Looking Backwards to Move Forwards? Reviewing the Possibilities of Retroduction as a Contemporary Approach to Researching Strategy

"If the theories we develop do not resonate with practitioners, what does this tell us about our theories and the ways we develop them?" Sandberg and Tsoukas, (2011, pp338-9)

Addressing this special conference track question "Are new approaches to strategy research needed to work on complex, pressing and global problems?" this proposal aims to respond to recent challenges in the literature to identify modes of strategy research which might reduce the gap between academia and practitioners in the production and consumption of strategy theory (e.g Sandberg and Tsoukas, 2011; Hambrick, 2004; Starbuck, 2004).

Specifically, this proposal reviews the potential for increasing usage of retroductive approaches to researching strategy to (a) generate theory as elucidation with a logic of practical rationality (b) engage Academics, Business and Consultants (**ABCs**) in a mutually respectful and advantageous investigative process without compromising the potential for generation of outcomes according to the needs of each; and (c) complement and catalyse extant, dominant deductive and inductive strategy research approaches.

The intellectual origins, underpinnings and mechanisms of retroduction are first described and related to deduction and induction; a review of the compatibility of retroductive approaches thus far in strategy follows, and then a discussion of the potential and limitations of retroductive research approaches moving forward is offered.

What is Retroduction?

Retroduction is a backward looking mode of inference in which events are explained by "postulating and identifying mechanisms which are capable of producing them." (Sayer, 1992, p107). This research approach places an emphasis on developing explanations for phenomena "not in terms of generalisation, but rather by positing a mechanism which, if it existed and acted in the postulated manner, could account for the phenomenon singled out for investigation" (Lawson, 1998, p156). As such, retroduction might lead to illumination and elucidation of aspects of human action (Ackroyd and Fleetwood, 2000), such as the work of strategy.

Charles Peirce and Retroduction

The pragmatist polymath philosopher Charles Peirce is credited with introducing the term 'retroduction' as his interpretation of Aristotle's term for a third mode of inference in addition to induction and deduction, referring to it as "reasoning from consequent to antecedent" (Forstater, 1999, p10). According to Peirce (1931-60, Vol. 5, p189), retroduction has a logical form of "The surprising fact C is observed →If A were true, C would be a matter of course → Hence there is reason to suspect that A is true."

Deduction	***Induction***	***Retroduction***
Rule: All beans in this bag are white	Case: These beans are from this bag	Result: We come across some beans that are all white (which is unexpected)
Case: These beans are from this bag	Result: These beans are all white	Rule: We know that all the beans in a particular bag are white
Result: These beans are white	Rule: All beans in this bag are white	Case (explanatory hypothesis): The beans come from this particular bag

Table 1 - Peirce's comparison of different approaches to reasoning (from Mingers, 2012, p860)

As the 'first step in scientific reasoning' (Fann, 1970, p35), retroduction arguably represents a complement rather than replacement for deduction and induction (see Table 1). Pierce argued that retroduction is the only kind of inference that actually can create new knowledge – it is about hypothesis formulation and selection, rather than about rejecting or accepting some already formulated hypothesis. With an hypothesis identified, Peirce suggested that the next activity is 'to trace out its necessary and probable… consequences. This step is deduction' (Peirce,

1931-60, Vol. 7, p.203) and then compare the actual results with what was expected ie. induction (Forstater, 1999; Mingers, 2012).

On this basis, arguably retroduction "is the point where novelty, innovation and creativity enter the scientific method, as they must at some point" (Mingers, 2012, p860). Peirce believed that the mental processes associated with retroductive reasoning could be improved by practice and reflective discipline (Ochs, 1993). In relation to the aim of this proposal, Peirce's thinking suggests that as we seek to improve our understanding of complex phenomena such as those encountered in strategy research, we might create new insights from taking unexpected events and working backwards, drawing on existing knowledge as we do so, to identify the most plausible explanations as a basis for theorising activity. Before considering the implications of using this retroductive mode as a principal research approach, it is useful to examine how retroduction has been reasoned and adopted by the contemporary critical realist community.

Retroduction as a key mode of reasoning in Critical Realism

Following Peirce, argumentation in support of retroduction has been offered by critical realist authors such as Bhaskar (1975) Sayer (1992, 2000), Lawson (1998), Ackroyd (2000) and Fleetwood (2002). Retroduction is suggested as a means to address questions about "what kinds of things exist, what their make-up, powers and liabilities are and hence [concerns] explaining what happens rather than predicting what will happen" (Sayer, 1992, p158).

Through attempts to identify plausible explanations of causes of complex phenomena in a dynamic world, retroduction turns attention away from "the flux of events and towards the causal mechanisms that govern them" (Fleetwood, 2002, p31). The aim of the retroductive process is to identify "non-spurious, rough and ready, partial regularities" (Lawson, 1998, p148) – our current, best understanding of underlying causes of events based on what we know so far. In practical terms, a retroductive approach switches emphasis in research inquiry "from outcomes to conditions that make an action possible" (Ackroyd and Fleetwood, 2000, p14). Retroduction also turns attention to necessity (those aspects of generative mechanisms which are non-contingent) in the world during research whilst framing empirical investigations of contingency (Sayer, 1992).

When deploying retroductive approaches, a crucial underlying critical realist onto-epistemological assumption is that the exercise of generative mechanisms might be unrealised as manifest phenomena on account of concurrent, mitigating powers of other objects (known as ambient contingent conditions). In other words, when seeking to build explanation of complex phenomena, we must remain aware of the potential for myriad confounding effects from the ecological context of our objects of research (Sayer, 1992; Tsoukas, 1989; Pratten, 2000). Despite the daunting implications of this assumption given the complexity and uncertainty of the social world (Sayer, 1992), pragmatically retroduction can be effective because in reality we face a limited set of possible explanations to evaluate when trying to explain some peculiar phenomenon (Fleetwood, 2002). This view of the world does increase the value placed in replication studies though, and urges researchers to avoid falling into a trap of making superficial generalisation between contexts (Kwan and Tsang, 2001).

Mechanisms of Retroduction

To give an account of the properties of some generative mechanism underlying a phenomenon, retroduction is "an explicitly creative process where one uses imaginative devices such as analogy to construct a category. This is a voyage of discovery where one postulates causal mechanisms that, if they exist, might govern the events under investigation" Fleetwood (2002, p38).

Analogy is the extrapolation of existing understanding (e.g. when attempting to explain mad cow disease, scientists first searched for a virus as this is the most common mode of illness in animals) (Lawson,1998). In this way, existing knowledge forms the basis for contemplating possible explanations of less understood phenomena (Outhwaite, 1987; Costello, 2000), and retroductive approaches are "not leaps in the dark… our search is guided by past experience, analogies and other clues" Lowe(1992, p327; in Forstater, 1999,p11).

The process of retroduction initially involves ***resolutive*** activities–identifying specific components of complex conjunctions in empirical events on which to focus - and then ***retrodiction*** - the act of proposing potential antecedents and causes of events through analogous thinking- before empirically eliminating them (as far as possible checking whether they happened or not) (Lawson, 1998).

"Retroduction appears in the (fairly standard) procedure of bolting together of a clutch of accepted laws and theorems in a novel way" (Fleetwood, 2002, p38), relying on non-rational acts of imagination as sources of newness in order to address the incompleteness of our existing understanding (Costello, 2000, Mingers, 2012). As such retroduction recognises that "in our attempts to explain, we draw upon everything we know" (Sayer, 1992, p234). The ideas we consider through retroduction needn't coin elaborate extensions of existing thinking - "A causal mechanism doesn't have to be represented in an esoteric formula to be one" (Sayer, 1992, p116) - much of what might be relevant in research explanations can be ordinary and familiar.

To identify the most plausible explanations for events from retrodicted hypotheses, '***contrastives***' are a particular form of analysis which inform retroduction – "descriptive statements taking the form 'this rather than that'", where the likelihood of potential causal mechanisms causal responses impacting two or more aspects of a system are considered (Bhaskar and Lawson, 1998, p12). In this way, the contrastive technique uses all available knowledge to evaluate the plausibility of explanations about the causality of events, attempting to identify what Lawson (1998) calls "demi-regularities" - causal mechanisms which can account for multiple potential observed effects in a system.

Through these retroductive mechanisms, "we get explanation and the possibility of new knowledge" (Mingers, 2012, p860). By conducting research in this way explanation becomes an "elastic term covering a wide variety of cases" in comparison to the more restrictive definitions of explanation associated with inductive and deductive reasoning (Sayer, 1992, p234).

Alignment of Retroduction with Existing Strategy Research Approaches

Retroduction has been little used in strategy research to date. A search of leading strategy journals – SMJ, LRP, Advances in Strategic Management and Strategic Organization – found only 1 in-depth engagement with the notion of retroduction - Miller and Tsang's (2011) article arguing for the adoption of retroductive reasoning to increase explanation in strategy research. From the perspective of the dominant paradigm of logical positivism which informs much extant strategy research, a retroductive focus on necessity appears to align with the theorising criterion of "nomic necessity" as highlighted by Priem and Butler (2001, p28) in their evaluation of the adequacy of the Resource Based View. The backward looking rationale of retroduction would also seem to address specific research agenda calls from positivist academics (e.g. "Retrospective understanding of competitive successes and failures … can help to provide a firmer foundation for prospective advice" (Helfat, 2000, p955)). Furthermore, Bayesian methods, which are becoming more common in positivist strategy research (e.g. Hahn and Doh, 2006; Tang and Liou, 2010 etc.), are arguably a statistical, probability based version of retroduction (Mingers, 2012).

However, the representation of causality generally supported by retroductive reasoning is potentially problematic from a logical positivist perspective. The "generative causality" (Mingers, 2012, p861) uncovered by retroduction differs from Humean views of causality (defined in terms of regularity/ regular associations - where one event is perceived it can only be explained in terms of another perceived event (Sayer, 1992; Fleetwood, 2002; Mingers, 2012)) underpinning positivist approaches. Generative causality is about attempting to specify what an object of research "is capable of doing in the appropriate set of circumstances" (Tsoukas, 1989, p553). Causality explored via retroduction is not necessarily about the sequence or correlation, as experiences and their underlying causal mechanisms may be out of phase – causality is instead inherent in the nature of things (Tsoukas, 1994; Ackroyd and Fleetwood, 2000).

Considering the post-positivist perspective of strategy-as-practice, in which strategy is considered to be a situated, social activity (Whittington et al, 2006) and "strategy is something that people do" (Johnson et al, 2008, p3), the notion of generative causality addressed by retroductive approaches would seem to be a more natural fit. Many

aspects of social events are relatively unique occurrences, being the conjoint effects of numerous mechanisms acting simultaneously (Lawson, 1998, p163). Nonaka and Toyama (2003, p5) argue that as we live in this complex world setting, we accumulate tacit knowledge "through action and perception", embracing rather than confronting contradictions in our understanding as they arise. To share such tacit knowledge "retroduction is effective rather than induction or deduction… using metaphor, analogy, and model" as methods to surface deep understandings about social reality and processes such as organizing and strategizing (Nonaka and Toyama, 2003, p5).

What benefits might retroduction yield for strategy researchers?

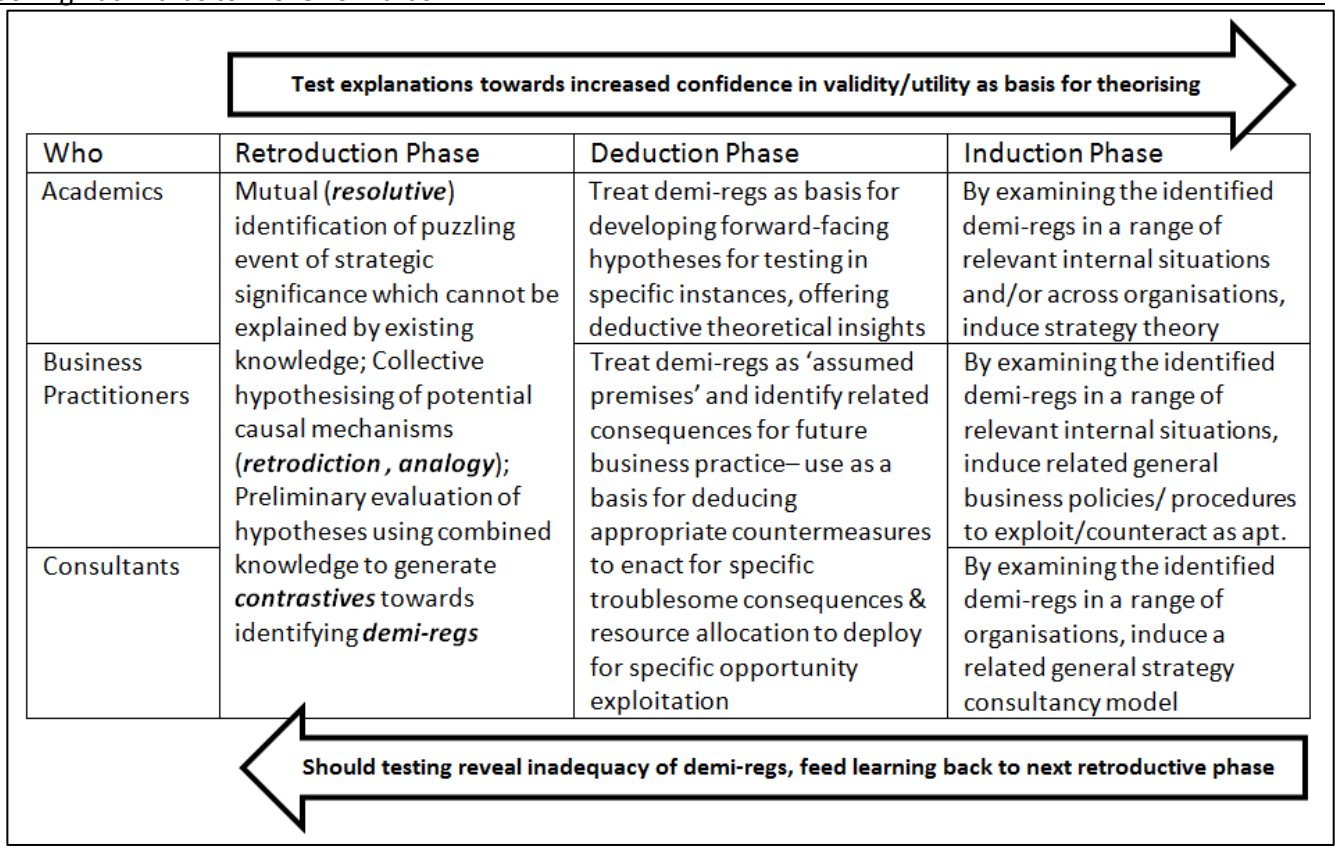
To address the previously highlighted lack of practical relevance in strategy and management research, Sandberg and Tsoukas (2011) argue for approaches to inquiry which "capture essential aspects of the logic of practice" (p.339) based on a Heideggerian view that "our most basic form of being is entwinement … with others and things in specific socio-material practice worlds" (p343). Research from this perspective would aim to uncover the non-contingent aspects of what we do – both unconsciously and consciously – when managing, teaching, strategizing etc. This research approach would yield "theory as elucidation" rather than theory as prediction (p353), where theory as elucidation "helps practitioners to better articulate and make manifest what was previously opaque in their routine practices and, thus, obtain insights into their practice"(p354).

With retroduction, "explanation supplants deduction, prediction, solution and determination, calculation and logical consistency as the goals of theorisation" (Ackroyd and Fleetwood, 2000, p14). Therefore, retroductive approaches, applied to the peculiar phenomenon of breakdowns in practitioners' logics of practice as they encounter events which their current experiential knowledge cannot explain (Sandberg and Tsoukas, 2011, p344), might represent an effective way to yield explanations as a foundation for 'theory as elucidation'.

Recognising the creative capacity of researchers immersed themselves in social contexts (Sayer, 1992) and emphasising that alternative to scientific rationality is not just "totally incoherent random flux" (Lawson, 1998, p148), retroductive reasoning might increase our awareness of both observable (e.g. artefacts, practices) and unobservable (e.g. politics, power) 'demi-regularities' or causal mechanisms when conducting strategy research. Retroductive approaches might therefore offer potential to develop insights about unconscious behaviour in everyday life which might act as causal mechanisms affecting strategic outcomes, thus addressing a lacuna in the strategy literature (Chia, (2004), Chia and Holt (2006, 2009) and Chia and McKay (2007)).

The techniques of retroductive reasoning highlighted in this proposal – resolutive activities, retrodiction, analogy/metaphor and contrastives – are inclusive in the sense that those with practical expertise and tacit knowledge (As, Bs and Cs) can participate in their usage. In comparison to the dominant strategy research forms of deductive and inductive techniques which carry a pre-requisite of familiarity with extant theory, research designs built around retroductive approaches have potential to better engage practitioners as well as academics. Starting from any event which requires explanation, a retroductive approach would anchor inquiries in matters of practical relevance, and through involvement of As, Bs and/or Cs, could generate a broad range of potential hypotheses. This initial set of hypotheses could be subsequently explored jointly or separately through techniques of deductive and inductive reasoning as determined most relevant by academics, business practitioners and consultants to meet their own needs. Diagram 1, at a high level of abstraction, represents a sample retroductive strategy-related research design where there is ABC collaboration followed by differentiated approaches through deduction and induction. As the phases progress, the different modes of reasoning subject the retroduced explanations to increased testing, which might increase confidence in their validity as a basis for theorising. Learning about explanations exposed as inadequate may be fed back into future retroductive activities.

It is important to note that arguing for a retroductive approach implies a repositioning of deduction and induction in the research process rather than a devaluing of these modes of empirical investigation. By deliberately engaging in deductive and inductive approaches as later stage activities within a retroductive process framework, potential to increase the relevance alongside the rigour of extant methodological approaches is introduced whilst subjecting theory to more extensive testing (Forstater, 1999; Miller and Tsang, 2011; Mingers, 2012).



Who	Retroduction Phase	Deduction Phase	Induction Phase
Academics	Mutual (***resolutive***) identification of puzzling event of strategic significance which cannot be explained by existing knowledge; Collective hypothesising of potential causal mechanisms (***retrodiction , analogy***); Preliminary evaluation of hypotheses using combined knowledge to generate ***contrastives*** towards identifying ***demi-regs***	Treat demi-regs as basis for developing forward-facing hypotheses for testing in specific instances, offering deductive theoretical insights	By examining the identified demi-regs in a range of relevant internal situations and/or across organisations, induce strategy theory
Business Practitioners		Treat demi-regs as 'assumed premises' and identify related consequences for future business practice– use as a basis for deducing appropriate countermeasures to enact for specific troublesome consequences & resource allocation to deploy for specific opportunity exploitation	By examining the identified demi-regs in a range of relevant internal situations, induce related general business policies/ procedures to exploit/counteract as apt.
Consultants			By examining the identified demi-regs in a range of organisations, induce a related general strategy consultancy model

Diagram 1 –Retroductive strategy research design with varied levels of ABC collaboration across phases.

Limitations and Conclusions

Retroduction "is a form of reasoning that is both practical… and systematic" (Mingers, 2012, p861) – it offers a means to engage practitioners in dialogue starting first with their experiences and insights. However, "once we accept the contrastive nature of social scientific explanation [from retroduction] it is equally apparent that the interests of the researcher determine which causal mechanism is pursued as well" (Bhaskar and Lawson, 1998, p15). In other words, a key limitation of retroductive approaches is the explicit influence of researcher bias. However, through researcher triangulation (Yin, 2003) - ideally involving Academics and Business or Consultancy practitioners – these effects might be minimised whilst improving the range and quality of hypothesising (and arguably such biases exist implicitly, and broadly unaddressed, in the modes of reasoning associated with more 'objective' paradigms of scientific rationalism in strategy research (Scott, 1998; Toulmin, 2001)).

Misalignment of views on causality might leave retroductive approaches open to criticisms of tautological reasoning from a position of logical positivism. Recognising this potential, Sayer (1992, pp105-6) argues that retroductive approaches can avoid tautology by establishing empirically what it is about a causal mechanism that enables it to influence events independently of the exercise of a mechanism's powers e.g. "It is not a tautology to explain my inability to fly or ability to walk by reference to my anatomy, musculature, density and shape." The same reasoning can be applied to the phenomena of strategy where, for example, we might explain differences in competitive performance by reference to the configurations of organisations' tangible, intangible and human resources; shifting consumer preferences, government legislation etc.

In summary, this proposal argues that retroduction represents an under-utilised but potentially potent and ABC inclusive approach for conducting contemporary strategy research. It has been argued that retroduction might generate theory as elucidation towards explaining generative causality and helping strategy practitioners navigate the flux of our complex, interconnected world. Hambrick (2004, p97) argues that as a strategy research community "we cannot meaningfully advance unless we comprehend and consolidate what we already know". The underlying thesis of this proposal is that paradoxically one of the most useful steps we could take to move forward in this endeavour is to start looking backwards through retroduction.

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