




Even-If: Sufficient, Yet Unnecessary Conditions for Worldmaking

Organization Theory
Volume 2: 1–9
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DOI: 10.1177/26317877211005785
journals.sagepub.com/home/ott


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Abstract

The scientific method seeks to identify cause-and-effect relationships using experimentation to test hypotheses through correspondence with an objective reality. Hans Vaihinger explicated the role of as-if logic in how science actually works in practice. Milton Friedman built on Vaihinger's philosophy to argue the same for economics. Here I offer even-if as the logic for effectuation that in turn forms the basis for the entrepreneurial method. Entrepreneurship seeks not merely to test hypotheses but to co-create hypotheses worth reifying. In doing so, effectual entrepreneurship embodying an even-if logic can work with both possibilistic thinking and a variety of aspects of human imagination.

Keywords

as if, effectuation, entrepreneurial method, entrepreneurship, worldmaking

Introduction

Worldmaking, as Goodman (1978) argued, is not magic, but a mundane part of what we do as human beings. Worldmaking involves transforming extant reality into new futures and new ends worth pursuing. The conversations and

controversies triplex that this article is a part of is a telling example of worldmaking. The three pieces here engage with possible futures in distinct yet related ways. While my approach is to unearth a logic underlying entrepreneurs' actions and interactions, Chiles, Crawford, and Elias (in this issue) examine the interface

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between ourselves and the spiritual, whether conceptualized in religious, poetic or mystical terms. Worldmaking challenges us to take on deeper questions, existential questions, questions of meaning and purpose and, yes, spiritual worldviews too. In this sense, what I have to say about the logic of even-if connects in vital ways with Grimes and Vogus' (in this issue) exposition of possibilistic entrepreneurial responses to grand challenges as well. Sure, I have some quarrels with the other two works in this triplex, but I also have enormous empathy and vast spaces of intellectual overlap that I will point to as I explicate my thesis below.

One way to make futures is to predict them and act on those predictions "as-if" they are drawn from one universe of all possibilities. Another way to act is to remake current realities "even-if" we are unsure what new futures they may lead to. As a theory that seeks to provide sufficient, yet unnecessary conditions for action, effectuation (Sarasvathy, 2001, 2009) is closely related to "even-if" thinking, rather than "as-if" thinking, both of which are based on pragmatist rather than positivist philosophies. The latter was developed in some depth by the philosopher Hans Vaihinger. A famous application of "as-if" thinking is found in Milton Friedman's defense of economic predictions. The argument Friedman used was: so long as a theory makes accurate predictions, we do not really need to understand its actual mechanics. It is in this sense that many scientific theories are "as-if" theories. In entrepreneurship, where the task is not simply to accurately observe and explain the world but to make new ones, "even-if" is a more useful approach. Entrepreneurs start ventures "even-if" the success rates of new ventures are predicted to be low and "even-if" they have very few resources. Entrepreneurship theories may therefore need to move beyond the "as-if" thinking of hypotheses testing to action "even-if" no new hypotheses come readily to mind. In doing so, "even-if" thinking can explain how useful hypotheses may come to be in the first place, where the aim is not ex-ante falsifiability but ex-post reifiability of those hypotheses.

As-if: A Brief Introduction

Savage, Cornelissen, and Franck (2018) have recently made a case for the importance of fiction to be included in research into organization studies. As the article mentions, in *Die Philosophie des Als Ob*, Hans Vaihinger (1924) proposed that human beings should be willing to use fictions and even falsehoods so that they can live productively in an irrational world. Vaihinger sought to build bridges between Kantian philosophy and a Pragmatist view through his notion of "as-if" assumptions about the world. Without such assumptions, he argued, we could not develop useful science or ethics or other enterprises that allow us to survive and live well in the universe. Consider, for example, the statement, "Water seeks its own level." Water, of course, does not have conscious intention to "seek" anything. Yet, modeling water "as-if" it seeks its own level allows us to predict its behavior without having to first understand that pressure depends only on density and depth and not on surface area. In this way, "as-if" assumptions allow science to progress and engineering to work even when knowledge is incomplete.

In a characteristically brilliant essay, "The Methodology of Positive Economics," Milton Friedman (1966) used the spirit of Vaihinger's as-if philosophy to argue against critics of positive (or scientific) economics.

Positive economics is in principle independent of any particular ethical position or normative judgments. As Keynes says, it deals with "what is," not with "what ought to be." Its task is to provide a system of generalizations that can be used to make correct predictions about the consequences of any change in circumstances. Its performance is to be judged by the precision, scope, and conformity with experience of the predictions it yields. In short, positive economics is, or can be, an "objective" science, in precisely the same sense as any of the physical sciences. (Friedman, 1966, p. 4)

Vaihinger's as-if philosophy allowed Friedman to espouse the objectivity and scientific testability of economic "laws" without having to

grapple with the messy reality of the human brain from which those laws might ensue. It is not that Friedman is unaware of the indeterminacy at the heart of even the physical sciences, which he alludes to in a footnote. It is just that he seeks to protect economic theories from assault simply based on a claim that the assumptions on which they rest may be flawed or even false. Friedman wants to insist that critics move beyond armchair critiquing to do the work to provide alternate assumptions that generate testable predictions. Until critics are able to provide working alternatives, we should continue to work with the theories we have, “as-if” the assumptions they rest on are true.

The ultimate goal of a positive science is the development of a “theory” or, “hypothesis” that yields valid and meaningful (i.e., not truistic) predictions about phenomena not yet observed. . . (Friedman, 1966, p. 7)

... Economics as a positive science is a body of tentatively accepted generalizations about economic phenomena that can be used to predict the consequences of changes in circumstances. (Friedman, 1966, p. 39)

He is also very clear about why we need such predictions:

The conclusions of positive economics seem to be, and are, immediately relevant to important normative problems, to questions of what ought to be done and how any given goal can be attained. (Friedman, 1966, p. 4)

However, as I have argued elsewhere and evidenced through empirical work, effectual economics offers an equally valuable alternative to this mode of thinking (Sarasvathy, 2001, 2009). Furthermore, the entrepreneurial method is as general and powerful as the scientific method, yet clearly distinguishable from it (Sarasvathy & Venkataraman, 2011). In fact, we can begin building an economic philosophy for entrepreneurship by simply starting with a world where normative goals are not “given” as Friedman takes for granted in his famous essay.

Human history is a history of change and innovation, innovation especially in our conceptualizations of what is worth striving for. Take, for example, the very concept of what counts as “human” over the history of human rights (Hunt, 2007). The reframing is not merely a matter of predictions proved true or false by an existing world. It is a matter of co-creating new worlds, where the normative task to figure out what is worth creating is inescapable and cannot be taken as given. It is in this sense that we need an effectual entrepreneurial worldview that co-creates new ends in addition to a predictive scientific one that seeks ways to achieve given ends.

It is interesting then to ask what in effectual entrepreneurship would be the parallel to *Vaihinger’s* and *Friedman’s* as-if philosophy? I would like to posit an answer in terms of “even-if.” I will begin with a few preliminaries from logic, then expand out into specific decisions in entrepreneurship and, finally, generalize the philosophy to seeing entrepreneurship as a method to make new worlds. Note that even-if may evoke the notion of semifactual thinking, as in the case of deep learning in artificial intelligence (Kenny & Keane, 2020). However, semifactual thinking is usually related to the past in the sense of “even if some past events had been different, the present would still be what it is.” In the following, I explicate even-if as applied to the future, to worldmaking, rather than as an analysis of past events.

Even-If: Logical Preliminaries

A strict positive approach, such as neoclassical economics, is predicated on the following logical relationship between antecedent and consequent:

B if A

For example, if entrepreneurs are rational (in the neoclassical sense of the term), they will seek to maximize profits. In other words, in order to maximize profits, entrepreneurs have to be and act rational. Here the cause is a necessity to produce the effect. The cause may not be

sufficient to produce the effect, but the effect cannot be produced without it. Hence the cause is extremely important.

Friedman's argument loosens this up somewhat pragmatically into

B as-if A

Here, causes (necessary conditions) are not as important as effects. It suffices to argue that so long as entrepreneurs behave as though they are rational, they will tend to maximize profits. Assuming maximizing profits is a good thing, we would like them to behave as close to rationality as possible. But whether they actually are rational or deviate somewhat from it need not negate the theory.

In an effectual approach we will posit the following:

B even-if not-A

Here, the search is for sufficient conditions that may or may not be necessary for B to occur. For example, even entrepreneurs not rational in the neoclassical sense can maximize profits. In fact, the even-if proposition allows the pluralization of rationality and even the abdication of it altogether. A variety of different kinds of thinking can lead to profit maximization.

There are at least two formal implications of this type of reasoning. First, we can replace particular assumptions in our models with distributions over sets of possible assumptions. Take rationality in the above example. Instead of assuming any particular type of rationality such as neoclassical rationality, we can draw from a taxonomy or distribution of rationalities such as neo-classical, ecological, bounded, effectual, etc. Second, unlike in classical logic where not-(not-A) implies A (double negation elimination), in even-if logic, not-(not-A) need not result in A. In other words, the universe is not closed and therefore cannot be broken up exclusively into A and not-A. The presence of A is not evidence for not-A and vice versa.

Let us consider a specific example from entrepreneurship, namely, the plunge decision, to illustrate how the two formal implications above could work in our theorizing (Dew,

Sarasathy, Read, & Wiltbank, 2009). The plunge decision refers to the decision to start a venture, given a low probability of success and availability of good paying jobs.

From Necessity to As-If to Even-If: A Brief Review of the Plunge Decision

From a neoclassical perspective, rational actors would start a venture only if the low probability of success is offset either by the probable rewards or their appetite for risk or both being very large (Cramer, Hartog, Jonker, & Van Praag, 2002; Douglas & Shepherd, 2000; Kihlstrom & Laffont, 1979). Even-if thinking can pluralize this to multiple types of rationality as follows. Ecological rationality (Todd & Gigerenzer, 2012) would bring in other variables such as life stage, hybrid entrepreneurship, and so on (Folta, Delmar, & Wennberg, 2010). Bounded rationality would suggest overconfidence bias or other biases as possible explanations (Busenitz & Barney, 1997; Camerer & Lovallo, 1999; Zhang & Cueto, 2017). We will examine effectual rationality a bit later.

In terms of the second implication of refuting double negation elimination, even-if offers a way to challenge the very notion of probability of success. It is customary to assume that success and failure are 0–1 options. Is not failing the same as succeeding? For example, someone who does not start a venture will not fail. How about someone who starts multiple ventures? For every venture, there may or may not be specific measures of success and failure. But it is easy to see that it would be much harder to conceptualize success and failure as a 0–1 option for an entrepreneur who starts more than one venture. Thus, even if venture success could be subject to double negation elimination, entrepreneur success is unlikely to abide by it (Sarasvathy, Menon, & Kuechle, 2013). It is now easier to see why an even-if logic might be more useful in formulating theories of entrepreneurship. Interestingly, the progress from purely positivist accounts to as-if theorizing to even-if explanations is already visible in entrepreneurship research. In the following, I offer a quick

glimpse of that progression in the literature on the plunge decision.

The classical, positivist way to theorize about this is through the concept of overconfidence or overoptimism (Camerer & Lovallo, 1999; Forbes, 2005). Low probability of success implies one should not start a venture. Anyone who starts a venture must be suffering from overconfidence bias or must be an extreme risk taker (i.e., simply irrational). They are either ignoring the low odds of success, underestimating the odds of failure, or overestimating their own ability to succeed (Cassar, 2010).

As-if philosophy would explain the decision in terms of other concepts such as self-efficacy (Chen, Greene, & Crick, 1998; Zhao, Seibert, & Hills, 2005). It could be that the entrepreneur believes in her own ability to execute well and control the outcomes of venturing. In other words, she behaves as if the odds of her success are not independent of her abilities and actions (Hmieleski & Baron, 2008).

Even-if argues not only for the endogeneity of outcomes but for the endogeneity of the event space itself. In other words, particular ways in which people start and build ventures can change the probabilities themselves. The eradication of diseases such as smallpox offer an easy example of this. While science can get to the causes of a disease, public health actions can change the event space of the occurrence of the disease in the first place. This is even more true in the case of human rights. By simply choosing to act differently, human action can change the event space for inequality, violence, and human suffering, even when all the causes of these may not be fully enumerated and the consequences of particular policy measures may still be uncertain. This can happen intentionally, such as through the conscious use of possibilistic thinking to solve grand challenges as posited in Grimes and Vogus (2021), or by simply doing the doable through effectual action (Sarasvathy, Dew, Read, & Wiltbank, 2008). New worlds and new futures that are not predictable can be formed and fabricated through what people do. It is in this sense that even-if offers a logical basis for effectual entrepreneurship.

Even-If: A Logical Basis for Effectual Entrepreneurship

The five principles of effectuation (Alsos, Clausen, Hytti, & Solvoll, 2016; Read, Sarasvathy, Dew, & Wiltbank, 2016; Read, Song, & Smit, 2009; Sarasvathy, 2009) can be restated in even-if terms:

1. Bird-in-hand: Even if you don't have a brilliant idea for a new venture or even if you are unclear about what venture to start, you can use your bird-in-hand to come up with something doable and worth doing.
2. Affordable loss: Even if you don't have money or other resources required to build a venture, you can invest no more than you can afford to lose (and that could be 0) to get started on a venture.
3. Crazy quilt: Even if your network does not include people of wealth or power or influence, you can expand your network through self-selected stakeholders, simply by going out and asking anyone and everyone you can reach out to.
4. Lemonade: Even if life throws unpleasant surprises at you, you can transform them into opportunities by acting on them with your stakeholders.
5. Pilot-in-the-plane: Even if it is not clear where you are headed or what the future will bring, you can co-create worthwhile new futures by coopting fellow-passengers into copilots and understanding that the future is endogenous to human action.

Not only can the principles of effectuation be reformulated in even-if terms, but they can also then be mapped onto performance and outcome variables at every level of analysis as follows.

Even if not-A, B is worth it

At the level of individual entrepreneurs and firms, this offers upside evaluative criteria other than probability of success. For example: Even if the probability of success is low, the venture is worth building; or becoming an entrepreneur

is worthwhile, even if I am not yet clear which venture to begin building. Especially if I can invest no more than I can afford to lose. This also allows people, firms, and society as a whole to take on wicked problems such as climate change and poverty, the “grand challenges” that Grimes and Vogus (2021), in this triplex, argue are within the reach of entrepreneurial action. Garud and Gehman (2012, p. 985) explain this as part of a durational perspective on the intertemporal nature of sustainability problems. The durational perspective highlights the fact that the difficult-to-predict needs of the future have to be reconciled with the more salient needs of the present. In other words, it is impossible to predict ex-ante what the probability of success of any action to combat a wicked problem such as climate change would be. However, the urgency and importance of tackling them is often not in doubt. Hence some form of effectual action based on an even-if logic can be particularly useful in tackling wicked problems (Nelson & Lima, 2020; Sarasvathy & Ramesh, 2019).

We can deliver B, even if A does not occur

An individual-level example is serial entrepreneurship, the realization that the success-or-failure of a venture is not the same as success-or-failure of entrepreneurs. Entrepreneurs can devise affordable loss strategies that allow them to start multiple ventures so they can increase the odds of their success as entrepreneurs even if the probability of failure of any given venture they start is high. Alternately, they can become hybrid entrepreneurs, starting ventures while still in a wage job (Folta et al., 2010). Firms too can invest in corporate entrepreneurship of one kind or another, taking options in possible new ideas that might otherwise invade their market leadership (Karimi & Walter, 2016; Zahra & Covin, 1995) or allowing employees to work on projects that are personally valuable irrespective of current strategic fit with the firm (Garud, Gehman, & Kumaraswamy, 2011). And communities can adopt ways to encourage developmental efforts that leverage local resources, however meager and mundane, in addition to try and lure outside investment

(Lumpkin, Bacq, & Pidduck, 2018; Selsky & Smith, 1994).

Not-not-A does not equal A

Or, the event space is larger than A and not-A. Not only outcomes, but the event space itself is endogenous to action. This means genuine novelty is possible, even in a world in which reality is subject to the laws of physics. In fact, genuine indeterminacy is part of physical reality. In philosophical terms, this is an affirmation of Nelson Goodman's (1983) exhortation: “*We have come to think of the actual world as one among many possible worlds. We need to repaint that picture. All possible worlds lie within the actual one.*” Individuals and firms and societies can put this openness to work in a variety of ways. They can engage in the co-creation, not only of new ways to achieve old ends but also to create new ends worth achieving.

Even-If: Event Spaces Endogenous to Intersubjective Agency

Notice that in each of the above three cases, even-if thinking loosens the taken-for-granted relationships between cause and effect. Empirical evidence for this can be found in laboratory studies of even-if under the rubric “semifactual thinking” (McCloy & Byrne, 2002; Santamaría, Espino, & Byrne, 2005). As I mentioned earlier, semifactual thinking uses a past-focused formulation of even-if situated in extant environments. In this essay and in the literature on effectuation, even-if is future-focused, formulated in terms of co-creating new futures and new worlds.

Even-if is particularly useful when there are good predictions at one end of the event space but incalculable uncertainty at the other end. This, by definition is an open-ended event space. As already alluded to earlier, entrepreneurs can see the plunge decision in the following way: *If I start a venture, I don't know whether I will succeed or not. But if I don't start a venture, I am sure not to succeed as an entrepreneur.* Almost all endeavors worth pursuing in human history have had this characteristically unbounded event

space anchored in the certainty of the status quo: women's rights, human rights, disarmament, cures for diseases, renewable energy, etc. Furthermore, entrepreneurship, working with science, has concurrently embodied these new ends in physical and social artifacts such as the iPhone and microfinance.

An effectual implementation of even-if emphasizes the role of self-selected stakeholders in opening up and co-creating event spaces. It is customary to think about action either as individual action or as social action. For example, scholars have often reduced effectual action to the bird-in-hand principle without discussing either the crazy quilt (stakeholder self-selection) or the pilot-in-the-plane (co-creation) principles, or worse still equating effectuation to experimentation. For example, Grimes and Vogus (2021) in this triplex do the same. But real agency and creativity often evince from and occur through interactions between two or just a few individuals – through conversation, negotiation, conflict resolution, deal making, and the intimacies of shared experience (Sarasvathy & Dew, 2005). A detailed examination of lived experiences of effectual entrepreneurs shows that a variety of transformational mechanisms arise and operate through intersubjective interactions that propel history (Dew, Read, Sarasvathy, & Wiltbank, 2011):

- Seeing value in mundane things, even trash
- Formulating new ends worth achieving
- Fabricating new uses for extant resources
- Forging friendships in failing together
- Transforming misfortunes into opportunities
- Persuading without promising upsides
- Mixing and matching risk appetites
- Coopting passengers to become copilots

When we integrate even-if philosophy with effectual action and interaction, we begin to patch together an interesting picture of worldmaking that incorporates imagination and possibilistic thinking as routine aspects of human aspirations and achievements. It is easy to fall into a view of

the achievements of entrepreneurs such as Steve Jobs or Jack Ma as works of extraordinary imagination or acts of swashbuckling heroism. But an even-if approach to effectual actions and interactions argues for the extraordinary possibilities of ordinary imagination, a facility available to all of us, at all times. William Blake, extensively examined in Chiles, Crawford, and Elias (2021), expresses this inextricable link between the mundane and the profound, the Goodmanian existence of extraordinary possibilities within ordinary reality as follows:

And every Space that a Man views around
his dwelling place

Standing on his own roof or on his garden
on a mount

Of Twenty-five cubits in height, such space
in his Universe;

. . .

And if he move his dwelling place, his
heavens also move

Where'er he goes & all his neighbors
bewail his loss.

Selections from 'Milton' [The Heavens and
the Earth] f. 28, ll. 4–16

Even-If and The Entrepreneurial Method

I would like to end with relating the discussion above to the idea that entrepreneurship is a method *a la* the scientific method. And at the same time, emphasize that effectuation is *not* experimentation. In science, we tend to hypothesize relationships between cause and effect in phenomena and test them based on objective data from the real world. This type of hypothesizing can also be helpful in entrepreneurship, but only with regard to predictable aspects of reality. Entrepreneurship, however, is primarily a method to deal with the unpredictable, the fundamentally unknowable. Faced with such uncertainty, hypothesizing and hoping an objective external world to validate or falsify

claims is not a useful strategy. It definitely is not the only strategy available to us. The entrepreneurial method, therefore, calls for even-if strategies and actions that help co-create new worlds and new futures. The purpose here is to look for ways to reify as well as falsify hypotheses; to codetermine what is worth reifying and what needs to be falsified, and then, not only to check whether our surmises correspond with extant reality, but also to remake reality to correspond with the surmises we seek to reify. To leave out even-if from our toolkit, whether in research or practice, is therefore an act of folly, negligence, and bathos that we cannot afford to overlook.

Acknowledgements

The author would like to thank Associate Editor Joel Gehman and Editor Joep Cornelissen for their comments and suggestions, as well as Anil Menon and Shabnam Mousavi for conversations that clarified ideas in this submission.

Declaration of conflicting interests

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author disclosed that no financial support was received for the research, authorship, and/or publication of this article; however the author would like to thank the Batten Institute at University of Virginia's Darden School of Business for continued research support.

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