RESEARCH NOTES AND COMMENTARIES

RESPONSE TO FARJOUN'S 'STRATEGY MAKING, NOVELTY, AND ANALOGICAL REASONING — COMMENTARY ON GAVETTI, LEVINTHAL, AND RIVKIN (2005)'

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In his thoughtful commentary on our 2005 paper (Gavetti, Levinthal, and Rivkin, 2005), Farjoun offers three critiques and extensions. First, he suggests our approach should have explicitly considered a constructionist logic. Second, Farjoun argues that we have neglected the full array of modes of cognition between rational choice and feedback-based adaptive learning and have therefore overstated the role of our focal mode, reasoning by analogy. Third, he highlights some of the contingencies under which the various modes of cognition he identifies are effective. In response, we address each point. We first argue that a constructionist perspective is not alien either to the role of analogical reasoning or to the particular modeling apparatus we have developed. We then suggest that despite the richness of modes of cognition that lie between rational choice and adaptive learning, theorizing about them requires simplification and the identification of underlying categories that classify such modes, which is the approach our paper employs. Finally, we clarify how our paper adopts the contingent logic advocated by Farjoun.

INTRODUCTION

We closed our 2005 article, ‘Strategy Making in Novel and Complex Worlds: The Power of Analogy,’ by noting:

Our hope is that rigorous analysis of cognition will help bridge the chasm between rational, positional perspectives on strategy and behavioral, evolutionary approaches. Understanding how firms identify effective competitive positions requires both perspectives. With the current work, we try to provide some substantiation of that link and a platform on which others can build (Gavetti, Levinthal, and Rivkin 2005: 710).

In that spirit, we appreciate and value Farjoun’s thoughtful contribution in his commentary, ‘Strategy Making, Novelty, and Analogical Reasoning’ (Farjoun, 2008). He offers three basic critiques and extensions of our work.

1. Farjoun proposes that our approach neglects a constructionist point of view in which economic

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actors do not take their contexts as given. He suggests that actors may shape their contexts and that managers may create competitive positions instead of simply discovering them.

2. Farjoun agrees with our central argument that the field has tended to ignore the middle ground of imperfect but intentional rationality; rather, the field has operated in polarized camps of adherents to highly rationalistic approaches to strategy formulation and those who characterize strategy as a highly emergent process driven by local search. Farjoun indicates, however, that we have neglected the full array of rich and nuanced modes of intentional rationality that fall between these two camps. In doing so, Farjoun contends, we have overstated the superiority of the mode that is the focus of our paper—analogue reasoning.

3. Relatedly, Farjoun offers up useful insights regarding these alternative modes of intentional rationality and provides some sense of the contingencies under which each mode is effective.

We reflect on each of these critiques and extensions in turn.

**Strategy as construction**

Farjoun points to an important set of issues when he raises the possibility that actors, to some degree, may create their environments rather than merely identify attractive locales on a fixed payoff surface. We share Farjoun’s interest in the construction of environments and, indeed, are investigating it in ongoing research. However, a constructionist perspective does not strike us as alien either to the role of analogical reasoning or to the particular landscape modeling apparatus that we have employed.

Consider, for instance, the issue of standard-setting that Farjoun quite appropriately offers as an important example of firms acting to shape their environment. The lesson of the historic Beta-VHS ‘war’ of the early years of the VCR industry has loomed large for actors in both consumer electronics industries and in other settings. The lesson that is commonly taken from the demise of the Sony Beta system is this: in settings with network externalities, it can be very attractive to employ an open-systems approach to one’s technology and to sway providers of complements (such as the movie studios that provided prerecorded tapes) to adopt one’s standards. Strategists who believe that their competitive context shares this feature of network externalities are, by reference to the Beta-VHS ‘case,’ inclined to choose an open-systems technology platform and to court complementors fervently. In recent years, this lesson has played a key role in the battle over the format for High Definition DVD players (Yoffie and Slind, 2006)—a battle pitting Sony’s Blu-ray technology and Toshiba’s HD-DVD. In contrast to its strategy in the Beta-VHS war, Sony has been very proactive since the early days of Blu-ray to involve as many complementors as possible, engaging in a high-stakes contest for content from movie studios and licensing the technology to other manufacturers. As Sony Corp. of America’s Senior Vice-President of Strategic Marketing Tim Baxter argued, this war for standard setting is ‘about industry support… [and] that didn’t exist with Betamax. We didn’t have that industry support by any means.’ (Chaffin and Taylor, 2006: 11)

Standard setting is a policy initiative that has the potential to influence the payoff surface for the set of competitors. At the same time, to the extent that a decision to engage in a standard-setting effort is informed by the Beta-VHS case and associated lessons, the cognitive underpinning of this decision is analogical reasoning. Thus, as this example illustrates, analogical reasoning may be very important in environments that are prone to construction.

There is a more subtle, perhaps more fundamental, sense in which analogy is not alien to a constructionist logic. We refer to the cognitive processes through which relevant organizational audiences encode novel organizational forms. These are, in essence, analogical processes of recognition (Gavetti and Warglien, 20081): audiences understand a new form in terms of some familiar form they have encountered in the past. These analogical processes result in the formation of shared interpretive structures for the new form, such as categories and schemas, which offer the basis for the new form’s legitimation (Hannan, Polos, and Carroll, 2007). Once formed, accepted by, and diffused across key audiences, schemas result in a set of benefits for the focal form, such as cheaper resources and increased demand. According to this logic, some forms may fail because

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they are not immediately associable to past prototypes, while others may proliferate for the opposite reason. In this sense, then, analogical processes can play a key role in the construction Farjoun describes.

A separate question is whether the particular modeling apparatus of NK landscapes can incorporate the construction of strategic spaces. We believe it can, in two senses. First, though the basic NK model is most easily interpreted as representing a situation in which strategies are ‘out there’ waiting to be discovered, a richer interpretation encompasses the constructionist perspective. The N choices that constitute the horizontal dimensions of an NK landscape can include choices that are intended to shape one’s environment (e.g., whether to adopt an open-systems technology approach), and the vertical dimension then records the payoff from each set of actions including the impact of those actions on the character of the environment.

Second, a well-established extension of the NK model, the NKC model (Kauffman and Johnsen, 1991), allows the kind of coupling across multiple entities that Farjoun suggests is key to environmental construction. In the NKC model, each firm takes actions that not only affect its immediate payoff but also deform the fitness landscapes of other firms, which in turn may reshape the first firm’s landscape. A simple version of cross-organization influence would be spatial competition where the presence of one firm at a particular locale reduces the returns to another firm of locating at the same, or a nearby, position. A more subtle form of interaction would correspond to a situation such as standard setting, in which the returns to a particular technology choice are enhanced if other actors make the same choice—i.e., a situation of positive externalities. The NKC model generates what Kauffman terms ‘coupled dancing landscapes’ (Kauffman, 1995: 208) very similar to the imagery that Farjoun calls for: ‘multiple and shifting groups of jumpers on a trampoline’ (Farjoun, 2008:1005).

In sum, although we agree with Farjoun that construction is a real and important possibility, we do not believe that it necessarily makes analogical reasoning less salient, nor is it at odds with our modeling approach. We did not raise the constructionist perspective in our initial paper in order to keep our argument relatively simple, but we welcome Farjoun’s extension.

Organizing the ‘swollen middle’

Much of Farjoun’s contribution consists of opening up and enriching the set of modes of intentionally rational strategy making in the ‘swollen middle’ between strong forms of rational choice and simple feedback-based adaptive learning. As Farjoun notes, a wide variety of mechanisms—such as mental experimentation, scenario analysis, visioning, simulation, imitation, rational deduction, and local search—may play a role in strategy-making cognition. Exploring the swollen middle strikes us as a terribly important undertaking. Concerning this enterprise, however, we offer two caveats.

First, just as we noted in our original work that ‘cognition in complex worlds inevitably involves simplification’ (Gavetti, Levinthal, and Rivkin, 2005: 710), so theorizing about such matters requires some measure of simplification and abstraction. In focusing on a subset of such mechanisms in our article, we did not intend to deny that others exist. Rather, we aimed to simplify so that we could examine the chosen subset well. We suspect that future efforts will also have to focus on a subset of all cognitive mechanisms.

Second, while Farjoun does the field a favor by identifying a broad array of modes of cognition, his work points out an important and uncompleted step: in order to understand the nature and roles of various modes of cognition, we need some coarse categories that help organize the many modes of cognition. Currently, the field has little more than a laundry list of such modes. We do not know, for instance, whether the modes identified by Farjoun and others are mutually exclusive or collectively exhaustive.

The rich set of modes Farjoun identifies can be grouped into broader categories, and we believe it is more productive to explore the overarching properties of such categories than to delve into a granular analysis of each. Extending our prior paper, let us suggest one way to organize modes of cognition, an approach that is grounded on the underlying bases of cognitive reasoning. Our central distinction is among projection, associative reasoning, and feedback-based learning. By a projection, we mean an explicit, off-line assessment of the value of alternative courses of action or competitive positions. This assessment is generally undertaken on the premise of a crude cognitive representation of the payoff space, as in
Gavetti and Levinthal (2000). *Associative reasoning* includes a number of modes of cognition. Clearly, the analogical reasoning that we examined in our 2005 paper is one such mode, but so is the related process of case-based reasoning (Gilboa and Schmeidler, 2000), as is the process of vicarious learning or imitation (Miner and Haunschild, 1995; Rivkin, 2000; Denrell, 2003). Finally, processes of feedback-driven learning are modes of cognition in which positive (or negative) outcomes can reinforce (or undermine) particular courses of actions.

**Contingencies**

Beyond categorizing alternative modes of cognition, there is the further challenge, as Farjoun notes, of assessing their relative value and identifying the contingencies under which one mode or another may be preferred. This is a difficult challenge. Intuition and logic may tell us some sensible things, and Farjoun makes a laudable attempt to employ such intuition and logic in his Table 2. But the contingent logic may be so subtle that researchers must undertake more formal exercises, such as simulation modeling. Personally, we found in writing our 2005 article that formal simulation shed light on unexpected contingencies. Before making an effort to model analogical reasoning, for example, we did not have a clear understanding of the role of breadth and depth of experience, nor did we grasp the form of interdependencies that makes analogical reasoning especially effective. Formal modeling also has the virtue of forcing explicit intellectual commitments to what one means by a mode of strategy making such as ‘visioning.’

In closing his discussion of the many cognitive modes that might occupy the swollen middle, Farjoun argues that we overstated the ‘superiority’ of analogical reasoning. We did not intend to argue, and believe we did not argue, that analogical reasoning is superior to all alternatives and under all circumstances. On the contrary, we aimed for a contingency approach similar to what Farjoun supports: we used our simulation results to explore ‘the managerial and structural characteristics that make analogical reasoning more or less powerful’ (Gavetti, Levinthal, and Rivkin, 2005: 693), especially relative to a benchmark of local search. When one introduces alternative additional modes of cognition, as Farjoun does, one must consider new contingencies, and the domain in which any single mode is the best inevitably becomes narrower.

Farjoun also speculates that the contingent logic regarding the alternative modes of cognition may have a temporal quality to it. That is, at one stage in the strategy-making process, or one stage in an industry’s development, one mode—perhaps one more attuned to exploratory and broad considerations—may be more preferred, while at other stages or times, a different mode of cognition or strategy making may be preferred. We share his interest and instincts in this regard. Indeed, Gavetti and Rivkin (2007) develop these ideas in their analysis of strategy making at Lycos. They examine how the preferred mode of cognition evolves as, on the one hand, the logic of competitive advantage in an industry becomes less ambiguous over time but, on the other hand, inertia sets in for each competitor.

In sum, we are happy to have Farjoun as a fellow traveler. Developing an understanding of the middle ground of intentionally, but boundedly rational strategic decision making is an important and ambitious undertaking. It has captured the attention of giants in the field such as March and Simon and will require the attention and energy of Farjoun, ourselves, and many others for years to come. We value Farjoun’s contribution, and we look forward to observing and participating in the collective effort to push this agenda forward.

**REFERENCES**

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