Truth and Lies in a *Noosphere*:

Liar's Paradox

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ABSTRACT: SCENE-SETTING

In this paperwe explore two questions: what is the *meaning* of lying? What is the meaning of truth? Act I provides a critical overview on the meaning of truth in philosophy and literature. Scientific truth is truth as perceived by others. Act II introduces two hypotheses in support of lying as a norm and prepares the foundation for our definition of truth as an aversion to lying. To confirm that a lie is concealed within the meaning of truth as perceived by others Act III adapts a Turing machine in the search for the identity of a liar behind a closed door. This prepares us for Act IV wherein a topology is described with an equivalence between the sets L (lies) and T (truth) that spans a family of subsets, a brotherhood of rascals – the white lies and fairytales that fall under the truth set, T. Act V explores the interaction of the human mind with other minds, and first and foremost with itself. In other words, it introduces a noosphere and the conscious awareness of lying in everyday life's experiences. Truthful honest Mr T enters a binding Noahic covenant that conceals the meaning of truth within a lie. He lies in order to tell the truth as perceived by others; his conscious awareness of others defines a Jacobean tragedy of truth aversion in a noosphere.

In the final Act VI the paper concludes that liar's paradox is a mother of all paradoxes because it couples truth as an aversion to lying with lying as an aversion to the truth. It is a paradox of syntax and language. Like Vladimir and Estragon rational and irrational individuals wait for the (scientific) truth. The poet's truth is non-transient: 'And O she was the Sunday in every week'; telling a lie in order to tell the truth as perceived by others riddles away the logic of liar's paradox. In a *noosphere* the truth as a true premise and the valid inference that Mr T is an honest individual can lead to a false conclusion if L and T are equivalent. Is this the genesis of liar's paradox? It is an area worthy of further research based on the premise in this paper that a rational individual knows or is consciously aware in a moment in time that he or she has to shift to a different kind of language. Lying becomes the norm.

'It is not only by dint of lying to others,
But also of lying to ourselves, that
We cease to notice that we are lying'.
Proust

PREAMBLE

From a scientific point of view, when a poet[1] writes: 'They say that her beauty was music in mouth' or 'I drank me a bottle of music; gulped it down in a minute or two' he is lying; so, we ask: is every poet a liar? The ancient Greeks believed that the Muses can reveal hidden truths: poetic Muses say of themselves[2] 'we know how to say many false things similar to genuine ones, but we know, when we wish, how to proclaim true things'. With the displacement of lying and the creation of truth as a virtue the task became the construction of a conscious and rational defence of 'scientific' truth. In the 'preferences for truthfulness' literature today a dichotomy between telling the truth v telling a lie is embedded in the research[3] – this research agenda focuses on the motivation and incentives to tell the truth in experimental games. The trade-off is binary: they could[4] 'tell the truth and suffer economic costs of truthfulness or they could lie and potentially incur intrinsic costs of lying'. Research findings point to heterogeneity, both among and within individuals, in their preferences for truthfulness.

The scientific notion of truth has created a distinction between the perception of truth and truth itself. Lying is presented as truth-aversion across the history of philosophy and ethics. Truth is the norm. However, we will use the distinction between truth-aversion and lying-aversion in this paper to argue that lying is the pathway to truth. The paper is not about truth as a virtue, it is not an attempt to chart a course between opposing movements in relativism and religion[5]. However it challenges the arguments for the case of truth by focusing on the use of language and syntax in the meaning of truth. We claim in this paper that rational and irrational individuals must balance what the truth is against what is perceived to be the truth but in fact is not. We will discuss whether or not there are rational grounds for refuting this claim but in the interim we have no choice but to act as if the claim is true – that both rational and irrational individuals lie. There are lies; there is the truth, and[6] there's many a slip twixt the cup and the lip.

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[1] Austin Clarke, Irish poet 'The Planter's Daughter' first published in *The Dublin Magazine* vol III New No 3 p2 July-September 1928. And 'Music' in *Prometheus Unplugged* by Alan Murphy (2014) Avant Card Publishers, Waterford, Ireland.

[2] Hesiod *Theogony* 25 as cited in Tomas Sedlacek (2011): *Economics of Good and Evil*, Oxford University Press.

[3] This research links with the sender-receiver games of Gneezy where subjects tell the truth and is well documented by Gibson et al (2013) 'Preferences for Truthfulness' *American Economic Review* vol 103 (1) pp532-548.

[4] Gibson, R et al (2013): 'Preferences for Truthfulness' *American Economic Review* vol 103 1 pp532-548.

[5] Excellent read for the case of truth by Peter Vardy (1999): *What is Truth?* The University of New South Wales Press.

[6] Old proverb from William Thackeray's novel *Pendennis* published in 1850.

Act I: INTRODUCTION

The general discussion in the paper spans a broad church – from the rationality of betrayal to the morality of spying, from cheating to dishonesty, and from white lies to fraud. We ask: what is the *meaning* of lying? What is the meaning of truth? The assumption in the literature is that lying is a deviation from the norm of truth. A contrary position throughout this paper is that truth is a deviation from the norm of lying. Like justice, truth is one of the Aristotelean virtues but unlike justice, centrally dispersed by courts and the law, truth is subjective and reflective: it is singular. Pockets of indiscretion, selective memory lapses, white lies and fairytales occasionally fall under the truth set, T. Our topology builds on the mapping of a set L (lies) onto a set T (truth). Such a mapping generates the proposition that the sets L and T are equivalent. We allow for two proper subsets: A c L and B c T. The existence of a subset B ensures a continuous mapping from B onto A – that is, a lie is concealed within the meaning of truth.

In our attempt to understand human nature we introduce types of individual: an honest type, Mr T and the liar type, Mr L. A variant of liar's paradox attributed to the Greek philosopher, Eubulides of Miletus, who lived in the 4th century BC, evolves from the dichotomy: true *v* false. We blend this dichotomy into our assertion that lying is embedded in either statements of fact or in sentence construction. A capital stock[7] of lies, for example, builds up and acts as a signal that causes an individual to realize that this stock is non-excludable. In other words, the capital stock lowers the future marginal cost of lying because lying has become habitual and can be carried out with little effort in an environment wherein individuals desire to belief and trust others. We are more trusting of others but we also behave selfishly. We are influenced by others and by social pressures, interactions, mutual interdependence and norms. Truth is one norm. But we argue in thisn paper that we evolve in time to a conscious awareness of lying through[8] 'the extended mind', the interaction of the human mind with other minds, and first and foremost with itself – we refer to this conscious awareness as a *noosphere*[9].

As In both philosophy and logic, the liar paradox or liar's paradox is represented[10] in the statement 'this sentence is false'. Trying to assign to this statement a classical binary truth

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[7] The idea here is analogous to the Becker methodology in the new literature on behavioural interventions in energy policy making where households have a capital stock of conservation - for example, if investment in energy saving appliances reduces heating bills, more investment and adoption of more conservation measures. Read articles by deClippel 'Behavioural Implementation' and Allcott & Rogers 'Experimental Evidence from Energy Conservation' in *American Economic Review* 2014 vol 104(10).

[8] Read the seminal article by Andy Clark & David Chalmers (1998): 'The Extended Mind' *Analysis* vol 58 pp7-18

[9] Adapting Teilhard de Chardin's noosphere concept in this paper to capture the conscious awareness of lying but check http://en.wikipedia.org/wiki/Noosphere

[10] The *Epimenides paradox* (circa 600 BC) has been suggested as an example of the liar paradox, but some have argued that they are not logically equivalent. The semi-mythical seer Epimenides, a Cretan, reportedly stated

value leads to a paradoxical contradiction. If 'this sentence is false' is true, then the sentence is false, but then if 'this sentence is false' is false, then the sentence is true, and so on. Our contention is that liar's paradox persists because truth is the norm and the paradox *per se* is self-referential[11].

Recent research[12] estimates 10% of sample subjects as dishonest or lying. White lies are more prevalent and many more people find themselves behaving as most people do quite effortlessly in shading the truth, or even lying outright, without thinking about it. People do not tell the truth; rational and irrational individuals explore[13] different ways to tell a lie, and we are arguing that a lie is concealed within the meaning of the truth. Lying is deception. It is a hanging illusion – telling a lie by telling the truth as *perceived by others* - available at a moment in time never to be repeated. It can be defined by type, Leo the Liar, represented by language and syntax, a transient communication or action wherein *ex ante* beliefs challenge *ex post* reality. There are so many possible outcomes. But to explain any one we need to know how it came to be.

Consider the brief exchange in Anton Chekov's play *Three Sisters:*

Masha: Isn't there some meaning?
Toozenbach: Meaning? – Look out there, it's snowing. What's the meaning of that?

The snow is not a statement or a symbol. What is Toozenbach trying to suggest? We concur with Eagleton's comment[14] that 'meaning is an endlessly unfinished process, a shuffling from one sign to another without fear or hope of closure'. We introduce signs of truth in the person of an honest and truthful Mr T and, his nemesis Mr L, a liar. So we need to ask: what is the meaning of truth? That there is water in my glass is true – I make the observation. The sign T has no inherent meaning in the sense that there is water in the glass. But isn't it the case in reality that truth is the norm so there is an agreed understanding that Mr T is honest and truthful. It has been the case in the history of liar's paradox.

Waiting for Truth

Truth, embedded in either statements of fact or in sentence construction, has been grammatically dissected in order to support the Stoic resistance to lying. But in a moment in

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that 'The Cretans are always liars'. However, Epimenides' statement that all Cretans are liars can be resolved as false, given that he knows of at least one other Cretan who does not lie.

[11] In early Islamic tradition liar's paradox has been discussed from late 9th century without being influenced by any other tradition. Naṣīr al-Dīn al-Ṭūsī could have been the first logician to identify the liar paradox as self-referential.

[12] Read the article 'The Science of Lying' by Michael Shermer in *Scientific American* April 2014 pp73 where he discusses Dan Ariely's work and the research of psychologists.

[13] Idea here is accredited to an interview comment in 1970s from the late Ben Bradlee, Editor of *The Washington Post* during the Nixon era.

[14] Terry Eagleton (2007): *The Meaning of Life* Oxford University Press, Short Introductions Series.

time a lie becomes the truth as perceived by others and 'telling a lie to tell the truth' becomes the norm separate from and diametrically opposite to a Kantian categorical imperative: Mr T should not lie. For example, respondents in truthful revelation experiments lie for economic reasons. But they are inherently truthful – those who tell a lie, donate to charity – they feel guilty. Why? It may be their belief that truth is the norm. Alternatively, the respondents who lied in the experiments represent a type T/L, a Mr T who at a moment in time, lied. Our claim in this paper is that lying is the norm, and that lying at a moment in time is truth *as perceived* by another.

The duration of the lie is independent of the truth and there are differences[15] concerning the ontological status of truth within the writings of poets and philosphers. But for the purposes of this paper truth as perceived by others in a noosphere is equivalent to an aversion to lying. In a moment in time 'the truth' is neither substance nor accident – so is it the mirror image of a lie? Research on the effect of life's experience on the way an individual behaves has shown that changes in type are possible. Human behaviour varies through time and rational individuals make decisions or exhibit behavioural variation depending on the costs, benefits and the social context[16]. Judging Godot in telling a lie to tell the truth[17] is without foundation unless you experience what Godot had experienced at a moment in time or at least that you were (also) in the moment when Godot spoke to Vladimir and Estragon in Beckett's play *Waiting for Godot*.

A White lie: ' telling it[18] slant'

If truth is the norm Vladimir and Estragon await the arrival of Godot. Perhaps Godot is a Mr L type, a liar. If he had told Vladimir and Estragon that he would meet them and they believed at that moment in time that he was telling the truth, then they will continue to wait for Godot. However, Godot as a liar by telling a lie was telling the truth as perceived by Vladimir and Estragon. The withdrawal of ultimate meaning for L and T enables us to develop a topology to capture the fact that people behave more selfishly and are more trusting of others.

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[15] Citing Oresme in defining time as *duratio rerum successiva* and thus deducing his concept of time from the duration of things: http://stl.recherche.univ-lille3.fr/textesenligne/Oresme/orienskirschner.pdf

[16] In an experiment published in the *Journal of Applied Psychology* 229 college students were kept awake for 24 hours and were told that being honest would earn them $2 and a partner $5. If they lied to their partner they got $5 and the partner got $2.If the instructor gently suggested that they lie he found that individuals were more inclined to lie when they were sleep deprived. The reasoning is that the prefrontal cortex, the region of the brain that regulates emotions and behavior, is impaired by a lack of sleep. The condition of being 'sleep deprived' is analogous with behavior in a repetitive play where players are enveloped by the game. In a one shot PD game there is a probability that both players would co-operate and not confess. However if one player promises not to confess but betrays the trust others place in him the other player is more likely to cheat as a revenge move in a repeated game. The other player's left prefrontal cortex is impaired when the player cheats and the other player feels sad. He acts in revenge, a move that arouses the left prefrontal cortex. This representation of lying is focused on the motivation of each player.

[17] As argued elsewhere, McNutt (2010), a rational individual may tell a lie in order to tell the truth.

[18] The term 'tell it slant' is from the US TV Series *Longmire* Episode 2 Season 2.

Loss-aversion researchers have persuaded us that the human mind is more complex than the orderly decision making machine envisioned by rational choice theory. We value the short term gain of lying to the long term success or reward of telling the truth. It is a classic prisoners' dilemma. Lying, however, requires memory. Telling the truth requires no memory of an action or statement or event that may come back to haunt you in later life. Consider these two statements:

Statement a: If lying is the norm then truth is an aversion to lying.

Statement b: If truth is the norm it is because of a rational aversion to lying.

We could assess these two statements in a general dimension of correspondence with fact. Philosophers may argue that this does not make them very like statements because still they are not true or false but we concur with Austin[19] that the true v false dichotomy 'is a little black and white speciality that distinguishes statements as a class apart'. He continues to argue that 'the more you think about truth and falsity the more you find that very few statements that we ever utter are just true or just false…[….] ….'true' and 'false' are just general labels for a whole dimension of different appraisals which have something or other to do with the relation between what we say and the facts'.

We concur. So our objective is to show the existence of a subset B to accommodate these two statements and to argue that a lie is concealed within the meaning of truth. We have to show that the sets L and T are equivalent with a continuous mapping from B onto A. Truth and lies evolve in a 'noosphere' – a level of consciousness[20] – and, the sets L and T are equivalent with onto mapping from L to T. It allows us to focus on the meaning of truth in a search for an understanding of liar's paradox eclipsed in the meaning of the statement: lying is the norm, truth is lying-aversion as in *Statement a.*

Moment in Time

So imagine the distraught mother of a lost child who is told by Mr T 'your lost daughter is in Vermont'. Mr T is providing information to the mother but may choose to contextualize the information in language that is 'conditionally better-looking' even though he knows that it is in fact worse than an alternative choice of language. The mother has options - Is that the truth? Would I believe it, if it was? Mr T is pandering[21] to the mother. Is he really telling a lie? It is not possible state *a priori* whether he is or not so in this paper we introduce Mr T/L and Mr L/T as types that enable both Mr T and Mr L respectively 'to spy the light of the Celestial City through the shepherd's perspective glass'. Like Christian in Bunyan's *Pilgrim's*

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[19] J.L.Austin's *Philosophical Papers* 3rd edition Chap 10 pp250-252 published 1979 Oxford University Press.

[20] In 1925 Teilhard de Chardin coined the word 'noosphere' to denote 'the sphere of mind, as opposed to, or rather superimposed on, the biosphere of life' as remarked by Sir John Huxley in his Introduction to *The Phenomenon of Man* (1959) Collins Paperback.

[21] Excellent discussion on cheap-talk and pandering in Y-K Che, W. Dessein & N. Kartik (2013): 'Pandering to Persuade' *American Economic Review* vol 103 (1) pp47-79.

Progress, both Mr T and Mr L are on a journey of 'truthfulness' whatever that means. Sometimes Mr T tells a white lie (he is Mr T/L) and sometimes Mr L tells the truth, (he is Mr L/T). However each deceives the other as they journey through life's experiences. The mother has hope.

The types Mr T/L and Mr L/T offer each a glimpse of the course ahead as they interact with others. Lying is a form of deception. Whether or not deception is a mechanism for telling the truth as perceived by others is an interesting area of research. There is a whole layer of consciousness, surrounded by years of thought and debate on the merits of true v false, exerting simultaneous influence on the consequences of telling the truth and telling a lie. A study on online dating[22] found that deceptions are frequent but subtle. The type Mr T/L is analogous to Abe Lincoln in faux vintage film replying[23] to his wife Mary Lincoln when she asks: 'Does this dress make my backside look big?' Honest Abe 'squirms and shifts, then, hesitates and, while holding his thumb and forefinger an inch apart, finally mutters, 'Perhaps a bit''. Abe as Mr T 'tells it slant' when his wife asked the question. The humor in the question disguises the request for a compliment or a test of Abe's love and loyalty to his wife. He will never answer truthfully. Harris[24] (2013) argues that even in this scenario we should always tell the truth: 'by lying, we deny our friends access to reality - and their resulting ignorance often harms them in ways we did not anticipate'.

Act II: HYPOTHESES

How do you know that a statement or action is a lie or the truth? This asks: what is the environment in which the statement or action is taken, that is, the probability of L and T, in a given state of nature. A door-to-door salesman has a 1:10 chance of earning £5 commission on making a sale. Assume that a suitable lie increases the chance to 50:50. A gross benefit of £2 accrues for telling a lie. But what is the cost of the lie? There may be legal penalties or sanctions or a loss of credibility or loss of goodwill. Unless the costs of telling a lie aggregate to more than £2 the door-to-door salesman has an economic incentive to lie. This is our *Willy Loman[25] hypothesis*: an economic incentive to lie. Willy may be a truthful honest man, a Mr T, but he tells a lie and morphs in that moment in time at the point of sale into Mr T/L.

Rational people to whom a potential liar might make a dishonest statement will try to estimate his or her truthfulness. They have to put real resources in time and effort into determining whether or not a statement or action is true, off-setting the cost of further information against the benefit from the reduction in the likelihood that they will not be fooled again. It is as if the victim has a capital stock of being fooled and lied to by others.

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[22] Professor Catalina Toma at University of Wisconsin found that 81% lie about age, weight or height. Check the virtual dating game on US MTV series *Catfish* where contestants have to uncover the truth about their so-called 'catfish' – the creator of their online persona.

[23] Discussed in Michael Shermer's article 'The Science of Lying' in *Scentific American* April 2014, pp73.

[24] Sam Harris (2013): *Lying* Four Elephants Press, UK.

[25] The character Willie Loman in Arthur Millar's 1949 play *Death of a Salesman*

The stock of past lies and fooling behaviour lowers the future marginal cost of being fooled because the lying behaviour has become repetitive, and habitual. The accumulation of lies increases the likelihood that the victim will be fooled. However if the victim is a second mover she reciprocates and assumes the Willy Loman type. This is our *mimetic hypothesis*: an unconscious tendency to adopt the aspirations of others. Many argue that Girard's research reaffirms[26] that imitation is the fundamental mechanism of human behaviour - the imitation of 'an Other'. In other words, the lie has some value *because* it is desired by another.

Leo the Liar

Individuals evolve as players in a game of truth in the noosphere of life's experiences and they tend to believe what is said as long as such belief is consistent with rationality and the incentives in the game. This would accord with early work[27] of Koford and Penno who populated the game with two fixed types: economic types and ethical types. In this paper, we push further. The hypotheses refer to language and communication that convey meaning about individual type $\mathbb{F}$ = {Mr T, Mr L, Mr T/L, Mr L/T}. Take the following example. If you believe it to be true that Leo the Liar will never tell the truth, how do you respond to his helping hand as you cling for your life over the precipice of a cliff? Do you ignore his helping hand? Do you rely instead on the many apps on your smartphone, so tightly grasped in your other hand, trying to make contact with your best friend to come and rescue you? Cooperation arises in this instance if you and Leo as players in a game can infer from past behaviour that both of you are likely to be trustworthy. Leo may forgo the short term gain of keeping to type for the long term benefit of your friendship. He rescues you from the cliff. You, however, will use the experience to determine whether or not to believe Leo in the future.

At a moment in time for any random individual in life's experiences, a lie can be represented as truth. The door-to-door salesman re-assures the housewife that the vacuum cleaner really will work. He does not inform her of its faults. In business, as in any other game in life, individuals have a type. Your best friend may have influenced your belief system with cheap talk about Leo. However, at that moment in time your friend is not hanging over a cliff waiting to be rescued. Cheap talk about a player's type is a non-binding costless communication from another player. It is you, however, who must decide to trust Leo or not. The optimal choice for you, as for any player in a game, depends on what Leo as a player believes to be your strategy. How we co-operate, in the face of temptations to cheat,

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[26] Citing the work of Rene Girard (1965) *Deceit, Desire and the Novel* Johns Hopkins Press, US, who argued that individuals do not fight over their differences but they fight because they are the same, and they want the same things. Individuals can desire anything, as long as other people seem to desire it, too – this is the meaning of his 'mimetic desire' and we adapt his mimetic theory of imitative behaviour to explain Mr T evolving to become Mr T/L. The lie has some value because it is desired by another.

[27] Koford and Penno (1992): '*Accounting, Principal-Agent Theory*' in Bowie and Freeman [ed] Ethics and Agency Theory. Oxford University Press.

is an important field of psychological and economic research. Leo the Liar evolves from Mr L to Mr L/T by the act of rescuing his friend at that moment in time. There is no central, supervising 'self' inside Mr T or Mr L contrary to what common sense and experience seem to tell us. There is however a sense of awareness and empathy towards others.

According[28] to Rosenbaum (2014), for example, there is 'no central, supervising 'self' inside you that is composing sentences, making decisions and shifting attention. Instead *a population of behavioural and perceptual tendencies* is in constant competition with one another, strengthened or weakened by cues and consequences in the environment [our italics]'. We refer to the 'tendencies' in this paper as types T/L and L/T. Mr T and Mr L are, in effect, pluralities.

You the reader rely on your smartphone. You attend class at the University of Munich. If I were to ask you on the street: 'Do you have the telephone number of the University of Munich?' your immediate instinct would be to either say 'no' or take time to scroll down the contact list of your smartphone. That the required telephone number is a sequence of natural counting numbers is of no consequence to you as you have outsourced memory to the smart device. You trust the inanimate smartphone to provide a truthful number and, I believe you. So in the everyday communication of fact in the 'no' reply to a simple question a rational individual sails, perilously, through the Scylla of lies and the Charybdis of truth. Al Dunlap, the notorious executive who attempted to revive US companies by slashing costs and sacking staff, commented[29] 'people want to be liked; they don't want to do what's right if it costs them entry to the clubhouse'. The comment reflects a point of view that is both contemporary and historic.

The 'mixed speech' of a lie

So truth can be framed within 'the right thing to do': hypothetically, if your neighbor, Oscar Pistorius, knocked on your door asking to borrow your legally held firearm, would you deny having a gun in your possession? Yes, or No? Do you answer 'no' to the question 'do you have a firearm that I may borrow?' Lying in this case is an aversion to the truth denying that you do have a firearm. On that many would agree.

However as rational individuals our attitude to truth-telling is like St Augustine's attitude to chastity. He pleaded 'Lord, make me chaste, but not yet'. The benefits for lying are linked not just to the calculus of lying but to the telling of a lie so as to influence someone to do something they would not do if you told them the truth. We had argued this point elsewhere[30]. The evolution of a lie in time begins with a 'white lie' then denial and

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[28] David Rosenbaum (2014): I*t's a Jungle in There: How Competition and Cooperation in the Brain Shape the Mind* Oxford University Press. Check book review by Robert Epstein in *Scientific American Mind* May/June 2014 pp72. http://www.scientificamerican.com/article/mind-reviews-its-a-jungle-in-there/

[29] http://content.time.com/time/specials/packages/article/0,28804,2025898_2025900_2026107,00.html. Also see article 'Nice v Nasty' by Luke Johnson *Financial Times* 15 October 2014.

[30] McNutt (2010): 'The Neighborhood of No-truth' in *Homo Oeconomicus*

reputation for our fictitious Mr L who ensures the longevity of the lie until it reaches an end point and the truth as perceived by others is finally revealed by <u>many</u>[31] T/L types who perpetuate a *lying life cycle* rather than by a <u>few</u> L types. We expand on this point later in Tables 1 and 2. If no one believes Mr L then the credibility of Mr L is called into question and at that moment in time the concavity of a lying life cycle function is reached. At this point truth now rests on a lie for a T/L type.

From the anecdote of Abe Lincoln or by the more commonly known doctrine of mental reservation - a Middle Ages doctrine combining justice and veracity with 'mixed speech' - a T/L type is well-defined in folklore. An anecdote[32] often used to illustrate 'mixed speech' concerns Francis of Assisi. He once 'saw a man fleeing from a murderer. When the murderer then came upon Francis, he demanded to know if his quarry had passed that way. Francis answered, 'He did not pass this way,' sliding his forefinger into the sleeve of his cassock, thus misleading the murderer and saving a life'. A consumer may ask of Willy Loman: 'Will this vacuum cleaner last for 2 years?' Indeed it may 'last' but it may not 'function' properly. The victim may be a Mr T, an honest truth-telling individual. To rationalize a Mr T morphing into a Mr L is to be that Mr T at that moment in time when 'fooled' by Mr T/L. It is our conscious awareness of the relationship between truth and falsity that allows us *to think of a lie in a moment in time as truth.*

Thesis: Things don't have to be this way (whatever way that is) and very soon they won't be.

In other words, L as T creates the metaphorical risk that L is T. This could be one possible representation of liar's paradox in syntax and grammar. An earlier idea, since the writings of Aristotle, is that this comparison 'L is T' can be made explicit in the form 'L is like T'. Cohen has argued[33] that the statements 'A is B' and 'A is like B' are not equivalent. However the nonequivalence disappears when the metaphor 'L is T' is understood by convention as an alternative formulation of the literal simile 'L is like T'. Both L and T have common properties so that the sentence is more than a metaphor 'reduced' to a simile. By introducing the '=' indicating the 'is' of identity, Mr L sees[34] himself as Mr T and Mr T, as second-mover in a game of truth in a noosphere, sees himself as Mr L: Liar's paradox to be written as: L is T: L =T and thus L = T if and only if T = L.

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[31] Research by Dan Ariely in 2008 at Duke University noted that in the incidence of cheating that the scores were not inflated by a few students who cheated a lot but rather by many who students cheating a little as reported in *Scientific American Mind* May/June 2013 pp31-37 article 'Why We Cheat' by Fang & Goodman.

[32] http://en.wikipedia.org/wiki/Mental_reservation.
[33] Ted Cohen (2012): *Thinking of Others* Princeton University Press
[34] The use of the verb 'sees' is limiting but does explain the idea of conscious awareness of self. Later we consider T/L and L/T as the bipolar representations of Mr T and Mr L.

There is a rich history to the logic of liar's paradox[35] both in philosophy and across the current research in behavioural economics that appears to have created a narrative on the *truthfulness* of a statement measured against the criterion of lying-aversion. This presumes that truth is the norm. Eubulides in his version of liar's paradox reportedly asked, "A man says that he is lying. Is what he says true or false? If the statement 'lying-aversion is truth' is true, then 'lying as truth-aversion' is also true only if truth is a norm. However, if lying is the norm, the sentence 'lying-aversion is truth' is also true and the sentence 'truth-aversion as lying' is true. Liar's paradox framed in Austin's 'black and white speciality' of true v false may be weakened.

Let's expand on this. Consider the paradox discussed by St. Jerome in a[36] sermon: 'I said, 'Every man is a liar!' Is David telling the truth or is he lying? If it is true that every man is a liar, and David's statement, 'Every man is a liar' is true, then David also is lying; he, too, is a man. But if he, too, is lying, his statement: 'Every man is a liar,' consequently is not true. Whatever way you turn the proposition, the conclusion is a contradiction. Since David himself is a man, it follows that he also is lying; but if he is lying because every man is a liar, his *lying is of a different sort* [our italics]'. This goes to the heart of our argument.

Act III TURING MACHINE

If the Turing machine receives a sentence of the form: 'Time flies like an arrow', it may be true that time flies, an unknown species of house fly, do like an inanimate object called 'an arrow'. The sentence may read false to you but to the Turing machine it is a truthful account of the syntax. If Mr L and Mr T were to be interrogated in separate closed room by a 3rd party in another closed room, a 3rd party who only knows them by labels Mr L or Mr T, then how could a 3rd party determine who is telling the truth? For example, a question to both of the form 'are you in the room' will elicit the same response 'yes' but a response that is devoid of any additional information as to the identity of a Mr L or a Mr T.

In the Turing game[37] the object of one player is to help the 3rd party and the best strategy for that player is probably to tell the truth or is it? Mr T could say 'I am telling the truth do not listen to him' but it amounts to nothing as Mr L can make similar remarks. Turing then asks: 'what will happen when a machine takes the part of one of the players?' Will the 3rd party interrogator decide wrongly *as often* when the game is played with a machine? In trying to answer this question, we propose that the 3rd party is *less likely* to get it right in a room with a Mr L and a Mr T than he is in a room with a Mr L and a Mr T/L. The Turing question then becomes the following: when a machine takes the form of a Mr T/L is the 3rd party *more likely* to get it right in a room with a Mr L and a machine T/L?

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[35] http://en.wikipedia.org/wiki/Liar_paradox
[36] Psalms 116:11.
[37] Adapted from Alan Turing 'Computing Machinery and Intelligence' first published in 1950 *in Mind* vol 59 pp43-460 and reproduced in Dawkins, R (2008): *Oxford Book of Modern Science Writing*, also http://www.loebner.net/Prizef/TuringArticle.html

To ensure that the 3rd party can detect a lie the syntax and language used in a question would have to accord 'with the status of well-established facts, conjectures, mathematically proved theorem, statements given by an authority, expressions having the logical form of proposition but not belief-value'. A machine can be programmed to read syntax. However it is the *conscious awareness* of a Mr T in a room with a Mr L that is germane to our argument. A Mr T/L could say 'I am telling the truth do not listen to him' and if Mr L made a similar remark, then the 3rd party could more likely deduce a lie in response to a particular question.

Table 1: Person L and Person T and Person T/L

	Mr L	Mr T	Identity	Mr T/L	Identity
Are you a liar?	No	No		Yes	
Can I trust you?	Yes	Yes	?	No	Mr T/L

In a moment of time a Mr T experiences the lying environment in the closed room and evolves from Mr T to Mr T/L to Mr L adding to the capital stock of lies. In the environment of lying created by a Mr L and perpetuated by a Mr T/L, the T signal is *outsourced* to an L signal. Mr T outsources lying to a Mr L. Can machines think? If an intelligent Turing machine - in terms of algorithm 'intelligence' as measured by the speed of computational processes - could outsource the T signal then there is a probability that a 3rd party is *more likely* to get it right in a room with a Mr L and a machine T/L.

Truth-aversion as Lying

The questions in Table 1 'must be within the system not forming part of the rules of the system'; so, for example, a question of the form 'is the room closed?' is not within the Turing system as the question focuses on rules. The questions that reveal truth-aversion as lying (*Statement a*) in experiments must be *within the system* so that the researcher can distinguish sufficiently between a Mr T and a Mr L behind the closed door. But this may not be possible. Consciousness and awareness distinguishes a machine from a person. However questions of the form 'are you a liar?' or 'can I trust you?' are within the system allowing a 3rd party to decide on player identity with a machine.

If a Mr T were in the room the replies to each question in Table 1 would be 'No' and 'Yes and Mr T's identity would *not* be revealed. It is only when Mr T/L replies 'Yes' to the question 'Are you a liar?' that Mr T/L's identity will be revealed and likewise (by equivalence) for Mr L/T. The process of lying by influencing the belief system of others is an

evolutionary process - a morphogenesis[38] – that typically involves changes in type, in the number of individuals, the form of the question, the number of questions and the coordination of the signals between the individuals involved. A machine can be programmed. Mr L by replying 'Yes' to the question 'Can I trust you?' is logically equivalent to Mr L/T. Only if Mr L replies 'Yes' and Mr T/L replies 'No' to both questions is Mr L revealed as the liar in Table 2.

Table 2: Person L and Machine T/L

	Mr L	T/L	Identity
Are you a liar?	Yes	No	
Can I trust you?	Yes	No	Mr L

Fable of West Lake

A Chinese man is looking at the fish in the lake. He says to a friend the statement: 'the fish are unhappy'. His friend replies 'but how do you know the fish are unhappy?' The Chinese man replies, 'but you are not me. How do you know that I know that the fish are unhappy?' Is anything wrong with this? We may disagree on the happiness of the fish in the lake but the Turing test for the analytical philosopher is where he as an analyst feels like saying: if the friend morphed to become the Chinese man, he would know that the fish are unhappy. By analogy Mr L like 'the friend' has some property that Mr T or the Chinese man can be thought of as having, or believed to have, when in fact the property is not literally a property of Mr T or the Chinese man *per se*. The property is within the system. It is plausible that neither Mr L nor 'the friend', are of Chinese ancestry. This could be determined by a set of Turing test questions to reveal the identity of the player: for example 'are you Chinese?' 'Do you speak Mandarin?' Replies to such questions would enable the 3rd party to determine the respondent's type only if an action: 'Translate 'ni hao ma' complements the questions. An ability to translate confirms the 3rd party's belief. When machines can anticipate the action to prove an identity then we should really start worrying[39].

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[38] Alan Turing (1952): 'The Chemical Basis of Morphogenesis' *Philosophical Transactions of the Royal Society* B 237 (641) PP37-72 and Thompson, D'Arcy Wentworth (1917) *On Growth and Form* Cambridge University Press. Check out Dawkins, Richard (2008): *The Oxford Book of Modern Science Writings*, Oxford Press.

[39] Interesting research from University of Alberta using machines to play poker and anticipate strategy moves reported in *The Economist* January 10 2015
http://www.economist.com/blogs/gametheory/2015/01/computer-poker

Act IV: TOPOLOGY: MAPPING OF L ONTO T

In this paper we are struggling with a dichotomy of false v truth. Is the telling of a lie necessarily an untruthful event? Here we can apply the reasoning first adopted[40] by the Bernstein-Schroeder theorem that the sets L and T create the mapping of L onto T so that we can define the logical relationship: L u T. A singleton in the topology would be a 'white lie'. So our thesis is to explore the possibility that liar's paradox is best understood in a typology of an isomorphic relationship[41] between the equivalent sets T and L. Before answering, let's introduce our topology.

The mapping of L onto T generates the proposition that lies are embedded in truth. So we have two subsets A c L and B c T. Our objective is to show that the existence of A. Think of L/T types as elements of A that embed themselves in T. We have to show that the sets L and T are equivalent. To do this we need to find a 1:1 function, h, from L onto T. The difficulty is in finding h. But by adapting the topology in Lipschutz (1965) and Kelley (1967), McNutt (1992) further adapted[42] the Schroeder-Bernstein theorem, which argues that if L is equivalent to a subset of T and if T is equivalent to a subset of L, then T is equivalent to L. We find a subset B c T such that g-1 is defined f(B) c L and show that T is disjoint union of B and f(L – g(B)).

Insert Figure 1 [scanned document available]

In Figure 1 there are sets L and T. The white lies, dishonesty and fairytales referred to earlier create a subset B c T. T/L type, for example, is an element of the subset B. From our narrative so far we contend that the existence of A contributes to the creation of the subset B, that is, there is a continuous mapping from A onto B. The focus of the proof is to apply the rules of mapping in order to find a subset B c T such that g^{-1} is defined in f(B) c L and to show that T is the disjoint union of B and f[L – g(B)]. Then we can define a 1:1 function h from L → T by setting h equal to g^{-1} on g(B) and h equal to f on L – g(B) and h is 1:1 and onto.

A Brotherhood of Rascals

In time the lie evolves and is subsumed within T as illustrated by Figure 1. If the sets L and T are isomorphic the subsets T/L and L/T are proper subsets of the sets T and L. Collectively the subsets as subnets represent what we shall refer to as 'a brotherhood of rascals' and like the rainbow through which Satan had sealed his covenant with Exxon in Genesis 9:13,

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[40] McNutt, P (1992): 'Mapping and Fairness' *Pure Mathematics* vol 3 no 2-4 pp175-185

[41] Could we conclude that the liar's paradox is an isomorphic relationship?

[42] The intuition here is that L is a family of subsets and that L covers the set A. If a subset A exists with finite cardinality there will be a continuous mapping f such that f: A → B c T. So we have two subsets B c T and A c L. For the existence of the A subset to create a continuous mapping (of subsets) from A onto B we have to show that that sets L and T are equivalent. In order to do this we need to find a 1:1 function, h from L onto T, the difficulty is finding h.

Mr T and Mr L each enter into a covenant with 'themselves' as a self-conscious subject, an individual for whom 'the riddle[43] of being in the moment – being here, inhabiting the given – is a central part'. In Plato's *Republic* Cephalus defines justice as telling the truth and paying one's debts. Socrates refutes this notion by suggesting it would be wrong to repay certain debts – for example, to return a borrowed axe to its owner, a convicted murderer on parole. Kantian duty is fulfilled in the moment of telling a lie in answering the question: 'Is there a gun in the house' with a 'No' when asked by a convicted murderer.

Descartes in his *Second Mediation* argued 'he cannot bring it about that I who am deceived do not exist'. Unless you can 'bring about' the life experience of Mr T or Godot one cannot judge Mr T/L or Mr L/T. The types Mr T and Mr T/L are well defined and familiar turning points in daily conversation. How many of you reading this paper identify with Abe Lincoln in the earlier example? Mary Midgley[44] comments that '[there are] familiar well signed turning points in conversation: times when we already know that *we have to shift to a different kind of language*. That shift may be needed to correct ordinary factual mistakes or merely to make things clearer, but it can never stigmatize a whole point of view – which is otherwise being successfully used – as being illusory [my italics]'.

More fundamentally, rather than focusing on the deontology of the motivation or driver could it be argued as follows: that thinking about lying and telling a lie do represent the same thing? Are they analogous to[45] Lynn Margulis' comment that 'thinking and being, are the same thing'. Is this a sensible question? Who is Mr T/L? It falls within the remit of the Aristotlean doctrine of the four causes so can then focus on the final cause, the aim or *telos* of lying - Mr T tells a lie because he earns money (Willie Lomax hypothesis) or imitates Mr L (mimetic hypothesis).

Kohlberg's Template

Mr L and Mr T are asking Kohlberg questions - 'what's in it for me?' What does society say? Blessed are those who tell the truth. There is no Beatitude for that. However there may be a strategy in telling a lie by telling the truth as perceived by another, L/T = T/L. If truth and lying are goals then we can ascribe goal seeking behavior to Mr T and Mr L in which signals exercise control. Noise distorts the signal when Mr T thinks that Mr L is going to tell a lie but in fact Mr L tells the truth. This is how we had characterized Leo the Liar earlier in the paper. Secondly, Leo's reputation for lying is less credible on the rescue of Mr T, and if Mr T signals to everyone that Leo is trustworthy and honest, Mr T morphs into Mr L the second that Leo tells a lie. The act by Leo of telling a lie is the signal that exercises control over Mr T so that he becomes Mr L and T = L in a moment. If you ask Mr T: 'who are you in the moment?' he will answer 'I am Mr L' (apparently) if the left prefrontal cortex is aroused.

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[43] Quoted from James Morrow (2009): *The Philosopher's Apprentice* Phoenix Books
[44] Mary Midgley (2014): *Are You an Illusion?* Acumen Publishing UK. Note her discussion p27-34.
[45] Lynn Margulis (1995): *What is Life?* Weidenfeld and Nicolson, London. Cite Midgley p57.

Antithesis: Things don't have to be this way – or else perhaps they do

It is that truth and lies evolve from a noosphere – a level of consciousness - where for all subsets B in T there is a subset A in L such that f(A) = B in Figure 1. In other words, what would I do if I were Mr L? For de Chardin[46] – although from a religious perspective – the noosphere emerges through and is constituted by the interaction of the human mind with other minds, and first and foremost with itself. As mankind organizes itself in more complex social networks so the noosphere will grow to ever higher states of awareness. In the case of truth as norm Mr L and Mr T create a *conjoint equilibrium* that splits statements into true or false as perceived by others. For example, the replies in Table 1 and 2 influence the 3rd party's belief as to the identity of a type. In the case of lying as the norm, Mr L/T and Mr T/L create a sort of communal super-consciousness where 'we all think as one' in a strange loop of 'I-think-You think-I–think'. Maybe we are each accompanied by 'a *shadow counterpart* for whom, of course, *we* are the shadow counterpart who has done different things for better or worse, with our opportunities' to tell the truth or not. For how much can the lies be conceived <u>to count</u> in the scheme of existence in the noosphere? Wheeler[47] captures the idea as follows: 'Nothing, say the billions of light years of space around us. Everything say the billions of years of time, ahead of us'.

Lukes' concept of power

Lukes (1974)[48] focus was on a radical interpretation of power operating through collective forces and social arrangements shaping men's beliefs and preferences and acting against their real interests. Essentially the dimension of power is to get people to think the way you want them to think with them not realising this at all. The mapping – Mr L tells a lie in order to force Mr T to do something that Mr T would not do otherwise. Why? Mr L needs to observe Mr T's action in order to reconcile the public information about Mr T – that is Mr T's type – and T's private information. In the decision tree, Mr T has a choice (x0 x1) and the telling of a lie is the mechanism that allows Mr L to observe Mr T's revealed preference over the pair x0 and x1.

Reconsider our example of Leo the Liar. Leo gains from helping his friend who now trusts him. But what if the friend hanging over the cliff was also a Mr L? Would he trust Leo? Would he trust Leo more than a Mr T? Would he trust Leo more than a Mr T/L? These questions raise the important issue of conscious state – is anything ultimately desirable[49] for someone except his or her conscious state? If no then we ask: are any conscious states desirable except those which are introspectively discernible? Yes. It is that knowing is better than falsely believing. In other words, Lukes' concept of power is defined by saying that Leo

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[46] Pierre Teilhard de Chardin's *The Phenomenon of Man* published in 1955.

[47] John Wheeler (1988): 'World as a system self-synthesised by quantum networking' *IBM Journal of Research and Development* vol 32 pp4-15. Cited by Dillon and Clark (2012): *Towards the Noosphere* The Prometheus Trust, Dublin, at pp50-51.

[48] Steven Lukes (1974): *Power: A Radical View* Macmillan Press. Cited from the book at pp34-40.

[49] By definition what one has reason to desire. Accompanying a desire is a judgement of or on desirability.

exercises power over his friend when Leo affects his friend in a manner contrary to his friend's interests. Lukes accepts that 'the notion of interests is an irreducibly evaluative notion' but his radical interpretation fits exactly with our example of Leo the Liar. His friends' wants may be a product of a system which works against his interests, - do not trust Leo the Liar - and, in such cases, relates his interests to what he would want and prefer, were he able to make the choice.

Trading Values

The sentence 'Is Mr A in the house?' is mapped onto 'Is Mr A in a room in the house?' and the sentence 'Time flies like an arrow' is mapped onto 'Time flies indeed like an arrow' in order not to change the syntax but to elicit a truthful reply. The truthful reply is an institution, a conduit of information facilitating an exchange of T-information between Mr L and Mr T. Imagine that each are traders of an endowed amount of truth and because utility is not strictly convex, *trading values* are tangent to utility functions at more than one point: point L a lie and point T the truth. At point L, Mr L ends up with less of his endowment of lies, but at point T, Mr L ends up with more of his endowment of lies. This may be the *trading value* of liar's paradox. Suppose Mr L in the last round of play has chosen 'keep to type' while Mr T has chosen 'deception' with payoff (3,6) in Table 3. Clearly both of their situations could be improved.

Table 3[50]

	Mr T: Keep to type	Mr T/L Deception
Mr L:Keep to type	10,20	***3,6***
Mr L/T Deception	3,6	10,20

If no message can be sent that would not involve the recall of the pattern of all plays previous to the last, and this is prevented by the Bayesian updating rule, due to the fact that mixed strategies are allowed, how can Mr L teach Mr T that both their situations could be improved? If L is a subset of T there is no process of learning, rather it is the mapping of a discrete and prepackaged commodity called 'lies' onto the truth set. Assuming that 'all players' psychology is identical' the mapping facilitates the apparent co-operative outcome. Lying is not a learning process - it is a mechanism, an isomorphic relationship. Mr T/L and Mr L/T evolve organically within the topology. For example, a message in the form of a 'white lie' sent from Mr L to Mr T would not recall the pattern of play because Mr L keeps to type as a liar by transmitting a white lie.

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[50] Adapting Philip Mirowski 'Institutions as a Solutions Concept' in Larry Samuelson (1986): *Microeconomic Theory* Chapter 11 by Kluwer Publishers

Thucydides Trap[51]

Essentially Mr T has to trust Mr L and that may not be optimal given Mr L's type as a liar and the pattern of Mr L's behavior. So Mr T has to initiate the game on his own terms. Mr T plays T knowing – knowledge in the sense that both players have an endowment of the truth commodity to exchange - that Mr L plays L trading his endowment of lies with a preference for T if and only if Mr L ends up with more endowment of lies. Mr T is an honest player and learning Mr L's type in the pattern of play by experiencing white lies Mr T 'primes his emotions' towards[52] a truth-telling equilibrium. As players in a game of truth in a noosphere part of Mr L is truth (10,20) and part of Mr T is a white lie (3,6) in Table 3. If the meaning of truth is an institution in a noosphere facilitating an exchange of T-information between Mr L and Mr T it may be stable for both to end up at (10, 20) in the bottom right hand corner of Table 3 with deception.

Synthesis: Things don't have to be this way – and perhaps they aren't

The knowledge of truth, according to Democritus[53], a pre-Socratic philosopher, is difficult, 'since the perception through the senses is subjective. As from the same senses derive different impressions for each individual then through the sense-impressions *we cannot judge the truth*. We can only interpret the *sense data* through the intellect and *grasp the truth* [our italics]'. Democritus argued that we are drawing our evidence that the senses deceive us from what our senses tell us – we are entitled to believe the truth that truth and lies are an onto function and that the mapping is not too different from reality. It follows that we ourselves – you and I united in the reading of this paper – are far more likely to be experiencing a truth simulation. But no one will ever know that he or she is not lying, unless their experience is indeed very different from ours, and more united with the physical world[54] of human interactions 'arrayed in space and changing over time'. That physical world is explained by reference to a mathematical system remembered by us equipped to do so – however, the laws of nature are never perfectly obeyed. It is not only rational to betray, tell a lie when all expect the truth but truth is isomorphic in that it may be rational to tell a lie by telling the truth.

Earlier we had referred to an experiment with students wherein research has shown that areas of the brain light up when the individual is in a particular state of mind – sleep deprived. Throughout her book[55], Midgley addresses the neuro research into the left

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[51] According to the Thucydides trap theory, it was the economic and military might of Germany after its 1871 unification under Wilhelm of Prussia that upset the balance of power in Europe and made WWI inevitable. Germany had to trust that Russia and France would never attack it.

[52] The quote refers to an experience in one's life that looms over one's whole life as characterized by the narrator Zafar 'In The Light of What We Know', by the Indian author Zia Haider Rahman, wherein the experience is childhood poverty and hunger.

[53] http://en.wikipedia.org/wiki/Democritus

[54] John Dillon & Stephen Clark (2012): *Towards the Noosphere* The Prometheus Trust, Dublin

[55] Check out discussions in Midgley (2014) pp113 and pp154.

prefrontal cortex of the brain wherein happiness is triggered. She refers to 'a left-hemisphere-biased error'. The left side of the brain is the detailed obsessive part and the right side is the one that can look at things as a whole. She continues 'these two always need to cooperate and this need is most urgent when *a point of view that is widely accepted* is becoming registered as a wider, more official world picture; a metaphysic, an organised map of life as a whole, a general story that can be taken *as a truth* [pp113, our italics]'. Truth and telling the truth makes us happy: as McGilchrist (2009) says[56] 'a product of a certain way of thinking which is characteristic of the brain's left hemisphere, a concern with the '*whatness*' of things' – equally, we are wrong, I believe, to think that telling a lie can make us unhappy.

Act V: THE STRANGE 'DOUBLE-NESS' OF OUR BRAINS[57]

Is it necessarily true that the mantra 'the truth will always out' becomes *passe* if lying is the norm? To provide an answer we present Mr L and Mr T with the option in a noosphere to evolve into separate individuals, Mr T/L and Mr L/T. To tell a lie is a conscious decision. In a moment in time we observe Mr T or Mr L; in another rare moment in time, we observe Mr T/L or Mr L/T. It may be difficult to determine their identity behind the Turing closed door unless the syntax of the questions are within the system, as outlined by Table 2. When a 'No' reply to the questions 'Are you a liar?' and 'Can I trust you?' is read by a 3rd party in conjunction with a 'Yes' reply to both, the 3rd party predicts an L type. The machine L/T is working with the 3rd party. Both Mr L and machine T/L in Table 2 are averting the truth as understood by a 3rd party. They are lying. Mr L's 'Yes' reply to the question 'Are you a liar?' is pandering to the 3rd party's belief that liars are behind the closed door.

Many lies are like the whistle[58] that an engine lets off when it starts moving, they are 'picturesque and striking' and the liar has remorse or regret. The consensus is that they don't drive the train. We disagree. We think and we experience and we lie to each other, frequently. In 'the *everyness of everyday'* we struggle with a range of personal conflicts – crossing the road, asking friends for dinner, avoiding unpleasant work colleagues, telling white lies on how may beers we drink in the pub *inter alia*. Jungian psychologists may disagree. They argue for the wholeness of the individual, the 'integration of the personality' - but we are not Turing machines.

Noahic covenant

The set T in Figure 1 is competing for the meaning of truth. The cooperation of the subsets can only be won if they can trust a 3rd party, Noah, to make a binding call on the meaning of

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[56] Ian McGilchrist (2009): *The Master and his Emissary* Yale University Press, New Haven.

[57] From Midgley (2014) at pp125.There is a separate literature on our two cerebral hemispheres and this paper is not a comment on this literature, read McGilchrist (2009).

[58] Here we are adapting the Huxley analogy that 'our thoughts and feelings are simply idle side effects of our actions' - as cited in Midgley pp144-146.

truth. So they will enter a Noahic covenant[59] through group competitiveness and if Noah has *a priori* belief that Mr L plays L and would never play T that T was not in Mr L's strategy set, but Mr L plays T and by extension Mr T plays L then the subsets L/T intersecting with T/L enters the Noahic covenant as the *meaning of truth* sealed with the L sign, that is, telling the truth by telling a lie. There is no condition under which Noah will renege on the promise of a binding call on the meaning of truth as revealed by a lie. This establishes lying as a norm. Can we transfer the Noahic covenant into the following payoffs in Table 4?

Table 4: Mr T's payoffs

	Mr T	Mr T/L	*Row minimum*
Mr L	3	1	*1*
Mr L/T	2	0	*0*
Column maximum	*3*	*1*	

The payoffs in Table 4 represent a Jacobean tragedy of truth-aversion. For example, if Mr L covers for the worst he plays minimax with payoff 1 and if Mr T hopes for the best he plays maximin with payoff 1. Lying wins the covenant when Mr T plays, T/L, and he evolves as a malcontent, forever playing T/L. Mr T is consumed with disgust at the meaning of truth yet spends his time railing against the truth. And could it be that in the conscious awareness of lies, in a noosphere, in the court[60] that has shaped Mr T as a liar that Mr T is the 'only court-gall' who like Bosola's fondness for railing at court, harassed and tormented it with his verbal abuse. Maybe it is shame for Mr T that his version of the truth does not prevail and it is possible that Mr T/L, the telling of lies by Mr T is a coping mechanism in the court of lies. Telling a lie is a credible mechanism when a 'white lie' can[61] influence someone's belief system and get them to do something they would not otherwise do. So Mary Lincoln wears the dress and her friends are less than flattering. Albeit, we ask: are Mr T and Mr L in a

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[59] The Noahic covenant as defined in Genesis 9:8-17 is the promise that God made to Noah and his descendants: unconditional covenant for all, sealed with the sign of a rainbow.

[60] The deficiencies of the status quo create a logical space for a particular character type: the malcontent, a character who is consumed with disgust at the corruption and stupidity of courtly society and who vents his spleen by railing against it. Hamlet plays this role in Shakespeare's revenge tragedy, and in The Duchess of Malfi it is filled by Bosola. When Antonio refers to Bosola as the 'only court-gall' (1.1.23), he is using a metaphor, which, like a simile, makes a comparison between two things – in this case between Bosola and a 'gall', or a sore produced by rubbing – but without the presence of 'like' or 'as'. Metaphors, then, establish a much closer relationship between the two items being associated than similes do. Antonio is alluding to Bosola's fondness for railing at the court, harassing and tormenting it with his verbal abuse. ('Gall' also means 'bile', the bitter substance secreted by the liver; a secondary sense which intensifies the force of Antonio's metaphor.*http://www.open.edu/openlearn/history-the-arts/culture/literature-and-creative writing/literature/john-webster-the-duchess-malfi/content-section-4.2.*

[61] As argued earlier truth is a bijection mapping so any truthful institution index T can be represented as the sum of white lies Sx from different experiences and sources, x such that T = ∑xSx. Defining a lie as x = Sx/T, following Shorrocks' decomposition x = Cx/δ2 where Cx is the covariance between experience and source x and the truth, and where δ2 is the variance of the truth: L = T − Sx + δ.

dialogue exchanging the merits of telling the truth? The norm of truth telling *versus* the Stoic resistance to lying, cheating and dishonesy could be described as a[62] *decalogue* between Mr T/L and Mr L. Table 4 presents a binding rule, only one norm prevails and it is L. Lying becomes the norm.

Momentary Normalized Act

Truth like justice is a virtue borrowed from Plato. But what is the value of telling the truth? There is a norm value based on the expectation that everyone else will tell the truth and if we set it equal to 1 a truth aversion norm < 1. In a sequence of moves if Mr T tells the truth with a probability = 1 followed by Mr L and Mr L/T at 50:50, followed by the triple Mr T, Mr T/L and Mr L followed by the quadruple Mr L, Mr L/T, Mr T Mr T/L then a Merton divergent series emerges

$$1 + 1/2 + 1/3 + 1/4 + + \ldots\ldots 1/n$$

This line of reasoning goes back to the use of time and the evolution of a lie in time. Mr T in the moment may lie and there is neither motivation nor malice in the lie - it is a normalized act. Similarly Mr L in the moment may tell the truth. But what does this actually mean? Why pick on time and space? In order to understand what we refer to as the[63] *momentary normalized act* we have adapted a variant of the fictional character Jean Valjean stealing a loaf of bread[64]. He steals the bread after the baker refuses to allow him pay a smaller amount in order to buy other foods for his sister's family. At one level there is a motivational explanation and philosophers will enquire whether or not he was right to steal the bread? On a different level, we can picture him *in the moment* in the morning when his sister's children ask of him: 'will we have bread today?' 'Yes' he replied and with that promise rather than tell a lie 'the bakery was closed' or 'there was no bread left in the bakery', in the moment he steals a loaf of bread. It is not a defense of stealing *per se* but an understanding of a divergence from the norm, the intricacies and events that momentarily make up our daily experience.

Act VI DENOUEMENT: IS LIAR'S PARADOX A 'MOTHER OF EARTH' PARADOX[65]?

The truth is embedded in the n-different ways to lie so rational individuals do not tell the truth. There is a choice, a trade-off to be made with costs and benefits, short term and long term gains. Non-cooperative game theory demonstrates the rationality in betraying trust. Cheating can be optimal but momentary. However, truth-telling may be a divergence from the norm of lying in a noosphere. From the 'mixed speech' to momentary normalized acts

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[62] Decalogue as a binding set of rules, as in our Noahic covenant that lying is the norm and truth is an aversion to lying.
[63] It is as if people who lie know that people lie, others who tell the truth do not.
[64] The fictional chararacter Jean Valjean in Victor Hugo's *Les Miserables*
[65] Adapted from discussion in *Scientific American* Special Collector's Edition 'A Matter of Time' pp27-29 2014.

(white lies) to fraud, dishonesty and cheating rational individuals in their everyday lives choose to tell a lie as it is the right thing to do in that moment in time.

As time evolves lying evolves as a norm and Mr L survives under the truth umbrella spanned by the set T.. Mr T, a truthful honest individual, experiences a lying environment. He evolves as Mr T/L. Hypothetically, upon emerging from the environment in the noosphere he meets his earlier self, Mr T, preventing him from ever telling the truth again. Mr T cannot do something that is inconsistent with logic. In the noosphere he cannot enter a lying environment as Mr T in a way that prevents him from entering the lying environment. Isn't this a liar's paradox? Yet nothing stops Mr T becoming Mr T/L.

Transactional Interpretation of Truth as Aversion to Lying (*Statement a*)

To understand our topological approach we ask the following set of questions: What would Mr L do? What would Mr T do? What would Mr T do if Mr T were Mr L? What would Mr L do if he were Mr T?

For example, suppose Manfred says 'Mr T is a liar'. Call this sentence S. Is S true or false? Well, if it is true, then what it says is the case, so S is true. But if it is true, then, since this is exactly what it claims, it is true. In either case, S would seem to be <u>both true but not false</u>. If however Manfred were to say 'This very sentence (about Mr T) is false' then we have liar's paradox - if it is true, then, what it says is the case, so S is false. But if it is false, then, since this is exactly what it claims, it is false. In either case, S would seem to be <u>both true and false</u>. The sentence is like a Mobius strip, a topological configuration where, because of a twist, the inside is the outside, and the outside is the inside: truth is falsity, and falsity is truth[66].

Table 5

	What would Mr L do?	What would Mr T do as Mr L?
What would Mr T do?	T,L	T,T
What would Mr L do as Mr T?	L,L	L,T

In one respect it appears to be straightforward and rational to expect that Mr T tells the truth and Mr L tells a lie and if both players keep to type we should arrive at (T,T) and (L,L) in Table 5. However it becomes less predictable when the questions are personalized and self-referential: What would Mr L do? What would Mr T do? What would I do? What would I do? What would I do if I were Mr L? What would I do if I were Mr T? What would Mr L do if he were me? What would Mr T do if he were me?

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[66] Graham Priest (2000): *Logic* Oxford University Press Short Introduction Series.

The *Fable of West Lake* earlier in the paper is a key to our understanding of the statement: *Mr L if he were me* or *me if I were Mr L* so L = T and T = L and the metaphor 'Mr L is me' creates[67] the similarity 'Mr L is like me'. My feelings (about my actions) are now called into existence by the[68] metaphor, and its similarity to the original feeling of Mr L. In rational behavior we have an evolution of play: trust, noise, belief and punishment. If you are faced with a case of telling a lie Mr L can do nothing but tell a lie <u>because he cannot do anything else</u> but Mr T as Mr L can tell the truth. And if Mr T could do nothing else but tell the truth then the lie would not occur. In Humean logic Mr T as Mr L feels the pain of lying and derives greater pleasure from telling the truth[69]. Or he abides by the Kantian categorical imperative 'do not lie'. Mr L can excuse his behavior or justify his lying behaviour by excuses but Mr T as Mr L does not. So we ask: Is it a feeling of 'conscious awareness' that Mr T has with Mr L or is it a sense of morality? It is the former.

Transactional Interpretation of Lying as Aversion to Truth (*Statement b*)

Emphasis was placed on the conscious awareness of a Mr T in this paper. He loosens up his concept of truth to tell it slant or commit a white lie. If it is a mistake then it is the mistake of everybody in telling a lie in order to tell the truth as perceived by others. Consider the feeling of fear as discussed[70] in Cohen (2012, p30): 'Suppose you experience fear when watching Roman Polanski's *Chinatown*: you are afraid that the character Mrs Mulwray (Faye Dunaway) will be hurt. Why deny that this is real, genuine fear on your part? There seems to be two reasons: first, if you truly feared for the lady, you would at least try to do something to save her; and, second, since fear is an independent experience, you would avoid seeing *Chinatown* and thereby avoid the un-pleasantness'. This is what you would expect of someone who experiences fear, that is, you would try to stop being afraid. Cohen argues 'that seems right, but in fact it is wrong as a general point'.

The fear is inspired by the experience. The lie is inspired by the utility of the lying experience in the noosphere. Mr T appreciates Mr L in a form of interpersonal understanding and emotional empathy as originally understood by Scitovsky[71]. In Kantian[72] philosophy things as they are 'in themselves' - the thing in itself or *das Ding an sich* - are unknowable. There is a lying experience, a feeling, a utility that is an integral part of the lie. Elsewhere[73] we explored the possibility of a non-truth equilibrium characterized as *telling-the-truth by telling a lie* where honesty is not the best policy. In this paper Mr T has only experienced an environment of lies and being fooled and if human behaviour is irrational and predictable then some mechanism must exist for eliminating lies if Mr T is to survive.

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[67] Using the language of Max Black (1955): 'Metaphor' *Proceedings of the Aristotelean Society* vol 55 pp184
[68] Ted Cohen (2012): *Thinking of Others: On the Talent for Metaphor* Princeton University Press pp22-24
[69] This proposition may be false, if true, why does Mr T/L exist?
[70] Read Cohen (2012) Chapter 10 pp82-83.
[71] Scitovsky, T (1970): *The Joyless Economy* Chicago University Press
[72] For Kant, intuition is the process of sensing or the act of having a sensation or perception and the unifying, structuring activity of concepts. These aspects of mind turn things-in-themselves into the world of experience.
[73] McNutt, Patrick (2010): 'Secrets and Lies' Homo Oeconomicus…….

Is it experience? We know that individuals lie and we also tell the truth as perceived by others. Individuals interact with each other in the three senses described by the gravedigger in *Hamlet*: to act, to do, to perform. We are always on stage, always observing and being observed by others. The best we can do is to choose our type as perceived by others like the backdrop of dwarfs and clowns in a Velazquez painting[74]. For truth to become an object of knowledge, it must be experienced, and experience is structured by the mind - both space and time being the forms of intuition, '*Anschauung*' in German. In logic the only thing that cannot happen is for a deductive argument to have true premises and a valid inference but a false conclusion[75].

Prognosis

In a noosphere, for example, the truth as a true premise and the valid inference that Mr T is an honest individual can lead to a *false* conclusion in Table 6 *if and only if* the sets L and T are equivalent. It is an area worthy of further research based on the premise in this paper that a rational individual knows or is consciously aware in a moment in time that he or she has to shift to a different kind of language in telling a lie in order to tell the truth.

Table 6

Premise	Inference	Logic Conclusion	Noosphere Conclusion
Mr T	Valid: Truth	True ?	True *False*
Mr T/L	Invalid: Lie	True False	True False
Mr L	Valid: Truth	True False	True False
Mr L/T	Invalid: Lie	True False	True False

In the Kantian tradition of philosophy knowledge[76] begins with experience and reality. In the phenomenal world where Mr T lives, Mr T/L exists because Mr T experiences lying and interacts with liars, providing Mr T with a Melian dilemma[77] – the leaders of Melos faced a terrible choice: 'have their countrymen die as free men or live as slaves'. For Mr T, enjoy the sense (with the connotations of both experience and meaning) of telling a lie or reason

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[74] Look at the background in Las Meninas in Museo del Prado in Madrid. Also read Harry Eyres' article http://www.ft.com/intl/cms/s/0/d3234838-95c1-11e4-a390-00144feabdc0.html

[75] http://www.philosophypages.com/lg/e01.htm.

[76] Read Peter Strawson (1966): *The Bounds of Sense* published by Routledge and a study on Kant's Critique of Pure Reason, which Kant entitled in 1771 as *The Bounds of Sensibility and Reason*. Also cite the article on Strawson at http://users.ox.ac.uk/~shug0255/pdf_files/bounds-of-sense.pdf.

[77] Thucydides *Melian Dialogue* with transcript at http://lygdamus.com/resources/New%20PDFS/Melian.pdf. http://www.nku.edu/~weirk/ir/melian.html. Here we adapt in terms of a modern meaning that 'might is right' – if you tell a lie then I will tell a lie, and we both tell lies. L/T = L = T = T/L.

that at least one person is a liar and that you will be lied to in a moment in time. It creates a liar's paradox L/T = L = T = T/L: Mr L tells the truth but perceived as a liar which is the truth (he is a liar) and Mr T abandons truth and tells a lie. In some respects, we began our story on a variation on the theme[78] 'better a witty fool than a foolish wit': we are concluding 'better a truthful lie than a lying truth' in the noosphere of one's experience of lying on the pathway to truth as perceived by others. The poet's truth prevails; scientific truth is, on the contrary, fleeting, irrational, and[79] dreamlike. . A painter who cannot paint, is, as Socrates says, 'no painter'.

The Planter's Daughter by Austin Clarke

When night stirred at sea
And the fire brought a crowd in,
They say that her beauty
Was music in mouth.
And few in the candlelight
Thought her too proud,
For the house of the planter
Is known by the trees.
Men that had seen her
Drank deep and were silent,
The women were speaking
Wherever she went -
As a bell that is rung
Or a wonder told shyly,
And O she was the Sunday
In every week.

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[78] Shakespeare *Twelfth Night* Act 1 Scene 5.
[79] Adapting from Tomas Sedlacek (2011) pp95-97 wherein he comments: ''the truth of the poets……is, on the contrary, fleeting, irrational, and dreamlike'.