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The competition and evolution of ideas in the public sphere: a new foundation for institutional theory

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Abstract. This paper advances and defends the proposition that the basis for the evolution of institutions is the evolution and competition of ideas in the public sphere. This is based on a deeper proposition that institutions are ideas and ideas become institutions. We draw on the 'Brisbane School' of evolutionary/institutional economics and of behavioural/psychological economics to investigate the microdynamics of the competition of ideas in the public sphere, which has been studied at a macroscopic level by Isabel Almudi, Francisco Fatas-Villafranca and Jason Potts. The theory we develop gives us a new vision of institutional evolution as emerging from the microdynamics of the evolution and competition of ideas in the public sphere, and a new foundation for institutional theory. It gives us a new vision of the microdynamics of institutional evolution, the evolutionary fitness of ideas for competition in the public sphere and the likely path of institutional evolution.

1. *Apologia* for an immodest proposal

The purpose of this paper is to advance and defend a proposition. That proposition is that the basis for the evolution of institutions is the evolution and competition of ideas in the public sphere. This proposition rests on a deeper proposition that institutions are ideas, and ideas become institutions.

The catalyst for this proposition is the contributions of Almudi *et al.* (2017a, 2017b). Their idea, inspired by the work of Mancur Olson (1965), is that it is valuable for economics to seek an understanding of how 'utopias' compete in the public sphere through the efforts of individuals to communicate and promote them. Utopias in their work are political ideas to which individuals adhere, and between which they 'move', which concern the way in which socioeconomic institutions, and therefore socioeconomic systems ought to be ordered. Their work is fascinating and fruitful, allowing us to understand how a small group of dedicated advocates may cause a particular utopia to come to dominate the public sphere. Yet their idea may be extended and developed in order that it may

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be applied to the roots of institutional theory directly, drawing on the ideas of Earl and Potts (2004) about the 'market for preferences'.

The idea may be extended and developed by drawing on the view proposed by the 'Brisbane School' of evolutionary/institutional economics. This school, best summarised in Dopfer *et al.* (2004); Dopfer and Potts (2008); Dopfer (2012), views the process of evolution in the economy as one in which the unit of selection is the institution, understood as a *rule* in a very general sense (Dopfer, 2004). These rules are not only external rules governing behaviour, in fact they are more interesting when they are *internal* rules guiding thought and behaviour. The economy evolves, as does the underlying rule structure of society, by the origination and diffusion of new rules guiding thought and behaviour.

The idea may be operationalised by making use (again) of the Brisbane School view of behavioural/psychological economics, especially the contributions of Peter Earl (1983, 1986a, 1986b, 1990, 1992, 2010, 2013, 2017). This school of thought, inspired especially by the work of Herbert Simon (1947, 1955, 1956, 1959, 1967, 1969, 1976, 1978a, 1978b) sees behaviour guided not so much by 'rational' considerations of trade-offs between utility and disutility as by rules contained within the mind. This view has in recent years coalesced into a model of the mind as an evolving network structure that expresses personal knowledge of the world (Polanyi, 1958) and ideas within it expressing rules that guide thinking and behaviour.

The present work seeks to attempt to continue the task begun largely by Hodgson and Knudsen (2010) to develop a new, coherent vision of social and economic evolution and to reconcile it, to the extent that it is necessary, with the Brisbane School of evolutionary/institutional economics. It extends these schools of thought by offering a more explicit theory of the origins of institutions and their emergence at the societal level from the competition and evolution of ideas in the public sphere. By taking the approach we do, we are seeking in fact to simplify institutional theory relative to Hodgson and Knudsen (2010), while honouring their achievements and those of the Brisbane School.

Our proposition has value because it allows us to place institutions and their evolution at the core of a coherent and fully formal theory of behaviour, economy and society that is intellectually competitive with mainstream economics (Harstad and Selten, 2013). It also allows us to obtain a view of the microdynamics of the process of institutional evolution, and of especial importance, it allows us to obtain a new theory of what determines the evolutionary fitness of an idea for the competition of ideas in the public sphere whereby, if successful, it will become an institution. Thus this work gives us a new vision of the likely path of institutional evolution. We can establish the 'shape', as it were, of ideas that are likely to succeed in becoming institutions. This is not of merely intellectual interest but also of practical interest for policymakers and business strategists who are tasked with inducing changes of behaviour.

We proceed as follows. In the next section, we defend the proposition that institutions are ideas and ideas become institutions, considering first how this is compatible with current and historical thinking about institutions and then using this proposition to place institutions in the context of a theory of behaviour. We then consider the manner in which institutions evolve with respect to an individual person, and how they may be communicated as ideas in the public sphere that compete for adoption as institutions, and fade into insignificance as they become irrelevant. We then shift perspective from the microdynamics of the evolution and competition of ideas and use this to inform a macroscopic view of institutional evolution and the emergence of *demes*, which extends the Brisbane School theory of evolutionary/institutional economics and fuses it with the vision that Almudi *et al.* (2017a) provide of the competition of utopias. We conclude by considering how this provides us a valuable new foundation for institutional theory. Our purpose is not here to provide a fully mathematical and rigorous theory, but to introduce and defend an idea. Technical aspects, formal expression and proofs of this theory are provided in a technical document (Markey-Towler, 2016a) that is available open-access.

2. What are institutions?

It is almost a cliché to note, but there has traditionally been a significant degree of contention and confusion over what is meant by the concept of an 'institution'. We wish here to make some attempt at a sort of resolution that allows us to move toward a new foundation for institutional theory. We will first argue for our proposition that institutions are ideas and ideas become institutions relative to the history of institutional thought guided by the monumental synthesis provided by Hodgson (2004). We will then use this proposition to place institutions and their evolution at the core of a coherent and fully formal theory of behaviour[1] developed as an extension of the contributions of Peter Earl (Earl, 1983, 1986a, 1986b, 1990, 1992, 2010, 2013, 2017).

Institutions are ideas, ideas become institutions

We can arguably discern four major currents of thinking about institutions in modern institutional economics, all of which in a sense stem from different interpretations of the original institutional economists. The 'originals' see institutions as rules of one form or another that guide behaviour and interaction. Institutions are rules that guide individuals to behave a certain way in an economy or in society (Veblen, 1898, 1899, 1904, 1914), that guide individuals in their interactions with technology (Ayres, 1944, 1953),[2] that inform the individual how to act lawfully (Commons, 1924, 1931, 1934),

1 See Markey-Towler (2016a, 2017a, 2017b).

2 See also the excellent discussion of Ayres' thought in Lawson (2015a).

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that, given sufficient commonality between individuals, guide their behaviour *en masse* (Mitchell, 1913) and that organise socioeconomic interaction between individuals (Hamilton, 1919).

'New Institutional Economists' tends to focus on the idea of institutions as rules for organising societal action and interactions between individuals. Oliver Williamson (1975, 1979, 1985, 2002) and Ronald Coase (1937, 1984) in particular are especially interested in the governance of organisations, and see institutions as constraints upon selfish or inefficient behaviours that are committed to rationally in a strategic setting. Douglass North (1990, 1991) and Elinor Ostrom (1990, 2000)[3] place less emphasis on rational commitment, instead seeing institutions as rules emerging from an evolutionary game that facilitate cooperation and mutually beneficial interaction. For Williamson and Coase institutions exist in the organisational 'flowchart' indicating the hierarchical structure of who has authority to direct the action of whom, while for North and Ostrom institutions define the scope of acceptable action in a socioeconomic setting (particularly, in Ostrom's case, with respect to the use of Common Goods). The New Institutional Economists tend thus to focus on institutions as placing constraints on behaviour to facilitate cooperation and interaction, defining the 'rules of the game' within which individuals act and interact.

The Cambridge Social Ontologists take a more sociological view of institutions and infuse Institutional Economics with a rich philosophy of ontology, seeing institutions as guiding social action. A substantial body of work has grown up in particular around the debate[4] between John Searle and Tony Lawson[5] about the interpretation and analysis of institutions as rules of a form 'individual *i* is *j* in situation *k*', where *j* is some social position or role with rights, obligations and empowerments to act. Where Searle (2010) views the social role *j* as the outcome of declarative and expressive speech acts, Lawson (2015b) sees it as a constitutive social position emerging from a long period of interaction between individuals. Searle sees an institution as encapsulated in a statement of who is the Chief Executive Officer of a company or such like, while Lawson sees an institution as a position within a company emergent over its history that various employees come to occupy and vacate. They are, again, somewhat 'external' to the individual, almost independent of any individual mind.

What we might call 'institutional economics' (contra '*new* institutional economics'), which arguably remains the most faithful to the vision of the 'originals' and is encapsulated in the works of Hodgson (1998, 2010) and Hodgson and Knudsen (2010), takes a more 'inward' view of institutions. We can see in the works of the original institutional economists their concern

3 See also Ostrom and Basurto (2011).

4 See the introduction by Faulkner *et al.* (2017) to a recent special issue of the *Cambridge Journal of Economics* dedicated to Cambridge Social Ontology.

5 See Lawson (2003, 2009, 2012, 2015b, 2015c, 2015d) and Searle (2010).

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with the *psychological* basis for institutions. They were heavily influenced by the pragmatic philosophy and psychology of John Dewey and William James especially. Following them, institutions are thought to be based in *habits*, properties of the individual's mind that establish proclivities and tendencies toward certain patterns of behaviour due to underlying patterns of thought (Hodgson, 2010). As the individual goes through life, their habits evolve as the individual modifies them in light of experience, and spread from individual to individual through communication by example or exhortation. These habits then become institutions, guiding individual thought and behaviour in society (Hodgson, 1998).

The Brisbane School of evolutionary/institutional economics, as set forth by Dopfer (2004) and Foster (2006) and synthesised in Dopfer *et al.* (2004) and Dopfer and Potts (2008), goes one step further again by proposing directly that institutions are *rules*, rules for thinking about the world and rules for acting in the world. Institutions manifest themselves in the cognitive rules that govern thought and behaviour (Dopfer, 2004). As any given rule evolves and spreads to govern the operation of more individual minds, we observe the emergence of rules across society with sufficient regularity to allow us to identify them as 'meso-rules', institutions that guide thought and behaviour in society.

A mixture of the view of institutional economics and the Brisbane School is compelling. Institutions are rules, or habits in the mind of individuals that guide their thought and influence their behaviour. It is in this sense which we will say that institutions are ideas and ideas become institutions. Ideas mediate between sense-data and behaviour, they are structures of thought that guide our thoughts and influence our behaviour. If they are selected by the process of institutional evolution, they will become institutions guiding thought and behaviour in society.

Now by this notion we do not mean to conflate the origin of institutions with memetic theory. Our concept of ideas is quite specific and is not isomorphic to the concept of the meme advanced by Dawkins (1976), which fails to distinguish adequately between genotype and phenotype as required by the discipline of biology to which it belongs.[6] Here, ideas are connective structures that, if incorporated into personal knowledge and the mind, guide the thought and behaviour of the individuals who so 'carry' them. They, unlike memes, have no agency in and of themselves as objects of an evolutionary system, nor any meaningful existence outside of their being 'carried' by individuals.

If we look thus at institutions as ideas we can bring a whole new psychology into institutional theory (that of Earl, 1983, 1986a, 1986b, 1990, 1992, 2010,

6 Hodgson and Knudsen (2010) discuss the troubled notion of the meme at various points throughout their work, and conflate it with the concept of ideas. We reject here Dawkins' assumption that ideas are to be conflated with his notion of memes.

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2013, 2017)[7] and place institutions within a coherent theory of psychology contained within a coherent theory of socioeconomic systems, which is formalisable and intellectually competitive with neoclassical economics. Further, we can use that theory to understand exactly how institutions intermediate between world and behaviour in a manner consistent with the view of institutions as habits (Hodgson, 1998, 2010; Hodgson and Knudsen, 2010) or rules (Dopfer *et al.*, 2004; Dopfer and Potts, 2008) guiding thought and behaviour, as well as extract a theory of the microdynamics of their evolution and competition.

Institutions as ideas: intermediating between world and behaviour, creating outward manifestations

We can show that the economic psychology of Peter Earl (1983, 1986a, 1986b, 1990, 1992, 2010, 2013, 2017) extends institutional theory to show exactly how institutions intermediate between world and behaviour and give rise to their outward manifestation in our economies and social systems. In this theory ideas, thus institutions, are part of personal *knowledge*, which guides thought about the world and influences behaviour within it, and knowledge about the world grows and decays in very particular ways.

The central proposition emergent from the Brisbane School of behavioural/psychological economics is that the mind might be understood as a *network* structure, where thought is a *connection* between two objects or events in the world. This proposition is consonant with the philosophy of Hume (1777) and Kant (1781) (who speak of thought as 'connexion'), with Dewey (1910) (who speaks of thought as 'inferring unseen relations'), with Kelly (1963) (who speaks of thought as 'channelised' through constructions of reality), with Boulding (1961) (who speaks of thought as 'filtered' through our 'image' of the world) and Hayek (1952) (who speaks of thought as 'classification' according to our 'map' of the world). Nodes in this network consist of conceptual representations of the objects and events of our reality (goods, services, media of exchange, people, attributes thereof, descriptors, needs, desires, emotions) within both our external *and* internal environment (Simon, 1956, 1967). Connections consist of the relations we construe between these objects and events. Polanyi (1958) would speak of this network as expressing our *personal knowledge* of the world. The psychological process operates within and upon this network. Ideas, thus institutions, exist within personal knowledge as subsets of connections that guide our thinking about particular objects and events.

Perception provides the interface between the world and the mind (Merleau-Ponty, 1945, 1948). The world is information manifest (Shannon, 1948a, 1948b), which our perception transforms into *percepts*. These percepts reveal the objects and events contained within the environment of the individual as conceptualisations of them in the mind (a subset of *nodes* within our mental

7 Formalised and extended by Markey-Towler (2016a, 2017a, 2017b).

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network), as well as revealing any apparent connections between those objects and events (not limited to those already contained in our mind).

Analysis consists of the application of personal knowledge to understanding the relation between the objects and events in the environment. The connections that connect those percepts elicited by the environment are applied to form an understanding of the environment in which the individual finds themselves. As Hayek (1952) put it, a 'model' of our environment emerges from our 'map' of reality. It may be demonstrated[8] that these connections may be understood as the steps in long-form algorithms that express *rules*, so the process of analysis may be understood as the application of rules for understanding the environment. Thus are our institutions, our ideas about how the world is and ought to be, applied to make sense of our environment.

There is a truth to rational choice theory, and it is this: we choose what we *think* to be the best course of action out of all feasible alternatives. Preferences exist, but they are not defined as a transitive and complete preference ordering over courses of action *à la* Mas-Collel *et al.* (1995); Rubinstein (2006); and Jehle and Reny (2011). They exist in the aesthetics attached to our thought by consciousness (Nagel, 1974; Searle, 1997), and they are defined on our *analysis*, our *thinking* about our environment. Each available course of action has a set of thoughts connected to it, which we may understand as *implications* the individual thinks will attend upon them or the outcomes they expect, or the applications of the criteria of behavioural rules to them. The action with the most preferable set of implications is the one that is selected.[9] Using this model of the psychology of behaviour, a coherent and fully formal model of the economy as a complex evolving network formed by individuals acting on the basis of their psychology and socioeconomic environment has been developed at the University of Queensland as a legacy of the Brisbane School.[10]

Now if preferences are 'rule-trivial' (align with the dictates of a behavioural rule such as an institution), then that action which will be selected by the individual will be that which is 'selected' by the behavioural rules in their psyche.[11] Note the 'if'. Institutions, rules in the psyche, *influence* but do not necessarily *determine* behaviour, they are a *proclivity*, a *tendency* rather than a necessity. They are not strict rules so much as they are *habits*. In this sense, the theory allows for a 'pragmatist' view of psychology (Hodgson, 2010) to coexist with a rules-based cognitive psychology (Simon, 1969) and to become somewhat reconciled with 'reason-based' theories of choice (Elster, 2009).

Institutions understood thus as subsets of our knowledge, of our ideas of how the world is and ought to be, intermediate between the outer world and

8 See Appendix B of Markey-Towler (2016a).

9 If it exists – and it may not, which leads to decision paralysis.

10 This model is set forth in a technical document (Markey-Towler, 2016a), available open-access.

11 The formal properties of this relationship are studied in Markey-Towler (2017a).

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our behaviour. They operate on information in our world, guide our thinking about it and inform our behaviour. They give rise to the outward manifestations of institutions in behaviour, documents, symbols and architecture in the outer world that then in turn serve as inputs to our thinking and behaviour.

Immediately we see the importance of outward manifestations of institutions in behaviour, documents, symbols and architecture. These are part of the environment that informs our thinking about behaviour, and they interact with the institutions in our mental networks, our ideas about the world and how to act in it. This reconciles, to some extent, the new institutional economics and Cambridge social ontology with institutional economics and the Brisbane School.

So institutions are profitably thought of as ideas that guide thought and influence behaviour. The question is now how ideas become institutions.

3. The evolution and competition of ideas in the public sphere

Additional value is gained for institutional theory by the concept that institutions are ideas and ideas become institutions because the theory that operationalises it gives us a definite view of the manner in which they develop and evolve. The theory elaborates not just the means by which ideas become institutions and causes them to develop and evolve, but also what properties of ideas will cause them to be more likely to become institutions and cause them to develop and evolve. This offers us a view of the *microdynamics* of the evolution of institutions and thus of the likely path of institutional evolution.

In elaborating this theory of institutional evolution we will first consider the means of institutional evolution (evolution and competition of ideas in the public sphere) and from whence new ideas emerge that may become institutions. Then we will investigate their fitness for the competition of ideas in the public sphere; what makes them more likely to be selected and retained as institutions by the competition of ideas in the public sphere at the micro level. Finally we shall consider how institutions decay. This will leave us with a vision of the microdynamics of the process of institutional evolution upon which we may build a view of the process of the emergence, development and evolution of institutions at a macroscopic level.

Innovation, habit formation, public reason and the market for preferences

There are two ways in which new ideas are presented to the mind of the individual.[12] The individual may *create* them as *a priori* synthetic statements (*à la* Kant, 1781) or 'bisociations' between objects and events in the world (*à la* Koestler, 1964), or they may *perceive* them as apparent relations between objects and events in the world presented to them by sense-data (*à la* Hume, 1777).

12 For the technical details of this aspect of the model see Markey-Towler (2016a).

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Therefore, one source of new institutions, and arguably the *ultimate* source, is *innovation*. People might *create* connections between objects and events in the world, *create* new ideas about the world, how to think about it and how to behave in it. They may invent new ideas that are then applied to thinking about the world and how to behave in it, which may become institutions if selected by the process of institutional evolution.

Another source of new institutions is what we might call habit formation (Hodgson, 2010; Winter, 2013). Ideas about how institutions might be modified are presented in the sense-data available to the individual without having been directly communicated by the actions of another. This occurs whenever the individual is considering the outcomes of their behaviour and connections are presented to their mind about whether their actions and the institutions that support them require modification or may be maintained in light of the desirability of those outcomes.

Once we consider that connections may be apparent in the communication of others, the source of new institutions becomes very interesting, for ideas may actually be *spreading* between individuals as a result of their communication of ideas. This is the point at which the public sphere enters as the arena in which institutional evolution proceeds. Ideas evolve relative to an individual as that individual creates them and modifies them in the light of experience, but they spread *between* individuals as ideas are communicated between them by word or by deed and become institutions guiding thought and behaviour, mediating between the world and behaviour.

The public sphere, as Habermas (1962) defined it, is a medium for interaction. It consists of essentially all but intra-familial interactions. In ancient times the public sphere was largely confined to the physical space of the *agora* or *forum* (the public square) but in modern times it pervades not only our workplaces but also our homes, aided by broadcasting and social media. The public sphere is the medium in which the process of public reasoning proceeds, in which individuals come together to argue and debate ideas about the way society ought to be ordered (Sen, 2009). It is the medium in which the 'market for preferences' functions, where individuals seek advice and others seek to persuade by communicating ideas that, becoming institutions, will guide thought and behaviour by guiding preferences (Earl and Potts, 2004).

In the public sphere, many ideas are being communicated between individuals by deed and word in the public sphere that, if adopted and incorporated into the mind of individuals on a societal scale, will become institutions. Ideas are in this sense *competing* to become institutions. In the competitive process these ideas are adopted and incorporated at differential rates into the minds of individuals.[13] Now insofar as a population of ideas is acted upon thus by a process of selection

13 The concept corresponding to this concept in Almudi *et al.* (2017a, 2017b) is the movement of individuals between 'utopias' – between political ideologies.

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(competition in the public sphere generates a tendency for an anterior population of ideas to be resolved into a posterior population), we can thus broadly say that the public sphere is an evolutionary system (Beinhocker, 2011; Price, 1970, 1972a, 1972b; Page and Nowak, 2002). New ideas are generated, they diffuse and are selected for retention as institutions by the process of competition in the public sphere.

The public sphere thus conceived here is an evolutionary system in a simpler sense than in Hodgson and Knudsen (2010). Our theory does not seek to become particularly involved in debates about what is a 'replicator' and what is an 'interactor'[14] or whether a selection process is subset or successor selection, or really a diffusion process.[15] It is an evolutionary system in the basic sense that the population of ideas carried by individuals evolves over time by the operation of a selection process and is reconciled to a population of institutions held by individuals on a societal scale. There is variation of ideas held by society, selection among them by the process of competition in the public sphere and retention of them as institutions.

Thus the public sphere is an evolutionary system in which the unit of selection is the idea. Institutions develop and evolve as ideas are selected for retention by being differentially adopted and incorporated into individual minds in the process of competition in the public sphere. The selection pressures on any particular idea competing for retention in the public sphere are exerted by the factors that govern whether an idea will be adopted and incorporated into the mind or not.

Selection pressures: what makes ideas evolutionarily fit for competition in the public sphere?

There is a gap between the presentation of an idea to the mind of the individual and its adoption as an institution guiding thought and influencing behaviour created by the phenomenological 'I' (Luijpen, 1969). This gap creates the possibility of ideas having a different fitness for the competition of ideas in the public sphere based on their characteristics, and thus allows us to establish the likely path to be taken by institutional evolution.

Whether an idea *will* be adopted by the phenomenological 'I', or 'assented to', to use the term of John Henry Newman (1870), and incorporated into the mind is beyond the delimitation of process and procedure. However, if we extend some properties of the Brisbane School theory of psychology and behaviour concerning the evolution of mental networks we can establish a number of

14 Though to be quite clear, ideas here are what Hodgson and Knudsen (2010) would define as a 'replicator' and individual people here are what Hodgson and Knudsen (2010) would define as 'interactors'.

15 Though, again to be quite clear, the competition of ideas in the public sphere operates through what Hodgson and Knudsen (2010) would call diffusion (copying of replicators between interactors) and subset selection, which promotes certain replicators and demotes others as the result of interaction.

factors that impact on the *likelihood* that any given idea will be adopted. This likelihood is what determines the fitness of any given idea for the competition of ideas in the public sphere.

Three psychological factors have a bearing on the likelihood that the phenomenological 'I' will assent to any given connection presented to it and incorporate it within the individual's mental network:

- **The law of suggestion:** if a connection is perceived as an apparent relation between objects and events in the environment then it is more likely to be incorporated. This law is intuitive, almost trivial: without a connection being revealed to the individual we cannot know if they will create it *ex nihilio*. It is important for the manner in which it interacts with the phenomenon of *salience* in perception (Kahneman, 2003; Vernon, 1962).
- **The law of resistance at the core:** if a connection were to modify mental networks at a highly 'central' location it is less likely to be incorporated. This is the corollary of George Kelly's (1963) work, which informs us that there are hierarchical 'core–periphery' structures in the mind and that it is uncomfortable to change our mental networks.
- **The law of resistance to dissonance:** the more a connection would imply the opposite of connections already within mental networks the less likely it is to be incorporated. This is the corollary of Leon Festinger's (1957) work, which informs us that discomfort is caused by notions that contradict our mindset.

If we extend the above properties to the likelihood that an idea as a whole will be incorporated into the mind, we arrive at the following result.[16]

Theorem (When are ideas 'made to stick'?). *Subject to certain technical properties, the likelihood of an idea being incorporated into mental networks is:*

(1) *Decreasing in the number of connections contained within the idea.*
(2) *Increasing in the number of connections within the idea already contained within the mind.*
(3) *Increasing in the noticeability (salience) of the information between percepts of which connections will be construed within the idea.*
(4) *Decreasing in the dissonance of each individual connection within the idea with the individual's understanding of their environment.*
(5) *Decreasing in the network centrality within mental networks any individual connection within the idea.*

An idea that is highly likely to be assented to and to become an institution intermediating between world and behaviour, guiding thought and influencing behaviour, therefore needs to have the following properties. It must be simple, comprised of as few connections as possible (condition 1). It must build, to as great an extent as possible, on institutions *already* contained within the mind (condition 2). It must connect objects and events in the individual's environment that have a powerful hold over the individual's attention, which are highly

16 See Appendix C of Markey-Towler (2017a) for a technical statement and proof.

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salient (condition 3). The idea must be consonant as possible with existing institutions currently being applied by the individual to guiding their thought and behaviour, not contradict them wherever possible (condition 4). The idea must, where possible, add connections toward the *periphery* of the individual's existing mental networks rather than their core (condition 5).

The ideas that are most likely to become institutions are simple, connecting objects and events with a powerful hold over the individual's attention, and building on established institutions without contradicting them.[17] These ideas are evolutionarily fit for the competition of ideas in public sphere and are adopted at a greater rate and selected for retention as institutions guiding thought and influencing behaviour. These are the ideas that we are more likely to observe becoming institutions at the scale of society as the competition and evolution of ideas in the public sphere proceeds. These are the ideas that are more likely to contribute to the process of institutional evolution by being selected and retained as part of the evolution and competition of ideas in the public sphere.

Gradualist paths in institutional evolution

We can readily find examples that suggest this theory of the microdynamics of institutional evolution aligns well with the data. Take organisational theory for instance. Jennifer Mueller (Mueller, 2017; Mueller *et al.*, 2012) has identified a bias against creativity in organisations – a resistance to adopting significantly new techniques and strategies. Our theory of the competition and evolution of ideas in the public sphere thus far provides an institutional theory for this resistance. It is difficult to ensure that the institutions that would become significantly new techniques or strategies in the minds of organisational 'gatekeepers' will limit significant changes to existing institutions in their mind while building on the periphery of existing institutions. It is more likely they will require a fairly fundamental change to the way the gatekeeper thinks and acts, so we can expect the process of institutional evolution within the organisation to be slow. Radical ideas are rarely fit for the competition of ideas in the public sphere *a priori*, they require careful exposition and rhetorical skill if they are to be promoted.

Institutions are necessary not only to facilitate the functioning of organisations and production processes, however. They are also necessary to support the emergence of technologies. No technology can emerge for which the institutions guiding thought and behaviour pertaining to its use and value are not contained within personal knowledge of the world. This is the starting point for the institutional theory of Ayres (1944). Hence a critical factor in the emergence of these technologies is the ability of their inventors to introduce ideas into the public sphere about their use and value that are fit for the competition of ideas.

17 In practical terms these conditions can become difficult to assess, though they have a definite reality. The difficulty arises from the nature of language and the complexity of the psyche. Dealing with them becomes the *art* of rhetoric.

These inventors need to be able to communicate ideas about the use and value of their technologies that are simple, connect objects and events with a powerful hold over the individual's attention and build on established institutions without contradicting them.

The history of the computing industry as a whole (see Jackson *et al.*, 2002) corroborates this theory of institutional evolution. Each successful advance of the technology built on what went before in a simple way, which didn't greatly contradict existing ideas. The mainframe took government technology developed for code breaking and applied it to the keeping of ledgers in organisations. The personal computer took the technology of the mainframe and miniaturised it for personal use. And in recent years, we have observed in the iPhone the fastest diffusion of a new technological good ever, thanks, our theory would suggest, to the genius of Steve Jobs in marketing the iPhone as a 'cool' and 'revolutionary' product, but one that was a bundle of well-established existing technologies.

It is interesting to note that IBM almost failed during the transition away from mainframes, not because of an inability to understand the use and value of the technology, but instead because of the difficulty of changing its massive institutional structure to facilitate a strategic change in the technologies it supplied. Gans (2016) has argued that the key to understanding organisational failure is to understand that the institutional structures of organisations are slow to change in the face of disruption. Our theory explains why, therefore, such failures are ubiquitous. It is difficult to engineer radical paths in institutional evolution.

Radical paths in institutional evolution

This theory would seem to suggest that institutions grow, but gradually: they don't change radically. However, this only appears to be the case if we see institutions as disconnected and modular. But in fact mental networks and therefore institutions are, of course, interconnected. The smallest changes localised to one point of the institutional structure can radically alter the whole. Once we recognise this, not only does our theory allow for radical changes of institutional systems, it explains the conditions under which we are likely to observe such changes.

Take an extreme literary example to illustrate the point. In Orwell's *1984* the subjects of Oceania adhere to institutions that guide their thinking and behaviour with regard to their enemies and allies: vicious all-consuming hate toward Eurasia, and alliance toward Eastasia. But really these institutions are not conditioned on a hatred of Eurasia and friendliness to Eastasia, they are conditional on the proclamations of Big Brother about who is enemy and who is ally. When Big Brother decides to flip their policy, they simply swap the names 'Eurasia' and 'Eastasia' in their speeches and the institutions of their subjects change accordingly. Two connections, 'we have never been at war with Eastasia, we have always been at war with Eurasia', are added to their mental networks, which

connect visceral ideas in the psyche and which build on and do not contradict the core institution of total adherence to the pronouncements of Big Brother. This anchor changes, and a whole institutional structure conditional on it changes too.

So if existing institutional structures are conditional upon a particular idea (which needn't necessarily be at the core of mental networks), then a change to that particular idea could bring about a radical change to the existing institutional structure. The challenge for radical institutional evolution lies in finding a localised part of the institutional structure upon which the whole is anchored and thus changes with it, and an existing institutional structure, which is minimally contradictory or even consonant with the idea. If such a location and mindset can be discovered, then a simple idea, connecting objects and events with a powerful hold over the individual's attention, which builds on established institutions while changing a part of mental networks to which entire institutional structures are anchored, is actually fit for selection and *likely* to bring about a radical change to the existing institutional structure by its adoption.[18]

How do institutions decay?

We have established the microdynamics of how institutions develop and evolve through the competition of ideas in the public sphere, but how do they decay? We have defended the notion above that institutions are ideas that exist as part of personal knowledge in the mental networks of individuals, guiding their thinking and influencing their behaviour. So as knowledge decays, so too will institutions.

One final property of the Brisbane School theory of psychology and behaviour allows us to establish the conditions under which the institutions that guide thought and influence behaviour will decay and fade into insignificance.

> ***The law of entropy in memory:*** *the 'strength' of any existing connection within mental networks decays toward zero (at which point it no longer exists) at a rate that is slowed by the number of times that connection is applied in analysis, and increases if, and only if, it is applied in analysis. This is the corollary of the law of entropy (Georgescu-Roegen, 1971; Hayek, 1952; Raine et al., 2006) and what we know about the processes that strengthen and decay neural networks (Kandel et al., 2013).*

One might be tempted to summarise the process of institutional decay pithily: 'use it or lose it'. Entropy is a natural tendency that can only be reversed by the input of energy, in this case the use of energy to apply institutions to guide thought and influence behaviour. The strength of institutions can only be increased *contra* the tendency to decay by the continual exertion of energy in their application. So when the information to which the institution applies as a guide of thought

18 This is the analogue in institutional theory of the theory of 'punctuated equilibria' advanced by Eldredge and Gould (1977).

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and influence on behaviour is no longer contained in the environment, it begins to decay toward a strength of zero, at which point it no longer exists in mental networks. It will have faded into nonexistence. The more the institution has been used in the past, the slower the decay of the institution, as it has a certain hold in the mind, but the decay is inevitable so long as it is no longer useful.

For instance, how many people in modernity know how to command a team of horses? The institutions of the car replaced these in the last century and the institutions of horse riding other than for pleasure naturally decayed, no longer being of use. How many people know how to code in defunct programming languages? As institutions are rendered no longer useful for guiding thought and behaviour, so to do they decay into irrelevance. Thus there is a feedback from evolutionary selection processes in the broader socioeconomic system (Dopfer *et al.*, 2004; Hodgson and Knudsen, 2010; Markey-Towler, 2016b; Metcalfe, 1998, 2008; Nelson and Winter, 1982) to the process of institutional evolution.

Once institutions are no longer necessary as guides for thinking about how to act in the world, they begin to fade into irrelevance. Only those institutions that are consistently necessary as guides for thought and behaviour survive, even if those that are fading have successfully been selected for retention by the evolution and competition of ideas in the past.

4. A view of how institutions emerge, evolve, compete and decay

We now have a vision of the microdynamics of the process of institutional evolution by the evolution and competition of ideas in the public sphere from which we may derive a macroscopic view of the process of institutional evolution. This view is essentially one which fuses the view of the competition of 'utopias' offered by Almudi *et al.* (2017a, 2017b) with the view of the Brisbane School of evolutionary/institutional economics (Dopfer, 2012; Dopfer *et al.*, 2004; Dopfer and Potts, 2008), incorporates the concept of *demes* introduced by Hartley and Potts (2014) and extends the whole to offer a formal vision of the process of cultural evolution as evoked by Hayek (1988).

In the beginning, an individual creates a new idea that guides their thinking and influences their behaviour. It becomes a cognitive rule, a habit mediating between the world and their behaviour. The rule evolves in their mind as they modify habits in the light of experience.

The individual exists in a public sphere in which ideas are communicated by word and by deed and thereby present themselves to the minds of others as ideas that, if adopted, will guide *their* thought and behaviour. The idea has a certain fitness for the competition between ideas, which influences the likelihood it will adopted and incorporated by other individuals and mediate between the world and behaviour in society. The differential fitness of ideas for the process of competition in the public sphere generates differential rates at which they will be selected and retained as an institution by that process. Those ideas that are

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simple, that connect objects and events in the environment with a powerful hold over the individual's attention and that build on the core of existing institutions without contradicting them will be selected and retained as institutions at a greater rate.

These microdynamics define the likely path to be taken by institutional evolution on a macroscopic scale. That path will be gradual as a tendency. However, wherever an appropriate mindset may be elicited that minimises dissonance, or is consonant with a simple idea that might build on existing structures and change a point upon which entire institutional structures are conditioned, we are likely to see radical changes in the path of institutional evolution.

As the process of the competition of ideas in the public sphere proceeds, we begin to notice the emergence of substantial populations which adhere to particular institutions that guide their thought and behaviour. These populations are what Hartley and Potts (2014) have called *demes*. *Demes* are a generalisation of what Dopfer *et al.* (2004) call 'meso-populations', which are populations classified by the roughly common rule structure to which they adhere, a 'meso-rule'. Even as they grow, *demes* evolve from within as individuals create new ideas and modify existing habits. An individual joins a *deme* whenever they adopt the ideas as an institution that characterises that *deme*. Individuals move between *demes* wherever they adopt the ideas of another *deme* and begin to adhere to its institutions, while the institutions of their prior *deme* are rendered defunct by the idea so adopted. Those institutions may still guide thought but only as a subset of the new, or in an inert fashion with respect to their influence on behaviour. This movement is what is studied by Almudi *et al.* (2017a, 2017b), and the flow factor they define is now given microfoundations in the fitness of the ideas espoused by the *deme*.

Demes grow the more their ideas are communicated by word and deed in the public sphere, and the more those ideas are shaped so as to enhance their fitness. Hence further microfoundations are provided for the notion of Almudi *et al.* (2017a, 2017b), extending on Olson (1965) that *demes* grow and ideas spread the more dedicated are their adherents to their promotion. A small, dedicated group working to *shape* and communicate a fit idea may overcome much larger *demes* that don't have such a group in the competition of ideas in the public sphere.

The limits placed on the growth of these *demes* are established first by the overall population, then by their access to the whole of the public sphere, and finally by the institutional structure of other *demes*. Where another *deme* holds to ideas that contradict those of one whose population is seeking to grow, the ability of the latter *deme* to grow by accumulating adherents from the former is constrained. It is possible, but to engineer a radical shift in those individuals' institutions as required demands they discover a location in that institutional structure upon which the structure is conditioned as a whole and a mindset that can be elicited which will not contradict, or will be consonant with, a simple idea that would change that location and thus the institutional structure as a whole.

Thus we have a vision of the macroscopic path of institutional evolution and development based on an understanding of its microdynamics. Institutions emerge from the competition of ideas in the public sphere and come to characterise various emergent *demes*, each growing and evolving by the words and deeds of their adherents. They grow, develop and evolve according to the fitness of the ideas espoused by them for the competition of ideas in the public sphere. As the conditions pass that require them to guide thinking and behaviour, these institutions begin to fade and decay. Institutions grow strong when they are being used, and they fade when they are no longer of use. Eventually they fade into irrelevance if not incorporated into some new path of institutional evolution, and become no more than history.

5. A new foundation for institutional theory

This paper has advanced and defended an immodest proposal. That proposal was that the basis for the evolution of institutions is the evolution and competition of ideas in the public sphere. That rested in turn on a deeper proposition that institutions are ideas and ideas become institutions.

This proposition was inspired by the desire to fuse the concept of utopia competition advanced by Almudi *et al.* (2017a, 2017b) with the Brisbane School view of evolutionary/institutional economics (Dopfer and Potts, 2008; Dopfer, 2012; Dopfer *et al.*, 2004), operationalise the whole using the Brisbane School's view of behavioural/psychological economics, especially the contributions of Peter Earl (Earl, 1983, 1986a, 1986b, 1990, 1992, 2010, 2013, 2017), and apply the whole to the foundations of institutional theory. We sought in so doing to begin at least to continue the task of developing a new, coherent institutional theory of society and economy begun by Hodgson and Knudsen (2010). We sought to extend their work by offering an explicit theory of the origins and emergence of institutions from the competition of ideas in the public sphere, to simplify the theory of institutional evolution somewhat, and to reconcile it, to the extent that it was necessary, with the Brisbane School of evolutionary/institutional economics.

From our efforts to this end has emerged a view of the microdynamics of the development and evolution of institutions from the evolution and competition of ideas in the public sphere. The fitness of ideas for this competition depends on whether they are simple, connecting objects and events with a powerful hold over the individual's attention, and build on established institutions without contradicting them. Fit ideas will be selected by the process of competition of ideas in the public sphere and retained as institutions mediating between the world and behaviour in society. The tendency for the path of institutional development and evolution will be a gradualist one, though under certain conditions we may observe radical changes.

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From this vision has emerged a macroscopic view of emergent *demes* of individuals adhering to certain institutions guiding thought and behaviour. Based on the fitness of their institutions as ideas for the competition of ideas in the public sphere these *demes* grow, develop and evolve through the shaping and communication of those ideas by individuals within the *deme* in the public sphere. As the conditions in the world pass that required these institutions to guide thought and behaviour, they begin to fade and decay into irrelevance.

The propositions from whence this vision emerges thus have value on two theoretical fronts, but also on a *practical* level. The vision we have of institutions here is broadly consistent with prior institutional theory, and is one that allows us to place institutions and their evolution at the core of a coherent and fully formal theory of behaviour, economy and society that is intellectually competitive with mainstream economics (Harstad and Selten, 2013).[19] We also have an understanding of what determines the fitness of an idea for the competition of ideas in the public sphere, which gives us a vision of the likely path of institutional evolution. We can establish the 'shape', as it were, of ideas that are likely to succeed in becoming institutions, and gain a new structural insight into the path of institutional evolution.

This is of *practical* value for the policymaker and business strategist. These are forever tasked with changing behaviour, and to change behaviour one has often to change the institutions that guide thinking and influence behaviour. The present contribution to institutional theory offers them a guide in efforts to that end. The policymaker or business strategist needs to become the dedicated proponent of their ideas, shaping and communicating them conscious of the ideas of the *demes* whose institutions they are seeking to change, in order that their ideas are selected by the process of competition for ideas in the public sphere, and retained as institutions in the path of institutional evolution.

Thus defended is our immodest proposal. It offers us a new foundation for institutional theory. And it offers us such a foundation as has practical as well as intellectual value.

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19 For 'proof' of this claim, see the technical document Markey-Towler (2016a).

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