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Secrets and Lies: The Neighbourhood of No-Truth

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Abstract In trying to understand secrets and lies we define the truth as embedded in a surjective mapping of secrets *onto* lies. For every secret there is at least one lie. Individuals are badged into types: there is a set of individual's type $\Gamma = \{H, L, T\}$: honest type (*H*), liar type (*L*) and truth telling type (*T*). Secrets and lies are signalled by an individual's type. Truth is embedded in a topological neighbourhood of secrets and lies, signals and type. So the task at hand is to explain the truth by arguing that a *no-truth* equilibrium exists and honesty may not be the best policy. Paradoxically, Mr *L*, by not keeping to type and Mr *T* by telling a 'white lie' are engaged in *telling the truth by telling a lie* in the neighbourhood of no-truth.

JEL Classifications C61, C79 Keywords Secrets, truth-telling, reputation, signal.

1. Introduction

We could begin our discussion directly with a realist rationale for honesty. But you, the reader, may not believe that the named author has spent weeks writing and researching this paper. If you are a philosophy student, you may think that you should read this paper in preparation for a final degree examination, but you may choose to ignore that knowledge when you opt to attend a party, instead. Your friends observe you at the party and what they observe is a student who signals not to care about something that may actually mean a great deal to him. Are you dishonest? Did the author spend weeks composing this paper? Is the author dishonest? Philosophy cannot predict whether you will be found out. Ultimately, as argued by Smith (2006: 81) dishonesty 'can sometimes fool other people, but it cannot fool reality'.

Answers can only be found in arguing that honesty makes sense because

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we cannot fool reality. In other words, the truth will eventually be revealed when a secret is uncovered. Reality may not change but individual's perception of reality does change through the action of others. Rather, we observe the actions of others, and individuals can only directly observe the actions of a small percentage of those they may have to rely upon to tell the truth; for the rest, they must rely on information from other sources or signals. For example, Schwab and Ostrom (2008: 212-214) focus on 'the reports others provide' about an individual's reputation. Reputation is reported. But there is also a set of individual's type $\Gamma = \{H, L, T\}$: viz honest type (H), liar type (L) and truth-telling type (T). A type is a badge that allows an individual to more easily approximate a world of perfect information about an individual's type. Badging is necessary when there is uncertainty in relation to the circularity of beliefs about individual's type.

An individual should be honest because 'he will maximise his lifetime expected utility..[...]..for being honest has no further benefit beyond its contribution to utility' (Feinstein, 2007: 469). A classic example is an economic agent acting honestly because 'honesty is the best policy in the long run'. Typically an individual deceives another because he thinks that he could not achieve an end if he engaged in truth telling behaviour; the other person would not, if he knew the truth, act as the liar wishes (Smith, 2006). Across the philosophy literature, there are social arguments for honesty ranging from Warnock (1974: 84) contending that 'dishonesty damages social intercourse by unravelling the fragile fabric of trust' to a metaphysical view a là Ayn Rand contending that 'it is not, fundamentally, relations with other that necessitates honesty, it is reality' (Smith, 2006: 87). Smith provides a good overview on the different arguments, writing that 'honesty is the only practical means of survival qua human' (87). Whatever scholarly disputes there may be about dishonesty in the economic literature, there is a noticeable paradigm shift in the neuroeconomic methodology away from the traditional neo-classical preference for dishonesty (Demichelis and Weibull, 2008).

Rational man is dedicated to telling the truth when he is in a position to know, and act. Telling the truth has become a behavioural norm in society. Philosophers concern themselves with rational justification of the truth because, they argue, as individuals, we are concerned with knowledge and not with mere assertion regardless of truth, nor even with mere true belief not known to be true. The more Mr *B* observes Mr *A* telling the truth the more Mr *B* will trust in Mr *A*. Mr *B* can justify to himself placing a badge *T* on Mr *A*. As individuals, we are and have to be concerned with rational justification (Flew, 1975: 118). Hence an individual *A* who commits to a recognised pattern of truth-telling behaviour, is badged Mr *T*. Once badged, for example, an individual's reputation *a là* Schwab and Ostrom (2008) will be observed in the game if the individual keeps to type.

2. Signals and trust

You (the reader) are Mr *T*. Although Mr *H*, an honest individual may always tell the truth he may also keep a secret.¹ So would you trust Mr *H* to tell the truth? It is simply because many are inclined to observe less signals about Mr *H* - believing with certainty that Mr *H* will tell the truth – that Mr *L* will be tempted to snatch the truth. Individuals who have a proclivity to lie or a preference for dishonesty, and thus refrain from telling the truth can be badged as Mr *L*. We are inclined to believe what we can understand about Mr *H* the honest type. But once type becomes a self-fulfilling prophecy that we believe we can understand and rationally justify then we are inclined to observe less about an individuals' type. This allows Mr *L*, an individual with a preference for dishonesty, to distract attention from questions about the truth and to retain a secret.

Signals convey information about the truth. If a signal is the first derivative of type with respect to time then the observer of the signal, Mr T in this case, can form a judgement on whether the information conveyed by Mr H is true or false. However, not every signal observed reveals the truth. An individual can simultaneously tell the truth and keep a secret. Informational conflicts within the individual have recently been the object of neuro-economic research (see Bodner and Prelec, 2003). Earlier, Loewenstein (1996) had argued that emotions and drives cause individuals to behave contrary to their long-term interest. The neuro-economic methodology advances the idea of 'a brain architecture composed of multiple, interacting systems' (Brocas and Carrillo, 2008: 1334). In this paper we argue that an individual's type is pivotal in offering a rational justification to others for believing the individual. As noted earlier, Mr L can also retain a secret. Mr T, a trusted friend, would prefer to read the signals from Mr H and detect a secret kept by Mr H. When the secret is revealed to Mr T by another individual, Mr H is no longer trusted to tell the truth and may be badged as a liar. However, if Mr H conveyed a signal now and it was observed now by Mr T to be the truth, based on Mr Ts information now then Mr T could believe with certainty that Mr H is of honest type. Mr T could trust Mr H – trust in this particular instance has become a 'cognitive assessment tool' à la O'Hara (2008: 176-177).

3. Topology of truth

A topology is a collection of sets. In this paper we have illustrated in

¹ Of course Mr H may also tell a 'white lie' if that is the honest thing to do. McNutt has explored this phenomenon of 'white lies and porky pies' in the preparation of *Political Economy of Law*, scheduled for publication in 2010.

Figure 1 a dense topological space ζ of sets: set L signals, set Γ type and subset k, lies, is a subset of the signals set, L.

Lemma 1 Secrets, *s*, are a subset of the set type, Γ , if and only if we can find for each element in $k \ C L$ an element *t* of Γ that has an element by its image. Then such *t*'s will form a subset of Γ . This subset is the set, secrets, and the subset is dense since any point in ζ can be approximated by points in *s*.

Figure 1 Topology of truth

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Lemma 2 By adapting the Schroeder-Bernstein theorem, McNutt (1992) had earlier defined a subset k of L such that g^{-1} is defined as a subset of Γ and showed that if L is the disjoint union of k and $f(\Gamma - g^{-1}(k))$ there exists a 1:1 function h from Γ onto L by setting h equal to g^{-1} on g(k) and h equal to f on $\{\Gamma - g^{-1}(k)\}$. In other words, truth can be explained in terms of a surjective mapping of secrets *onto* lies rather than in the mapping of lies *into* secrets.

4. Paradox on signals and type

Trivially, for Mr H, signals reveal a type H and for honest individuals with no secrets type H can be observed by signals. Albeit honest types may tell the truth but may also keep secrets because secrets are a subset of type. If Mr L has been observed to always tell a lie, then can Mr H and Mr T both assume that Mr L has secrets? If the answer is in the affirmative then Mr L's signals reveal his type. It may be that it is more difficult for Mr L to tell the truth than it is for both Mr H and Mr T because Mr L has a secret. Mr H, however, whom Mr T had trusted to tell the truth, will find it easier to tell the truth and more difficult to tell a lie if he has a secret.

A paradox arises because either there is an innate desire to tell the truth or truth telling is pivotal in influencing the actions of others. Feinstein (2007: 470f) comments that there may be room for Aristotle's view that 'being virtuous itself contributes to happiness in the utilitarian view, through incorporating virtues into a utility function'. In other words, if signals always reveal type then a type T can be explained by an innate desire to be virtuous by telling the truth. Telling the truth is genetic rather than individual (Dawkins, 1976).

Truth-telling we equate with an honest reporting of one's signal. However, if truth telling influences the actions of others, and all are aware of this fact, then might it be the case that those telling the truth do so strategically, that is, to influence the action of others. Since Plato's time philosophers have argued that true belief need not be knowledge. So Mr T telling the truth matters only in those cases where truth-telling is pivotal (Morgan and Stocken, 2008). In all other cases, type T may be irrelevant.

5. The 'truth will never out' dilemma

The essence of secrets as a subset of $\Gamma = \{H, L, T\}$ may confirm the traditional economic reasoning that individuals have no preference for honesty or against lying *per se*. Demichelis and Weibull (2008: 1293) make the comment that 'the standard assumption is that economic agents opportunistically misrepresent their private information whenever they believe it is to their advantage to do so'. Aumann (1990: 202f) had pointed out that individuals may agree to play a payoff dominant equilibrium even if each individual secretly plans to deviate: 'since he can reason in the same way as me, neither one of us gets any information from the agreement; it is as if there were no agreement'. So they cannot agree to disagree.

If we accept Lemma 2 then the truth is embedded in a topological neighbourhood of no-truth. In other words, Mr *L* has a reputation as a liar so his type *L* signals a lie. The truth-telling of Mr *H* is proportional to the scale of his honesty and Mr *T* telling the truth matters only in those cases where his truth-telling is pivotal. Truth telling behaviour can be signalled by a lie or embedded in a secret. Paradoxically, while we are more familiar with truth telling behaviour embedded in a secret - the 'white lie' – we may find it puzzling that truth telling could be signalled by a lie. This is what we label the 'truth will never out' dilemma or *telling the truth by telling a lie* as illustrated in Table 1. Paradoxically, Mr *L*, by not keeping to type and Mr *T* by telling a 'white lie' are engaged in *telling the truth by telling a lie*.

5.1 Sketches

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For example, white lies are tolerable in society in order to reach an equilibrium point. A husband always tells his wife that she looks thin and slim in a new pair of jeans even if he observes the contrary. A father tells a child if she goes to the dentist voluntarily that the 'tooth-fairy' will leave €5 under the pillow. An A grade student tells his C grade friends that he only expects to obtain a grade C in the final examinations. In these examples if one party believes that the other is telling the truth, an equilibrium is reached: a new pair of jeans is purchased, a tooth gets extracted and the A grade student makes new friends at college. However, neither the parent nor the A grade student would wish to reveal the truth - there are no toothfairies and the A grade student will obtain an A grade in the final examinations. If they do reveal the truth, the A grade student will be ostracised by his friends at college and the child will not go to the dentist. The wife will be upset and annoyed if the husband reveals the truth about how she really looks in that new pair of jeans. The dilemma is simply that the husband, the A grade student and the parent in these stylised examples are lying in order to tell the truth. We refer to this later as the first hurdle of secrets.

5.2 Secrets onto lies

In trying to understand secrets within a topology of truth we should begin with Lemma 1 that secrets are a subset of the set type, Γ . Mr L's preference for lying may be explained by the existence of a secret. In other words, the truth is embedded in the mapping of secrets *onto* lies rather than in the mapping of lies *into* secrets. An Aumann-like outcome could be obtained if each individual believes what they would have believed without information on type. A child believes an honest parent of type H that a tooth-fairy exists. The honest parent, Mr H, however, has lied. However, in the act of lying, the parent is a Mr L type yet the child chooses to believe the parent without information on type.

5.3 No-truth equilibrium

Consider the following: we are looking for a volunteer to refrain from telling the truth by telling a lie. The dilemma is that it cannot be optimal for both Mr L and Mr T to volunteer simultaneously² - as players in a game

² In early drafts of *Tao of Ethics* McNutt is developing an argument that for any *one* individual there are at least two types viz L and T in the 'brain architecture'. Initial drafts will appear on www.patrickmcnutt.com during 2009.

they do not have dominant strategies. Mr L could volunteer but he chooses not to do so. Why? If Mr L with no reputation in truth-telling could reveal a secret about Mr T, then Mr T would prefer Mr L to keep to type and lie. Mr T with a reputation for telling the truth will not volunteer. Mr L and Mr T realise that if both volunteer the worst possible outcome will obtain. Since the truth is embedded in a surjective mapping of secrets *onto* lies both Mr T and Mr L prefer the (secret, secret) 'no-truth' equilibrium at (2,2).

Fahle 1	No-trut	h eani	librium
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		Mr T	
		Keep a Secret	Tell a Lie
			[Mr <i>T</i> telling white lie]
Mr L	Keep a Secret	(2,2)	(2,3)
	Tell a Lie	(32)	(11)
	[Mr <i>L</i> keeping to type]	(3,2)	(1,1)

In a classic Prisoners' dilemma game there is a unique Nash equilibrium. In Table 1 the solution can be characterized by either one of two Nash equilibria: (2,3) or (3,2). At the payoff (2,2) Mr *T* receives less than at (2,3) but the 3 payoff is only obtainable with Mr *L* retaining a secret, and thus signalling nothing about the truth.

5.4 First hurdle of secrets

The *first hurdle of secrets* - lying in order to tell the truth - is a credible mechanism ensuring that both Mr T and Mr L remain at the (secret, secret) no-truth equilibrium where the payoffs have less to do about telling the truth and more to do about maximising a payoff with secrets. The (secret, secret) equilibrium represents the best that Mr L can do given the fact that Mr T refrains from telling the truth by telling a 'white lie' and the best Mr T can do provided Mr L does not keep to type, and thus keeps a secret. It represents the less risky outcome for both Mr L and Mr T as both realise that either can punish (*a là* Poundstone, 1992) the other player's deviation from this quasi co-operative path by revealing the truth. However, the pay-

off pair (2,2) in Table 1 is not supported by a Nash equilibrium.

Although type can be innate - right handed or preferring apples to pears - type can be observed by signals as in writing with your right hand or eating apples when offered a choice of apples and pears. The observed signals do reveal a type *as observed* by others but not necessarily an innate type. There is no absolute guarantee that the observed signals portray a type. Mr *T* does keep secrets while Mr *L* might tell the truth if truth telling was pivotal. This would require Mr *L* to keep to type and to lie in Table 1. But both Mr *T* and Mr *L* are better off in Table 1 if both keep secrets. Spies, for example, are often caught when they fail at the first hurdle of secrets – their observed behaviour may reveal a lie.

During the Cold War era, the clinking of glasses and making eye contact during a toast was a way to reveal a spy in the diplomatic corps. For example, in many East European cultures it is required to make eye contact on clinking glasses during a toast. Western Europeans posing as East Europeans would often fail this simple test. Likewise the clinking of glasses from the bottom (Czech culture due to the foam settling on top of the beer) or from the top (Western European, especially UK and US culture) or not at all (in Hungarian culture) often revealed the true 'type' of an individual. Spies were reminded of '*in vino veritas*': hypothetically, drinking at a reception in the Prague embassy during the Cold War era, a West European spy could be uncovered or observed by his or her behaviour in the clinking of glasses during a toast. In other words, spies are an unobserved Mr L type who realise that the best they can do is to keep the secret.

6. Moon-shot versus trust

Aside from personal integrity, what is the probability that an individual keeps to type? No secrets, no lies could be assigned a probability of 1. However, we observe only signals about Mr H's type, his honesty and his integrity as an individual implying neither secrets nor lies. Do you trust Mr H as your partner? Should you trust Mr H as your competitor? Trust ultimately depends on one's belief structure about other people. Generally, if Mr A trusts Mr B to do x, then Mr B, knowing that Mr A trusts him to do x, has a choice to make: does he do x or not.

Mr *B* could signal an intent to do *x*. The purpose of the signal is to provoke a reaction from Mr *A*. Mr *B* may never have to do x - in order to provoke a reaction from Mr *A* it is sufficient for Mr *A* to believe that Mr *B* will do *x*. This is a moon-shot identified in McNutt (2008: 2, 71). It manifests itself in both the world of business and politics in terms of provoking a reaction. One scenario is the belief that *x* will be done. Apple Inc may have launched the *iPhone* early in 2007 because they believed in

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the existence of a *gPhone*. Google Inc denied any *gPhone* existed at that time. A *gPhone* was launched in summer of 2008. One could argue that the existence in Iraq of weapons of mass destruction was a moon-shot that precipitated the Iraqi invasion in 2002.

Neither Mr A nor Mr B signal the moon-shot; neither know that about each other, and so they believe the moon-shot as a likely action, and thus leading to a reaction. For example in Table 1, if a moon-shot - Mr L revealing a secret about Mr T - was introduced inciting Mr T to deny Mr L's revelation, Mr T would to tell a 'white lie' and both would end up with (1,1). Paradoxically, Mr L, by not keeping to type, and Mr T by telling a 'white lie' are engaged in *telling the truth by telling a lie*. Sometimes an individual knows without inference, as when we know that it hurts. However, where the need for rational justification has to enter is in the determination that we are indeed in a position to know, and act. This need becomes urgent whenever there are grounds for fearing that we may in fact be mistaken (see Flew, 1975: 115). To maintain any belief, one must have trust in the observed signal rather than acknowledge the belief to be false. For in the extent to which trust is credible in terms of doing x, where x has significant negative consequences for both A and B, both individuals must trust each other absolutely, and respect the first hurdle of secrets. They must lie in order to tell the truth.

7. Concluding

Mr *H*, an honest individual may always tell the truth but he may also keep a secret. So would you trust Mr *H* to tell the truth? In a world of imperfect information, individuals circle the circumference of concentric cycles of knowledge in the search for the core of content – the truth - that they believe what they understand simply because the boundary of what they need to understand is endless and the observations are few. As individuals we often find ourselves detached from the observations, oblivious to the truth that we simply trust Mr *H*. In this case, trust is true belief. Mr *L* can then exploit this trust.

Albeit, the approach adopted in this paper is that a rational person may reach a certain conclusion about Mr T not by the use of reason but by proof. Observed signals reveal a type T, an individual Mr T exists, and if Mr T could be observed in telling the truth then Mr T has to exist. Mr Land Mr H have to exist. Knowledge is true belief. If lies and secrets camouflage the observed signals so that an individual's type is more difficult to believe then one must ask: what is the truth? Why do some people tell a lie? Why do others keep secrets? Truth demands taking 'type' seriously as knowledge. This requires of an individual to seek knowledge in an imperfect world in order to understand the way things are now and

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will be in the future.

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In resolving talks or disputes, one player can exploit the belief system of another. Mr *H* believes the moon-shot (a secret revealed about Mr *T*) and that is why the moon-shot is credible. If Mr *T* was a truthful type then Mr *H* would not be surprised and may ignore the moon-shot. When secrets are revealed they represent a surprise only in so far as the secret has credibility as evidence of an individual refraining from the truth. The essence *a là* Brody (1980) of a secret is not only that without which a secret would not exist, it is also that which sorts a secret from lies, of which a secret can be grouped with lies in a topology on truth. Therefore lies and secrets are complex so one has to rely on the signals in an imperfect world where 'reliance on type' and 'keeping to type' or reputation *a là* Schwab and Ostrom (2008) offers a workable definition of truth.

In an imperfect world of information, knowledge is relative in the sense that it is obtained sequentially through signalling and experience. Truth is contained in the neighbourhood of no-truth, a neighbourhood of secrets and lies, signals and type. Spurgeon, a mid-19th century British pastor³ commented that 'a lie can travel halfway around the world before the truth can get its boots on'. The truth will 'never out'; Mr *T* will tell 'white lies' and Mr *L* will only tell the truth by lying if it is pivotal. Secrets have been and always will be with us - from the *oratio secreta* recited by clerics in daily rituals to secret talks to resolve a dispute to secret handshakes; secrets will remain intact. Mr *H*, alas, may succumb and tell a white lie; it is after all, the truth, is it not? There is a *no-truth* equilibrium and honesty may not be the best policy!

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³ Although the phrase is often attributed to Mark Twain, it has been attributed to a British pastor, Charles Haddon Spurgeon in 1855, noted by *Readers's Digest* June 2009 at page 159.

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