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POINT COUNTERPOINT

Path Dependence or Path Creation?

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ABSTRACT We discuss the assumptions that underlie path dependence, as defined by Vergne and Durand, and then provide the outlines of an alternative perspective which we label as path creation. Path creation entertains a notion of agency that is distributed and emergent through relational processes that constitute phenomena. Viewed from this perspective, 'initial conditions' are not given, 'contingencies' are emergent contexts for action, 'self-reinforcing mechanisms' are strategically manipulated, and 'lock-in' is but a temporary stabilization of paths in-the-making. We develop these points using a narrative approach and highlight the theoretical and methodological implications of our perspective.

INTRODUCTION

There is continuing scholarly interest in the constitution of paths driven by structurational processes wherein structure is both medium and outcome of practices (Giddens, 1984). Of particular interest is the notion of path dependence as evidenced in Vergne and Durand's Point–Counterpoint in this journal (Vergne and Durand, 2010) and also a recent article in the *Academy of Management Review* (Sydow et al., 2009). Path dependence refers to complex processes that are non-ergodic, i.e. those processes that are 'unable to shake free of their history' (David, 2001, p. 19).

In this paper, we comment on Vergne and Durand's discussion of: (1) the utility of path dependence; and (2) the methodological implications of such a perspective for research. Our reading of Vergne and Durand's discussion suggests that, from a path dependence perspective, actors become 'locked in' by self-reinforcing mechanisms into paths whose evolution is determined by contingencies (chance events). Once locked in, actors cannot break out unless exogenous shocks occur.

Such a perspective is built around an understanding of phenomena as being 'complex', i.e. driven by mutually interacting variables that generate feedback loops and non-linear dynamics (Maruyama, 1963; Masuch, 1985; Senge, 1990; Stacey, 2001). Given its emphasis on contingencies and exogenous shocks, this perspective embraces an

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'outsider's' ontology – i.e. a de-contextualized comparative approach to viewing and evaluating phenomena (Harris, 1979; Kahneman and Lovallo, 1993; Pike, 1967). The perspective may suit managers and administrators who do not have the wherewithal to actively and fully engage with phenomena. Consequently, those who adopt such a perspective may end up not cultivating the generative forces required to initiate and then sustain an initiative.

There is another perspective that embraces complexity from an 'insider's' ontology – i.e. a culturally embedded, scenario-based approach to experiencing phenomena (Harris, 1979; Kahneman and Lovallo, 1993; Pike, 1967). An example of such a perspective can be found in concepts such as the 'entrepreneurial mindset' (McGrath and MacMillan, 2000) wherein actors are driven by 'a logic of control' to effectuate through complex processes (Sarasvathy, 2001). In this perspective, agency is full blown and located in individuals. Potentially, such a perspective may also lead to an escalation of commitment to a failing course of action (Staw, 1976) and create what Dosi and Lovallo (1997) have labelled as 'optimistic martyrs' with an illusion of control.

In contrast to such fatalistic or heroic notions of agency, we offer an alternative perspective. In this perspective, we conceptualize agency as being distributed and emergent through the interactions of actors and artefacts that constitute action nets (Czarniawska, 2008). We label this perspective as path creation (see Garud and Karnøe, 2001). Before explicating this perspective, we first provide a summary statement of Vergne and Durand's paper and why we do not subscribe to the notion of agency that is implicit in this articulation. Next, we contrast our perspective against the path dependence perspective along the critical dimensions that Vergne and Durand have employed. In conclusion, we suggest theoretical and methodological implications of our perspective.

PATH DEPENDENCE AND ITS APPLICATION

David (2001) defines a path dependent process to be one whose asymptotic distribution evolves as a consequence (function of) the process's own history. Reviewing the literature on path dependence, and specifically its use in the management literature, Vergne and Durand note how management scholars use the term loosely and point out that many phenomena such as absorptive capacity, institutional persistence, and resource accumulation (see their table 1) need not invoke the concept of path dependence at all. To salvage the utility of the concept of path dependence, the authors propose a stricter definition and appropriate techniques to test it.

We applaud the authors for trying to define path dependence more precisely. Yet, despite past clarifications (e.g. David, 2001), we note how scholars have continued to use the path dependence concept in different ways (see for instance, Sydow et al., 2009). It seems that 'contingency' and 'self-reinforcing mechanisms', two of the central concepts used by the authors to define path dependent processes, have been shaping the very use (or misuse) of this concept over time.

A consequence of such interpretative flexibility (Pinch and Bijker, 1987), according to Vergne and Durand, is that 'the same mechanism – path dependence – could explain

either the persistence of existing (and possibly inefficient) institutions, or the creation of new ones'. Although we do not embrace a path dependence perspective, we see no problems with others using path dependence to explain both the persistence of an existing institution as well as the creation of new ones (see Dosi, 1982), for instance). This appears to be a problem only to the extent that continuity and change cannot be understood as processes driven by similar dynamics.

The authors also note that several researchers (including ourselves): '. . . reject the idea that novel paths emerge serendipitously, that is, they deny the role of accidental events in path origination to focus instead on human agency'. We do not deny the role of emergent outcomes (what the authors have called 'contingency') that then serve as medium for ongoing actions (Giddens, 1984). But, our position is different from the one adopted by Vergne and Durand, who separate process from outcome. Given a structurational process, our interests lie in exploring how embedded actors attempt to shape and navigate their ways through (or out of) such processes, knowing that other actors are attempting to do the same.

For us, these dynamics constitute path creation processes (Garud and Karnøe, 2001). We conceptualize agency as an emergent property of a dynamic process (Tsoukas and Chia, 2002) involving a web of heterogeneous elements that reconfigures in action (Callon, 1991; Czarniawska, 2008; Karnøe and Buchhorn, 2008) as actors probe their worlds to find out how they may unfold (Boland and Collopy, 2004; Pandza and Thorpe, 2009). With such an orientation, one can gain some degree of self-efficacy (Bandura, 1994) to enact (Weick, 1979), improvise (Baker et al., 2003; Weick, 1998) and bricolage (Baker and Nelson, 2005; Garud and Karnøe, 2003). All these elements are involved as actors engage with one another and with the artefacts that they work with to translate 'emergent ideas into action' and 'emergent actions into ideas' (Brunson, 1982). From our perspective, serendipity need not be random, but, instead, can be cultivated (Garud et al., 1997). Equally importantly, our perspective acknowledges the active roles that actors play in making something out of what they 'stumble upon' (as in the case of 3M's Spence Silver and the 'glue that did not glue' that then emerged as Post-it Notes). That is, actors can generate functionality and meaning around what they come across, which may then be attributed to luck.

CONSTITUENT ELEMENTS OF PATH DEPENDENCE

Vergne and Durand offer a set of conditions, which, if met, would determine whether a particular process is path dependent or not. Key among these are: (1) very weak initial conditions; (2) 'contingent' or chance events, defined as being 'unpredictable, non-purposive and somewhat random'; (3) self-reinforcing mechanisms; and (4) lock-in, absent exogenous shocks to the system. Although these conditions have been offered by the authors to improve conceptual clarity, they raise several questions and issues that we discuss below.

On Initial Conditions

For Vergne and Durand, initial conditions must be very weak for a process to be considered path dependent. The authors impose this condition because they want to

distinguish between processes that are deterministic and highly sensitive to initial conditions, and stochastic processes that can be labelled as being path dependent. However, for us, this specification raises a critical issue because the starting point of a path is not given. First, the past, present and the future are intertwined, with actors playing an active role in determining what portions of the past they would like to mobilize in support of their imagined futures (Bartel and Garud, 2009; Mouritsen and Dechow, 2001; Ricoeur, 1984; Van Lente and Rip, 1998). Indeed, it is this temporal flexibility that generates agency (Emirbayer and Mische, 1998). For instance, March (1999) noted that actors can choose the time frames with which to explore their future as well as to exploit what they have learned from the past. Second, because different actors in an unfolding journey will have different priors and different future expectations (Lachmann, 1986), they may have different starting points in experiencing and describing the journey that they are part of. Third, as the journey unfolds, emergent events will generate (for actors) new connections to the past and to new imagined futures (Mead, 1932). Viewed from this perspective, initial conditions are not given, but flexibly defined and constructed through negotiations by actors.

On Contingency

Vergne and Durand define 'contingency' as an event that is 'unpredictable, non-purposive, and somewhat random'. Such a notion of 'contingency' appears different from those offered by early proponents of path dependence. For instance, Arthur (1988, p. 118) wrote:

> To complete this model, I want to define carefully what I mean by 'chance' or 'historical events'. Were we to have infinitely detailed prior knowledge of events and circumstances that might affect technology choices – political interests, the prior experience of developers, timing of contracts, decisions at key meetings – the outcome or adoption market-share gained by each technology would presumably be determinable in advance. We can conclude that our limited discerning power, or more precisely the limited discerning power of an implicit observer, may cause indeterminacy of outcome. I therefore define 'historical small events' to be those events or conditions that are outside the ex-ante knowledge of the observer – beyond the resolving power of his 'model' or abstraction of the situation.

For Arthur, then, chance or historical events have more to do with actors' inability to predict than with non-purposiveness. David (2001) too noted that the term 'historical accidents' has been misunderstood widely to mean irrational or arbitrary actions on the part of actors making choices. Paraphrasing Gould (1989), David (2001, p. 35, endnote 4) explains that historical contingency implies that a particular state has been reached only because certain states had occurred earlier. If these prior states had not occurred or had occurred differently, the current state would not have been reached. Here, again, the notion of historical contingency has more to do with non-ergodicity than with non-purposiveness or 'somewhat' randomness.

To illustrate their notion of 'contingency' in organizational life, Vergne and Durand cite Kenney and von Burg (2001, pp. 137–8) who describe the 'good fortune at play in luring [William] Shockley back to Palo Alto' in the early 1950s. It is not clear to us why this is a 'contingency' (as defined by the authors) and, if it is, from whose perspective. Arguably, Shockley went to California because he could not find pliant investors on the East Coast for his new venture, despite several attempts. Frederick Terman, who 'lured' Shockley back to Palo Alto, was 'more committed than ever to establish an electronics industry in the Stanford vicinity' (p. 137). Clearly, Shockley and Terman were being purposive in their actions. Indeed, innovation paths are full of such 'good fortune' and, from our perspective, sustaining innovation is not about blind luck but about 'cultivating' such good fortune (Garud et al., 1997).

Later, the authors build upon work by De Rond and Thiétart (2007) to note: 'Pfizer was lucky enough both to remark that antihypertensive drugs had side effects on male erection and to seize the opportunity to pursue a new research path following a contingent discovery'. The authors offer this as an illustration of the kind of phenomena that potentially may represent path dependence. Were people at Pfizer 'lucky' or were they 'smart' in looking for side effects and then identifying one that led to Viagra's development? Depending on how one interprets the sequence of events and answers this question, Pfizer's 'discovery' could be a 'path dependent' event or not.

The larger point is that it is impossible to determine from the outside whether or not actors acted in a non-purposive manner as a path unfolds, except perhaps when events involve indisputable 'acts of God'. To complicate matters, according to David (2001), a 'systems thinker' may be able to take a long-term view and visualize that systemic ups and downs are bound to occur during a journey. Consequently, for such a 'systems thinker', many events that occur during a journey would appear to be endogenous rather than 'somewhat random'. But, an outsider would not know whether or not any outcome was obtained as a result of: (1) systems thinking on the part of the actors involved; (2) because actors were able to improvise and bricolage their ways through an emergent process; or (3) simply because of blind luck or a random event. Trying to parse out these distinctions is impossible, and, hence our difficulty in applying the 'contingency' test proposed by the authors.

We do not deny that there will be emergent situations that are both the outcomes and medium of actions (Giddens, 1984). Nonetheless, why restrict such emergent situations only to a class of events that are non-purposive and somewhat random? This restriction only seems to make sense if we assume that actors operate with a fixed set of priors and therefore are surprised by emergent events and then passively accept these events as their fate. We do not subscribe to such a view. Embedded actors know only too well that the future will be different from the ones they had envisioned at the beginning of their journeys (Lachmann, 1986) and, as a result, they have to be prepared to improvise or bricolage their ways through such emergent situations (see Brown (1997) for what it means to see through a fog of reality). Consequently, as Tsoukas has observed, 'One needs to learn to live with such ignorance and try instead to enhance agents' capabilities for undertaking effective action in ever-changing circumstances' (Tsoukas, 2008, p. 196). In this regard, David (2001, p. 29) too wrote about 'incremental path-constrained

meliorating actions' that actors might take even as a process unfolds instead of waiting passively for equilibrium to appear. If this is what the authors mean by 'contingency' (instead of non-purposive and somewhat random events), then we have some common ground.

On Self-Reinforcing Mechanisms

Vergne and Durand write: 'Once a path has been contingently selected, various mechanisms can lead to its self-reinforcement, such as positive network externalities or increasing returns (e.g. to scale, to scope, to learning). For example, QWERTY keyboard production becomes more and more profitable as production scale increases, because fixed costs are distributed across a larger number of units.' We too acknowledge the importance of self-reinforcing mechanisms in shaping emerging paths. However, the QWERTY account as portrayed above seems to suggest that such mechanisms are structural or exogenously given. From our perspective, however, actors may engage in a variety of purposive actions to initiate and then endogenously sustain a bandwagon instead of waiting for exogenous reinforcing mechanisms to kick in. They may make pre-amplifying investments to shape learning behaviours, or engender network effects by offering incentives or by entering into alliances with complementors and even rivals (see McGrath, 1997). For instance, Garud et al. (2002) describe how Sun Microsystems tried to sponsor its Java technology by purposively setting in motion several reinforcing mechanisms. As these reinforcing mechanisms can generate structurational processes (Giddens, 1984), actors have to be ever vigilant to change their strategies as these processes unfold, just as Microsoft did when it first publicly ignored Sun's Java and then embraced it to 'poison' it.

On Lock-In

Vergne and Durand define lock-in thus: 'When a process possesses the property of path dependence, then lock-in will occur on one of the possible outcomes if no exogenous shock disturbs the system. . . . Because paths are selected contingently, lock-in can happen on any path, i.e. not necessarily on the optimal one.'[1]

Lock in is an important concept that is manifest in situations where actors are unable to move to a new state despite all involved preferring to do so (what has been called as a 'penguin effect' in economics – Katz and Shapiro, 1985). Such a situation may arise because of free-riding (Olson, 1965), lack of coordination (Schelling, 1978), or systemic diachronies (Senge, 1990). In such cases, outsiders (e.g. policy makers) can intervene to 'steer' (Kemp et al., 2001) these processes out of lock-in.

Vergne and Durand's focus on contingencies and exogenous shocks draws attention to a different set of issues. Specifically, their focus on contingencies and exogenous shocks seems to suggest that we are but creatures buffeted by a series of 'unpredictable, non-purposive and somewhat random' events, resigned to being locked-in through self-reinforcing mechanisms that we have no control over and then waiting again for some exogenous event or shock to escape lock-in. In other words, there is no viable notion of agency afforded to actors by this perspective.

From our perspective, however, actors who are involved in complex paths in-the-making need not be so helpless. For instance, those who fear being caught up in vicious circles can, ex-ante, put in place 'discrediting' mechanisms (Weick, 1979) that offer checks and balances so that the system does not veer off in unproductive directions. For instance, Infosys, a company that has transformed itself continually to keep up with its changing environment, has put into place several discrediting mechanisms that serve to sense new trends and to challenge entrenched beliefs (Garud, Kumaraswamy and Sambamurthy, 2006).

Moreover, what is endogenous and what is exogenous is not given. Rather, such a demarcation depends on how actors define their boundaries at various points in time. So, what an outsider or researcher may consider to be an exogenous shock may be an activity that has been cultivated actively by the actors involved. For instance, just as firms invite consultants or turnaround experts as advisors in crisis situations, actors can invite outsiders to become part of the process, thereby changing its fundamental constitutive dynamics.

Equally important, the concept of lock-in is critically dependent upon the time frame one considers. As Vergne and Durand themselves note, VHS is bound to be replaced by another recording system and QWERTY keyboards by other technologies such as voice recognition systems in the long run. They also concede that the very notion of what is 'long run' can be subjective. Under these circumstances, how does one determine whether a specific state along a path is just transitory or whether lock-in (optimal or sub-optimal) has indeed occurred? Also, when would an event be considered just a 'contingency' and when would it constitute an 'exogenous shock'? If a 'contingent' event is not very different from an 'exogenous shock', would lock-in ever occur at all?

EMPIRICAL ISSUES IN 'TESTING' PATH DEPENDENCE

Based on their definition of path dependence, Vergne and Durand highlight the futility of using case studies as the basis for studying such processes. According to the authors, the flexibility associated with the interpretation of the facts in a case study makes it virtually impossible to conclude whether a path was selected 'contingently', whether it has attained lock-in, and whether or not an event that helped a system escape lock-in was exogenous.[2] Therefore, Vergne and Durand suggest that only simulation, experiments, and counterfactual models are appropriate to study or 'test' path dependence.

We realize the utility of these methodologies, especially to explore various policy alternatives and to arrive at social welfare implications. But, given the authors' definition of path dependence, we fail to see how these methodologies may be any more useful than case studies to 'test' path dependence. First, even in these 'imagined worlds', whether or not a phenomenon is path dependent would be based on the choices that an observer or researcher makes (Dooley and Van de Ven (1999) make this point in their simulation of complex processes). For instance, the researcher can choose which initial conditions and time frames to consider, what mechanisms generate 'contingencies' and reinforcement, what 'amounts' of contingencies and reinforcement are applicable, and what qualifies as an exogenous shock. Are not these choices too likely to be as subjective as the interpretations made in a case study? Moreover, even if one were to show that some process is

path independent in these imagined worlds, there is always the possibility of some real world contingencies and exogenous shocks that cannot be simulated in the imagined worlds intruding on the process. So, a process considered to be path independent in a simulated world may turn out to be a path dependent process (in the authors' terms) in the real world.

Second, the authors write that 'Simulations can help assess the probability of path dependence given a set of initial conditions, a certain amount of contingency, and the nature of self-reinforcement, thereby providing scholars with estimates of the probable frequency of path dependence in organizational life.' Suppose a researcher or policy maker uses simulations to determine that a process has a high probability of being path dependent or that the probable frequency of path dependence is high (or low) in a given situation. It is not clear what this information implies for actors involved, especially given that purposiveness has been defined away. Also, it is not clear how the researcher or policy maker (i.e. an outsider) can use this information to decide on the timing and type of intervention (i.e. exogenous shock) that may be required in a specific case.

Finally, Vergne and Durand write: 'Based on the previous sections, we argue that the theoretical substance of path dependence would more readily apply to situations where: (1) the complexity of the observed system can be circumscribed to a small and finite amount of properties; (2) the contingency hypothesis is not used as a patch for lacking data but is a credible assumption; and (3) the long run equilibrium is not defined ex post.' Clearly, these are parameters for an imagined world of simulations and experiments. But, they may not be the parameters on which the real world operates. However much we may distil the world to a finite set of variables and attempt to simulate it, the real world is full of buzzing and blooming set of variables and unanticipated interactions among these variables. Real-world actors who close their minds to such complexity may more likely fall victims to undesirable lock-in (see Brown, 1997; Miller, 1993). It is for this reason that Weick (1979) suggested that we may need to 'complexify' ourselves (see also Tsoukas, 2008).

At a broader level, we too are interested in exploring imagined worlds, but as essential mechanisms that stimulate actions. In this regard, we are influenced by Weick's (1995, p. 55) observation that 'any old map will do' – i.e. a plan serves as a stimulus for action (see also Cornelissen (2005) and Cornelissen et al. (2008) for related work on metaphors and analogies as the bases for stimulating imagination and action). Actors may organize themselves and develop identities in ways that confer capacities to imagine and anticipate future states and mobilize the past to accomplish their objectives (March, 1999). This is a very different notion of agency from the one implied by the perspective adopted by Vergne and Durand in their paper.

In sum, we still are not clear as to how an imagined world of simulations, lab experiments, and counterfactuals can 'test' whether or not processes in the real world are path dependent (as defined by the authors) any better or more 'objectively' than case studies or narratives. It would help the readers if the authors were to: (1) provide a real-life example of a path dependent process; (2) demonstrate how to identify relevant parameters in simulations or experiments to test the path dependent nature of this process; and (3) explain how insights and lessons derived from such a test may be applied by organizational scholars or managers.

PATH CREATION: AN ALTERNATIVE PERSPECTIVE

Throughout this commentary, we have alluded to a position on agency that is different from the one implicated in the path dependence perspective. Our position builds upon Stacey's (2007) critique of processes associated with complex adaptive systems. Driving these processes are mechanisms that are very similar to those that generate path dependence – imprinting effects of initial conditions, exogenous contingencies, and self-reinforcing loops that lock actors into paths. According to Stacey, such processes are described from an outsider's ontology. Within such a perspective, the past intrudes into the present as a constraining force, contingencies that arise are experienced as unanticipated unprepared moments, and the future presents itself as a fundamentally uncertain terrain. There is little room within this 'science of complexity' to incorporate the reflexivity of the actors involved (Schon, 1983). This weakness is particularly evident during phase shifts when the parameters of engagement themselves change. In sum, the complex adaptive systems perspective – and path dependence, by association – serves to rob actors of any agency, as they find themselves pushed and pulled from one state to another.

To generate a theory of emergence, Stacey suggests that we need to incorporate how actors themselves experience and enact emergent complex processes through discussions, debate, and experimentation, rejecting even the notion of a 'system' as this implies a closed boundary. In addition, Callon (2007) suggests that actors and artefacts that become implicated in complex processes do not participate as inert entities that simply combine and recombine based on some master programme. Instead, agency is an emergent attribute – a capacity to do certain things and not others – based on the specific socio-material entanglements that ensue. Also, uncertainty continues to be inherent in the process, as any framing generates externalities that then trigger new socio-material entanglements (Callon, 1998; Garud and Karnøe, 2005).

In addition to relational elements, agency also implicates temporal elements (Tsoukas and Hatch, 2001). For instance, given the asynchronies and diachronies inherent in any complex process, temporal agency is manifest in actors sensing appropriate moments to wait or strike to realize options value (Garud et al., 1998). Such temporal agency allows actors to cultivate serendipity (Garud et al., 1997), as epitomized in Pasteur's dictum that 'fortune favours the prepared mind'.

Going one step further, it would be impossible to understand this notion of agency without considering actors' aspirations for the future, sensemaking of the past, and conceptualizations of what is transpiring in the present. These three 'moments' are inextricably intertwined (Mead, 1932; Ricoeur, 1984). For instance, certain memories of the past may spawn certain processes in the present and certain aspirations for the future. More provocatively, future visions can just as easily shape emerging processes (Brown et al., 2000; Van Lente and Rip, 1998). Specifically, different visions of the future will lead to the mobilization of the past in different ways. And, these images of the future and mobilizations of the past will galvanize specific actions in the present.

All of this implies a narrative approach. Many researchers dismiss narratives as being stories or case studies that do not possess the stamp of scientific rationality. However, as several scholars have argued (Bruner, 1986; Czarniawska, 1998), narratives are

fundamental mechanisms for the dynamic patterning of actors and artefacts. Indeed, narratives serve as a short form for a certain ontology, epistemology, and axiology. For instance, the identities of actors emerge as they emplot themselves into emerging narratives: 'This is what I/we tried to do.' 'This is what I/we want to do.' People communicate and connect with one another using ante-narratives: 'What is this all about?' (Boje, 2001). In the process, actors make sense of emerging situations (Weick, 1979) given their aspirations and their memories (Ricoeur, 1984). The meanings that emerge, provisional as they may be, serve as the motors driving human agency.

There are many examples of narratives being used to enact organizational processes. For instance, Denning (2001) has written how he has used narratives as springboards for action at the World Bank. Brown et al. (2000) describe how storytelling is transforming organizations. Shaw et al. (1998, p. 42) note in their account of strategic planning at 3M: 'Stories are a habit of mind at 3M, and it's through them – through the way they make us see ourselves and our business operations in complex, multi-dimensional forms – that we're able to discover opportunities for strategic change.'

These are the constitutive elements of our path creation perspective. In Table I, we highlight the differences between our perspective and the path dependence perspective as articulated by Vergne and Durand. Consider the main elements – initial conditions, contingencies and exogenous shocks, self reinforcing mechanisms and lock in. From our perspective, initial conditions are not given, but rather constructed by actors who mobilize specific sets of events from the past in pursuit of their initiatives. Similarly, what is exogenous and what is endogenous is not given, but instead depends on how actors draw and redraw their boundaries. Emergent situations are not 'contingencies', but instead afford embedded actors the possibilities to pursue certain courses of action while making others more difficult to pursue. Self reinforcing mechanisms do not just exist, but instead are cultivated. Rather than lock-in, there is ever the possibility of creative destruction (Schumpeter, 1934), with those who have most to lose proactively making their own creations obsolete to survive.

Some may like to think that path dependence and path creation are complements of each other and that any process is driven by a mix of the two (e.g. Sydow et al., 2009).

Table I. Path dependence vs. path creation

Dimensions	*Path dependence*[a]	*Path creation*
'Initial conditions'	Given	Constructed
'Contingencies'	Exogenous and manifest as unpredictable, non-purposive, and somewhat random events	Emergent and serving as embedded contexts for ongoing action
'Self-reinforcing mechanisms'	Given	Also strategically manipulated by actors
'Lock-in'	Stickiness to a path or outcome absent exogenous shocks to the system	Provisional stabilizations within a broader structurational process

[a] As defined by Vergne and Durand.

To us, this is mixing ontologies. Path dependence has its place – for managers and administrators who may not have the time or wherewithal to fully engage with processes and yet want to seed their emergence or intervene if they perceive that the process has locked into a vicious circle. Path creation also has its place – for involved actors who attempt to shape an unfolding process in real-time, knowing that no one can fully determine the emergent ecology of socio-material entanglements. Accordingly, our commentary is meta-theoretical. We respect the position of those who subscribe to a path dependence perspective but, at the same time, we offer an alternative perspective to explore and understand emergent phenomena.

IMPLICATIONS

Theoretically, our path creation perspective is based on a relational ontology that sees agency as part of unfolding action nets that emerge around issues and events (Czarniawska, 2008; Tsoukas, 2008). In action nets, agency is not uniformly distributed because any actor's capacity to formulate options and visions depends on their specific socio-material entanglements (Ocasio, 1997). Actors who become entangled in these action nets can modulate their spheres of interactions with other actors and artefacts, knowing that they can only attempt to influence (but not determine) the processes that unfold (Garud and Karnøe, 2001).

In addition, path creation implicates all three moments of time – the past (as in the use of the term 'path'), the future (as in the use of the term 'creation'), and the present (as in the conjunction of the two terms). Actors mobilize the past not necessarily to repeat or avoid what happened, but, instead, to generate new options. Likewise, people imagine new initiatives for the future which then lead them to mobilize the past in support. These retrospective and prospective memories are not the accomplishments of individuals acting on their own, but instead, memories that emerge through discussions and dialogue with others in real time.

In such processes, both discovery and creation (see Alvarez and Barney, 2007; Shane and Venkataraman, 2000) are involved, not as balancing acts, but as mutually constitutive elements that are shaped but not determined by any individual actor. In hindsight, we may call what emerged as a 'path', ascribe its emergence to 'contingencies' and trace its origins to specific 'initial conditions'. But, this could as well be a narrative re-description, a powerful rhetorical effort.

Methodologically, our path creation perspective suggests that it is important for a researcher to study processes in 'real time', i.e. place oneself at the time that events occurred even if one were looking at data gathered in the past (Bijker et al., 1987; Porac, 1997). Otherwise, it would be tempting to think of any sequence of events (retrospectively labelled as a path) as having been inevitable. It is equally important for a researcher to 'follow the actors' to study how actions become possible through entanglements (Callon, 1986; Latour, 1991). This becomes difficult when we consider that agency is a distributed property, but we can take inspiration from Hutchins (1995), who used a number of distributed recording instruments to capture in real time what was happening aboard a ship as it sailed into harbour. Going even further, it would be productive to use real time notes made by the actors themselves. New digital technologies such as Wikipedia leave

a trace of interactions in use making such distributed record-taking all the more possible. What would people report in their real-time notes? Consistent with a narrative approach (Bartel and Garud, 2009; Czarniawska, 1998), they would report retrospective, prospective and real time narratives that contain both surface level details and the underlying (emerging) plots that gives meaning to their narratives.

CONCLUSION

Our path creation perspective affords a view of agency that is different from the one implicated in the path dependence perspective. Not surprisingly, our choice of a path creation perspective has led us to a different set of issues and constructs with which to navigate the world from the ones that Vergne and Durand's article proposes. Indeed, if theoretical perspectives in the social sciences are performative, it would be interesting to explore how actors behave as they embrace one or the other perspective.

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NOTES

[1] On this much-critiqued point of lock-in into sub-optimal outcomes, David (2001, pp. 21–22) noted that '(an) obsession with the specter of inefficiency was not what motivated me to inject the notion of path dependence into wide economic discourse, or to associate it with the application of insights from formal models of non-ergodic stochastic processes'.

[2] It is interesting that the authors offer examples of potentially path dependent processes by quoting interpretations abstracted from several case accounts, even as they point out that case studies cannot be used to study or 'test' path dependence. They note, however, that these examples, abstracted from case studies, do not constitute indisputable evidence of path dependence.

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