

# Towards a Firm for Our Time

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## Abstract

Private-sector firms are puzzling sociopolitical entities. Institutional in nature, they inhabit and cope with ‘opportunity spaces’ left open in the socio-political order. They are manifestations of citizens’ freedoms to respond to these absences. Opportunity spaces are ‘imperfections’ that invite entrepreneurs to engage the different types of socioeconomic uncertainty present: ignorance, indeterminacy, incommensurability, and irrelevance. Entrepreneurs are the anti-positivist ‘artist masters’ of the socioeconomic universe. They harness their imagination and knowledge, and the imaginations and knowledge of others, to create new persuasive ‘languages,’ organizing characterizations and work rules that ‘occupy’ an opportunity space and render it actionable and manageable. But firms are also real-world activities, going concerns, so experience entropic losses. These must be covered by harnessing and monetizing the imaginative labors of the individuals involved.

**Keywords:** *uncertainty, indeterminacy, opportunity space, entrepreneurship, Frank Knight, John R. Commons, Ronald Coase, anti-positivism*

## INTRODUCTION

Private-sector firms remain puzzling, with rising anxiety about their nature, ethics, and social role (Alvarez, Zander, Barney, & Afuah, 2020). Yet they are also totally familiar, all around us, offering various goods and services, paying taxes, creating jobs, and spillovers, more powerful than ever. They are the legally constituted and privately-owned ‘engines’ of our socio-economy, central to democratic capitalist society, modern work, and our savings and investment practices. But equally, they are still not understood, two centuries after the ‘enterprise’ analyses of Adam Smith and JB Say (Say, 1852; Smith, 1974). In 1937 Ronald Coase famously lamented microeconomists could not explain the private firm’s ‘nature’ or even why they existed when market arrangements were available (Coase, 1937). Ignoring this, business school faculty happily teach several under-specified but clearly incompatible ‘theories of the firm’ (ToFs). Some are rationally

designed, stressing goals, structure, and efficiency. Others are based on valuable resources (Barney, Wright, & Ketchen Jr., 2001). Yet others stress ‘community,’ employee commitment, or their leader’s charisma. As a result, students are left to choose which ToF to adopt, not taught how to find the most appropriate. Economists are in no better position. In 1967 Fritz Machlup reviewed their packet of ToFs and found more than 10, ignoring the one proposed by his own student, Edith Penrose. He blandly advised researchers to choose whichever ToF worked best for them (Machlup, 1967:30). How do we justify such abandonment?

Today’s leading ways of talking about firms are, for management students, the resource-based view (RBV), for economists, principal-agent theory (PAT) and transaction cost economics (TCE) (Williamson, 2014). The RBV firm is tautological, a firm is its resource inventory, no internal structure, incentives, or managers (Kraaijenbrink, Spender, & Groen, 2010). The TCE does not explain why

managers able to reduce transaction costs within their firm do not hold its owners up for the resulting gains or create competing firms (Spender, 2018). PAT issues are as ancient as society, in the Bible too. Yet the argument's most famous paper is contradictory rather than novel (Jensen & Meckling, 1976; Spender, 2011). The broader picture is that despite Oliver Williamson's claim to operationalize Coase's intuition, both managers and management teachers still lack a practice-explaining ToF (Williamson, 1975:3). An academic catastrophe given both business education and economic policy pivots on the concept of the private firm. The business school notion of managing is of these private firms, not nations or public sector agencies. Unlike China or undemocratic nations, our economic policies presume a vital private sector.

This essay presumes the firm's 'nature' is socio-political, a view almost wholly obscured by the absurd claim that democratic capitalism's firms can be a-political and understood with mathematical economics. Many writers have explored political ToFs. While firms arise in and reflect the nature of the socio-economy they inhabit, similar institutions can be found in every modern society. This suggests a universal ToF stripped of its host society's characterizing features. This essay takes the opposite view, that we are uncertain, we cannot ever know 'for certain.' That this theory cannot appear until we have a universal and certain theory of society itself. Our reality, in Giambattista Vico's terms, is that 'we shall not ever enter God's Mind and see things as they are.' So, as Frank Knight and Coase suggested, firms are not articulations of what we know, rather they are our creative responses to our not-knowing, to discovering the uncertainties of our socioeconomy's practices (Knight, 1924).

Theorizing is one thing, managing firms is another. How might formal language and methods work when we know the human condition is forever uncertain, beyond the reach of rigor? In totalitarian society, uncertainties are addressed by the center's power. A democracy's 'center' is an *agora*, a place of discourse, not a source of power. It is open and leaves citizens to address uncertainties voluntarily and discursively, albeit under the gaze and guidance of bounding state laws. Thus, every viable ToF, inhabiting a democratic *agora*, has a politics,

aesthetics, and ethics of dealing with uncertainty. Our governing Leviathan commands our public sector, but not the entirety of our socioeconomy. In multiple places citizens are left free to exercise their entrepreneurial imaginations and cope with the situation's uncertainties. Since that is ever-changing, the uncertainties to which firms are entrepreneurial responses are ever-changing too. There can be no equilibrium. Firms both adapt to and cause socio-economic change, both destroying existing arrangements and creating anew. At the deepest level, a firm's existence affirms the democracy's freedoms, in tension with social constraints, a dialogical contrast of two modes of governance, public and private (Knight, 1960).

The essay rejects today's methodological conventions that prioritize rational methods. Rather, we presume our reasoning complements our imagining and judging. As Herbert Simon put it: 'Reason goes to work only after it has been supplied with a suitable set of premises' (Simon 1983:7). Positivist science supports a managers' judgment, politics, aesthetics, and ethics without ever lording it over them. Rigorous theory can never relieve managers of their responsibilities as if 'the facts speak for themselves.' Firms are contexts in which 'objective' data-driven theorizing is subordinated to entrepreneurial judgment. Instead of presuming certainties, our analysis treats 'uncertainty' as its foundation. Uncertainty determines what we mean by entrepreneurship and firms as examples of the entrepreneurial arts. As we collide with the uncertainties that arrest our activity, we respond with imagination rather than with reason. Uncertainties arise at the edge of what we know for experiencing uncertainty presumes consciousness and a degree of knowing. Tellingly, Hayek wrote 'every important advance in economic theory during the last hundred years was a further step in the consistent application of subjectivism' (Hayek, 1955:310). Managers see their situation subjectively, through the lens of their responsibilities to advance their firm's interests. They focus on "What does it mean to us?"

The general-specific distinction is present in Aristotle's work, now labeled the distinction between '*nomothetic*' and '*idiographic*.' Psychology emphasizes one's individuality rather than an

imperfect exemplification of an 'ideal type' such as 'rational man.' So, is the ToF to stress 'theory' at the expense of 'firm?' Firms are clearly not people, in spite of acquiring some citizens' rights. Nor are they mere physical arrangements, buildings, or production lines. They are social institutions, inhabited and realized by peoples' dynamic collaborative relations to others and to social institutions such as the law and national government.

Understanding an institution requires attention to its specifics, its social place, history, boundaries, and ethos. As Penrose wrote, a firm's resources do not determine its nature; that arises from what its individuals make of them (Penrose, 1959). Thus, analyzing firms begins with their individuals and the institutions that make them social. Simon remarked nothing was more important than the researcher's view of the individual in the socio-economy (Simon, 1985:303). The ToF he laid out presumed individuals were personally 'bounded' in their rationality, thus imperfect instantiations of an ideal type (Simon, 1997). His behavioral administrative science was to integrate less than perfect individuals into a firm that would be less imperfect, a social entity that could be more rational than any of its inhabitants. As Machlup noted, since WW2 researchers have extended marginalist or rational man analyses with behavioral approaches based on scientifically established human departures from rationality, such as 'prospect theory.' Conflict between the firm's interests and its managers' personal interests leads to 'managerial theories of the firm,' systematic divergences from the firm's goals (Machlup, 1967:4).

Can all these views be of the same phenomena? Maybe firms are like the elephant in the tale of the seven blind men. The essay centers on entrepreneurship as an under-explored way to address 'the firm.' It has five sections. First, a discussion of entrepreneurship, the practice of creating a firm. Second, the uncertainties entrepreneurs address. Third, what it means to 'create a firm-specific language.' Fourth, how that language facilitates transactions, positioning language-making as economics' microfoundation. Fifth, a note on entropy. Coase proposed the 'supersession of the price mechanism' as the firm's defining nature, a 'negative' definition

(Coase, 1937:389). We offer a 'positive' definition, that each firm's nature is the language that combines its particular complex of rules and routines with uncertainty-resolving, action-shaping, and entropy-managing practice. It follows there can be no general 'theory of the firm,' for its nature is idiographic not nomothetic.

## ENTREPRENEURSHIP

The many authors who cite Coase's 1937 paper seldom note he mentioned entrepreneurship over 20 times, 'transaction costs' not once. Just as Knight prefaced *Risk, Uncertainty, and Profit* as a 'more careful examination of the role of the entrepreneur,' so Coase pushed back against the marginalist theorists' focus on 'the market' (Knight, 2006:xi). His questions were: Why do firms exist when there are markets? Why are firms' internal arrangements and boundaries as they are? Why is their performance so varied? (Spender, 2018). Neoclassical positivist economists presume firms are 'production functions,' linking supply to demand. They are created by entrepreneurs who gather and arrange economic assets, their goal to supply needed goods and services at a profit. This definition scarcely touches Coase's questions for this firm is inanimate, rational, and without internal arrangements to manage. This directs attention outwards to the 'markets' presumed. In contrast, our approach is inwards to the firm's a-rational nature to the participants' imaginings. It is strictly anti-positivist and follows economists such as Commons and Knight who saw firms as creative social institutions embedded in a dynamic socio-economy. Firms arise as collaborative answers to the uncertainties a society chooses to address. The most obvious social institution being government, the source of society's order.

Questions about firms can be re-framed as questions about 'the entrepreneur' and his practices. History shows many definitions of 'entrepreneur' (Evans, 1949; Hébert & Link, 1989). Given a society's uncertainties and pluralism there can be no single definition. Rather, being institutional in nature, entrepreneurship is the situated idiographic practice of creating a level of certainty for a specific group of people (subordinates) inhabiting a specific uncertain context. It implies a mode of social

power. Coase saw firms as islands of conscious power, zones of administrative or 'managerial' power, sharply distinct from the modes of social power pertaining beyond their boundaries (Coase, 1937:388). Power is a slippery concept, much debated, clearly of many types. It may mean little more than influential inter-personal relationship, one person's interaction with another's agency. We are immersed in power relations. The different ToFs differ in the types of power that characterize them. Coase noted master/servant relations, seeing firms as contexts of subordination 'within certain limits' (Coase, 1937:391). But he did not explain these beyond showing how managers' power could be characterized by 'incomplete contracts' and the idea of the firm as a 'nexus of such contracts.'

John Commons was another leading US institutional economist in early 20th century. He saw entrepreneurial practices shifted emphasis as the socioeconomy evolved and activity became more 'round-about' and legally, technologically, and administratively complicated. He saw a shift from (a) an initial focus on production (*mechanism*) to (b) focus on marketing and demand management (*scarcity*) and (c) to establishing and stabilizing relations within the firm and the socioeconomy (*working rules*) (Commons, 1924:1). The triad framed entrepreneurship as increasingly pluralist and elaborate. The initial focus on production constraints, such as metallurgy, labor's physical power, and steam engines shifted to market management, advertising, transport infrastructure, banking, and capital aggregation. But as the macroeconomics of generating economic value became politically dominant and democratic capitalism emerged, the tensions between capital, labor, and managerial practice proved orders of magnitude more challenging.

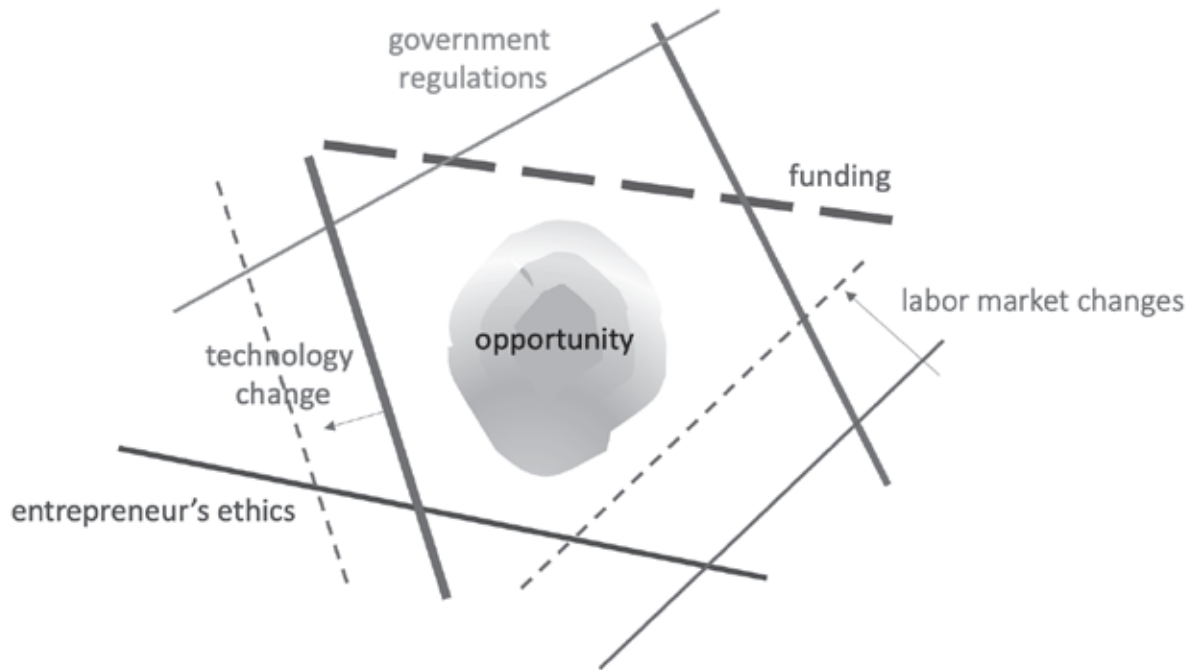
## UNCERTAINTY

Socio-economic uncertainty opens spaces for entrepreneurial activity. We discover we lack the relevant knowledge. Whatever we think about uncertainty delimits what we say about firms and entrepreneurship. The shift noted in the previous section aligns with Hayek's comment about the trend towards subjectivity. It can also be rephrased

as a shift from 19th century positivist science aspirations of certain knowledge (of what is first assumed to exist) towards the post-modern plurality of subjective ideas about the human condition, history, sociology, psychology based on the individual's experience. Underpinning and facilitating are shifts in philosophizing. Our essay sketches a subjectivist epistemology of entrepreneurship, surfacing a subset of philosophical issues around studying a dynamic economy that is neither in equilibrium nor *en route*. Knight was virulently anti-positivist. George Shackle moved in the same direction, though with different techniques (Shackle, 1979). A longer analysis would engage all six of Weber's 'spheres of life,' not only the economic (Weber, 1970).

Today the most familiar notion of uncertainty is positivistic, the lack of knowledge of what is or can be known. Some follow JM Keynes and characterize probabilistic information as uncertain, confusing, given probabilistic information only makes sense when the probability distribution is certain. We take a different view, that uncertainty is idiosyncratic, experienced as an absence of practical knowledge that calls forth the imagination, a surprise. It presupposes knowing so that the absence can be known as experienced. Thus, what is unknown is always framed by what is contradictory, inconsistent, ambiguous, or anomalous in what is known (Figure 1). By definition there are obviously more types of knowledge-absences than we can imagine, the 'unk-unks' Donald Rumsfeld gave us. But choosing four particular kinds of knowledge-absence enables a discussion of the uncertainties entrepreneurs might engage for economic gain. Gain is a looser notion than profit. It might include strategic advantage that may yield profit sometime in the future, options. Further, much of strategizing is about protecting the firm's activity from expected external threats such as government. Protection may be an investment that, unneeded, has no return, insurance never claimed but reassuring, nonetheless.

The most familiar type of uncertainty is 'ignorance' of what we presume 'objectively' knowable. This might be ignorance of what others know already, of what can be discovered with careful espionage or research, or what will eventually



**Figure 1: The Opportunity Space; a zone of uncertainties bounded by the known**

Source: Spender, 2014: 179

become clear as time unfolds, as Warren Buffett quipped, when the tide goes out. Given our dynamic existence our knowledge is always shifting, time contingent. Entrepreneurs often profit from the ignorance of others. Yet that profiting informs others and the advantage dissipates as it becomes manifest in practice.

Next and perhaps the more prevalent uncertainty of economic activity is 'indeterminacy.' It arises as we interact with agentic others, the overarching assumption of game theory. Note game theory only offers rigorous solutions when there is no uncertainty left, when each player's moves can be 'gamed out.' Knight often treated economic activity as a game with many types of gains, psychological and social as well as economic (Knight, 1960:129; 1997:54, 233). By definition, indeterminacy cannot yield to positivist research unless the uncertainty of the others' moves was already reduced to ignorance, as in tic-tac-toe. 'Making book' on a competitor, such as a baseball pitcher, maps out their universe of plays, a certainty like a population statistic. But in the real world this is

bounded, and there is time, and player B's response not yet known by B himself for A has not moved. Thus, B's response is not available to the most penetrating science.

While indeterminacy seems crucial there are the deeper uncertainties arising within the entrepreneur himself, cognitive, emotional, moral, and ethical. They arise from the pluralism and incommensurabilities of our thoughts. We draw on many ways of knowing as we negotiate the dynamics of our consciousness. To act with reason at a particular moment, we synthesize what we know, into what some call 'mindful.' Some agonize more over decisions than others, some are hasty, others procrastinate. A popular maxim is 'always sleep on a major decision,' for the mind and spirit work in curious ways, framings and resolutions 'pop into the mind unbidden'—while singing in the shower perhaps. Academics and inventors learn to hold a complex matter in mind for long periods, so that it gesticates and fruits.

We must have language that indicates these



types of uncertainty, presupposing knowing and thus the discovery of not knowing. The most fundamental of creative responses to uncertainty is communication. But language simply veils experience, reality is beyond us. Thus, the language the entrepreneur chooses may prove to be irrelevant, ineffective, unable to indicate to others the uncertainties that are his focus. Given no language of everything, for the omniscient have no questions and so no need of language with which to answer them, there can be no theory of language choice.

The firm's language is inter-personal and dialogical as it 'occupies' the opportunity space, newly lying inside the space between the knowns (Figure 1). It brings the entrepreneur's community to life as a socioeconomic institution, perhaps dubbed an 'industry recipe' (Spender 1989). The entrepreneur's freedoms arise are framed, bounded, and engaged, so becoming constrained and actionable. The image is similar to 'dynamic programming' but with a plurality of incommensurate knowledge types. The recipe synthesizes and coalesces these into a language of administration and strategizing. Those committing to the recipe have their freedoms bounded. While free to choose within the recipe they close off their freedom to engage the uncertainties beyond it. Thus, management's most basic function is to create a zone of sufficient certainty for subordinates, person-sized rather than overwhelming, enabling them to bring their imaginations to bear. The division of uncertainties engaged complements the division of labor. The answer to Coase's question about why subordinates might choose to commit their imaginations to their 'master' is that entering into the firm enables them to do 'imagination work' they could not do otherwise. Put differently, employees move into an entrepreneurially created environment that enables them to work (reason and imagine) in ways they could not otherwise. For instance, a bank's IT staff works on problems that do not exist in the employees' personal lives. Firms invent innovative doable work.

The uncertainties set out in this section - ignorance, indeterminacy, incommensurability, and irrelevance - indicate the boundaries of our epistemology. We obviously negotiate life with a plurality of epistemologies, hoping for one fit to the goals we have in mind. Positive science implies monism,

dogmatic dependence on a single kind of knowledge and conception of truth. We shall see falsification is contradictory and actually erases how positivists make sense of their experiments and, indeed, the rest of their lives. Again, Weber's distinguishing six different spheres of life; religious, political, aesthetic, erotic, intellectual, and economic helps us appreciate we have no option but pluralism. The epistemology suggested presumes a pluralism of four kinds of knowing; knowledge of (a) inanimate things beyond us, without agency, (b) animate others with agency whose imagining is inaccessible to us, (c) our own imaginings and agency, and ultimately of (d) the natural languages with which we might collaborate and capture these incomplete knowings. All human knowing is held within language, the epiphenomena and foundation of society. Society presupposes language. We might label these modes of knowing as (a) objective, (b) social, and (c) psychological. Given we have no private language, language enables conversation about all three.

## LANGUAGE AND FALSIFICATION

This section deals with language making, the entrepreneur's defining practice, the essay's core. New language 'resolves' the uncertainties that interfere with purposive action. It bridges from not-knowing to mindful practice. It gives words actionable meaning. It may be refined into prediction and so raise the confidence of those acting under uncertainty, to 'plunge in with both feet,' to commit scarce resources to irreversible change. But it guesses all the way down, not turtles. Given our epistemological habits, the language may be 'stiffened' (to use Simon's term), made quantitative and computable, with rigorous models. But the categories computed are simply axioms, assumptions presumed not realities proven. An enterprise's language may seem 'tested' by whether things turned out as expected but alternative causes and explanations can never be ruled out. 'Findings' and conclusive analyses simply silence them. The more relevant test is whether the language is persuasive enough to generate and engage others' imagination and avoid 'freezing.' The audience ranges from the entrepreneur himself, as sole trader, to those within the firm,

and to those beyond its boundaries whose participation is crucial. As Coase suggested, the firm is a contrived island of 'local language,' of imagined meaning-making. But it is also a place of real action.

The firm's language or jargon is as close as we can ever get to the 'nature of the firm' for its ontology is forever masked by that language's veil. The firm's reality is neither its tangible assets, whose best use is unknown, nor its people, whose imaginative and collaborative powers are beyond being known, nor its social or stakeholder relations, all as an un-synthesized plurality. Thus, management is best characterized as a language-game. Entrepreneurship is the creation of novel collaboration-inducing language under conditions of economic uncertainty. The previous section laid out some ideas about uncertainty. This section focuses on the practice of language-making, on how that 'works.' New language may lead to novel social institutions, the focus of Knight's and Coase's work (Knight, 2013). Thus, the old saw; 'revolutions begin in books.' First, before innovative practice, there must be new language.

'Natural languages' differ from formal languages. They are not tied by axioms that fix meanings; they are not limited. Their meanings are under-defined, metaphoric, malleable. There is no 'truth' behind the veil to which such language-in-use might trend or approximate. There is much debate about if and how metaphors shape our imagining, on which we are agnostic. This essay is less concerned with whether or how a firm's natural language, once developed, might then limit its inhabitants' imagining as 'groupthink.' Our focus is not on reality's truths; it is on how the entrepreneur's language works on those whose contributive practice is needed. First, how those persuaded become subordinated instruments of the firm. Second, how others beyond its boundary might be persuaded to engage, buying its products and supplying services. The firm's language is dialogical, both inwardly and outwardly oriented. Firms exist when they establish and sustain a 'gap' between these aspects. Veblen noted the inward aspects were never fully comprehensible to outsiders, that a firm is a domain of secrets (Veblen, 1932). Full transparency amounts to 'no firm,' only markets.

Our focus is the entrepreneur's rhetorical ability to create and sustain a ToF, not hir psychology or traits. The entrepreneur imagines and creates a language that brings others' reasoning and imagining together to enact the firm as a context of ordered collaborative economic activity. Some are 'internal,' employees, others are external 'stakeholders.' The entrepreneur's first 'language product' is this gap, the employee becomes an insider, an 'islander,' committed and transformed from hir prior 'off-island' nature. They become so by adopting the entrepreneur's implicit vision, boundaries, and ethos. As Coase argued, they become subordinated 'within certain limits,' their social freedoms constrained (Coase, 1937:391). An individual's most fundamental freedom is the freedom to make and use language. Its antithesis is being forced to use another's language, as employees must use the entrepreneur's language. Their reasoning and imagining is subordinated by 'authority,' as Weber argued. Authority's limits are rhetorical, perhaps justified socially, technically, or ethically. The firm's language is flexible, enabling the entrepreneur to cast hir 'vision' or veil over employees' reality, creating an island of subordinated discourse. Ultimately the firm is a language-apparatus to draw forth and monetize others' reasoning and imagining—for the owners' benefit.

Falsification illustrates the process of language-building. It has huge disciplinary implications. The uncertainty in question is framed between the knowns of language (H), the hypothesis, and the language (O) of observation. Its 'resolution' is the 'finding' that brings the observation (o) 'rigorously' into common meaning with the H-theory. This might mean changing the theory, or, as Einstein quipped, the observation. Karl Popper changed the popular notion of the scientific method by rejecting verification, that hypotheses can be proven by repeated verifying observations. Falsification leveraged a logical asymmetry Popper believed lay between verification and falsification. As David Hume and others noted, long before Popper, the observation of a single black swan obliges us to reject the statement 'all swans are white.' Popper saw verification as reaffirming prior beliefs which might well be faulty; one white swan after another, no thought of the yet-to-be-observed black swan.

He argued falsification was a more astringent and secure method of testing. Many agreed that 'good science' should comprise only falsifiable theories, eliminating the untestable and tautological. Most in our community take falsification as their 'scientific method.'

But falsification is not a matter of facts dismissing opinion. It is a language game played on us, not an evidence game. First, syllogisms. These are literary devices, figures of speech—language games. There are many types, all ancient, going back beyond the Greeks to ancient Indian and Chinese philosophy. The most familiar is the 'categorical syllogism' of Socrates's mortality. It stands on two axioms: (a) a major premise—all Men are mortal—and (b) a minor premise—Socrates is a Man—*ergo*, its logical conclusion, Socrates is mortal. Note there is no 'language space' for any empirical evidence. A syllogism lays out a 'space' of purely logical relations. It 'works' because of differences between the major premise, a universal, and the minor premise, a particular. Accepting the syllogism gives new meaning to the terms being used. Instead of 'floating free,' undefined, they are re-defined, anchored in their mutual relations, in this case between the general and the specific.

Falsification opens the syllogism to experimental evidence, specifically by doubting whether the minor premise (the observation o) is indeed 'fully covered' by the major premise (the hypothesis H). Empirical science is a field of discourse that addresses such doubt and re-establishes the meanings involved on the basis of experimental experience rather than logic. At the same time, it ignores the distinction between the experience of observing and the language game of stating that experience. There is no veil, they become one. Falsificationists argue H-statements are only meaningful when they expose and so problematize the relation between H and O. Yet the real-world practice of creating an experimental situation inserts the veil and disconnects experience from the unproblematic logical space of a syllogism. So, what conclusions can then be drawn, definitively? None, because there can never be a full description of an experiment's possible outcomes until that space of possibilities has been bounded. *Ceteris paribus* clauses are always needed. Experiment reaches for

experiences beyond logical deduction so must always depend on non-logical or 'natural' language for closure (Gordon, 1991:598).

Positivist science's evident dependence of judgment and natural language can be clarified via the critiques of falsification, specifically the Duhem-Quine Thesis (Gordon, 1991:601; McIntyre, 2019:14). Its essence is that the meaning of any empirical test is invariably contingent on the cluster of the 'auxiliary hypotheses' selected to do the test and close off the analysis. In practice, even in a controlled laboratory situation, researchers can never fully control or forecast the effect of these auxiliaries. Their presence destroys the test's syllogistic logic and threatens whatever conclusions might be drawn. In practice there is no asymmetry between verification and falsification because neither is a matter of logic alone. Popper was mistaken. An empirical test's conclusions always involve the researcher's judgment and persuasive talk that shapes and defends it. Science is rhetorical and institutional rather than logical. But it generates new understanding and language and so clarifies what entrepreneurs do. Experiments indicate presences, positive results. An absence of something that was expected is data about the expectation not the experience; the caution about the dog that did not bark. The crux is the experimenter's openness, of not being closed off as in a syllogism in logical language, necessary and sufficient. Formal language's tautologies are impregnable to experience. The possibility of being surprised by an experiment hinges on the uncertainties lying between the H and O languages. Thus both must be natural rather than logical, merely judged relevant to the world of experience, always bounded or limited. Neither can 'picture' reality rigorously.

To summarize, Popper's falsification remains popular despite its epistemological weaknesses because of his wonderfully persuasive insight that science must have a way of saying 'no' as well as claiming 'yes.' But an evidence-based 'no' can only arise between mutually incompatible languages, idiographic, stated in a language that differs from the nomothetic claim. The language of observation (O) must be axiomatically incompatible or incommensurate with the language of hypothesis (H). If the languages are logically compatible the observation



(o) can only lie among valid H-statements, within its covering law. When the contradictory (o) is not in H language there is no logical relation, and no logical conclusions can be drawn. The implication of an O statement that seems to contradict H is a matter of the experimenter's judgment, not of logic. The experimenter's art-form is judging experiments, as the history of the sciences makes clear (Kuhn 1970). Likewise, 'research findings' are justified institutionally in the researchers' community; they are not established 'facts.' The institutional process 'works' by changing language, by creating new meaning for old metaphors. We all know  $Force = Mass \times Acceleration$ . But before Newton these terms floated free, disconnected, not mutually defining. Entrepreneurs re-anchor metaphors.

The firm's most fundamental resource is the imaginative and collaborative capacities of those who have 'drunk the entrepreneur's resulting Kool-Aid,' adopted his way of thinking and selecting what is to be attended to or ignored. The entrepreneur fashions what to make of them. A firm exists only when the "direction of resources is dependent on an entrepreneur" (Coase, 1937:393). Coase did not explain 'entrepreneur,' missing imagination as his key characteristic. The entrepreneur's language bridges between his imagination and the resources available. Penrose implied the firm was language and considered how it grew (Pattit, Pattit, & Spender, 2020).

In contrast, the 'resource-based view' (RBV) presumes a firm comprised of resources whose meaning is anchored beyond the entrepreneur's island of meaning, market price. Thus the RBV has it precisely back to front (Kraaijenbrink et al., 2010). There is no ToF in the RBV. More specifically, the RBV conflates 'firm' and the market descriptions of VRIN resources, excising the uncertainty of their application. There is no production function. Or rather, production is presumed certain, with no veil between resources and their use. It presumes managers are certain and management is rigorous. As intuition suggests, and as clarified in the next section, the firm's nature is production under uncertainty. The RBV is a neutered, infertile ToF, unrelated to Penrose's thinking. Her firm exists and persists because those persuaded 'throw' their imaginations into the uncertainties selected. Different firms

attend to different uncertainties for no firm can attend to every uncertainty. Those that engage the public sector's do so at their peril, a caution to those arguing firms should take over the role of public agencies because they have superior management skills.

## TRANSACTION

Economic activity, of course, is always 'reciprocal,' between agents. The previous section presumes the interacting agents' freedom to create their own language, perhaps memorialized in a 'heads of agreement' outlining the terms of their trade. These agents have no need of others' language, especially that of an existing market. The mainstream idea of a market is a domain of a single language, price. This is expressed in money terms, a socioeconomy's only universal language. Economic activity presumes transactions between agents who engage in real-world activity behind the veil, not mere intellectualizing. Coase argued positivist economists misjudged their entire project by failing to appreciate how real-world economics was between agents rather than between an individual agent and a market (Coase, 1960:2). He focused on minimizing 'harms,' arguing the parties involved would probably be able to make a better deal than the regulators could.

The previous section showed how collaborative language-making resolves inter-individual uncertainties, extending the knowledge of both participants, theorist and experimenter by changing meanings for both. A finding is a matter of agreement. When considering economic relations between individuals, 'transaction' presupposes generating a new shared language in which 'the deal' can be agreed, in which each party is able to express how they value the transaction and so persuade the other to 'yes.' Transaction is elemental, agreed, but what is 'a transaction'? Williamson defined transaction as exchange. He assumed transactions arose within firms and in markets outside firms (Williamson, 1975:124). His firm existed because the costs of transacting there were managed lower than in any naturally arising market. This defined transactions within the firm as of the same type with those in the market, and so

comparable. Williamson wrote he took this method and notion of transaction from Commons and Coase (Williamson, 1975:3). He also presumed 'in the beginning there were markets' (Williamson, 1975:20). His firms were markets in which managers arranged transactions rather than letting them emerge between agents acting in their own interest. His managed markets were pictured in his 'organizational failures framework' (Williamson, 1975:40).

Commons had a very different view of which Williamson seemed unaware, for he cited Commons's *Legal Foundations of Capitalism* only once and then without comment (Williamson, 1993:454n3). Yet Commons's Chapter 4 comprised over 70 pages of discussion of Wesley Hohfeld's analysis of 'transaction' (Commons, 1924:65). Hohfeld's influential papers shifted American thinking about the relations between law and economics from the classic legal focus on assets possessed absolutely, their owner being free to do whatever they wished, to the American socio-economic or institutional view of ownership as a set of rights, duties, and obligations to others. Commons set out these constraints to the participants' freedoms in a matrix:

Far from agents A and B exchanging in a vacuum, their language-making is constrained by the presence of a regulator, who sets boundaries, and those of the 'opportunity agents' who would do the deal if A and B withdrew. The matrix reveals some of the differences between Commons's 5-agent transaction and Williamson's 2-agent notion. The most obvious aspect of Commons's model being that in real markets the nation's legal system governs, while within the firm managerial power governs. These modes of governance are utterly different. Firms exist because they are allowed to occupy spaces ungoverned by the Leviathan, and in their own way. It follows that transactions within the firm are not comparable with those in markets.

**Table 1: John Commons's pluralistic transaction**

agent types			leviathan/ regulator		
principals		A		B	
opportunity actors	A'				B'

The private sector is marked by the entrepreneur's legally bounded freedoms from both (x) the free-market price system and (y) the national system that governs real markets. The free market (x), a place without a governing authority, leads to a contradiction, for there can be no property rights. Exchange becomes non-economic, perhaps gifting. Those crediting Williamson with introducing 'governance' into microeconomics, cited in his Nobel, seem inattentive to these differences between governance systems. Entrepreneurship, in contrast, presupposes them and that entrepreneurs are free to make new rules about how their islanders interact 'within certain limits.'

## ENTROPY

The firm's language veils its ontology or physical reality. Thus, its language is ethically and value-burdened rather than value-neutral as it would be if there was no veil between reality and our knowings 'objective.' There is at least one important caveat to the implicit relativism. The term 'entropy' comes from physics and is often defined as 'degree of disorder' or 'randomness.' The physics is not important here beyond the allusion to the 2nd Law of Thermodynamics which states all real-world processes lead to an increase in entropy, a loss of order. Surprisingly, this is one aspect of reality we know 'for certain.' The 2nd Law is often regarded as science's most fundamental, for it captures something incontrovertible about reality, not prey to our language. But note while often stated mathematically it is actually an unframeable empirical generalization, not a formal theory derived from axioms (Georgescu-Roegen, 1971). Likewise, it is beyond falsification.

Entropy separates abstract theorizing from the world of practice. In the economic sphere order appears as 'value' and 'energy,' wherein activity invariably leads to losses analogous to 'frictional' losses, to disorder or the degradation of resources. Things wear out. Both Knight and Coase presumed such losses, later labeled 'transaction costs' (Spender, 2018). There are crucial differences between Williamson's notions and Coase's. Williamson presumed transaction costs were determinable and computable, enabling quantitative comparison

between modes of governance. But the only uncertainty admitted was ignorance. Knight and Coase considered other kinds of uncertainty and thus many types of ‘transaction costs’ that could not be measured or even estimated. The entrepreneurial opportunities arising from ignorance dissipate quickly and are trivial in comparison to those arising from the other modes of uncertainty. This echoes Knight’s insight that the economic system does more than satisfy our needs, it also shapes them, thus ever-changing and unknown (Knight, 2006).

The entrepreneur’s certainties are artistic products that incur the non-computable ‘knowledge-management costs’ arising from indeterminacy, getting others to yes. There are also the costs of dealing with personal anxieties, the emotional and ethical costs of arriving at the point they ‘plunge’ into practice. They have to deal with inter-personal and social arrangements ‘wear out,’ networks must be maintained. A great deal of a firm’s strategic activity comprises revitalizing tired asymmetric arrangements. The firm’s language creates a context of energy-exhausting practices. The entrepreneur must find and harness fresh energy sources if the firm is to be sustained. Many presume a firm has to make a profit if it is to survive. This would definitely apply if the firm’s context was the perfect market some economists presume. In practice, profit is as puzzling a concept as the firm itself. It alludes to economic institutions not the entropic gains or losses of the 2nd Law. Many firms operate with perpetual losses, perhaps funded by the public sector, perhaps by investors anticipating a flotation. Profits are not the same as economic value or energy. The firm’s energy is very different. Knight bemoaned the absence of physics’ concepts of force, momentum, energy etc. (Knight, 1960:107; 1997:130; 2006:xxv).

But how do firms persist? Whence their capacity to cover their entropic losses? The Physiocrat and Smithian discourses pointed to two sources of energy, (p) Mother Nature and (q) imagination, so to complementary stories. Smith’s analysis pointed to the ‘division of labor.’ It suggested differences between physical and mental labor. Our analysis clarifies a ‘division of uncertainty,’ via Locke’s distinction between computational and imaginative

mental labors. The entrepreneur sets up the division of imaginative labor, the cascade of judging Knight discussed (Knight 2006:287). The entrepreneur controls this cascade even though unable to make the subordinate’s judgments. The secret to a firm’s persistence is that entrepreneurs manage those whose work they cannot do themselves. The secrets within are as crucial as those without (Veblen 1932).

Some businesses coopt the social, political, and legal systems and acquire rights to privatize Nature’s gifts endlessly, at least until her resources are exhausted. The costs to our planet are seldom considered by those lauding the Great Enrichment (McCloskey, 2016). But as soon as uncertainties other than ignorance are admitted the social and personal costs are of complex types, less measurable (Spender, 2018). For instance, the individual’s ‘opportunity costs’ of not living another life, perhaps more pastoral, of being under the stress of creating novel relations, the costs academic authors know well of trying to work things out, and so on. Many costs are emotional, ethical and political, far from computable or accountable. Realizing the plurality of ‘costs’ to harnessing and monetizing the imagination opens up a huge discussion of business ethics that complements Knight’s project for economists, to determine which institutional system best enhances individual freedom.

## CONCLUDING COMMENTS

Broadly speaking we lack a viable ToF because we lack a viable theory of ethical society or of the ethical and practical individual. The private-sector firm always occupies ‘gaps’ and imperfections in society as-it-is. They exist at the public sector’s ‘pleasure.’ These days firms (e.g., Monsanto, Moderna, Facebook) change society, just as society changes these firms. Democratic capitalism hinges on a plurality of such relationships, some more ethical than others. So a society, like every firm, is more an idiographic notion than a nomothetic one, a particular coming together or synthesis. Ignoring this pluralism and desperately seeking mathematical perfection leads to theories that may seem beautiful to those in ivory towers. But they are irrelevant time and attention wasters to entrepreneurs, who work

where uncertainty rules. Knight and Coase agreed that in a perfect society there would probably be no firms, nor markets either. Firms are free citizens' responses to imperfections in the public arrangements put in place to alleviate the uncertainties of social life.

The entrepreneurial procedure suggested is straightforward. The entrepreneur experiences or senses some engageable uncertainty arising in the socioeconomy. It can be seized intellectually as a knowable space bounded by what is known and possible, so set against what others consider unknown and impossible. For instance, every day Amazon achieves multiple times what a decade ago proficient retailers knew was utterly impossible. The opportunity space (Figure 1) is then framed in around a dozen such 'knowns' (Spender, 1989:185). The next step is to bring it to life as a local language that 'occupies' the opportunity space (Alvarez & Barney, 2019; Alvarez et al., 2020). The language synthesizes the tensions between specific knowns, just as falsification between H and O synthesizes the disparate languages and gives them the findings new meanings. The new language then realized is articulated in the world-as-it-is as a firm, a private space into which subordinator and subordinates project their reason and imagination, thus a place open to their imaginative labors. Assets take on new meaning. The entrepreneur establishes and polices boundaries to protect that freedom from external interference, that be from competitors, new technologies, regulators, or others, as in Porter's 5-force model (Spender & Kraaijenbrink, 2011).

Obviously, while these steps are epistemologically sequential, as the uncertainties are resolved into the firm's private language by imaginative practice, and then cascaded, they are not likely to be sequential in time. The entrepreneur experiments with practices that probe and push into her chosen opportunity space, discovering its limits, thus learning and reorganizing her changing inventory of notions. Indeed, since we cannot foretell the future the firm's context is invariably dynamic as well as uncertain, the processes of innovation, adaptation, transformation, expansion, etc. will never cease (Knight 2006:197). As Penrose implied, the ethos of the firm as a corpus of language is the

inner dynamic that drives progression to repair and compensate for its unavoidable entropic losses, the impulse to expansion (Pattit et al., 2020).

Clearly, our essay does not suggest a nomothetic 'theory of the firm' or of entrepreneurship. To the contrary, it points in the opposite direction, towards a discussion of entrepreneurship as idiographic, the economic sphere of life's artistic practice. Alas, business schools emphasize science and decry art. Our community might do well to explore how arts educators set about educating their students. With thousands of years of art teaching behind them, in many different cultures, art teachers know better than to claim a science, or one 'best way.' Indeed, they have learned from experience that doing so corrupts their students' imagination and collapses their art into ossified irrelevance (Spender, 2005, 2007)

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