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A conceptual history of entrepreneurial thought.

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Abstract

Purpose – To interpret and explain evolution in entrepreneurial thought, using the application of history to unify the extant and wide-ranging concepts underlying the field to detect a conceptual foundation.

Design/methodology/approach – A conceptual approach is taken, the paper undertaking a delineation of how past theory has brought about the field's current state and an identification of some conceptual areas for future advancement.

Findings – The importance and impact of the entrepreneurship field is increasing in academic and practical settings. A historical view on the conceptual development of entrepreneurial thought provides a lens for scholars as well as practitioners to interpret and explain their own entrepreneurial activity or research and formulate new questions.

Originality/value – The paper aids scholars and researchers to interpret and explain entrepreneurial activity.

Keywords Management history, Philosophical concepts, Entrepreneurialism

Paper type Conceptual paper

From the fall of Rome (circa 476 CE) to the eighteenth century, there was virtually no increase in *per capita* wealth generation in the west. With the advent of entrepreneurship, however, *per capita* wealth generation and income in the West grew exponentially by 20 percent in the 1700s, 200 percent in the 1800s, and 740 percent in the 1900s (Drayton, 2004). Throughout this history, entrepreneurial thought has evolved by unpredictable turns and profound developments (e.g. international commerce, demand curves, competition as a discovery mechanism, the opportunity construct) offering new conceptualizations of what it means for something to be entrepreneurial.

It is evident in the Academy and in business schools worldwide that the management field is taking on a new vision of entrepreneurship. Over the last five years the Academy of Management's Entrepreneurship Division has "dramatically

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outpaced the growth of every other division" by 77 percent (Shaver, 2004). No less than 1,600 universities offer 2,200 entrepreneurship courses. There are at least 277 endowed faculty positions and 44 refereed entrepreneurship journals (Katz, 2003). There are over 100 established and funded entrepreneurship centers offering resources, consulting, and guidance to entrepreneurs, with pedagogical opportunities for students. At the highest levels of government it is acknowledged that entrepreneurial activity is valuable for economic as well as social reasons (Office of the Press Secretary, 2003). Strong interest in the field has been driven by recognition of the fact that entrepreneurial ventures are key drivers of economic growth in market systems. Indeed, within the last 15 years, Fortune 500 companies and large corporations have endured major retrenchment and eliminated millions of jobs, whereas discoveries in the entrepreneurial sector have yielded an average of 600,000 new incorporations per year and generated millions of job opportunities (Morris and Kuratko, 2002, p. vii).

Following Venkataraman (1997), we define entrepreneurship broadly as the discovery, evaluation, and utilization of future goods and services. Despite this common definition, and to the detriment of discipline-based scholarship, the body of entrepreneurship research is stratified, eclectic, and divergent. The field of entrepreneurship generates many theories and frameworks. However, the developing field has been duly criticized for having an ill-defined paradigm (Shane and Venkataraman, 2000), too many stakeholders with conflicting agendas and interests (Curran and Blackburn, 2001), and a scarceness of stable researchers (Landstrom *et al.*, 2001). A balance has not been struck between theory emergence and a paradigmatic foundation (Bygrave and Hofer, 1991; Gartner, 2001; Low and MacMillan, 1988); the miscellany of entrepreneurship theories does not rest on a distinctive and defensible theory base (Bull and Willard, 1993). Further, there has been little interpretive and explanatory work on this issue (Hebert and Link, 1988); most historical analyses focus on entrepreneurship education, the empires of successful entrepreneurs, or the changing nature of economics frameworks or capitalism (Formaini, 2006).

The purpose of our undertaking is to interpret and explain evolution in entrepreneurial thought, using the application of history to unify the extant and wide-ranging concepts underlying the field to detect a conceptual foundation. The main contributions of our undertaking are a delineation of how past theory has brought about the field's current state and an identification of some conceptual areas for future advancement. Assessing the future prospects of an academic discipline-based on historical information, as Katz (2003) points out, is a speculative enterprise. Any historical narrative is a partial function of cognitive sensibilities as well as an attempt to depict the past as it actually happened (Munz, 1977; White, 1973). Thus, there can and should be many speculations about the nature of entrepreneurship as a field of research (Welsch and Maltarich, 2004). Although ours is the first to trace conceptual development through history with a view toward the present and future of the entrepreneurship field, it is merely one possible account.

Our methodology abides by two complementary tenets: conceptual knowledge is not relative or paradigm-specific and historical knowledge is relative and paradigm-specific. We define any instance of conceptual knowledge as a free invention that is explanatory and has not yet been rejected. We distinguish it from historical knowledge, which is more temporal and spatial; relative to a paradigm, descriptive, and based on inductive reasoning from past observation (Agassi, 1963).

The two-part assumption enables our undertaking to trace concepts through history with a dual purpose. For the primary objective of interpretive and explanatory historical analysis of concepts amidst multiplicities of subjective views and problem situations, we employ a logic-based deductive principle of conjecture and refutation (Popper, 1963) in favor of sociological-based descriptions of communities of individuals (Kuhn, 1962). On the other hand, for the secondary objective of framing, organizing, and describing the conceptual history of entrepreneurial thought, our bias is reversed.

The nature of entrepreneurial thought

It is straightforward to chronicle factors constituting historical events (White, 1973, p. 5). For example, the courses of the Revolutionary and Civil Wars, World War II, or the urban development of Chicago or New York City can be described via digests of events and relations among key players. However, when it comes to the development of a scholarly discipline, conceptual and other unobservable elements can frustrate *post hoc* analytic attempts to explicate the critical formal arguments and outline their ideological implications (Kuhn, 1962, pp. 1-4; White, 1973, pp. 1-29).

The history of conceptual development in entrepreneurial thought is complex. The *raison d'être* of entrepreneurship, entrepreneurial discovery (Shane and Venkataraman, 2000), derives from convergences of different kinds of resources (Drucker, 1985, p. 111). As constructs to be researched, such convergences contain a quantum balance that can change unpredictably. Their volatility gives the entrepreneurship process a peculiar cast not unlike an evolving thicket of conflicting forces. Interpreting and explaining knowledge expansion in the entrepreneurship field is full of surprises (Baumol, 1993) and thus, as Mitchell (1996) illustrates, our ability as a society to make sound attributions regarding entrepreneurship is limited severely.

The logic of conceptual development

Knowledge expansion occurs in the form of tentative theories that evolve continually *vis-à-vis* other theories, empirical tests, or observations that function necessarily as attempted or successful refutations. Such interplay underlies a scholarly field's turbulences and evolutionary trajectories. Epistemological research has utilized formal logic to explain such breakouts from prior knowledge limits (Miller, 1975; Popper, 1976). This work shows the imposition of theory on reality to contain a trial and error mechanism of conjecture and refutation. Our undertaking observes the mechanism as depicted in formula 1 (Popper, 1972, p. 119):

$$P_1 \rightarrow TT \rightarrow \mathrm{EE} \rightarrow P_2 \tag{1}$$

The deductive schema shows an initial problem (P_1) giving rise to tentative theory (TT), which goes through error elimination processes (EE) wherein critical revisions give rise to new problems (P_2) and eventual new TT. The process goes on *ad infinitum* and can begin at any stage. It begins frequently at P_1 with some inefficiency forming a need for TT, which can take on the character of enduring theory, evolve by weathering interplay with EE (i.e. refutation attempts), and lead to conceptual movements.

Entrepreneurial thought as history

We begin with an interpretation of prehistoric bases of entrepreneurial thought before explaining the influences of economic bases. The latter includes classical, neoclassical,

and Austrian market process (AMP) movements. Finally, more recent multidisciplinary bases are explained. All movements are discussed in terms of their conjectures and refutations and with a future orientation. Figure 1 shows the domain to be covered. Key conceptual elements are situated chronologically and subsumed by categories reflecting general orientations or paradigms (prehistoric, economic, multidisciplinary bases). We have divided our article into sections corresponding to those categories.

Whereas our historical account is inherently chronological, conceptual elements take precedence over temporal ones. In other words, elements of one conceptual movement can disappear and re-emerge in a later movement. In this way the growth of knowledge is delineated conceptually; tracing emergence, development, and decline of theory via the elements leading to theory survival or disposal. The net result is a sense of how the past theory informs present theory.

We acknowledge past research showing that, for at least 35 years, person-centric and strictly environment-based research has not adequately delineated explanatory linkages of entrepreneurship (Bull and Willard, 1993; Brockhaus and Horowitz, 1986; Eckhardt and Shane, 2003; Low and MacMillan, 1988; Mitchell, 1996). Thus, following Gartner (1988), we do not present a digest of theories drawing directly from other fields, begging implicit or explicit questions such as, "Who is the entrepreneur?" or "What types of people engage in entrepreneurship?" or "Where might we see entrepreneurship?" Our bias favors theories and concepts that distinguish entrepreneurship from other fields in the domain of business studies.

Interpretation of prehistoric bases

Although manifesting itself differently than in modern times, the success of entrepreneurship in ancient and medieval times also depended on overcoming both risk and institutional constraints (Hebert and Link, 1988, p. 15). The earliest tribal communities traded tools and resources wholly necessary for their survival. Baumol (1990) posits that the entrepreneurship mechanism is always present in communities and societies but its manifestation is contingent on varying dominant logics and reward systems. Eventually, around 50 BCE in ancient Rome, the available avenues for entrepreneurial activity were a function of social controls, regulations, and institutions. Personal wealth accumulation was acceptable as long as it did not involve direct participation in industry or commerce, a domain populated by former slaves and other freed men. Commercial entrepreneurial activity involved loss in prestige, an important form of social or political capital. Thus, it was not a wholly viable way for merchants to achieve wealth. Instead, wealth generation came from three primary sources:

(1) landholding, (property held and rented to others by someone of status based on the hierarchy of the feudal system);

(2) usury (making money from interest rates on loans); and

(3) political payment (money from booty, indemnities, or portions of taxes intended for the public treasury going into private hands).

Although wealth was desirable, modern conceptions of arbitrage (i.e. a bundle of inputs able to be bought at a lower price than the price at which it can be sold in another context) were not useful for obtaining it. Around 500 CE, wealth generation became complicated further by a clash between the right to own property and influence of the church in the largely agrarian economies of the early middle ages.

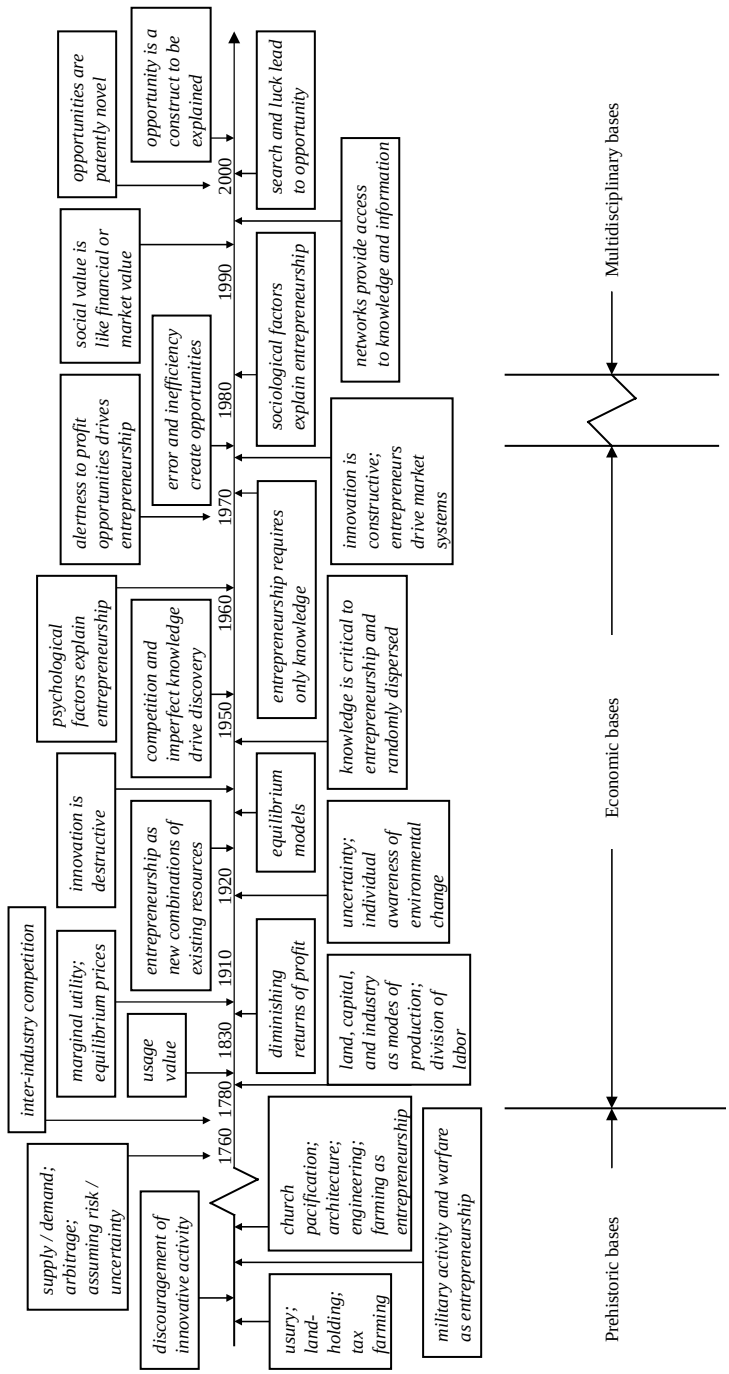

Figure 1.
An illustrated conceptual history of entrepreneurial thought

Discouragement of entrepreneurial exploration and discovery also occurred in medieval (1300-1500 CE) China, but in a different fashion (Baumol, 1990). When the empire incurred financial difficulties, the property of wealthy subjects was liable to be confiscated. Thus, those who had capital resources did not invest them in visible outlets. Substantial rewards in wealth and prestige were reserved for those who proceeded to climb the ladder of imperial examinations. By contrast, respectable social standing was not usually possible for individuals engaging in commercial entrepreneurial activity; like the early Romans, social contexts discouraged it as a means of wealth accumulation.

Prehistoric interpretations reveal how contextual forces shaped entrepreneurial impulses into manifestation in the form of owned property or social status. Importantly, however, those not possessing or entitled to such resources already were hard-pressed to gain them. Although such an entitlement principle persists in later periods, owned property and social status become less permanent and reliable. The shift begins to illustrate aspects of prehistoric entrepreneurial activity leading to classical economic thought.

The early middle ages (500-1000 CE) saw radically new expressions of entrepreneurship in Europe (De Roover, 1963). Owned property and social status did not guarantee success, as wealth and power were pursued primarily through pre-emptive military activity and warfare. Contention in feudal systems gave value to property such as land or castles and the warring of barons was a source of economic gain. Competition, acquisitions, and mergers were expressed as war, and creative destruction (Schumpeter, 1934) was actual destruction. Thus, innovation and entrepreneurship manifested itself frequently as implements of war (e.g. stirrups, rounded castle turrets). For entrepreneurs during this time, opportunities for hostile acquisition of resources were part of entrepreneurship (Baumol, 1990). Even though this activity was efficient for reallocating resources throughout the social system more freely than before, to be sure, it did not add to anything like a gross domestic product.

In the later middle ages (1000-1500 CE), church pacification reduced the proliferation of warfare. Activities such as architecture, engineering, and farming became entrepreneurial and lucrative. As usury was not accepted by the church, entrepreneurship began to entail specialized knowledge to discover other kinds of opportunities. For example, water-driven mills (e.g. for producing grain) were one outlet. Many monks operated such mills and made technological advances to develop them, perhaps driven by a need to save time for monastic activity.

Through such developments entrepreneurship became more socially acceptable and economically rewarding. For example, tax farming (Hebert and Link, 1988, p. 16), which derived from Ancient Greek civilization, was one such manifestation of entrepreneurship. The practice involved bidding for the job of collecting and paying taxes to the monarch in exchange for exclusive right to collect those taxes. The risk to the entrepreneurial tax farmer was that the tax collected could be less than the amount bid for the right to collect it. However, it frequently was greater, and the differential was pure profit.

Once occupations such as tax farming, usury, and lending were deemed damnable by the church (De Roover, 1963), the resulting puritan lifestyle and its relation to capitalistic activity contained elements reflected in Weber's (1930) "Protestant ethic." Three categories of "honorable" merchants were identified, including:

(1) importers-exporters (mercantiarum apportatores);
(2) storekeepers (mercantiarum conservatores); and
(3) manufacturers (mercantiarum immitatores seu melioratores).

Ultimately, many theologians actually became economic actors by helping to keep monopoly, pawn brokering, usury, or speculation out of business and "defending" the populace from exploitation.

Entrepreneurial activity expanded throughout the sixteenth and seventeenth centuries, and experiential or skill-based knowledge became ever more instrumental for remedying inefficiencies or offering new solutions, goods, and services. It was a way to make a living for artisans. However, such entrepreneurial activity was already long established in the Middle and Far East when the West began to use specialized knowledge to discover opportunities. Commerce was already highly developed in Arabic countries, for example, due to the central east-west location of the caliphate, extent of the Muslim empire, common language, and exalted status of the merchant in the Muslim system of ethics (Russell, 1945, p. 422). Western theologians at the School of Salamanca went so far as to posit that international commerce was a means to get men throughout the world together and promote a common brotherhood (Baldwin, 1959). However, they held profit was to be no more than enough to cover expenses and merchant costs (i.e. the "just price"). Thus, international trade of surplus goods could bring social benefits to nations, which helped reconcile mercantilism and the church (Fanfani, 1942, pp. 112-113) and foreshadowed the ethically purposeful entrepreneurship of modern times.

Compared to modern times, however, the proportion of the general public engaging in entrepreneurial activity before the eighteenth century was quite small. Those who were able to effectuate specialized knowledge as innovation or entrepreneurship were usually privy to the opportunity via a religious order or craft guild. The spirit of innovation, relevant knowledge, or flash of genius came about via avenues of precedent. Makeshift pricing systems did emerge to mitigate unbridled competition and social disorder, although they came in the form of archaic rents, tithes, and feudal dues. Religion maintained an impact on business modality and conduct (e.g. church condemnation of usury slowed development of the banking industry), which stymied the evolution of capitalism in the middle ages (De Roover, 1963).

Such conditions were part and parcel of entrepreneurial thought until the advent of classical economics deposed certain tenets, revealing new ways to be entrepreneurial in the context of a developing economic system. Henceforth, freer trade and economic competition began to emerge. Thrift became upright and honest, not greedy, and commerce became an occupation that could bring good to the commonwealth, not threaten its well-being.

Explanation of economic bases

Classical

An Irish banker working in France, Cantillon (b. 1680-d. 1734), introduced the formal concept of entrepreneurship into the literature of commerce, economics, and business. Published posthumously, his work (Cantillon, 1755) defined discrepancies between supply and demand as options for buying cheaply and selling at a higher price.

Entrepreneurs were alert to such options, purchasing inputs at a certain price and selling outputs at an uncertain price, bringing a market system toward stability. The classical economic movement following Cantillon set the stage for equilibrium models by promoting the development of economic foresight and dealing with uncertainty. The movement emphasized foresight in a closed framework of economic variables (e.g. productivity, labor supply, prices, competition) in a context of supply and demand-based causes and effects. Various theories developed by scholars in the movement (e.g. Quesnay, Baudeau, Turgot) described the importance of uncertainty (i.e. when outcomes are unknown) and risk (i.e. when the probability distribution of outcomes is known). Unlike earlier times, ownership and status were not always seen as required for entrepreneurship. Innovation and coordination became germane to entrepreneurial activity. For example, a common form of entrepreneurship involved farmers taking and owning contracts from landlords for cultivating their land. Similar examples of entrepreneurship sans ownership involved manufacturers, craftsman, and merchants.

Classical theory proper extolled the virtues of free trade, specialization, and competition (Ricardo, 1817; Smith, 1776). Conjectures of the movement took economics to a new level of sophistication, arising in the context of Britain's industrial revolution, which began in the mid-1700s and lasted until the 1830s. During the classical movement, competition across industries (e.g. cotton versus corn) added discontinuity dynamics to economic activity and entrepreneurs were able to discover more niches and kinds of opportunities. They even began to accumulate wealth and displace aristocrats. As a result, rather than emphasizing only property owners or people of high social standing, the economy was categorized into:

- landowners (spending rents on luxuries);
- capitalists (saving profits and reinvesting); and
- workers (spending wages on necessities).

The classical movement described the directing role of the entrepreneur in the context of production and distribution of goods in a competitive marketplace (Say, 1803). Following the categories above, three modes of production were articulated:

(1) land;
(2) capital; and
(3) human industry.

The third mode was a novel articulation, referring to voluntary production for the purpose of generating value independent of ownership. Going beyond the entrepreneur as a mere coordinator, human industry introduced a sense of the risk involved in obtaining materials, a workforce, and engaging the marketplace.

Conjectures. The classical movement offered principles that helped divide and characterize labor and production across industries. It helped establish the formal economic concepts of value and distribution. With the proliferation of foreign trade using various currencies in the early 1800s, its approaches to measuring differentials became widely adopted. Its impact drove a conceptual shift from the intricacies of subjective notions of value toward a macroperspective describing overall market activity objectively. Another outgrowth of the classical movement was the idea that

national-level production specialization offers comparative advantage over other nations, allowing entrepreneurs to take advantage of the resultant arbitrage opportunities. A key contribution of the movement is the concept of diminishing returns (e.g. derived from cultivating land), reflecting the notion of the exploiting entrepreneur moving on (e.g. entrepreneurial exit, selling a business) after the usefulness of the current venture expires. Some principal entrepreneurship-related conjectures of this period can be summarized:

- labor, production, and entrepreneurial activity can be classified by industry;
- macroperspectives on economic activity lend objectivity to market phenomena;
- national-level comparisons of production specializations reveal arbitrage opportunities; and
- wealth returns on possessed resources diminish over time.

Refutations. The classical movement could not explain the dynamic upheaval generated by entrepreneurs of the industrial age. The concept of equilibrium was at odds with short-term variable prices and relative production costs. The framework's inability to trace exchange value created by scarcity, inimitability, and specialization became apparent as domestic methods of production grew more sophisticated. As entrepreneurial activity evolved to include innovative and utterly new means of production, the relative costs of such production and exchange-value (instead of use-value) drove prices. For example, drawing from Law's (1705) conjectures Smith (1776) illustrated that water has higher use-value than diamonds and should therefore be more valuable. Nonetheless, diamonds have greater exchange value and command higher prices. Thus, subjective elements of value associated with individual-level utility were missed by the classical movement, along with the notion of entrepreneurs capitalizing on them. The linkage between these elements and market demand was not a formal part of the classical framework, forbidding an explanation of the decreasing output for constant input function.

Refutations of the classical movement pertaining to entrepreneurial thought that opened the way for the neoclassical movement can be summarized:

- equilibrium assumptions are incompatible with short-run prices and relative production costs;
- innovative and utterly new production processes of entrepreneurs were not describable;
- exchange value of goods/services is different from use-value;
- subjective or projected value of goods/services is important; and
- relations between market demand and value were not traceable.

That movement heralded a marginalist revolution in which the relevance of Cantillon's notions of supply, demand, and short-term prices reclaimed relevance, placing greater emphasis on the role of the entrepreneur.

Neoclassical

Near the end of the nineteenth century, the concept of diminishing marginal utility had emerged as a way to explain economic activity, opening the way for subjectivist frameworks describing relations among people, not objects (Menger, 1871). As a result,

socio-political and cultural circumstances, *vis-à-vis* economic ones, became increasingly central drivers of market system phenomena and problems[1]. Explanations of entrepreneurial activity began to include unique awareness and understanding of such circumstances. Entrepreneurial activity came to be regarded as a mechanism of change as it transformed resources into unforeseen products and services.

Economic thought grew in sophistication during the neoclassical movement. With economic behavior as more voluntary and fleeting than in the preceding movement, demand for commodities and products was described by a downward-sloping curve (i.e. decreasing) across time, with supply sloping upward (i.e. increasing). The intersection of the curves indicated an equilibrium level of value, or price. The model was a conceptual pivot-point of early economics textbooks, such as Marshall (1890). In this framework, the entrepreneur adjusts resource allocation decisions and other activity in relation to system-level change such as increasing supply, decreasing demand, and equilibrium conditions.

The movement gave entrepreneurship additional importance by focusing less on capital accumulation and more on novel combinations of existing or possessed resources (Schumpeter, 1934). From such combinations, entrepreneurship could be described via introductions of new goods, modes of production, markets, sources of raw materials, or organizational forms. Entrepreneurship involved innovation implemented consciously with a drive to create, establish, and conquer. Schumpeter described this innovative aspect as "creative destruction" for the disharmony and disorder created by such activity, which was remedied subsequently by imitators (i.e. other market actors), serving to balance the system.

Conjectures. The neoclassical movement held that all economic phenomena could be relegated to instances of pure exchange, reflect an optimal ratio, and transpire in an economic system that was basically closed. The economic system consisted of exchange participants, exchange occurrences, and the impact of results of the exchange on other market actors. The importance of exchange coupled with diminishing marginal utility made an expanded place for entrepreneurship in the neoclassical movement. For example, in addition to commerce across international boundaries (as in the classical movement), entrepreneurs could engage in arbitrage within the context of one economic system. As price level moderated exchange, prices were signposts to guide entrepreneurial activity.

These aspects of the neoclassical movement afforded the notion of opportunity exploitation, such as taking advantage of temporally-bound favorable price ratios unnoticed by other entrepreneurs. Owing to the social dynamics of economic systems, entrepreneurs might accept a price ratio or even be forced into accepting it if they want to stay in the market. Principles of the movement dominated conjectures and refutations in economics and commerce for at least 60 years. Primary entrepreneurship-relevant conjectures of neoclassical theory can be summarized thus:

- allocations of resources and other decisions are options and based on subjective decisions;
- diminishing marginal utility can guide entrepreneurial decision making;
- price differentials in a market system indicate arbitrage opportunities;
- entrepreneurship includes new production methods, markets, raw materials, or organizations; and

- entrepreneurs create change in the environment and respond to such change.

Refutations. The full range and depth of entrepreneurial action eventually outran the neoclassical movement. Marginal utility in the neoclassical sense, for example, particular to individuals, is nonetheless a function of demand aggregated across individuals. An interpersonal aspect of utility is assumed, relegating utterly novel exchanges and outputs to the same standard of value. This conjecture seems reasonable until combined with Cantillon's original notion that efficiency fails to explain non-uniform entrepreneurial activity: a meaningful output/input ratio requires observable and uniform outputs.

The neoclassical movement emphasized quantity of outputs at the expense of another aspect of production: quality. The emphasis results in a narrow conceptual space for innovation and entrepreneurship because entrepreneurial effectiveness frequently has much to do with quality. This narrowness, germane to the neoclassical movement, oversimplifies economic-system phenomena by stating conditions for a rational allocation of resources situated in a model of equilibrium, but evading its application to the complexity and error of actual economic circumstances (Hayek, 1940, 1945).

The principal neoclassical criterion for effectiveness was efficiency maximization. Exchange data and known means and ends revealed optimal courses of economic action, all of which implicitly assumed perfect knowledge on the part of entrepreneurs. This assumption was shown specious because perfect knowledge leads to imperfect knowledge: rational economic conduct creates uncertainty (Menger, 1934). Other market actors, for example, aware of a given another's expectations, might seek to defeat him or her[2]. The premise underlies the "Sherlock Holmes paradox" (Morgenstern, 1935) in which Holmes meets and catches a thief at the right train station after guessing the thief's intentions correctly. Such solutions are usually not elementary, to be sure, and do not stem from rational calculation with high certainty. Thus, neoclassical reasoning does not explain the innovation of entrepreneurs facing analogous competitive circumstances. However, casting imperfect knowledge into neoclassical equilibrium-based frameworks is not logical; it necessitates varying levels of information, standing against neoclassical assumptions of perfect competition in which all economic actors choose to engage in the same activities. Innovation and entrepreneurship are not amenable to perfect competition and equilibrium.

The neoclassical movement opened the way for new ideas related to diminishing returns and arbitrage. The role of knowledge was to be recast: a logical outgrowth of neoclassical failure to consider the value of market actors knowing or forecasting the activity of competitors. Some entrepreneurship-related refutations of the neoclassical movement are:

- aggregated demand ignores the uniqueness of individual-level entrepreneurial activity;
- neither use nor exchange value reflects the future value of innovation outcomes;
- rational resource allocations do not capture the complexity of market-based systems;
- efficiency-based performance does not subsume innovation and non-uniform outputs;

- known means/ends and perfect or semi-perfect knowledge do not describe uncertainty;
- perfect competition does not allow innovation and entrepreneurial activity;
- it is impossible to trace all inputs and outputs in a market system; and
- entrepreneurial activity is destructive to the order of an economic system.

The next conceptual movement responded by emphasizing human action in the context of an economy of knowledge, presenting a richer conceptual framework for entrepreneurship.

Austrian market process

The neoclassical movement acknowledged the impracticality of tracing all relevant information in an economic system in order to understand the phenomena within it. It revealed that the specific knowledge entrepreneurs possess has much to say about their activity. Because such knowledge cannot be observed directly, however, an empirical framework is inappropriate. Thus, the AMP movement explained phenomena logically rather than empirically. The movement addressed a central question of how to harness knowledge needed to discover opportunities and make correct decisions when it is dispersed idiosyncratically throughout the system. The framework shifted explanation of economic phenomena toward individual-level factors within the context of system-level ones. Earlier ideas of Cantillon (e.g. subjective determination of value, forecasted supply and demand) reassumed relevance, as the movement pointed to subjective definitions of value and higher potential for dynamic change in economic indices such as prices or interest rates.

The movement offered a logic for a dynamic reality. As knowledge is communicated throughout a market system (e.g. via price information), innovation transpires, entrepreneurs satisfy market needs, and system-level change occurs. If an entrepreneur knows how to create a new good or service, or knows a better way to do so, benefits can be reaped via this knowledge. Entrepreneurs effectuate knowledge when they believe it will procure some individually-defined benefit. The earlier neoclassical framework did not explain such activity; it assumed perfect competition, carried closed-system assumptions, traced observable fact data, and inferred repeatable observation-based principles. By contrast, AMP denied assumptions that circumstances are repeatable, always leading to the same outcomes in an economic system. Rather, it held entrepreneurs are incentivized to use episodic knowledge (i.e. possibly never seen before and never to be seen again) to generate value.

The movement contained three principal conceptualizations (Kirzner, 1973). The first is the arbitraging market in which opportunities emerge for given market actors as others overlook certain opportunities or undertake sub-optimal activity. The second is alertness to profit-making opportunities, which entrepreneurs discover and make a market by acting upon. The third conceptualization, following Say (1803) and Schumpeter (1934, pp. 74-75), is that ownership is distinct from entrepreneurship. In other words, entrepreneurship does not require ownership of resources, an idea that adds context to uncertainty and risk (Knight, 1921). From this overall conceptualization, the movement reveals every opportunity is unique and past activity cannot be used to predict outcomes reliably. Uncertainty and risk can be minimized or managed and error can be bounded, but these elements are immutable.

Conjectures. A primary assumption of the AMP movement is that market actor decisions interact and compete to generate changes in prices, outputs, methods of production, and resource allocation. Deriving from this assumption, AMP conjectured (Kirzner, 1973) that individual market actor choices contain error, yielding plans that are either unrealized (optimistic) or realized but not generating expected value (pessimistic). In other words, entrepreneurial decisions can either "miss the boat" or "sink the boat" (Dickson and Giglierano, 1986). Such a concept offers wider means-ends perspective on entrepreneurial goal setting, decision-making, drive, and alertness. This conjecture threw new light on the utter novelty of opportunities and entrepreneurial circumstances, which lack programmable features, and underscored the importance of entrepreneurial alertness. AMP targeted individual market actors, raising the relevance of subjective intentions and beliefs. Traditional economic principles were hard-pressed to explain these aspects of market systems (Hayek, 1945).

That market actors have imperfect knowledge about opportunities establishes the relevance of alertness. As opportunities emerge, perfect knowledge about them is impossible, making competition for higher levels of knowledge a system-level condition (Hayek, 1948; Kirzner, 1973). As market actors compete, new information by which they continually revise their plans is amassed. Underneath this compounded complexity, a rudimentary principle holds that any given entrepreneur has more or less effective choice options than other entrepreneurs, which contextualizes individual entrepreneurial activity more effectively than the previous movement. For example, from an entrepreneur's perspective, freedom of choice across a range of options (e.g. selection of a particular marketing strategy or innovation) implies varying levels of value for those options. Although such value is relative, its variance emphasizes linkages between an individual entrepreneur's employed means (e.g. technology, relationships) and desired ends (e.g. a new product or service).

Building on the early conception of the entrepreneur in a directing role, AMP allowed entrepreneurship as innovation sans resources other than knowledge. In other words, rather than being a factor of production, it is "pure entrepreneurship" (Kirzner, 1973). As knowledge is a resource not readily amenable to monopoly or sole possession, entrepreneurial discovery is inherently competitive (Hayek, 1948). Primary entrepreneurship-related conjectures of the AMP movement include:

- individual entrepreneurial decisions and activity are the basis for phenomena in a market system;
- errors and inefficiencies create opportunities to be discovered by entrepreneurs;
- entrepreneurs always face considerable uncertainty;
- entrepreneurial alertness helps explain the recognition of entrepreneurial opportunities;
- knowledge and coordinating activity are sufficient for entrepreneurship; and
- entrepreneurship is constructive to the order of an economic system.

Building on neoclassical ideas (Schumpeter, 1934), AMP cast entrepreneurship as a driver of market-based systems. Yet, the movement is not without refutations.

Refutations. The AMP movement did not delineate restrictions on competition adequately. For example, monopolies on resources can frustrate competition. Entrepreneurial ventures can and do seek to limit competitors by pre-emption.

Although the pursuit of monopoly possession is part and parcel of market system activity, it is hostile to the competitive process described by the AMP movement. Some of the attention AMP gives to the inefficiencies of centralized market systems with high regulation, to be sure, could be similarly applied to firms holding a monopoly because they are inefficient for the same reasons.

Aside from delineating the role of contracts (Hayek, 1948), force, hostile takeovers, deception, and fraud are not explained or contextualized effectively by the AMP movement. To illustrate, whereas private organizations can use deception or violations of guidelines as strategic enablers, government organizations may engage in similar activity via the imposition of taxes, regulations, and controls. By not delineating such factors, AMP does not distinguish effectively between the affordances of private versus state-owned enterprises to use force or deception *vis-à-vis* their competitors. Indeed, both kinds of firms compete actively with one another in market systems. Finally, over-reliance on pure market forces narrows the conceptual space for entrepreneurship to occur in contexts that are not traditionally market oriented (e.g. charitable or socially-purposeful), which are important and common in modern conceptions of entrepreneurship. Refutations of the AMP movement can be summarized thus:

- market systems are not purely competitive but can involve antagonist cooperation;
- resource monopolies can hinder competition and entrepreneurship;
- fraud/deception and taxes/controls also contribute to market system activity;
- private and state firms have different affordances but both can be entrepreneurial; and
- entrepreneurship can occur in non-market social situations without competition.

Ancillary conceptual movements have evolved from the basic conjectures and refutations of the AMP movement, drawing from discipline-based areas of economics, sociology, psychology, marketing, and management. Such multidisciplinary contributions are the principal drivers of the entrepreneurship field's development into its current state.

Explanation of multidisciplinary bases

The largely economics-based approaches to describing entrepreneurship of earlier movements began to shift in the mid-twentieth century. Human and environmental factors became useful for explaining market actor behavior in addition to economic ones. Research comparing entrepreneurs to other types of people emerged. For example, the importance of psychological traits such as need for achievement, desire to accept responsibility in complex situations, and willingness to accept risk under conditions of skill-based performance were conjectured as factors stemming from individual differences (McClelland, 1961). Along with psychological characteristics (Shaver and Scott, 1991) and marketing factors (Hills, 1994), this movement has also showed factors existing at environmental levels effect entrepreneurial activity. These factors include new technology and markets as well as level of modernization, ecological niches, and organizational populations (Reynolds, 1991). Still other

environmental factors include governmental policies and regulations, such as public policy guidelines and legal or institutional frameworks (Gnywali and Fogel, 1994).

The Lewinian framework

Building on prior movements but not primarily economics-based, the multidisciplinary movement reflects a "Lewinian" conceptual framework tremendously:

$$B = f(P, E)$$

This framework (Lewin, 1935) describes behavior via an interaction between person and environment: behavior (B) such as entrepreneurial activity derives from the interaction between person (P) and environment (E). The influence is obvious in many entrepreneurship conceptualizations and research designs. Moreover, because of varying theory bases describing individual versus environmental factors, this framework has taken on various forms. For example, individual cognition styles describe the way entrepreneurs search for information, but only in certain contexts, such as when experience and self-efficacy are high (Cooper *et al.*, 1995). The extent to which individuals recognize opportunities and search for relevant information is contingent largely on the unique insights, skills, and aptitudes of entrepreneurs (Venkataraman, 1997). Entrepreneurs with less experience use minimal decision models to guide information seeking, with the opposite being the case for experienced entrepreneurs (Gaglio, 1997). Indeed, the framework allows many types of individual, environmental, and other factors to interact, but there is considerable plurality within the movement regarding which factors or interactions hold greater explanatory sway (Low and MacMillan, 1988).

Environment versus individual

The multidisciplinary movement conjectured that environment-based approaches discount critical individual or firm characteristics because the environmental impact is extenuated to the degree individuals or firms purposefully adapt themselves successfully (Hannan and Freeman, 1977; Whittaker and Levin, 1976). On the other hand, some firms may evolve into a form that is not viable, regardless of the nature of the environment. Whereas macro-level factors do not dictate firm evolution, they do appear to have an effect on entrepreneurial emergence. For example, the density of existing firms reduces incorporation rates (Reynolds, 1991). This relation supposes that opportunity scarcity intensifies competition and promotes entrepreneurial failure (Zucker, 1989) among ventures with shared orientations involving common goals or resources. Interactional frameworks do not explain such phenomena as well as social network frameworks (Powell, 1990), which have been shown to facilitate entrepreneurship as a proxy for expert knowledge and give definition to the construct of entrepreneurial opportunity (Hills *et al.*, 1997).

Some multidisciplinary work has cast entrepreneurial emergence in terms of Darwinian natural selection (Friedman, 1953). Others offer a refutation by countering that the optimal outcomes for firms and environments are not always the same, and some firms thrive despite the asymmetry (Winter, 1964). Natural selection principles assume somewhat stable environments. From this assumption, optimality for entrepreneurial ventures becomes dubious to the degree environments are chaotic because sufficient criteria for venture fitness do not exist. Erratic environments

frustrate efficiency, possessing both short and long range aspects that may force firms to respond constantly to environmental changes, compete with each other, or even collaborate with contention for their collective survival (Laumann and Knoke, 1987).

Conjectures and refutations around individuals and environments reveal it is specious for research to employ mostly person-centric or environmentally-based models (Eckhardt and Shane, 2003; Low and MacMillan, 1988). Rather than describing an interaction between two levels of analysis or perspectives that complement[3] one another, some conjectures point to a need for fuller integration of multiple kinds of factors, echoing earlier approaches (Hayek, 1948; Mises, 1949) by focusing on resource distribution (e.g. information, relationships) and its role in entrepreneurial discovery.

A distinctive domain

Entrepreneurship theory that does not borrow directly from other areas of research (e.g. psychology, sociology, strategic management) has begun to move away from a focus on "types" of individuals or environments (Eckhardt and Shane, 2003). Such theory focuses on the convergence of resources (including knowledge) with an emphasis on the emergence and existence of entrepreneurial opportunities (Shane, 2000). The construct of entrepreneurial opportunity, especially for research purposes, can be seen as independent of entrepreneurs, firms, or environments because it transcends them (Murphy, 2005). More integrative than the Lewinian-based interactive framework, an opportunity-based approach to entrepreneurship research reveals limitations in equilibrium and closed-system assumptions (Kihlstrom and Laffront, 1979) and complements person-centric approaches.

From a systems perspective, optimization in the neoclassical sense regarding inventory, profits, market demand, and strategic decisions requires activity in one area of a system to drive activity in other areas almost programmatically (Arrow, 1974; Baumol, 1993). However, the novelty of an entrepreneurial discovery suggests a unique, unpredictable event that has never been seen before and may never be seen again, which implies disequilibrium. Such breakouts are outside the existing system's boundary conditions in important ways and frustrate the implicit equilibrium assumptions of person-centric approaches based on statistically reliable variables. Such assumptions do not set the bounds of the problem effectively because entrepreneurial discovery entails expansion of many different kinds of resources. Thus, entrepreneurship theory must be logically compatible with such growth.

Discovery phenomena defy systematic calculation and are a priori unknowable (Baumol, 1968; Hayek, 1942; Popper, 1957). Yet, because entrepreneurs do expect to be surprised in general, neither design nor chance can explain entrepreneurial discovery (Kirzner, 1997; Yates, 2000). This conundrum and its implied theoretical "middle ground" have led to a stream of contemporary entrepreneurship research targeting opportunities (Eckhardt and Shane, 2003; Fiet, 1996; Murphy and Shrader, 2004; Shane, 2000).

Contemporary conjectures and refutations

Key contemporary areas for conceptual development in the multidisciplinary movement entail conceptual framing, the opportunity construct, episodic knowledge, and statistical methods. In what follows, we discuss conjectures and refutations in these areas as they contribute to the current state of the entrepreneurship field.

Conceptual framing. The multidisciplinary movement illustrates that entrepreneurial discovery exists at all levels of an economy (i.e. entrepreneur, firm, industry, system). Each instance involves an integrated nexus in which individual and environment participate (Venkataraman, 1997). Given the event's traceability across levels of analysis, multiple research perspectives correspond to these levels (Gartner, 2001; Low and MacMillan, 1988). Over time, such research activity has raised understanding and sophistication within perspectives and created irrelevancies as well as masked consistencies between perspectives. The resultant conceptual stratification in the literature holds ramifications for future research (Bull and Willard, 1993). For one, it leads to operationalizations of variables being congruous within a perspective but complementary across perspectives, despite all perspectives targeting the same event (Gartner, 2001). It impedes efforts to define a conceptual domain. For example, individual-level entrepreneurship research borrows routinely from system-level approaches (Kaish and Gilad, 1991) even though their complementary natures lead to incomplete theoretical models (Gartner, 1988; McMullen and Shepherd, 2006).

As entrepreneurship research develops in a multidisciplinary paradigm, entrepreneurship conceptualizations parse into academia, finance, and practice domains. In turn, sub-areas have developed within these domains (Welsch and Maltarich, 2004). For example, academia includes teaching methodologies (e.g. lecture, case study, distance learning), complementary programs (e.g. community involvement, incubators), and levels of education (e.g. undergraduate, MBA, outreach). Entrepreneurial finance includes lending (e.g. informal sources, banks), investment (e.g. venture capitalists, business angels), and internal financing (e.g. revenue generation, bootstrap financing). The practice of entrepreneurship includes high-technology firms, network marketing, social entrepreneurship, serial entrepreneurship, franchising, ethnic entrepreneurship, women in entrepreneurship, and more. Despite the range and heterogeneity, a conceptual framework based on entrepreneurial opportunities accompanies these areas and maintains relevance across them. Thus, a paradigm based on the opportunity construct is beginning to hold greater sway in the entrepreneurship field as contemporary conjectures and refutations continue to emerge.

The opportunity construct. An opportunity-based approach provides a wide-ranging conceptual framework for entrepreneurship research (Fiet, 2002; Shane, 2000). As internal and external factors participate in entrepreneurial discovery, an objective aspect emerges as a construct to be explained. The opportunity-based research approach is in step with entrepreneurial phenomena that are not new merely in terms of combination (Schumpeter, 1934), but inherently new in a fundamental sense (e.g. previously unfathomable knowledge). The approach concedes that entrepreneurial discovery commonly involves nothing less than this sort of newness, which cannot be derived from a priori inputs and outputs (Kirzner, 1997), but can be forecasted more or less given certain constellations of factors such as episodic prior knowledge (Murphy, 2004; Shane, 2000).

By assuming that the required information for entrepreneurial discovery can never be in the purview of a single mind or situation at once (Hayek, 1948; Simon, 1957), an opportunity-based approach mitigates difficulties that frustrate strict person-centric or environment-based approaches. It relativizes empirical problems stemming from levels of analysis by going beyond specific characteristics of entrepreneurs, firms, and

environments to target a construct that maintains bearing across perspectives. Because an opportunity-based approach targets a conceptual integration that transcends levels of analysis, it integrates complementary factors more fully (e.g. entrepreneurial alertness, firm orientation, system-level regulatory controls). It admits not only the possibility for opportunities to open the way for additional ones (Shane and Venkataraman, 2000), but also for entrepreneurial errors to fulfill the same function (Kirzner, 1997). Despite such promise, however, calls for an opportunity-based approach are likely to go unanswered as long as a Lewinian framework sets boundary conditions for entrepreneurship research (Eckhardt and Shane, 2003; Murphy, 2004).

Episodic knowledge. Scholarship increasingly finds knowledge to facilitate entrepreneurial discovery (Shane, 2000), rendering the acquisition of knowledge ever more central to entrepreneurship theory and practice. Indicators of knowledge include convergences of episodic factors (e.g. relationships, guidance, experience). Based on the distinction between prediction and forecasting (Cook and Campbell, 1979, pp. 296-297), entrepreneurship researchers can operationalize idiosyncratic knowledge reports and forecast discovery using non-parametric statistics (Murphy, 2005) or cast opportunities as units of analysis based on entrepreneurs' unique prior knowledge (Shane, 2000).

Entrepreneurship research is increasingly showing the importance of knowledge and networks of information to discovery (Hills *et al.*, 1997). Network approaches hold promise to help mitigate levels-of-analysis issues as they imply a scale for gauging relations via structural equivalence or embeddedness (Burt, 1983; Granovetter, 1985). For empirical entrepreneurship research, such notions imply more continuous and quantifiable estimates instead of the rougher scaling implied by the levels-of-analysis germane to a Lewinian-based approach (i.e. individual, firm, system).

Statistical methods. Empirical data are theory-laden (Cook and Campbell, 1979, pp. 23-25). From this premise, it follows that entrepreneurial theory holds ramifications for empirical research designed to examine such theory and promote conceptual development. The rich nature of the entrepreneurship field, in which entrepreneurs are purposeful, patently unique, and idiosyncratic, opens the way for many empirical research possibilities.

An implication of the field's richness is that, from an empirical measurement perspective, normally distributed data are not common. Entrepreneurial events tend to be outliers and entrepreneurship data are volatile (Robinson, 1995). As a result, meaningful aggregation and least squares estimates are not routinely possible because variance across instances tends to be idiosyncratic and turbulent, not degreed or normative (Low and MacMillan, 1988). As parametric analysis techniques (e.g. correlation, regression, ANOVA) rely heavily on specific characteristics in the data (e.g. homogeneity of variance across variables, no distribution outliers, low distribution skewness and kurtosis), empirical entrepreneurship research frequently requires more flexible statistical methodologies such as the generalized linear model (McCullagh and Nelder, 1999) or non-parametric statistics such as multiway frequency or logit analyses.

The utilization of parametric statistical tests requires rigorous assumptions compared to non-parametric analysis techniques. The former are amenable to economic theories with equilibrium assumptions, for example, underlying the approximation of income distributions (Hardle, 1994, p. 8). The latter are more adaptable (Siegel and Castellan, 1988, p. 3). For example, they utilize sample-specific

multinomial distributions rather than assume population-derived univariate or multivariate normal distributions (Hardle, 1994, p. 4). They can handle turbulent data with features hostile to the rigorous assumptions of parametric techniques, which rely on reference to an ideal functional form. Thus, the distinction between the prediction function and causal inference based on forecasting (Cook and Campbell, 1979, pp. 296-297) and its relation to parametric and non-parametric statistical approaches carries critical implications for entrepreneurship research. Indeed, an increasing amount of research posits that entrepreneurship researchers in particular should test carefully for violations of analysis assumptions in empirical studies utilizing entrepreneurship data (Eckhardt and Shane, 2003; Robinson and Hofer, 1997; Murphy, 2004; Robinson, 1995).

Conclusion

The importance and impact of the entrepreneurship field is increasing in academic and practical settings. A historical view on the conceptual development of entrepreneurial thought, as it were, provides a lens for scholars as well as practitioners to interpret and explain their own entrepreneurial activity or research and formulate new questions.

Whether entrepreneurial activity is scholarly or practical, its underlying process of conjecture and refutation casts continuous learning and relearning close to its heart (Drucker, 1985, p. 263). Because learning is the acquisition of knowledge, future research stands to delineate the role of acquiring new knowledge in a critical and rational spirit (Harrison and Leitch, 2005). The conjectures and refutations of such research will help explain how knowledge parlays into entrepreneurial discovery. The products of this scholarship will include new theory to explain the emergence and existence of opportunities, helping to open the way for future conceptual movements in a distinctive domain.

Notes

1. We thank Peter Munz for pointing out this conceptual development.
2. This conjecture led to Neumann and Morgenstern's (1944) theory of games as applied to economic behavior and the creation of economic game theory.
3. We define complementary perspectives identically to Bohr (1949, p. 224) and Popper (1957, p. 90n); that is, complementary in the sense of being different yet compatible, but also mutually exclusive such that to the degree the first perspective is adopted it precludes adoption of the second.

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