

# **Dr Pangloss and the Best of All Possible Markets: Evolutionary Fantasies and Justifications in Contemporary Economic Discourse**

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## **Abstract**

The paper examines evolutionary myth-making in the economic discourse of contemporary neo-liberalism. It traces the translation of evolutionary concepts from the early twentieth century Darwinist synthesis to recent economic popularising, offering a close reading of Harford's *'Adapt'* (2011). Important points of passage in the development of ideas include the work of Dawkins, who moves from gene to 'meme' and Dennett, who insists on evolution as an algorithmic process. The paper argues that evolutionary myth-making carries a normative element, taking into economic discourse an 'adaptionist' position criticised in biology as Panglossian. It concludes with the suggestion that adaptionist arguments, if followed through, offer a powerful critique of neo-liberal ideals.

## Introduction

As is well known, the last half-century has witnessed an enormous expansion in the reach and purpose of markets. It is equally well understood that the neoliberal political discourse which has accompanied this expansion is characterised by the implementation of competition as a formal process in all kinds of management activities, and a thoroughgoing adoption of cost-benefit analysis as a measure of performance (Foucault 2008). Neoliberalism has been accompanied by a myth of the market as an evolutionary device that serves as an explanation of, and justification for, the presence of competition, red in tooth and claw, in all manner of market activities. This paper sets out to explore the development of visions of evolution in economics, culminating in its presence in the contemporary economic discourse.

Neoliberalism itself makes claims to the superiority of markets as computational devices driven by the price mechanism. Hayek, for example, characterised the economy through the metaphor – in fact ‘more than a metaphor’ – of an enormous computer, ‘a kind of machinery for registering change, or a system of telecommunication’ (Hayek 1945: 527). There is something inviting to economists in biological conceptions of spontaneous order (Kauffman 1993), despite the facts that evolutionary theory possesses almost no predictive power.

My contention in this paper is that current economic use of Darwinism, closely associated with the discourses of neoliberalism, is mythopoeic in nature. Mythical notions abound in economics (McCloskey 1986): the twentieth-century revision of Smith’s invisible hand and the Walrasian auctioneer, while the supply and demand curve is an icon (Klamer and Leonard 1994), a graphical description of a mythic account of market interactions. Myths may offer conceptual schemes through which we interpret the unknowable, or the unknown, and also offer justifications for the state of the world as we encounter it. The neoliberal insistence upon free markets has been closely associated with conceptions of evolutionary order. Milton Friedman (1966) characterises the business environment as setting firms problems to which they may or may not adapt and suggests that in the long run those firms which are fittest survive. Hayek’s mature writing represents a sustained attempt to apply ideas from evolutionary biology to the study of economics, evidencing some faith in the useful, virtuous outcomes of evolutionary process (Hodgson 1994). Hayek writes of ‘spontaneous order’ in nature and in society, at least if the market is left to its own devices (Hayek 2003 [1973]). In Hayek’s work we can glimpse the providential order of the Smithian invisible hand, and he introduces his own word, ‘*catallaxy*’ to describe the mutual adjustment and harmony of well-functioning markets. The myth is not one of equilibrium, but optimisation. It reflects a position in evolutionary theory termed ‘adaptionist’, and critiqued as Panglossian by its opponents (Gould and Lewontin 1979): just as Dr Pangloss claims that the purpose of the bridge of the nose is to support spectacles, so the adaptionist seeks to explain all features of organisms by inference from the environment. Whatever the status of debate among evolutionary theorists, as a mythic position in political justifications of markets, this Panglossianism has a tremendous impact, for Dr Pangloss proclaimed nothing less than the best of all possible worlds.

The present paper traces the Panglossian fantasy of markets through the academic literature to the discourses of popular economics. It is far from exhaustive but highlights those authors whose contributions I consider pivotal. The paper develops a genealogical approach to the adaptionist concept of optimisation in academic and

popular economics and management, and pays attention to narratives of causation, worth and justification (Boltanski and Thevenot 2006).

Much of the writing covered is marked by what economic historian Philip Mirowski considers ‘an unaccountable enthusiasm for the writings of Richard Dawkins’ (Mirowski 2002: 533), whose intellectual segue from phylogeny driven by selfish, yet mindless, genes to a much broader conception of intellectual, linguistic or cultural ‘DNA’ makes it the centrepiece of my account. It is Dawkins’ extraordinary moment of myth-making which makes it possible for the logic of evolutionary competition to be expanded indefinitely, until all organisations, cultural artefacts, etc. are either memes themselves or institutional carriers that result from the process. Dennett provides a systematic philosophical interpretation of this approach. Finally we encounter similar arguments in the work of ‘Undercover Economist’ and popular neoliberal panegyrist Tim Harford who, in *Adapt* (2011), fuses elements of the Hayekian calculation thesis with evolutionary insights: ‘the economy is itself an evolutionary environment in which a huge variety of ingenious profit-seeking strategies emerge through a decentralised process of trial and error ... what emerges is far more brilliant than any single planner could have dreamed up’ (2011: 174). Harford takes Dawkins’ ‘genes-eye’ view to its logical conclusion in the economic arena, treating the market as an optimising environment for ‘ideas’, and firms as highly fallible mechanisms for the transmission of these ideas. Firms may live and die, but in Harford’s Panglossian world, the market selects the best innovations, technologies and practices for preservation. I conclude with the suggestion that Harford’s myth-making represents the culmination of the adaptionist fantasy, but at the same time opens the door for a compelling Darwinist critique of neoliberal markets.

### **Some preliminary notes on biological Darwinism**

In 1859 Charles Darwin published his monograph, *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*, a title soon shortened to *The Origin of Species*. As is well known, the work laid the groundwork for our understanding of evolution, despite the fact that Darwin lacked much of the theoretical apparatus required for a fully developed theory, such as a proper understanding of the means of inheritance. He was also sympathetic towards the now discredited theory of Lamarckism, which advocated the retention of characteristics acquired during an organism’s lifetime, and unsure of the mechanisms of variation and particularly the strength of mutation. He was, however, certain that selection was a blind process driven by the environment, and that there was no sense of purpose behind it; evolution necessarily represented progress of a sort, at least understood in terms of development, but direction and teleology were absent (Flew 1984). Darwin’s friend and ‘bulldog’, Herbert Spencer, a polymath scholar and editor of *The Economist*, had less time for nuances and hesitations. Coining the phrase ‘survival of the fittest’ Spencer ‘generated an entire metaphysics from some recurrent features of human history in conformity with Malthus’ (Fuller 2008: 92). He saw evolutionary progress as an economic problem, worked out at the level of the individual. Organisms must invest capital in new, efficient mechanisms, and pursue a division of labour, leading to a surplus of vital capital to be reinvested in maintenance and reproduction (Kingsland 1994: 235). Spencer was also far more confident in evolution as a means of social

progress than had been Darwin, seeing survival of the fittest as tied to economic virtue and free-market capitalism.

The gaps in Darwin's thesis were plugged early in the twentieth century through the incorporation of Mendel's genetics to explain mutation and inheritance. Weismann's distinction between germ cells (gametes) and body cells (somatic cells) explained why acquired characteristics were not passed on and put paid to Lamarckism. The resulting neo-Darwinist synthesis, developed by Theodosius Dobzhansky, became the dominant twentieth-century account of evolution. It sees natural selection as an external process choosing from random mutations in the gene pool. Moreover, it asserts that evolution is the cause of causes: Dobzhansky concluded a famous lecture with the claim that evolution is the 'general postulate to which all theories, all hypotheses, all systems must henceforth bow and which they must satisfy if they are to be thinkable and true' (quoted in Fuller 2008: 96). Contemporary 'adaptionists' (so far as I can tell, the mainstream paradigm in evolutionary biology) argue that incremental adaptation and environmental selection are the cause of *all* characteristics. Adapted characteristics must therefore be optimal (most fitted) and nature is an optimising algorithm, producing a world that is at least in one sense the best of all possible worlds. Other schools of biology suggest that some mutations may come from random drift (neutral evolution), or be co-dependent on selected characteristics. This latter approach dates from a famous essay by Gould and Lewontin (1979) which critiques the adaptionists as 'Panglossian'. They argue that some characteristics may just have come along for the evolutionary ride. They propose the metaphor of the 'spandrels of St Marco', the spandrel being a curved geometric surface between the top of archways in the base of the dome, so beautifully decorated that one might suppose they had been placed there *especially* to house the declaration, when they are in fact a necessary by-product of arch and dome. This 'Panglossian critique', aimed primarily at the optimising assumptions on which adaptionism is based and the convenience of lazy 'just-so' stories, remains controversial in biology. Yet it is a useful concept for us in terms of identifying just-so narratives in economic myth-making. Finally, the shadow of design lurks in evolutionary theory, not just in so-called 'intelligent design' thinking. Dobzhansky, a devout Christian, made his famous 'nothing makes sense but in the light of evolution' claim as part of an attempt to synthesise evolution and his religious faith. He developed the Jesuit Teilhard's notion of *tatonnement* or 'groping', as evolution's sense of purposefulness, a move towards ideal forms of a seemingly Platonic nature, not known in advance but evident in the world (Fuller 2008). Design may be banished from mainstream biology, but when it comes to economics, the spectre may once again be sighted.

### **First steps: evolutionary economics from 1950-1980**

Biology has borrowed from economics since the beginning, and in return economists have been happy enough to claim visiting rights in evolutionary theory. So Nelson and Winter's book *An Evolutionary Theory of Economic Change* presents a developed account of evolutionary economics, 'exercising an option to which economists are entitled in perpetuity by virtue of the stimulus our predecessor Malthus provided to Darwin's thinking' (Nelson and Winter 1982: 9). Just as evolutionary theory was borrowing equilibrium modelling from economics (Rosenberg 1994), the second half of the twentieth century saw much traffic from biology to economics. In the most part, this took the form of studies making use of evolutionary ideas as a heuristic device through which existing economic ideas could be augmented or critiqued.

These early forays into evolutionary theory were relatively limited in their scope, aiming less at a grand universal theory and more at simple borrowing to generate better economic ideas. Economics needed to catch up with twentieth-century advances in science, and could learn much from the new developments in biology. It was, say Nelson and Winters, ‘as if economics has never really transcended the experiences of its childhood, when Newtonian physics was the only science worth imitating and celestial mechanics its most notable achievement’ (Nelson and Winter 1982: 10). Evolutionary ideas helped scholars engage with the concepts of rational agent and the firm, each foundational for mid-twentieth-century economics. The rational agent came under fire from evolution-inspired approaches such as Herbert Simon’s (1955) satisficing, later developed into a fully-fledged theory of ‘fast and frugal’ decision making (Gigerenzer and Todd 1999), while the development and survival of firms was modelled as an evolutionary process. The popularity of evolutionary theory in the economics literature may in fact be driven by the causal account it offers to support conceptions of the firm as a competent, autonomous economic agent in its own right (Schulz 2013).

The intention to do economics better, rather than create a grand unified theory of any kind, allowed writers to play fast and loose with biological theories. If Darwin’s insight serves only as a heuristic device to analyse firm behaviour, we need not lose too much sleep over precise mechanisms of heredity. Spencer’s social Darwinism, discredited in biology, offers a natural metaphor for understanding the growth and survival of firms. Strategic interactions of the kind found in social systems constitute a Lamarckian evolution – intentional strengthening of useful characteristics during the lifetime of the entity which are then passed to subsequent generations. Of course, our attention is immediately drawn to the second half of this statement and the manner of replication in the world of organisations, and such problems preoccupied those writing evolutionary economics – Hirshleifer, Winter, Penrose and Alchian – in the 1950s and beyond. Their innovations made appearances in economics journals of the highest quality, and were later to grow into the highly influential resource/competence based theory of the firm (Prahalad and Hamel 1990; Shelby 1997).

Hirshleifer (1977) provides a useful summary of biological models of the firm from the 1950s onwards. Armen Alchian (1950) had argued that notions of optimisation (i.e. profit maximisation) could not be sustained in the probabilistic environment of business, but the environment would at least select on the basis of a positive realised profit condition of survival. Stephen Enke (1951) suggested that the intensity of competition would be sufficient to produce an optimising effect. Edith Penrose (1952) suggested that economic adaption is too perfect to be the product of selected random behaviour in a business environment that lacks the extreme intensity of competition associated with organisms’ struggle for food. Therefore, the intention and success in making money is taken as an analogous driving force. Winter (1964), on the other hand, argued that market adaption is relatively imperfect and traces this to the inheritance mechanisms of firms, such as rules of thumb and organisational routines. Even the mechanism of selection, undisputed in biology, is unclear; Alchian’s (1950) and Winter’s (1964) suggestions posit a Lamarckian evolution, while Enke (1951) leaves selection to the environment. Nelson and Winter were the first to suggest that organisational routines, regularised and predictable patterns of behaviour, might be analogous to genes in evolutionary theory. As with genes, organisational routines determine possible behaviour, while actual behaviour is determined by interactions with the environment; just as an organism’s phenotype results from the interplay of environment and genotype (Nelson and Winter 1982: 223). It is not obvious what value evolutionary theory adds to these discussions. It does little more than providing

interesting heuristic metaphors for economics, and some engagement with organisational sociology might have delivered the same outcomes (Schulz 2013).

In summary, mainstream economics of the twentieth century employed evolutionary theory to develop theories of judgement under uncertainty, and elaborate its understanding of the firm. The latter developed into resource-based theories of the firm which were hugely influential in fashionable management literature in the late 1990s and early 2000s. Neoliberal conceptions of spontaneous order remained for the time being on the fringe of serious economics. The real impetus for the economic Darwinism of today, however, with its emphasis on cost-benefits and algorithms comes from the ‘hyperphysical sociobiologized version of economics’ (Mirowski 2002: 533) offered by Richard Dawkins and his selfish gene.

### **Selfish genes and universal Darwinism**

In 1975, Edward Wilson published his book *Sociobiology: The New Synthesis*, where he put forward a systematic study of the biological basis of *all* behaviour. He quotes Dobzhansky as saying ‘human genes have surrendered their primacy in human evolution to an entirely new non-biological or super organic agent, culture. However, it should not be forgotten that this agent is entirely dependent on the human genotype’ (quoted in Flew 1984: 116). Genes, according to Wilson, lead to dispositions to act in certain ways, so altruism emerges as a successful reproductive strategy embedded in kinship. In a line of enquiry parallel with Wilson’s sociobiology, the enormously influential zoologist Robert Trivers shifted the lens of analysis to the reproduction of the gene itself. He exposed supposed acts of altruism, such as the alarm calls given by birds, as disguised selfishness on the part of the genetic inheritance (Trivers 1971), and examined conflicts between parents and offspring in terms of the likelihood of future preservation of the genes: it is natural to contest resources with ones siblings, but only up to a point, beyond which one damages the prospects for the reproduction of the genes which both share (Trivers 1972).

Economics swiftly saw the relevance of these studies, and began a process of disciplinary imperialism and myth-making that emphasised the evolutionary grounding of economics as a kind of ontological first principle for social science. Hirshleifer’s (1977) thorough synthesis of the parallels between economics and biology begins from the statement that ‘the fundamental organising concepts of the dominant analytical structures employed in economics and in sociobiology are strikingly parallel’ (p.2). Hirshleifer argues that as economics expands into the domains of sociology, anthropology and political science it will *become* (his italics) these disciplines, and as they grow increasingly rigorous they will *become* economics. We have, then, the whole of social sciences subsumed into the remit of evolutionary biology, a colonisation justified on the grounds that economics-qua-evolution captures the fundamental axioms of existence.

Gene-focused evolutionary theory reached its apogee with the 1976 publication of Richard Dawkins’ *The Selfish Gene* (Dawkins 1976). Dawkins’ power as a science communicator comes from his colourful language and his use of vivid examples. His book is splendidly anthropomorphic in its rhetoric, and these genes that are selfish and compete take on an almost theological significance as the ordering principles of life on Earth. Dawkins is hardly circumspect, and does not hesitate to infer the behaviour of the person from the selfishness of their genes:

We are survival machines – robot vehicles blindly programmed to preserve the selfish molecules known as genes ... if you wish, as I do to build a society in which individuals cooperate generously and unselfishly towards a common good, you can expect little help from biological nature. (1976: 3)

Genes take centre stage as ‘replicators’ that have been built up from stable chemical arrangements over billions of years: a vanishingly slim chance, but one that the sheer passage of time has made possible. Whatever the old-guard may have thought, a generation of biologists was won over by the sheer power of his rhetoric; more than any other work, Dawkins’ book established the genes-eye view as the dominant paradigm of evolutionary research (Laland 2004). But it does, or tries to do, more than shift how biology is done. One can speculate that Dawkins’ later campaigns against religion comes from his desire to see evolution, not just as a credible and widely accepted scientific theory, but as the myth of myths, as the organising principle by which everything and everywhere is understood.

In this respect Dawkins’ argument becomes interesting in a later chapter, where he suddenly announces his ‘intuition’ that ‘Darwinism is *too big a theory to be confined to the narrow context of the gene*’ (Dawkins, 1976: 191, my italics). This is an extraordinary leap. Dawkins vaults, on the basis of intuition alone, from the closely argued – though perhaps disputed – narrative of the selfish gene to a quasi-theological point about the nature of the social world, as if no one had ever reflected on the history of culture before. (Indeed, Dawkins’ later career as scourge of the theologians has shown that ignorance of the topic at hand does not present a serious barrier to entry of the discussion.) Dawkins therefore suggests, taking Wilson and Trivers’ logic to a conclusion, that culture should be understood in terms of a ‘meme’, a neologism that he coins, providing a cod-etymology and a guide for pronunciation (from the Greek, or if you prefer, the French – to rhyme with ‘cream’ – patronising, Dawkins is not). A meme is a unit of culture or society, including science, and of course religion. It is worth quoting Dawkins directly to see the beginnings of a myth. Starting with the ‘law that all life evolves by the differential survival of replicating entities’, he applies the same logic to culture:

*memes propagate themselves in the meme pool by leaping from brain to brain in a process which, in the broad sense, can be called imitation ... when you plant a fertile meme in my mind you literally parasitize my brain, turning it into a vehicle of the meme’s propagation in the way that a virus may parasitize the genetic mechanism of the host cell. (Dawkins, 1976: 192, my italics)*

The essential qualities for a meme are therefore the same as for a gene – longevity, fecundity and copying fidelity. Dawkins’ great strength as a writer is his use of metaphor, and in this passage he is on full form. Memes swim and breed in a pool, they leap, they are planted in fertile soil, they even parasitise like viruses. On the pressing matter of how *exactly* the process works, despite the facts that the mechanisms of inheritance are a crucial element of the Darwinian synthesis, and that copying fidelity is an important characteristic of the meme, we are given no further detail than ‘imitation’. But this does not matter. In claiming that the social has evolved to preserve cultural artefacts, Dawkins has given rise to a tremendously powerful mythical beast, one that can leap from brain to brain, from discipline to discipline: the meme.

The meme is explored most fully by Susan Blackmore (1997), who makes the meme the cornerstone of a whole theory of culture and the mind, where we must

understand memes as equally selfish and demanding as genes. They are embedded in artefacts such as books, pictures, bridges or steam trains:

memes are instructions for carrying out behaviour, stored in brains (or other objects) and passed on by imitation. Their competition *drives the evolution* of the mind. (Blackmore, 1997: 17, my italics)

In Blackmore's account, minds are no more than robot vehicles blindly programmed, as Dawkins might have written. Memes mean that people *are* different, and dispense with the problem of determinism that sociobiology throws up – the notion that genes will always win out. The 'ability to imitate creates a second replicator that acts in its own interests and can produce behaviour that is memetically adaptive but biologically maladaptive', Blackmore concludes (1997: 35). A more subtle but not dissimilar account is given by Dawkins' extended phenotype, where material changes in the environment provide a gene with a further mechanism by which it can 'lever itself into the next generation' (Dawkins 1982: 199)

In summary, Dawkins' first great innovation was to turn evolutionary theory on its head, identifying the mechanism for natural selection as a cost-benefit exercise carried out by genes (or memes) and their hosts. His second was to invent the meme, an imaginary creature with the power to shape society in ways that will preserve itself. A third and final innovation, and an elaboration on the myth of the meme, comes in *The Extended Phenotype*, where he proposes a 'Universal Darwinism', abstracting the mechanism of natural selection to a generalised abstract theory. Universal Darwinism holds that a central set of general Darwinian principles, augmented with domain specific explanations, may be applied to a wide range of phenomena (Hodgson 2002). Perhaps the most enthusiastic supporter of a universalised Darwinism is the American philosopher Daniel Dennett (1995), who builds the argument that evolution is always and exclusively algorithmic. Although Charles Darwin lacked the term 'algorithm', which stems from twentieth-century computer science, it is clear, according to Dennett (1995: 50) that in natural selection he had identified a cluster of algorithms. Dennett defines an algorithm as a formal process that will logically yield a certain kind of outcome whenever it is run: an algorithm is characterised by an indifference to its substrate, an underlying mindlessness and guaranteed results. As with Dawkins' ambivalence to gene or meme, Dennett's insistence that algorithms are indifferent to their medium, while quite correct, leaves the door open for an account of the economy (or anything else) as an algorithmic process. This is precisely the path that Dennett follows, his argument building up a complex interplay between economics and biology, as well as a little artificial intelligence for good measure, leaving us with a hybrid 'cyborg' evolutionary economics.

For Dennett, the adaptationist on steroids, similarities of design – legs, fins, eyes and arms in pairs, or 'mouth-at-the-bow-end' arrangements are indications of algorithms at work. For all their mindlessness, despite the influence of chance or dumb luck, algorithms *tend* to do certain things; we can see immediate parallels with Friedman's assertion that whatever the vicissitudes of luck or temperament, fittest firms tend to prosper and less fit firms fail. 'In a vast space of possibilities', writes Dennett, 'the odds of a similarity between two independently chosen elements is vanishing *unless there is a reason*' (1995: 132). This reason is that the algorithmic process is a cost-benefit calculator: we can discover 'general principles of practical reasoning (including, in more modern dress, cost benefit analysis) that can be relied upon to impose themselves on all life forms everywhere' (Dennett 1995: 132). If efficiency is

taken as a virtue – and it is hard to see, in the light of the discussion above, how this could not be so – then what evolution has produced is not only the optimal, but also the best of all possible worlds.

The steps that have been taken by Dawkins, Blackmore and Dennett are huge. First of all, Dawkins persuades us that Darwinism is too big for biology, and that we need an evolutionary theory of society; Blackmore argues that the evolutionary unit of society is responsible for the shape of our minds; and Dennett that evolution is an algorithmic, optimising process. From here is but a small step to arrive at an organisational Panglossianism, the assertion that every aspect of an organisation is the direct result of an adaptationist programme focused on efficiency, and the firms that have survived are the fittest: a just-so story that tells us whatever we find in the market is the best, in the sense at least, that it is the most efficient. That step is simply to provide an account of the mechanisms of change, mutation and heredity necessary for a functioning account of organisational evolution.

### A ‘generalised Darwinism’ in economics

Geoffrey Hodgson and Thorkild Knudsen are the most vigorous proponents of a generalised Darwinism, arguing (of course) that Darwinism is too important to be left to the biologists (Hodgson and Knudsen 2006; 2008; 2010). Their version relies upon the mechanisms of subset selection, diffusion and generative selection, where a subset selection is differential elimination of organisations, for example through bankruptcy; diffusion is the generalisation and differential adoption of new ideas; and generative selection is the differential replication of these routines due to the interplay between environment and organisation. Habits and routines stand for replicators, while the organisation functions as the interactor, analogous to the genotype and phenotype, the pristine germ line and the environmentally shaped exterior.

There appears to be a conceptual difficulty with Hodgson and Knudsen’s specification. Suggesting that habits and routines are analogous to genes solves the problem of heredity, in as much as firms that, for example, conduct appropriate budgeting or run innovation labs may multiply and prosper, while firms that do not may fail. However, the genes-eye view makes clear that the purpose of inheritance is to preserve the gene itself; to claim that firms exist only so that, for example, capital budgeting can be preserved seems peculiar. I shall return to this point in the discussion.

Hodgson (2002) heads off criticism that economic evolution does not constitute ‘natural’ selection. He argues that Darwinism involves a *general theory* of the evolution of all open, complex systems, as well as a basic philosophical commitment to detailed, cumulative, causal explanations, a statement not only about the nature of one of science’s most eminent theories, but the nature of science itself. In other words, it matters little whether evolutionary outcomes are the result of ontogeny, or self-organisation or artificial selection. In a final evolution of Darwinist theory, Hodgson (and Knudsen) are anxious to elevate it to a generalised ontological approach and a commitment to causal mechanisms reaching as far as human intentionality. Trivers has already argued that morals have a basis in reproductive success; it is only a small step to argue that *all* intentionality must be explained from below, in chains of causation. Hodgson summarises, ‘Darwinism does not deny belief, purposeful behaviour or foresight, simply asserts that they too are caused’ (Hodgson 2002: 269).

Of course, some have objected to such a far reaching expansion of Darwinist reasoning. Schubert (2013) argues that Hodgson’s generalised Darwinism ‘smuggles in

unjustified preconceptions to normative reasoning'. Evolutionary biology may have something to say over how we come to hold the beliefs and norms that we do, but not whether they are true or valid (Flew 1984: 115). Even if some aspect of morality is embedded in our evolutionary heritage, the task of building just social institutions is far beyond the apparatus that we have inherited from our hunter gatherer forbears. Yet Flew, Schubert (2013: 25) and others fear the tendency to equate morality and justice with fitness and adaptive value, following the erroneous assumption that natural selection has somehow produced an optimal arrangement. It is, after all, very difficult to escape the notion of evolution as progress.

### **Economic Darwinism and popular discourse: Tim Harford's *Adapt***

In economic terms, Panglossianism can be taken as the process of inferring from the environment to explain – and therefore justify – organisational structures (Rosenberg 1994). Nature maximises under conditions of near-infinite complexity; if the market is best explained as an evolutionary engine, an algorithmic processor, it follows that the adaptations produced by the market will be far superior to those established by purposeful planning. Market order will be spontaneous, and will progress towards an ever-better world. The supremacy of the market is, of course, the founding myth of neoliberalism, and it is exactly the position taken by bestselling author and popular economic writer Tim Harford in his 2011 bestseller *Adapt: Why Success Always Starts with Failure*. This book presents an account of organisational development as driven by a process of environmental, i.e. market, selection, through a highly readable narrative, featuring examples as different as the US military's tactics against the Taliban and the failure of the 'play pump' scheme in rural Africa. It flags its evolutionary credentials from the outset, its chapters bearing titles such as 'learning' (a hint at Lamarckian leanings) 'variation' and 'selection'. Harford explains in his introduction:

biologists have a word for the way in which solutions emerge from failure: evolution. Often summarised as the survival of the fittest, evolution is a process driven by the failure of the less fit ... astounding complexity emerges in response to a simple process: try out a few variants on what you already have, we doubt the failures, copy the successes – and repeat forever. (2011: 12–13)

So this book is about organisations and the environment, setting out to explain modern institutions as evolutionary artefacts. Nothing is quite straightforward, however, and Harford must make some sideways moves to build up his argument. The first comes in the assertion that evolution is all about *failure*. At the very least, a focus on failure suggests that Harford has repositioned the evolutionary story of selection and survival, now some way from Darwin's original 'better chance of surviving and being naturally selected', or even Dawkins, who neatly defines evolution as a process of differential survival. Every organism dies, sooner or later, and what matters is that it reproduces before it does so. But organisations need not die, so the construction of a myth of Panglossian order requires a disciplinary measure, and here it is failure. From the title onwards, failure become the rhetorical foil, the hook, of Harford's account, a means of repositioning the book as offering any generals, aid workers and executives who might be reading a way through the evolutionary problem: for if selection is blind and managed by environment, why *even bother trying* to manage?

In his next step, Harford states that although we are used to looking at evolution as a biological process, it need not be so, citing the work of graphics expert Karl Sims, who built evolving electronic algorithms.

The process he created was entirely blind and stupid: there was no foresight, planning or conscious design in any of the mutations. Yes the blind evolutionary process produced marvellous things ... the evolutionary algorithm – of variation and selection, repeated – searches for solutions in a world where the problems keep changing, trying all sorts of variants are doing more of what works. (Harford, 2011: 14)

Harford's account parallels that offered by Daniel Dennett, moving to describe a fitness landscape, Dennett's own favourite tool of evolutionary visualisation. The steps are similar to those taken by Dennett: evolution as a universal process; evolution as blind and mindless; evolution as an algorithmic process.

As noted above, one of the central problems for evolutionary accounts of economics has been that of replication. Here is Harford's synthesis:

In biology, variation emerges from mutations and from sexual reproduction, which mixes the genes from two parents. Selection happens through heredity: successful creatures reproduce before they die and have offspring that share some or all of their genes. In a market economy, variation and selection are also at work. New ideas are created by scientists and engineers, meticulous middle managers in large corporations or daring entrepreneurs. Failures are culled because bad ideas do not survive long in the marketplace ... good ideas spread because they're copied by competitors, because staff leave to set up their own business, or because the company with the good ideas grows. (2011: 17)

The format of a popular account allows Harford to be relatively loose in his specification of heredity. He avoids the specificity of organisational routines argument, and suggests that 'ideas' are selected by the market, the bad ones swiftly culled and the good ones spread by imitation and growth. He takes an explicit genes-eye position, where the ideas themselves are the replicators, carried in the survival machine of the firm or organisation. Here Harford's narrative is novel and outspoken. It is clear that the *purpose* of firms is not to make money but to produce innovative products. Products live on, while firms fail and die: after all, he asks, why should we expect a giant oil company to be good at renewable energy? The job of armies is to deliver the most successful fighting strategies: armies with the best strategies will succeed, and strategies will endure and be copied. Who, apart from anyone with a passing interest in military history, politics or philosophy, could criticise that logic? Harford's narrative is rigorously adaptationist: in its intellectual adherence to Dawkins' single gene-replicator, it supposes that all aspects of organisations succeeding into the long run will be optimised by the market, failures swiftly culled.

There is also an explicit, acknowledged, Hayekian element in Harford's thinking. Despite Hayek's late career search for evolutionary progress, Harford focuses on his early work on information, and the celebrated essay 'The Use of Knowledge in Society' (Hayek 1945). Throughout *Adapt*, Harford places a heavy emphasis on the problems of planning and knowledge identified by Hayek. In a short discussion of global warming, he identifies the market as a huge computer, suggesting that a 'carbon

tax would piggyback on the system of market prices, which acts as a vast analogue cloud computer, pushing and pulling resources to wherever they have the highest value' (2011: 167). Again, Harford emphasises the mindlessness of this system, and its success compared with the failed attempts of centralised planning. It is no stretch to see the early Hayek here:

It is *more than a metaphor* to describe the price system as a kind of machinery for registering change, or a system of telecommunications which enables individual producers to watch merely the movement of a few pointers, as an engineer might watch the hands of a few dials, in order to adjust their activities to changes of which they may never know more than is reflected in the price movement. (Hayek 1945: 527, my italics)

In an original move, Harford synthesises Austrian notions of the computational superiority of the market with the universal evolutionist's insistence on mindlessness: indeed, if the economy is truly a blind selection machine, it follows that the contributions of chief executives are worth much less than systematic, random experimentation (a parallel to genetic mutation). Harford does not back down. He argues this point and more, suggesting that the Soviet economy failed through its 'pathological inability to experiment' (2011: 25), and that complexity theorists have found 'that a group of the very smartest agents isn't as successful as a more diverse group of dumb agents' (2011: 49). He proposes, after the Soviet engineer, three 'Palchinsky principles': to seek out new ideas and try new things; to experiment on a scale where failure is survivable; and to learn from mistakes. Finally comes the segue back to evolution, a neat rhetorical closure, if scientifically inexact: 'the first principle could simply be expressed as variation; the third is selection' (2011: 25).

Harford then must present an answer to the organisational problem he has sketched out. How should a manager manage, in the face of an environmental selection of ideas that overrides all other management strategies? Hayek can help here: 'Hayek realised [in his 1945 essay] ... that a complex world is full of knowledge that is localised and fleeting. Crucially, the local information is often something that local agents would prefer to use for their purposes' (Harford, 2011: 72). Local knowledge and spirited experimentation must hold the key. A central chapter in the book is titled 'Creating New Ideas That Matter or: Variation'. A string of anecdotes concerning the development of, for example, the Spitfire aircraft, show innovation activity as contrary to the demands of bureaucracy and cost-benefit demands. Darwin's voyage to the Galapagos is mentioned explicitly; Harford suggests that the specialised populations discovered on isolated islands mirror the kind of advances that have been created in relatively isolated commercial environments, such as small firms and independent research labs within corporations. He parallels the speculative research funding and biological mutations, arguing that 'the ideal way to discover paths through a shifting landscape of possibilities is to combine baby steps and speculative leaps' (Harford, 2011: 103). Bureaucratic supervision of research and development stifles such leaps, producing baby steps. Arguments of this kind suggest that Harford is familiar with the American management theory of the 1990s, and indeed, Gary Hamel – whose work popularised the firm capabilities approach, itself a product of evolutionary economics – is cited later.

An omniscient market parallels the evolutionary environment; the best managers can do is throw out mutations and stand back. Harford has little time for policy nudges either. He reminds us of Orgel's comment that "Evolution is cleverer than you are"

(Harford, 2011: 174); policy-makers should stand back too. The ingenuity of the algorithmic method may in fact be counter-productive if interfered with by well-intentioned, but by definition myopic, nudge type strategies: ‘whenever we leap to conclusions about what a particular solution would look like ... we are likely to discover unwelcome consequences’ (2011: 176). According to Harford, a more satisfactory approach is to ‘tilt the playing field’, to interfere with prices, for example, through a carbon tax, and leave economic evolution to sort it out: ‘Orgel’s law tells us that economic evolution, with the playing field tilted by the new rule, “greenhouse gases are expensive”, will produce entirely unexpected ways to reduce greenhouse gases’ (2011: 180).

Here is the Panglossian heart of Harford’s approach. A combination of a Hayekian stress on human ignorance, and an evolutionary emphasis on the all-knowingness of the environment means that the best we can do is get out of the way, throwing out experiments to see which fail and which succeed. Failure, asserts Harford, is the predicate of success. Another direct evolutionary reference – biologist John Endler’s study of guppies – offers Harford the chance to assert once more that evolution is ‘*driven by failure*: some guppies were eaten, while others went on to produce future generations of well adapted baby guppies’ (2011: 222, my italics). Harford offers us a mix of Hamel-esque management optimism (‘Google is quite simply an evolutionary organisation’, ‘actively pursuing a Darwinian strategy of pushing out the largest possible range of products’ (2011: 233) and an account of the market as a culling, optimising device. As a source for the latter, he acknowledges *The Truth about Markets* by John Kay (2004); Kay uses the term disciplined pluralism i.e. exploring many ideas but cutting down the ones that fail. Harford’s adaptionist, genes-eye view of the market is perfect neoliberalism: it is not organisations or institutions that are chosen, but the ‘ideas’ (novel products, technologies, ways of doing things) that they promote. Such organisational genes will hop from body to body, parasitising production and organisation to reproduce themselves. Organisations that fail to adapt, that cling to sub-optimal, less well fitted, or as Harford simply puts it ‘bad’, ideas will be swiftly culled. Every feature of an organisation will be determined by adaption to the fitness landscape of the market, ruthlessly policed by inter-organisational competition. That a business landscape exists where competition is sharp enough to have such effects even exists is itself a tribute to the success of neoliberalism.

### **Discussion: Dr Pangloss and the myth of the perfect market**

This paper has presented a genealogical outline of the spread of ‘Darwinist’ theory into mainstream economics into the popular domain exemplified here by the work of Tim Harford. The spread of ideas follows, and benefits from, a similar diffusion of biological writing into the broader public arena. After a prolonged game of Chinese Whispers, the theory offered to the general public focuses on: the basic mechanism of variation, selection and retention as underlying all economic activity, including a particular emphasis on failure; a strict determinism of cause and a corresponding reduction in organisational control; an awareness of outcomes, seen as products, services or ways of doing, as optimised; an imminence of design, understood as processes of ordering or knowledge. The question must be: to what extent is the account of Darwinism put forward by, for example, Harford Darwinist? And, as the answer is, at least with respect to the lack of specification of the mechanisms of variation, selection

and inheritance, ‘not very’, what work does the narrative of Darwinism do in Harford and others’ accounts?

It is clear from the discussions in recent economics that the translation of Darwinism from natural to social science is so imperfect as to make squabbles over the precise type of Darwinist theory irrelevant: Lamarckism and survival of the fittest can make themselves at home in economics without violating any scientific rules (Hodgson and Knudsen 2006). The main use of Darwinism in economics is as a myth of explanation and justification. Since Adam Smith, economists have been on good terms with myths and narrative schemes (McCloskey 1986). Some may be merely heuristic or illustrative, while others form essential conceptual schemes through which we interpret the unknowable or unknown world. In the latter case, myths and narratives – such as the invisible hand or liquid markets – are performative speech acts capable of bringing the world into being in a particular way (Austin 1978). ‘Natural selection’ as used by Darwin, is itself a mythic narrative that falls into the latter category. Evolutionary accounts of economics, on the other hand, began as heuristic devices that enabled economists to think in a new way. I suggest that more recent uses, grouped under the label of universal or general Darwinism, are active conceptual schemes. Despite the richness of Dawkins’ own narrative storytelling he is suggesting that memes *really* structure human culture; his illustrative metaphors of planting, jumping and parasitising hide a serious commitment to reimagining the social. When Harford argues that environmental selection produces better results than human planning he is offering a way of conceptualising the operation of markets and proposing that we should understand the complex, often unpredictable and sometimes cruel workings of the market as an evolutionary process. In doing so we have had recourse to an account of evolution that is no longer a specialised scientific theory. It has become a generalised, value-laden narrative of being, a central myth of free-market apologists.

This brings me to the second point. As the universalised Darwinism of Hodgson or Harford is so far removed from the scientific theory – it is missing its scientific counterparts’ exacting understanding of variation and heredity, for example – then why should it be called Darwinism at all? The observation that we may try various strategies and stick with the one that succeeds is at best facile, and dignified with the term Darwinism it becomes just plain silly: my selection of the best route to work, or a teenager’s best nightclub chat up strategy, though driven by a process of trial and error, can hardly be termed Darwinist *in any meaningful sense*, at least if we wish to hold onto Darwinism as a credible scientific theory. Instead, the label Darwinism is deployed because it embodies enormous scientific and social capital. It is a foundational narrative for twentieth-century science, our primary conceptual device for making sense of our existence, and thus the modern counterpart to the creation myths of ancient men. Employing the metaphor represents a strategy of performative characterisation of the social world or the economy as an arena where weaker, less successful, less well fitted organisations, ideas, or whatever the relevant unit of selection may be, are discarded. The Darwinist framework makes sense only against a clear understanding of what economic structures, be they markets, firms or institutions, are for: to provide consumers with what we want, as efficiently as possible. In this avowedly neoliberal account, the market is the aggregated demands of consumers who are the best and final arbiters of what is good and bad. Harford makes this clear when he states that bad ideas do not survive long in the marketplace. His casual slippage between bad/good and fitted/ill-fitted gives the game away – it is just too easy to smuggle normative prescriptions into an evolutionary framework.

Harford's book sets out to persuade readers of the power of markets as calculating engines. It is Hayekian in tone, celebrating local knowledge and experimentation, alongside an enthusiasm for the latest in evolutionary management ideas. So it is not surprising to find an immanent sense of harmonious order – Harford claims that, given the ability to experiment, not only organisations but also individuals can enjoy successful, fulfilled lives. Here we find the sense of design that Darwin tried so hard to banish, but has ever since crept back in: the 'groping' of Teilhard's evolution towards perfect forms, the *catallaxy* of Hayek's naturalised market. Harford's faith in innovation sits well here, and points to a much older tradition of thinking in evolution, that of Lamarck, whose metaphysics 'secularised the Abrahamic imperative to transform earth through technology, realizing humanity's birthright as created in the image of God' (Fuller 2008: 176). Harford's adaptive and innovating organisation, driven by the analogue cloud computer of the market, is conceived of as a powerful agent for social justice or global change.

Yet power is exactly what Harford neglects. The neoliberal account of competitive markets he promotes ignores, or perhaps simply discounts, the possibility that some market actors may be more powerful than others. We can drive a wedge between evolutionary economics and biology at this point; for nature, in the long run, always wins, but a powerful organisation can preserve its status in the market for many years. A persistent criticism of evolutionary Panglossianism fits here, for human observers simply do not have the appropriate timescale to measure evolutionary progress. Life and death in the market may come more quickly, but the timescale may still be too long for us to observe what succeeds and what does not. We are all too likely to end up telling just-so stories, if only because evolution demands a long run, far longer than the lens we can cast on the market. The 'spandrel' critique, while disputed in biology, should make us alert in economics. For every evolutionary artefact, there may be many that have arisen as a side-effect, or simply come along for the ride. Are bankers' bonuses, for example, the product of evolutionary 'winner takes all' markets (Frank and Cook 1995) or an artefact of historical and legislative moments, and a particular fashion in business school thinking.

On a final point, it is possible that the genes-eye view adopted by Harford opens the door for a powerful critique of neoliberalism and one that I do not believe has been adequately explored, or even noticed. Evolutionary economics has taken habits and routines as the basis for replication (Nelson and Winter 1982; Hodgson and Knudsen 2010) and Harford has made use of the loosely specified term 'ideas', meaning products, technologies and new modes of production. It might equally be possible to identify organisational replicators as the ways of doing and technical practices particularly associated with neoliberalism and the preservation of capital. Bookkeeping might be one such, or capital budgeting, or hurdle rates and the apparatus of return on investment calculations. In this sense, the purpose of the replicator is to reproduce, through a circular causal relation, both itself and its extended phenotype, the latter being the mechanisms that 'lever it into a new generation'. So the return on investment apparatus produces returns on investment, causes its robot carrier to be successful, and reproduces itself through processes of imitation, longevity and heredity. As it multiplies, it shapes the world around itself, becoming ever more successful. And so, with grand irony, we can find in the evolutionary assertions of the perfection of markets the germ of a Darwinist critique of the great structures of capitalism, where corporations and institutions are seen as blind robot vehicles programmed to preserve their selfish masters: calculations and measurements, the DNA of capital itself.

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