated during the course of bilateral trading is essentially private information—in that it cannot be fully communicated to and shared with others (Williamson, 1975, pp. 31–37)—knowledge about behavioral uncertainties is very uneven. The organization of economic activity is even more complicated as a result.

[20]Stephen Littlechild's interesting discussion of the radical-subjectivist perspective introduces the possibility that governance structures will reflect behavioral uncertainties. He observes that "if uncertainty derives from the as yet undetermined actions of other agents, then it is necessary either to become privy to the decisions of those other agents (e.g., by agreement, collusion, merger, etc.) or to reduce one's dependence on them (e.g., by establishing or extending property rights)" (1983, p. 6). Jenkins likewise refers to the same condition when he observes that human relations are unstable because "men indicate by word or deed that they will act one way and then act in another" (1980, p. 18), to which he adds, "it is apparently only in the human context that disorder becomes a conspicuous feature; and it is only man who is at once challenged and equipped to deal purposively with it" (1980, p. 18).

ing paradigm holds across standardized transactions of all kinds, whatever the degree of uncertainty.

That is no longer so for transactions that are supported by idiosyncratic investments. Whenever assets are specific in nontrivial degree, increasing the degree of uncertainty makes it more imperative that the parties devise a machinery to "work things out"—since contractual gaps will be larger and the occasions for sequential adaptations will increase in number and importance as the degree of uncertainty increases. Also, and relatedly, concerns over the behavioral uncertainties referred to above now intrude.

A further discussion of the governance ramifications is best deferred to Chapter 3. Suffice it to observe here that (1) the interaction effects between uncertainty and asset specificity are important to an understanding of economic organization, and (2) empirical analysis of transaction cost features is complicated as a result.

2.3 *Frequency*

Adam Smith's famous theorem that "the division of labor is limited by the extent of the market" is mainly thought to have neoclassical cost ramifications. Investments in specialized production techniques the costs of which could be recovered in a large market may be unrecoverable if markets are small, whence general purpose plant and equipment and procedures will be observed in small markets. Similar reasoning carries over to the study of transaction costs. The basic proposition in the latter connection is this: Specialized governance structures are more sensitively attuned to the governance needs of nonstandard transactions than are unspecialized structures, *ceteris paribus*. But specialized structures come at a great cost, and the question is whether the costs can be justified. This varies with the benefits on the one hand and the degree of utilization on the other.

The benefits of specialized governance structures are greatest for transactions supported by considerable investment in transaction-specific assets. The reasons are those described previously. Whether the volume of transactions processed through a specialized governance structure utilizes it to capacity is then the remaining issue. The cost of specialized governance structures will be easier to recover for large transactions of a recurring kind. Hence the frequency of transactions is a relevant dimension. Where frequency is low but the needs for nuanced governance are great, the possibility of aggregating the demands of similar but independent transactions is suggested. Court ordering is commonly supplanted by arbitration in such circumstances: Both permit

aggregation, but the latter is more oriented to the continuity needs of asset specific transactions.

More generally, the object is not to economize on transaction costs but to economize in both transaction and neoclassical production cost respects. Whether transaction cost economies are realized at the expense of scale economies or scope economies thus needs to be assessed. A tradeoff framework is needed to examine the production cost and governance cost ramifications of alternative modes of organization simultaneously. Rudimentary apparatus of this kind is developed in Chapter 4.

3. The Fundamental Transformation

Economists of all persuasions recognize that the terms upon which an initial bargain will be struck depend on whether noncollusive bids can be elicited from more than one qualified supplier. Monopolistic terms will obtain if there is only a single highly qualified supplier, while competitive terms will result if there are many. Transaction cost economics fully accepts this description of *ex ante* bidding competition but insists that the study of contracting be extended to include *ex post* features. Thus initial bidding merely sets the contracting process in motion. A full assessment requires that both contract execution and *ex post* competition at the contract renewal interval come under scrutiny.

Contrary to earlier practice,[21] transaction cost economics holds that a condition of large numbers bidding at the outset does not necessarily imply that a large numbers bidding condition will prevail thereafter. Whether *ex post* competition is fully efficacious or not depends on whether the good or service in question is supported by durable investments in transaction-specific human or physical assets. Where no such specialized investments are incurred, the initial winning bidder realizes no advantage over nonwinners. Although it may continue to supply for a long time, that is only because, in effect, it is continuously meeting competitive bids from qualified rivals. Rivals cannot be presumed to operate on a parity, however, once substantial investments in transaction-specific assets are put in place. Winners in such circumstances enjoy advantages over nonwinners, which is to say that parity is upset. Accordingly, what was a large numbers bidding condition at the outset is effectively transformed into one of bilateral supply thereafter. This fundamental transformation has pervasive contracting consequences.

[21]The earlier treatments of franchise bidding discussed in Chapter 13 illustrate contract analysis in which *ex post* features were ignored or effectively assumed away.

The reason why significant reliance investments in durable, transaction-specific assets introduces contractual asymmetry between the winning bidder on the one hand and nonwinners on the other is that economic values would be sacrificed if the ongoing supply relation were to be terminated. Faceless contracting is thereby supplanted by contracting in which the pairwise identity of the parties matters. Occasionally the identity of the parties is important from the very outset, as when a buyer induces a supplier to invest in specialized physical capital of a transaction-specific kind. Inasmuch as the value of that capital in other uses is, by definition, much smaller than the specialized use for which it has been intended, the supplier is effectively committed to the transaction to a significant degree. The effect is often symmetrical, moreover, in that the buyer cannot turn to alternative sources of supply and obtain the item on favorable terms, since the cost of supply from unspecialized capital is presumably great.

Ordinarily, however, there is more to idiosyncratic exchange than specialized physical capital. Human capital investments that are transaction-specific commonly occur as well. These evolve during contract execution. Specialized training and learning-by-doing economies in production operations are illustrations. Except when such investments are transferable to alternative suppliers at low cost, which is rare, the benefits can be realized only so long as the relationship between the buyer and seller is maintained.

Additional transaction-specific savings can accrue at the interface between supplier and buyer as contracts are successively adapted to unfolding events and as periodic contract renewal agreements are reached. Familiarity here permits communication economies to be realized: Specialized language develops as experience accumulates and nuances are signaled and received in a sensitive way. Both institutional and personal trust relations evolve. Thus the individuals who are responsible for adapting the interfaces have a personal as well as an organizational stake in what transpires. Where personal integrity is believed to be operative, individuals located at the interfaces may refuse to be part of opportunistic efforts to take advantage of (rely on) the letter of the contract when the spirit of the exchange is emasculated. Such refusals can serve as a check upon organizational proclivities to behave opportunistically.[22] Other things being equal, idiosyncratic exchange relations that

[22]Thorstein Veblen's remarks on the distant relation of the head of a large enterprise to transactions are apposite. He observes that in those impersonal circumstances the "mitigating effect which personal conduct may have in dealings between man and man is . . . in great measure eliminated. . . . Business management [then] has a chance to proceed . . . untroubled by sentimental considerations of human kindness or irritation or of honesty" (1927, p. 53). Veblen evidently assigns slight weight to the possibility that those to whom negotiating and execution responsibilities are assigned will themselves invest the transactions with integrity.

feature personal trust will survive greater stress and will display greater adaptability.

How to effect these adaptations poses a serious contracting dilemma, though it bears repeating that, absent the hazards of opportunism, the difficulties would vanish—since then the gaps in long-term, incomplete contracts could be faultlessly filled by recourse to the earlier described general clause device. Given, however, the unenforceability of general clauses and the proclivity of human agents to make false and misleading (self-disbelieved) statements, the following hazards must be confronted: Joined as they are in a condition of bilateral monopoly, both buyer and seller are strategically situated to bargain over the disposition of any incremental gain whenever a proposal to adapt is made by the other party. Although both have a long-term interest in effecting adaptations of a joint profit-maximizing kind, each also has an interest in appropriating as much of the gain as he can on each occasion to adapt. Efficient adaptations that would otherwise be made thus result in costly haggling or even go unmentioned, lest the gains be dissipated by costly subgoal pursuit. Governance structures that attentuate opportunism and otherwise infuse confidence are evidently needed.[23]

Thomas Palay's recent studies of transportation transactions suggest that Veblen erred—in that specialized transactions do enjoy the added safeguard of personal honor and integrity of the individuals who negotiate the terms (Palay, 1981, pp. 105, 117, 124). Ronald Dore's assessment of Japanese contracting practices also suggests that personal integrity matters (1983).

[23]Considering the importance of the fundamental transformation to the study of economic organization, the question arises as to why this condition was so long ignored. One explanation is that such transformations do not occur in the context of comprehensive, once-for-all contracting—which is a convenient and sometimes productive contracting fiction but imposes inordinate demands on limited rationality. A second reason is that the transformation will not arise in the absence of opportunism—which is a condition that economists have been loath to concede. Third, even if bounded rationality and opportunism are conceded, the fundamental transformation appears only in conjunction with an asset specificity condition, which is a contracting feature that has only recently been explicated.

APPENDIX

Opportunism: A Digression

The behavioral assumption that human agents are given to opportunism elicits a variety of reactions, ranging from abhorrence through easy acceptance to an insistence that this is yet another case where there is nothing new under the sun. There are even those who regard opportunism as irrelevant.

Those who abhor the use of opportunism regard it as an unduly jaundiced view of human nature and/or are distressed with the theory of economic organization that it supports. I can appreciate both concerns. Note with respect to the first that I do not insist that every individual is continuously or even largely given to opportunism. To the contrary, I merely assume that some individuals are opportunistic some of the time and that differential trustworthiness is rarely transparent *ex ante*. As a consequence, *ex ante* screening efforts are made and *ex post* safeguards are created. Otherwise, those who are least principled (most opportunistic) will be able to exploit egregiously those who are more principled. (Even, moreover, in dealings among those who are known to be opportunistic, there are benefits in mutual restraint, as reflected in the aphorism that there is honor among thieves, although admittedly it invites a more complex interpretation than can be attempted here.)

One of the implications of opportunism is that "ideal" cooperative modes of economic organization, by which I mean those where trust and good intentions are generously imputed to the membership, are very fragile. Such

organizations are easily invaded and exploited by agents who do not possess those qualities. "High-minded" organizational forms—those which presume trustworthiness, hence are based on nonopportunistic principles—are thus rendered nonviable by the intrusion of unscreened and unpenalized opportunists. Accordingly, those who would have cooperatives succeed must, of necessity, make organizational concessions to the debilitating effects of opportunism. Viable cooperatives will attempt to screen against, socially recondition, and otherwise penalize opportunistic invaders.

At the other extreme are those who maintain that opportunism has always been the operative behavioral assumption. Express reference to "self-interest-seeking with guile" is thus merely a gloss. My response comes in two parts. First, even if true, there are advantages in being more rather than less explicit about what we mean, especially in dealing with those who may be unfamiliar with oral traditions. But second, and more to the point, I seriously dispute that opportunism has been the operative behavioral assumption. Public goods, insurance, and oligopoly aside, there was little or no provision for opportunism in most textual and other treatments of economic organization as recently as 1970. Peter Diamond's remarks on the prevailing orientation toward self-interest seeking in the postwar era are pertinent: standard "economic models [treat] individuals as playing a game with fixed rules which they obey. They do not buy more than they know they can pay for, they do not embezzle funds, they do not rob banks" (1971, p. 31). Simple self-interest-seeking, rather than opportunism, was plainly the ruling view. Thus, circa 1970,

1. Vertical integration was not viewed as a problem of contracting but one of applied price theory and/or technology.
2. Labor union organization was treated almost entirely as a matter of monopoly, there being little or no reference to efficient governance and the attenuation of opportunism.
3. The efficiency benefits of nonstandard forms of contracting were almost wholly disregarded in favor of monopoly explanations for those conditions.
4. Regulatory solutions in which contracting complications attributable to opportunism were dismissed or suppressed were prescribed.
5. The study of contract doctrine relied (and still relies) almost entirely on assumptions of differential risk aversion, concerns over the hazards of opportunism having been suppressed.
6. Firms were regarded as production functions rather than governance structures.
7. More generally, the importance of process and of the institutions of governance to the study of economic organization were undervalued.

Indeed, if an appreciation for opportunism was widespread, what explains the dramatic impact of George Akerlof's treatment of the "lemons problem" in

1970? Or what explains Ronald Coase's uncontested claim that Industrial Organization, circa 1970, was a study in "applied price theory," whence neoclassical monopoly rather than efficient contracting considerations were predominant?

Consider finally the view that opportunism is irrelevant: All that matters is bounded rationality. That result is reached by observing that if unbounded rationality (of the most comprehensive kind, in which even all forms of private information were annihilated) were to obtain then comprehensive long-term contracting would be feasible and all of the problems purportedly due to "opportunism at contract renewal would be entirely eliminated at no cost. [Accordingly, the] reigning comparative-efficiency explanation for internal organization [opportunism] ultimately reduces to an explanation from imperfect structural knowledge [bounded rationality]" (Langlois, 1984, p. 33).

I agree that opportunism is of no account in the face of unbounded rationality. But I also insist that bounded rationality notwithstanding, contracting would be ubiquitous in the face of nonopportunism—that is, if simple self-interest-seeking is assumed. Thus although simple self-interest-seeking assures that all original bargaining advantages (e.g. monopoly ownership of resources) will be fully realized, it also permits *ex post* contracting problems to be annihilated by recourse to a "general clause" whereby parties to a contract promise to disclose all relevant information candidly and to behave in a cooperative fashion during contract execution and at contract renewal intervals.[1]

The general clause mechanics are discussed elsewhere (Williamson, 1975, pp. 27, 91–93). Suffice it to observe here that four cases must be

[1]That contracting works well in both of these cases does not mean that economies which initially differ only in the attributes of human agents—one has unboundedly rational but opportunistic agents (such agents, were they to be transported to a planet of boundedly rational agents, would thus take advantage of the indigenous population); the other economy has boundedly rational but nonopportunistic agents—will yield identical results. To the contrary, the latter economy will underperform the former: Some opportunities for improvements will not be perceived at all; some mistakes will be recognized only after the fact. Any "shortfalls" due to misperception or mistake will *not be remediable* by supplanting contract by vertical integration, however. This is the critical point.

Inasmuch as each agent can trust the other, delegation of decision responsibilities proceeds in a fully instrumental way in a community of nonopportunists. There being no strategic hazards, specialization of decision-making reflects tastes, differential information access, and differential decision-making competencies.

Agents who value decision participation will thus make this clear in the contracts they reach. All adaptations for which net gains can be projected will thereafter be realized without resistance within a community of nonopportunists. Should the nexus of contracts need to be expanded or otherwise altered—for insurance purposes, for example—this will come about by displaying the relevant data in a fully objective way. Reversals of decision roles, due to aging, learning, or the like, will simply come about whenever net gains are in prospect, the disposition of these gains being distributed according to the gainsharing rule negotiated at the outset.

distinguished and that contracting problems vanish for three of them. These are (1) unbounded rationality/nonopportunism—a condition of contractual utopia; (2) unbounded rationality/opportunism—a case where contracts can be made to work well by recourse to comprehensive contracting; (3) bounded rationality/nonopportunism—where contracting works well because of general clause protection against the hazards of contractual incompleteness; and (4) bounded rationality/opportunism—which I maintain accords with reality and is where all of the difficult contracting issues reside. The entries that appear in the following four-way classification of contract are offered as an overview.

		Condition of Bounded Rationality	
		Absent	Admitted
Condition of Opportunism	Absent	Bliss	"General clause" contracting
	Admitted	Comprehensive contracting	Serious contractual difficulties