

From Darwin to Facebook. (DRAFT)

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150 years after the publication of Darwin's *The Origin of Species*¹, the concept of evolution has become deeply integrated in the way we think and in our understanding of how the world works. It not only permeates the science of biology – how genetic mutation and selection account for the diversity of nature – but also our understanding of human culture². How did language evolve? What is the function of religious rituals? Why do people spend hours on social networking sites like Facebook?

Natural selection, as Darwin knew, is only one of the selection mechanisms that shape subsequent generations. In *The Descent of Man*, he wrote about how sexual selection affects the evolution of an organism. He also wrote about the expression of emotions in humans and animals, which is the foundation of much current work on signal selection – the evolution of communicative traits. Understanding how any particular trait or behavior evolved is an interpretive process, involving making hypotheses about the function of the trait and how it might benefit the organism that has it – whether by making it more powerful, more attractive, or more believable. By looking at phenomena around us through the lens of evolutionary interpretation we gain a deeper understanding of how they function, why they have the form they do, and what might come next.

Today, one such phenomenon is the rise of social network sites, such as MySpace, LinkedIn, Bebo, and Facebook³. On these sites people create a profile that says a bit about who they are; they then link to their acquaintances elsewhere on the site. This creates a network of connections that users can follow to see who their friends are friends with.

Why do people do this? Are social network sites a fad, briefly popular but soon to be forgotten? Or do they represent something more important? And,

¹ (Darwin 1872)

² (Appelman 1979; Dunbar, Knight & Power 1999)

³ (boyd & Ellison 2007)

in particular, how can Darwin and the study of evolution help us to answer these questions⁴?

There are many aspects of social networking sites which we can look at through the lens of evolution. For example, anthropologist Geoffrey Miller has argued that creative achievement and humor have evolved as signals to let potential mates evaluate one's intellectual fitness⁵. And these sites are certainly venues for displaying these qualities, as people vie to post the wittiest comments and the most striking photos.

The aspect that I am going to focus on here is role of these sites in changing the scale of human society. The argument that I will make is that these sites are indeed more significant than they may appear, given the minutiae they feature. Indeed it is that very minutiae that gives them their value. They are social tools that help us expand our personal social networks at a time in our history when growth in personal acquaintanceship is valuable -- but is beyond the reach of our unaided brain.

Here it is useful to trace the evolution of human sociability. In the wild, apes groom each other to remove parasitic bugs. Besides being pleasant, relaxing and hygienic, this behavior establishes social bonds: apes who groom each other are more likely to help each other and not fight. But long grooming sessions are time consuming and since the ape must also find food, sleep, etc., grooming can sustain only a limited number of relationships⁶. The evolutionary psychologist Robin Dunbar has argued that in human societies, language, especially gossip, has taken over the social function of grooming. Instead of removing lice from each other's hair, we check in with friends and colleagues and chat about common acquaintances, the news, or the local sports team⁷. Language is much more efficient than physical grooming, for one can talk to several people at once. And language makes reputation possible—individuals benefit from the experience of others in determining who is nice, who does good work, and who should be shunned for their dishonest ways. By using language to maintain ties and manage trust, people can form more complex and extensive social networks.

⁴ (Donath 2007)

⁵ (Miller 2000)

⁶ (Dunbar 1996)

⁷ (Dunbar 2004; Emler 2001; Enquist & Leimar 1993)

But while these groups are larger, there are still limits to their size. The social ties take time to maintain and there is only so much time in a day. And, our cognitive ability to keep track of people is limited⁸.

For hundreds of thousands of years, this was sufficient. In village society, people live in small groups and might know a few hundred people over the course of a lifetime. Close relationships – what sociologists call “strong ties” – are most important. You would depend on these ties to help build your house, raise your children, and harvest your crops.

Today, these tasks have been outsourced to the market. We hire babysitters to watch our children and contractors to build and repair our houses. We don't depend on a network of close ties to take care of our everyday needs – instead, we work and pay for them in a market economy.

We live in a world where information and the ability to adapt to change are increasingly important. Today, the old model of lifetime employment is quickly shifting to one of rapid turnover and short term contracting – where keeping food on the table and a roof over your head requires frequent searches for leads on jobs. It's a world where people regularly uproot themselves, moving for college, for work – and often need to start over in a strange new place. It's a world in which we strive to stay in style –in the clothes we wear, the slang we use, the car we drive – following a subtle but ever-present trail of fashion information. And we judge others by their prowess at this. We cringe when someone uses outdated slang, and wearing out of date fashions signals someone who is out of touch, not adept at the adoption of new looks – or new ideas.

In this world, where we are hunting for trends and data, rather than foraging for nuts and berries, there is tremendous benefit to having a wide and varied circle of acquaintances. Being in touch with a lot of people keeps one in touch with the changing zeitgeist. You learn quickly about new technologies, new places to go, new ideas.

The people in small close-knit groups – the sort of groups that were well suited to pre-industrial life – quickly share the limited information they have. With a bigger, more loosely-connected group of people you know from a variety of contexts, who have other communities they belong to, you become privy to a wider range of information from different sources. For getting a broad perspective having a large number of weak ties is best⁹.

⁸ (Hill & Dunbar 2003)

⁹ (Granovetter 1973, 1983)

The problem is, we're not well suited for keeping track of lots and lots of people. We run out of time to maintain the relationships – and we lose track of who is where and what they are doing. When our groups grow too big, we lose the ability to keep track of reputation – and free-riding and other forms of dishonesty become a big problem.

Social network sites, by placing people in a context where they are linked to others who know them well, bring a new level of accountability. My facebook community includes people who know me only slightly, but also others who know me very well. Any claims I make about who I am, what I like, what I'm doing, can be seen by people who know whether they are true or not.

And here it is useful to look at one of the more recent developments in evolutionary science, which is signaling theory – looking at the evolution of communication¹⁰. Much of what we – both humans and animals -- want to know about another are qualities that are not immediately perceivable. How strong are you? Do you have good genes? Can I trust you with this task? Instead we rely on signals, which are perceivable indicators of these qualities. Big antlers are signals of strength in moose; expensive sports cars are signals of wealth among humans.

The problem with signals is that they can be dishonest. It is often beneficial to the signaler to lie, to exaggerate their good qualities or hide their bad intentions. Yet if a signal is frequently false, it will be ignored by the receivers. Thus, the evolutionary pressure on signals is to be reliable. What keeps signals reliable are costs – it must be too costly, either in terms of resources or social sanctions, for it to be worth it to signal dishonestly.

Simply claiming to be someone's friend is a non-costly signal of friendship. On the early social network sites, where there was little on-site public communication, people made thousands of such connections. They created enormous networks –but the links of claimed friendship were too cheap to be meaningful. Today, in the next generation of social network sites, the public signals of friendship – commenting on another's updates, referring to them in your notes – require time and thought, making the claims of connection more significant.

These sites are new forums for social grooming, for publicly affirming status in the group, carried out on a new and larger scale. Almost everything you do can be seen by your connections, and commented on by them. If you post a photo, play a game, add a new friend, or update your status – your

¹⁰ (Grafen 1990a; Maynard Smith & Harper 2003; Zahavi 1993; Zahavi 1977)

connections are notified. Not everyone will comment, but some will, particularly if you said something especially witty or if you shared some personally momentous news. These comments are publicly viewable.

This lets you see how responsive someone is. You can also see the esteem in which someone is held by others. A very well-known and well-liked participant will quickly accumulate multiple comments on even the most banal posting. The site thus becomes an arena for the performance and evaluation of status and role within a large, loosely connected network.

One complaint is the amount of time one ends up spending on it. But this too can be seen as having a communicative purpose. For example, a fad that is currently sweeping through the Facebook is called 25 Random Things. Someone writes 25 tidbits about themselves and lists 25 of their friends, each of whom is supposed to write their own such list and get more people to participate. The pyramidal structure is similar to a chain letter – but with a difference. It’s a lot of work to come up with 25 quirky, interesting things about yourself. It can take hours.

One obvious benefit of this trend is that it does let you learn quite a bit about each friend who has written such a list. But the “time-wasting” aspect – is that just a unfortunate requirement, or does it serve some social purpose? One hypothesis is that it is an online version of the time-consuming ritual¹¹. Anthropologist Richard Sosis argues that costly group behaviors – such as very long religious services – have evolved as a reliable signal of group membership¹². One notices while reading the comments on these lists how often people who have been asked to make their own list at first demur. “no no” they say “I really don’t have time. I don’t know what to say”. But then they are tagged again, and again, and finally relent. The message is, you are part of our group – and now you need to do your part and signal your commitment with your time and your willingness to reveal a bit more about yourself. It is a signal of membership paid for in time and privacy.

10 years ago *Facebook* did not exist, and 10 years from now, if it is still around, it will be in a very different form. Around the world, hundreds of companies and thousands of programmers are busy creating new sites and new features – these innovations are technology’s analog to genetic mutation. Each will be launched into a complex cultural environment that includes existing technologies, economic pressures, and of course the human users

¹¹ See also (Veblen 1899) for an alternative explanation: time-wasting as a signal of membership in the leisure class.

¹² (Sosis 2009)

with their goals, emotions, and cognitive abilities that have evolved in response to both ancient and modern circumstances. Out of the competition among these sites will emerge the next generation of social technologies, increasingly well-adapted to the needs of contemporary society, a society that is just maybe beginning one of its biggest evolutionary leaps since we first began living in cities.

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