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## **FOCUSING ON PROCESS AND HISTORY: PATH DEPENDENCE**

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## **ABSTRACT**

In recognition of the calls for more processual and historically informed organizational theorizing, this chapter considers the notion of path dependency, an approach which holds that a historical path of choices has the character of a branching process with a self-reinforcing dynamic such that preceding steps in a particular direction induce further movement in the same direction, thereby making the possibility of switching to some other previously credible alternative more difficult. Path dependence seeks to assess how process, sequence and temporality can be best incorporated into explanation, the focus of the researcher being on particular outcomes, temporal sequencing and the unfolding of processes over time. Thus, proceeding from a consideration of the position afforded history in the organizational literature, this chapter outlines the tenets of path dependence theory, before sketching out its application in the practice of doing research.

## INTRODUCTION

In taking issue with the largely ahistorical and aprocessual character of much organizational theorizing, this chapter seeks to depart from knowing the organizational by way of classification and move towards knowing the organizational as an ongoing process. For example, extant theoretical perspectives (such as structural contingency theory, transaction cost theory, institutional theory, population ecology), which operate at the macro organizational level, treat organizational form as an essence, as a durable, tangible and relatively undeniable structure, which exists as an empirical entity. Taken as a given 'out there', each approach equates form with, and classifies form as, a set of essential and identifiable characteristics that constitutes the organizational, the particular mix of characteristics serving to distinguish one form from another. Central to each approach, therefore, is the development of classification schemes and the construction and maintenance of boundaries, not just to render forms distinct and identifiable, but also to distinguish each theoretical view from the others.

Recognising calls for more processual and historically informed organizational theorizing, path dependence theory offers a way of articulating the organizational as an ongoing dynamic over more dominant ways of thinking and knowing that are more static. With an interest in how process, sequence and temporality can be best incorporated into explanation, path dependence attempts to 'strike a better balance between historically insensitive causal generalization and idiographic historicism' (Haydu, 1998: 367).

Re-inserting process and history into studying the organisational, through the lens of path dependence, offers an approach to move out of some of the organizational literature's current limitations. In the sections that follow, I reflect on the position afforded history in the study of

the organizational, which brings me on to path dependence theory itself. Having outlined the tenets of the theory, I then move on to sketch out its application in the practice of doing research.

### **Reinserting History into ‘The Organizational’**

While there have been calls to develop more historically informed organizational theory, in turn facilitating a more process oriented and more contingent/less deterministic approach, this does not mean breaking with modernity, for mainstream modernist history is no less foundational, rational, essentialist, logocentric or concerned with the notion of progress. With faith in reason, the modernist historian’s unquestioned task has been to dig into the past, to investigate it, to discover a past reality and reconstruct it scientifically, to find the ‘one line running through history’ (Ankersmit, 1989: 153). Claiming authority for historical knowledge (White, 1995), the goal has been ‘uniformization of the past’ through integration, synthesis and totality (Ankersmit, 1989: 153). Critiques of history in this fashion have, nonetheless, increasingly appeared (e.g., Lukacs, 2002), including those such as Üsdiken and Kieser (2004) who argue that use of history in organization studies are not all the same and can be demarcated according to three positions – supplementarist, integrationist and reorientationist, albeit with variations within each – consistent with how history is treated in relation to the social scientific perspective that has come to dominate the field.

**The supplementarist position.** Theorizing within the supplementarist position ranges from the timeless to limiting the value of history to add context for developing or testing generalisable theories (Kieser, 1994; Üsdiken and Kieser, 2004; Zald, 1990, 1993). As a useful check for ideas (Goldman, 1994), therefore, history becomes, substantively, an object of theoretical frames seeking to analyse and explain past events (Lawrence, 1984) and/or methodologically, an object of theory development and hypothesis generation (Goodman and

Kruger, 1988). Claiming, for example, that organizational ecology and institutional theory already incorporate history into their analyses, Goldman (1994: 623) goes on to assert that assimilating history into organization theory is only possible if it is acknowledged that ‘insofar as theory refers to principles of organization that transcend time and space, historical and comparative (that is international and/or multicultural) data can test the generalisability and utility of a theory’.

With the exception of contingency theories, and their largely cross-sectional (in contrast to longitudinal) research focus, other organizational theories already discussed – transaction cost, institutional and ecological theories – each accommodate a historical take that could be considered supplementarist. However, such an accommodation is limited for, as Baum (1996: 107) notes, ‘no theory can be general, precise, and realistic at the same time’. Hence, with realism (and precision) as the trade-off for generality, history becomes subordinated to contributing to the theory-driven scientific enterprise substantively, i.e., through its potential for confirming and refining general theories, and/or methodologically, i.e., as an aid in selecting variables and in generating hypotheses within a theoretical context.

For instance, Clark and Rowlinson (2004) contend that transaction cost economics abides by the functional logic of efficiency, favouring theoretical explanations over historical narrative, with the latter only of value for purposes of illustration. With history subordinated to universally applicable economic models based ‘on a combination of a priori theorizing and related natural selection arguments’ (Williamson, 1985: 324), economic explanations for the existence of organizations or organizational forms need have no recourse to empirical historical research into their origins.

For Clark and Rowlinson (2004), the questionable use to which the transaction cost approach puts historical evidence in explaining the organizational, as noted by such critics as Jones (1982, 1997), is a sign of the approach's penchant for hypothetical (Swedberg and Granovetter, 1992) or stylised settings (McCloskey, 1994) over a perspective informed by history. Bolstering this reading is the view expressed by Fligstein (1990: 300) who, finding it problematical how what happened historically can be accounted for by economic arguments, contends that 'the plausibility of economic efficiency stories rests more on their abstract character and ability to round off the edges and provide a pleasing and simple version of what occurred'.

Both organizational ecology and institutional theory display a greater interest in history than structural contingency theory and research informed by both perspectives favours longitudinal over cross-sectional studies of organizational fields and populations. However, in their treatment of time, the temporal frame they adopt is generally that of a time-line which, in assuming a simple account of history and in smoothing time to achieve generalisability in exchange for realism and precision (Baum, 1996: 107), ignores that historical time is messy, uneven and infused with events that fracture the more or less enduring patterns of social life (Clark and Rowlinson, 2004).

Further, heavily influenced by biological analyses, organizational ecologists such as Hannan and Freeman (1989: 40) have been keen to distance themselves from being seen as deterministic and, in arguing that their analyses are subject to probabilistic modelling, they assert that '[i]n no sense do we think that the history of organizational populations is preordained to unfold in fixed ways'. However, as Clark and Rowlinson (2004) note, Hannan and Freeman (1989: 40) are very explicit in dismissing narrative history in asserting that 'the motivations and

preferences of particular actors probably do not matter very much'. Thus, with no room for human actors in explaining organizational variability, organizational ecologists paradoxically leave little room for these very same human actors in using the insights of their approach to make organizational interventions (Astley and Van de Ven, 1983; Clark and Rowlinson, 2004; Perrow, 1986).

**The integrationist position.** In a criticism that can also be applied to mainstream organizational theory in general, Kieser (1994: 612) notes that sociologists, in favouring grand theories that bother little with historical details that disconfirm their theories, would be seen by many historians 'as people who state the obvious in an abstract jargon, lack any sense of differences in culture or time, squeeze phenomena into rigid categories and, to top it all, declare these activities as "scientific"'. Given the inferior position they accord history, Kieser (1994) calls for the abandonment of models that are conceptualised separately from that which is to be explained, in favour of analyses that are more interpretive and inductive, i.e., integrationist. For those of an integrationist position, the concern is with activating the potential of history to enrich organization studies through both employing and challenging its social scientific counterpart: 'Ultimately, the issue is how do we *combine* a positivistic programme of theoretical and empirical cumulation with the enriching possibilities of the humanities' (Zald, 1993: 516, emphasis in original). In similar vein, Kieser (1994: 619) proffers that '[h]istorical analyses do not replace existing organization theory; they enrich our understanding of present-day organizations by reconstructing the human acts which created them in the course of history.'

Thus, an integrationist position recognises that the organizational has been shaped by past events and that its course of development has been influenced by the broader context. More specifically, an integrationist position entails interest in 'processes of organisational change,

development of organisational forms and variations across societal settings, path dependencies and continuities in organisational ideas and practices' (Üsdiken and Kieser, 2004: 323).

### **PATH DEPENDENCE AS INTEGRATIONIST POSITION**

In recognition of the calls for more historically informed organizational theory, therefore, I now turn to the notion of path dependency. Viewed as an idea through which 'history' is commonly made visible, path dependence emerged as an alternative perspective to 'conventional economics' in the 1980s through the work of David (e.g., 1985, 1987, 1994, 1997, 1999, 2001) and Arthur (e.g., 1988, 1989, 1990, 1994). Path dependence refers to dynamic processes involving irreversibilities, which generate multiple possible outcomes depending on the particular sequence in which events unfold. The path dependence approach holds that a historical path of choices has the character of a branching process with a self-reinforcing dynamic in which positive feedback increases, while at the same time the costs of reversing previous decisions increase, and the scope for reversing them narrows sequentially, as the development proceeds. As already noted by David (2001: 23), 'the core content of the concept of path dependence as a dynamic property refers to the idea of history as an irreversible branching process.' Similarly, Hacker (2002: 54, emphasis in original) argues that 'path dependence refers to *developmental trajectories that are inherently difficult to reverse.*' Thus, preceding steps in a particular direction induce further movement in the same direction, thereby making the possibility of switching to some other previously credible alternative more difficult. 'In an increasing returns process, the probability of further steps along the same path increases with each move down that path. This is because the *relative* benefits of the current activity compared with other possible options increase over time' (Pierson, 2000a: 252, emphasis in original).

Those who are not familiar with the path dependence approach think that it is no more than recognition that ‘history matters’. However, the approach not only recognises the impact of history, but also shows that a decision-making process can exhibit self-reinforcing dynamics, such that an evolution over time to the most efficient alternative does not necessarily occur. In general, path dependence refers to situations in which decision-making processes (partly) depend on prior choices and events. It recognises that a decision is not made in some historical and institutional void just by looking at the characteristics and expected effects of the alternatives, but also by taking into account how much each alternative deviates from current institutional arrangements that have developed in time. An outcome thus depends on the contingent starting point and specific course of a historical decision-making process.

Antonelli (1997: 661) attributes the emergence of path dependence to the failure of existing economic models to handle the dynamism and complexity of path-dependent processes, with Arthur (1990: 99) distinguishing between ‘conventional economics’, which largely avoids path dependence, and the ‘new positive feedback economics’, which embraces it. From an initial interest in the emergence of new technologies (e.g., David, 1985, 1987, 1997, 1999, 2001; Arthur, 1989, 1994; Cowan, 1990; Cusumano, Mylonadis and Rosenbloom, 1992; Puffert, 1991), path dependence arguments have since become prevalent in such areas as the spatial location of production (e.g., Arthur, 1994; Garnsey, 1998; Kenney and von Burg, 1999, 2000; Krugman, 1991), regional studies (e.g., Ackrill and Kay, 2006; Beugelsdijk, van Schaik and Arts, 2006; Hassink, 2005; Jakobsen, Rusten and Fløysand, 2005; Karlsen, 2005; Zukowski, 2004), the development of international trade (e.g., Krugman 1996), institutional sociology (e.g., David, 1994; Hacker, 2002; Krücken, 2003; Mahoney, 1999, 2000, 2001; Morgan and Kubo, 2005; North, 1990; Thelen, 2000), political science (e.g., Greener, 2005; Pierson, 2000a, 2000b, 2004;

Pierson and Skocpol, 2002), policy studies (e.g., Béland and Hacker, 2004; Hogan, 2005; Howlett and Ramesh, 2002; Kay, 2003, 2005; Pierson, 1993; van der Klein, 2003), and entered into such areas as strategy (e.g., Booth, 2003; Brousseau and Chaves, 2005; Maielli, 2005; Mueller, 1997; Nerkar and Paruchuri, 2005; Rao, Vemuri and Galvin, 2004; Stack and Gartland, 2003, 2005; Teece, Pisano and Shuen, 1997) and organization studies (e.g., Araujo and Rezende, 2003; Bruggeman, 2002; Greener, 2002; Heffernan, 2003; Noda and Collis, 2001; Schmidt and Spindler, 2002; Sonnenwald, 2003; Sydow, Schreyögg and Koch, 2005). Booth (2003) notes that path dependence has only recently entered organization studies due to the analytical problems encountered by existing approaches in accommodating the complexity and dynamism of path-dependent processes.

### **Path Dependence in Economics**

Arguments about technology have provided the most fertile ground for exploring the conditions conducive to increasing returns. As David (1985, 1987, 1997, 1999, 2001) and Arthur (1988, 1989, 1990, 1994) have stressed, under conditions often present in complex, knowledge-intensive sectors, a particular technology may achieve a decisive advantage over competitors, although it is not necessarily the most efficient alternative in the long run. Once an initial advantage is gained, positive feedback effects may lock in this technology, excluding competing alternatives. With increasing returns, actors have strong incentives to focus on a single alternative and to continue down a specific path once initial steps are taken in that direction.

As Arthur, David and others contend, the key characteristic of a historical process that engenders path dependence is positive feedback, or self-reinforcement. Given this feature, every move down a particular path makes it harder to reverse course. In the presence of positive

feedback, the probability of further moves in the same direction increases with each step along the way because the relative advantages of the current activity weighed against once-possible choices grow over time. Said differently, the costs of switching to a once plausible option would rise.

Couching his consideration of path dependence in terms of ‘lock-in by historical events’, Arthur (1989, 1994) focuses attention on a single condition: increasing returns to adoption that are realised not at a single point of time but rather dynamically, such that each step along a particular path produces consequences that increase the relative attractiveness of that path for the next round. As effects begin to accumulate, they generate a powerful cycle of self-reinforcing activity, which may result in path inefficiency and an equilibrium that may be inefficient. From an economic perspective, therefore, a process of allocation is called path-dependent when the sequence of allocations depends not only on fundamental, *a priori* determinants—typically listed as technology, factor endowments, preferences, and institutions—but also on particular contingent events. Instead of converging to a determinate, predictable, unique equilibrium, such processes have multiple potential equilibria, and which one is selected depends on the specific history of the process. Positive feedback among agents’ choices lends persistence and, indeed, increasing impact to particular early choices and other events.

### **Institutional Path Dependence**

From its roots in economics, path dependence has branched out to become a key concept in studying institutional evolution over the past decade (Crouch and Farrell, 2002). North (1990) proposed transforming the approach in such a way that it could be applied in an institutional context, noting that all the features identified in investigations of increasing returns in technology can equally apply to institutions, although with somewhat different characteristics, and that

institutions are subject to considerable increasing returns. In situations of complex social interdependence, new institutions commonly require high fixed or start-up costs, and they entail significant learning effects, coordination effects, and adaptive expectations. By and large, established institutions engender powerful incentives that buttress their own stability (David, 1994).

North (1990) stresses that positive feedback applies not just to single institutions, but that institutional arrangements also produce corresponding organizational forms, which in turn may induce the development of new complementary institutions. Path-dependent processes will frequently be most marked not at the level of discrete organizations or institutions, but at a more macro level that comprises arrangements of corresponding organizations and institutions (Pierson and Skocpol, 2002).

For social scientists interested in paths of development, the key issue is often what North (1990: 95) calls ‘the interdependent web of an institutional matrix’, a matrix that ‘produces massive increasing returns’. As North (1990: 3) sees it, institutions, broadly defined as ‘the rules of the game in a society or, more formally, ... the humanly devised constraints that shape human interaction’, account for the anomaly of enduring difference in economic performance. Once in place, institutions are difficult to alter, and they have an enormous impact on the potential for producing sustained economic growth. Individuals and organizations become accustomed to existing institutions and when institutions do not encourage economic productivity, growth, if any, is unlikely.

For institutional and organizational scholars, North’s insights are important for two reasons. First, he draws attention to the similarities between features of technology and certain features of social interactions. In this context, it is important to note that Arthur’s points

concerning technology are not really about the technology itself but about the features of a technology in interaction with particular qualities of related social activity. Second, he points out that institutional development is subject to positive feedback. Indeed, it is in elucidating patterns of institutional emergence, persistence, and change that path dependence may prove of considerable use to organizational scholars.

Social scientists, therefore, generally invoke the notion of path dependence to support a few key claims (Pierson, 2004): specific patterns of timing and sequence matter; from initially similar conditions, a wide array of social outcomes are often possible; large consequences may result from relatively small or contingent events; particular courses of action, once introduced, are almost impossible to reverse; and consequently, development is often punctuated by critical moments or junctures which shape the basic contours of social life. All of these features contrast sharply with more familiar modes of argument and explanation, which attribute large outcomes to large causes and emphasise the prevalence of unique, predictable outcomes, the irrelevance of timing and sequence, and the capacity of rational actors to design and implement optimal solutions (given their resources and constraints) to the problems that confront them.

### **Incorporating History and Process**

Through the concept of path dependence, there is now the possibility to move beyond ahistorical organizational theorizing. In the opinion of Hirsch and Gillespie (2001: 87), 'Path dependence deserves credit for bringing history back into analysis [...] stimulating economists and other social scientists to address the limitations of their largely ahistorical models.' It seeks to assess how process, sequence and temporality can be best incorporated into explanation, the focus of the researcher being on particular outcomes, temporal sequencing and the unfolding of processes over time.

## DOING PATH DEPENDENCE

Accounts of how and why events develop as they do necessitate a mode of causal logic that is grounded in time and in characteristically temporal processes (Abrams, 1982; Aminzade, 1992). As indicated before, path dependence seeks to assess how process, sequence and temporality can be best incorporated into explanation, the focus of the researcher being on particular outcomes, temporal sequencing and the unfolding of processes over time.

As Mahoney (2000: 511) notes, path-dependent analyses have at least three defining characteristics: (1) they entail the study of causal processes that are very sensitive to events that occur early on in an overall historical sequence; (2) given the contingent character of these early historical events, they cannot be explained by reason of preceding events or initial conditions; and (3) when contingent historical events occur, path-dependent sequences are reflected in essentially deterministic causal patterns. Mahoney (2001:112) elaborates these characteristics into an analytic structure based on his view that path dependence refers ‘to a specific type of explanation that unfolds through a series of sequential stages’, as shown in Figure 1.

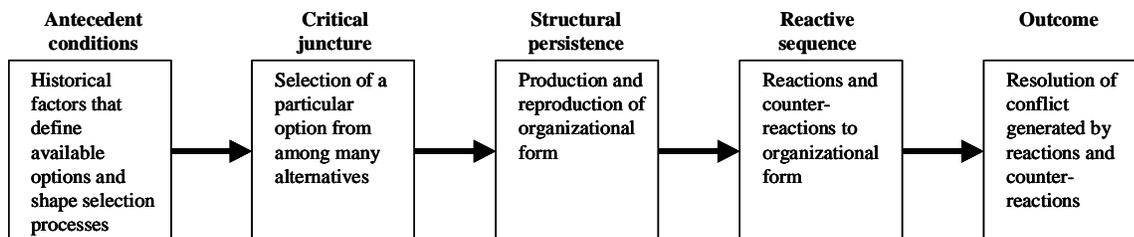


Figure 1 – Analytic structure of path-dependent explanation (adapted from Mahoney, 2001: 113).

**Antecedent conditions and critical junctures.** In terms of deciding the critical juncture, Mahoney (2000) suggests that the period immediately prior to a critical juncture makes for a practical moment for specifying the start of the sequence. In the course of this pre-critical juncture, at least two alternatives are open for selection, e.g., policies or ways of organizing, and

potential processes influencing the choice made at the critical juncture become active. The choice is consequential because it leads to the creation of a pattern that endures over time. In practice, Mahoney (2000) notes that an event is considered contingent when it cannot be accounted for by existing scientific theory or when it contradicts the predictive capacity of a theory explicitly designed to explain a given result. In the case of the former, both small events too specific to be covered by existing theory and large events entailing apparently random processes are treated as contingent. In the case of the latter, no matter that a result may be consistent with the expectations of unexamined theories, events are treated as contingent where the result contradicts the theoretical framework of interest. Assessing critical junctures is achieved through counterfactual thought experiments, whereby the researcher posits another selection had been made and attempts to rerun history accordingly. Such analysis serves to demonstrate the importance of a critical juncture by showing that the selection of this other option would have led to a final outcome that was significantly different.

**Structural persistence.** Path dependence emphasises the contingency of historical turning points, with choices at critical junctures nudging history down tracks that then, through the stubborn persistence of subsequent continuities, become increasingly difficult to reverse. Thus it is that, once a specific selection has been made, it becomes increasingly difficult with the passing of time to return to the initial critical juncture when at least two options were still available.

Couching his consideration of path dependence in terms of ‘lock-in by historical events’, Arthur (1989, 1994) focused attention on a single condition: increasing returns to adoption that are realised not at a single point of time but rather dynamically, such that each step along a particular path produces consequences that increase the relative attractiveness of that path for the

next round. As effects begin to accumulate, they generate a powerful cycle of self-reinforcing activity, contributing to structural persistence. Arthur (1994: 112) argues that four features of a technology and its social context generate increasing returns or positive feedback from the macro state of the system to the choices of individual agents, possibly resulting in de facto standardization on a single technology:

(1) *Large set-up or fixed costs.* These create a high pay-off for further investments in a given technology. With large production runs, fixed costs can be spread over more output, which will lead to lower unit costs. When set-up or fixed costs are high, individuals and organizations have a strong incentive to identify and stick with a single option.

(2) *Learning effects.* Knowledge gained in the operation of complex systems also leads to higher returns from continuing use. With repetition, individuals learn how to use products more effectively, and their experiences are likely to spur further innovations in the product or in related activities.

(3) *Coordination effects.* These occur when the benefits an individual receives from a particular activity increase as others adopt the same option. If technologies embody positive *network externalities*, a given technology will become more attractive as more people use it. Coordination effects are especially significant when a technology has to be compatible with a linked infrastructure (e.g., software with hardware, automobiles with an infrastructure of roads, repair facilities and fueling stations). Increased use of a technology encourages investments in the linked infrastructure, which in turn makes the technology more attractive.

(4) *Adaptive expectations.* If options that fail to win broad acceptance will have drawbacks later on, individuals may feel a need to “pick the right horse.” Although the dynamic here is related to coordination effects, it derives from the self-fulfilling character of *expectations*. Projections about future aggregate use patterns lead individuals to adapt their actions in ways that help to make those expectations come true.

From an institutional and organizational perspective, Arthur’s discussion of technology is important primarily because, as North (1990: 95) lays out, all four self-reinforcing mechanisms apply, albeit with somewhat different characteristics, and it clarifies a set of relationships typical of many social interactions. Creating a new organization usually entails significant start-up costs; organizations learn by doing; the benefits of organizational activities are often enhanced if they are coordinated or ‘fit’ with the activities of other individuals, organizations or institutions;

and it is frequently important to ‘pick the right horse’, so organizations adapt their actions in light of their expectations about the actions of others.

To the above self-reinforcing mechanisms can be added those of veto points, or rules that make pre-existing arrangements hard to reverse, and asset specificity (Pierson, 2004), the latter providing additional force to the mechanisms of coordination effects and adaptive expectations. The concept of asset specificity highlights variation in the degree to which the value of assets is restricted to a particular setting or use, rather than being easily reassigned to some other activity (Alt, Frieden, Gilligan, Rodrik and Rogowski, 1996; Lake, 1999). To the degree that assets are specific, there is likely to be more constraint in how they are applied, so reinforcing path dependence.

Thus, in sequences with self-reinforcing properties, initial steps in a given direction produce further movement along the same path, such that over time it becomes difficult, if not impossible, to reverse direction. Increasing returns processes are considered to apply to the persistence of a wide array of institutions, with ‘almost all institutional perspectives understand[ing] “institutions” as enduring entities that cannot be changed instantaneously or easily. This quality of persistence makes institutions a particularly useful object of inquiry for analysts concerned with self-reinforcing sequences’ (Mahoney, 2000: 512). Once the selection is made, institutions endure without recourse to that which brought about their creation.

**Reactive sequences and outcomes.** Mahoney (2001) notes that, in many path-dependent cases, the continued existence of an institution over time activates a sequence of causally linked events that, when activated, materialise separately from the institutional factors that originally produced it. While ultimately connected to a critical juncture period, this chain of events can end in an outcome that is far removed from the initial critical juncture. He refers to these sequences

of reactions and counter-reactions as ‘reactive sequences’ (Mahoney, 2000). In reactive sequences, comprising chains of events that are both temporally ordered and causally connected, the final event in the sequence is the outcome of interest. With each event within the chain a reaction to temporally antecedent events, and thus dependent on prior events, the overall chain of events can be viewed as a path culminating in the outcome. A reactive sequence is often set in motion by an initial challenge to the existing institution, with counter-reactions to this opposition then driving ensuing events in the sequence. Baring an ‘inherent logic of events’ (Abbott, 1992: 445), whereby reaction-counterreaction dynamics predictably see one event generate another, reactive sequences are normally marked by properties of reaction and counter-response as institutional patterns put in place during critical juncture periods are resisted or supported. Although such resistance may not lead to the transformation of these institutions, it can trigger an independent process that includes events leading to a result of interest. The tensions of a reactive sequence usually yield more stable final outcomes, which involve the development of new institutional patterns. While such outcomes suggest fairly stable equilibrium points, they will inevitably become displaced by new periods of discontinuity signalling the end of a particular critical juncture and possibly the start of a new one.

Methodologically, path dependence entails ‘tracing a given outcome back to a particular set of historical events, and showing how these events are themselves contingent occurrences that cannot be explained on the basis of prior historical conditions’ (Mahoney, 2000: 507-508). With path dependence characterizing ‘specifically those historical sequences in which contingent events set into motion institutional patterns or event chains that have deterministic properties’ (Mahoney, 2000: 507), narrative analysis is considered most useful ‘when temporal sequencing, particular events, and path dependence must be taken into account’ (Mahoney, 1999: 1164).

With causal narrative, which has been formalised through the procedure of event structure analysis (Corsaro and Heise, 1990; Griffin, 1993; Heise, 1988, 1989, 1991; Isaac, Street and Knapp, 1994), thick description of the sequence of events of a single case are used to identify the causal mechanisms at work in the sequence.

For the purposes of preparing for the path dependence analysis, for example, my first task when studying the *forming* of the IDA was to source the raw material necessary to construct a running chronology of the events that constitute the organizational forming sequence for the IDA (Donnelly, 2007, forthcoming). The starting point for the chronology was the period immediately prior to the general election of 1932 to provide context for the creation of the IDA as an administrative body in 1949, when the alternative was to continue with the status quo option of the Department of Industry and Commerce, and the end-point marks the restructuring of the IDA into three separate agencies – Forfás, Forbairt (subsequently, Enterprise Ireland in 1998) and Industrial Development Agency Ireland– in 1994.

In terms of the data that I used to build the chronology and write the narrative, I had recourse to both archival and interview material. The primary and secondary archival sources to which I had access were those available in the public domain, and included:

- Oireachtas (parliament) archives, which cover debates and questions from the foundation of the state (1922) to the present.
- Media archives.
- Government-sponsored reports/reviews.
- Government policies and economic programs.
- National Archives, which cover civil service department records from the foundation of the State (1922) up to 1976.
- Legislation.
- IDA Annual Reports, 1969/70 to 1994.
- Published work (e.g., articles, books, reports, monographs) relating to the period under study.

In addition to archival material, I also conducted semi-structured interviews with three key decision-makers with intimate knowledge of the IDA and much of the period under study, namely the past and then current chief executives.

I was mindful that my work entailed historiography (Thies, 2002: 351) and, even though *'there is no such thing as a definitive account of any historical episode'* (Gaddis, 2001: 308, emphasis in original), I pursued a number of strategies to minimise the potential adverse effects of investigator bias and unwarranted selectivity in the use of materials from the historical record. Principally, I sought to cross-reference and triangulate with various sources of evidence so as to maximise coverage and bring to light inaccuracies or biases in the individual sources, in the process constructing a more accurate account (McCullagh, 2000; Thies 2002). For example, to avoid the problems associated with interview data, e.g., analysing or describing the past from the viewpoint of the present (Butterfield, 1931; Thies, 2002) or interpreting interviewee accounts in favour of the way they saw events, I sought to triangulate with other sources of evidence – e.g., archives, newspaper and other contemporaneous accounts – so as to minimise inconsistencies, inaccuracies or biases in these individual sources and ultimately provide a more accurate account. Equally, concerning secondary sources, I followed Thies (2002) recommendation to start with the most recent contributions and then work backwards, the aim being to note the 'facts' that have stood the test of time.

In the knowledge that the record was incomplete, I am inclined towards viewing the 'results [of my research] as the uncertain product of an incomplete evidentiary record' (Elman and Elman, 2001: 29). Compounding this problem, the primary and secondary sources available to me were still too large to consider on my own, thus necessitating yet more selectivity in the

sources I used. As such, I was upfront in acknowledging the potential impact of this selectivity on the judgments or inferences I made.

**Data analyses.** In order to interpret sequential events as chapters of a coherent story, particularly where the narrative spans time periods with events located in different temporal contexts, it was necessary to isolate the mechanisms/steps through which a preceding event influenced a succeeding event. Approaching path dependency through the narrative method of event structure analysis offered the rigorous means through which to sort events into temporally explanatory sequences, by isolating conditions or choices that eliminated options and pointed history in a particular direction, for subsequent analysis and explanation.

Event structure analysis (ESA), and its associated computer program ETHNO (available as freeware from <http://www.indiana.edu/~socpsy/ESA/home.html>), permits the development of causal, interpretive based explanations of narrative. Originally developed to study cultural routines (Corsaro and Heise, 1990; Heise, 1989), ESA has since been applied by many researchers to the study of historical narratives (e.g., Griffin, 1993; Isaac, Street, and Knapp, 1994), including those of organizational change (Stevenson and Greenberg, 1998, 2000), industrial and interracial unionism (Brown, 2000; Brown and Brueggemann, 1997; Brueggemann and Boswell, 1998; Brueggemann and Brown, 2003), and organizational decline/life histories (Hager, 1998; Hager and Galaskiewicz, 2002; Pajunen, 2003). According to Griffin (1993: 1107), ESA can ‘be used to illustrate or test virtually any processual theory.’

Narrative and event structure analysis. As noted by Czarniawska-Joerges (1995: 15), narrative can be seen as ‘a sequential account of events, usually chronologically, whereby sequentiality indicates some kind of causality, and action – accounted for in terms of intentions, deeds and consequences – is commonly given a central place.’ Narratives have an explicit start

point, a sequence of intervening events, and an end point that is reached through the many paths and the interrelationships between the intervening events (Griffin, 1992). A narrative explanation depends on these unfurling interconnections to explore the process leading to the outcome under investigation. As the story develops, there are contingencies, conjunctions and paths to be considered that might change the general flow of the narrative. As such, narrative explanation has to absorb the order of events and the position of an event in the story (Gotham and Staples, 1996).

With a coherent story line, it becomes possible to explain events at one point in time with reference to previous developments in the plot. Thus it is that the researcher-as-storyteller comes to identify the inherent logic that causes one event to follow from another (Abbott, 1992; Griffin, 1993; Isaac, 1997). Approaching explanation through storytelling provides what is considered a good way to represent how causal relations are rooted in particular contexts and performed over time (Haydu, 1998).

However, narrative alone does not provide causal explanations of path-dependent processes for, as Griffin (1993) notes, chronological order does not automatically yield causal significance. Further, on its own, narrative description can obscure explanation through its inability to recognise that an event may not have impact until much later in a sequence of events (Griffin, 1993). In order to shift from simple description towards understanding how causal processes are embedded in temporal streams, how some sequences have no tangible effect on the outcomes of events and how parallel sequences of events can emerge from an event and possibly converge on a significant turning point, rigorous systematic methods for analysing narratives are essential (Griffin, 1993). Because it is based on a formal mathematical logic, ESA makes

possible the development of a dynamic, causal interpretation of the primary narrative that can be replicated and generalised.

For example, having constructed the running chronology of events that constitute the organizational forming sequence for the IDA, I then used the ETHNO program to help me develop my interpretation of the causal relationships, the path dependencies, and the critical points in the organizational forming process. I entered each event into the ETHNO program in chronological order and, as each new event was entered, ETHNO posed a series of yes/no questions to me that asked for clarification about whether an event entered earlier was necessary for the occurrence of this new event. Through this process of interrogation, I was able to break down the running chronology of the narrative and reconstruct it with causal connections based on my 'expert judgments' (Griffin, 1993).

ETHNO, it has to be said, does not determine causality. Rather, I structured and interpreted the narrative events, based on information and knowledge I had to hand (Griffin, 1993, Isaac, Street and Knapp, 1994). Through the use of 'yes/no' queries, ETHNO obliged me to be clear-cut and thorough in my assessments about the association between particular events and to evaluate these events causally, not chronologically (Griffin, 1993). The heuristic of event structure analysis, and its associated ETHNO tool, allowed me to hone my understanding of the causal relationships between the different events. In so doing, I was in a position to verify which events had no effect and how certain events had consequences for the future even though they did not trigger anything in the present. With the help of ETHNO, I decomposed organizational forming into a series of events such that path dependencies were identified and made clear. Figure 2 below presents a sample ETHNO output showing associations between a series of events.

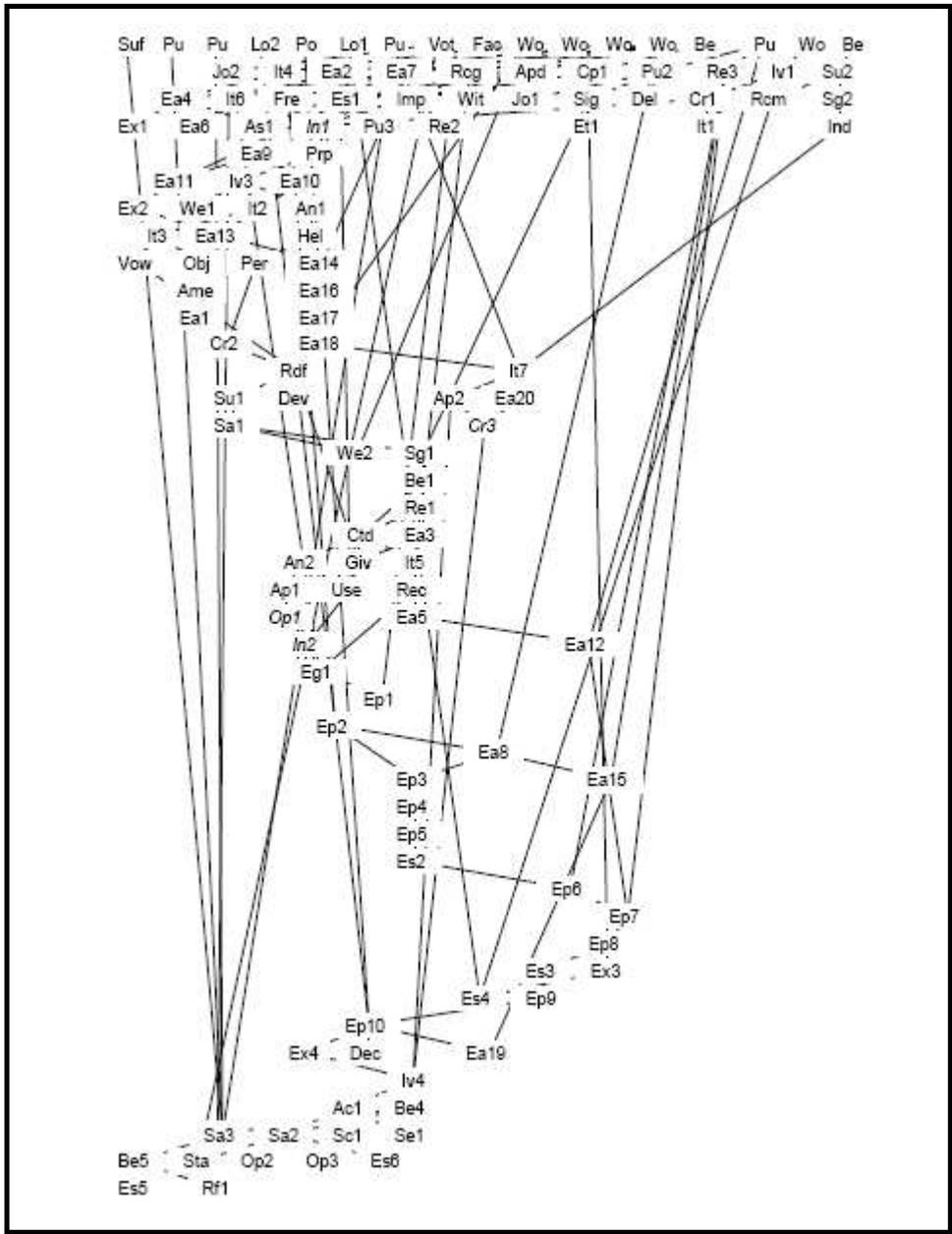


Figure 2 – Sample ETHNO output showing associations between a series of events.

Path dependence interpretation and explanation. The resulting event structure then facilitated causal interpretation and explanation of the process of organizational forming in respect of the IDA from a path dependence perspective. The resulting path dependence narrative covers the initial critical juncture, when events triggered creation of the IDA and the period of reproduction, in which positive feedback mechanisms (e.g., large set-up or fixed costs, learning effects, coordination effects, adaptive expectations) reinforced the IDA. Thus, the path dependence narrative commenced with a historical fork in the road (contingency), pinpointed the turn taken and called attention to how ensuing developments rendered the choice irreversible.

In the case of the IDA (Donnelly, 2007, forthcoming), we see its emergence at a critical juncture in 1949 and subsequent institutionalisation within the Irish industrial development landscape. Telling the story of the IDA from a path dependence perspective entailed charting the sequence of events at the centre of its emergence and evolution over time. At a key choice point or critical juncture, when antecedent historical conditions defined a range of available options, the industrial/economic development agency was selected and subsequently evolved, through self-reinforcing and positive feedback mechanisms, and was challenged, during periods of possible discontinuity, over time.

In the final analysis, from relatively contingent and unpredictable beginnings has evolved 'the IDA' as organizational form. Both the forces for structural persistence and those of reactive sequences have contributed to producing and reproducing an increasingly fine-tuned, specific asset, an organizational form that, *ex ante*, could not have been predicted when it was first established.

## CONCLUSION

This chapter draws together the theoretical arguments underpinning the analysis of path dependent processes, organised around Mahoney's (2001) analytic structure (Figure 1 above). In the course of pre-critical junctures, when antecedent conditions are at play, at least two alternatives are open for selection and potential processes influencing the choice made at the critical juncture become active. The choice is consequential because it leads to the creation of a pattern that endures over time, nudging history down tracks that then, through the stubborn persistence of subsequent continuities, become increasingly difficult to reverse. It is here that positive feedback processes become active, with fixed costs, learning effects, coordination effects and adaptive expectations coming into play and contributing to structural persistence. Thus it is that, once a specific selection has been made, it becomes increasingly difficult with the passing of time to return to the initial critical juncture when at least two options were still available. In sequences with self-reinforcing properties, initial steps in a given direction produce further movement along the same path, such that over time it becomes difficult, if not impossible, to reverse direction.

The continued existence of the organisational over time activates a sequence of causally linked events that, when activated, materialise separately from the institutional factors that originally produced it. In such reactive sequences, which comprise chains of events that are both temporally ordered and causally connected, the final event in the sequence is the outcome of interest. With each event within the chain a reaction to temporally antecedent events, and thus dependent on prior events, the overall chain of events can be viewed as a path culminating in the outcome. A reactive sequence is often set in motion by an initial challenge to the existing institution, with counter-reactions to this opposition then driving ensuing events in the sequence.

Reactive sequences are normally marked by properties of reaction and counter-response as institutional patterns put in place during critical juncture periods are resisted or supported. Although such resistance may not lead to the transformation of these institutions, it can trigger an independent process that includes events leading to a result of interest. The tensions of a reactive sequence usually yield more stable final outcomes, which involve the development of new institutional patterns. While such outcomes suggest fairly stable equilibrium points, they will inevitably become displaced by new periods of discontinuity signalling the end of a particular critical juncture and possibly the start of a new one.

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