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Rational Social Man and the compliance problem: an application of identity economics

Paul Collier, Blavatnik School of Government, University of Oxford

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Paul Collier

Blavatnik School of Government,
Oxford University

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ABSTRACT

Leaders of organisations usually have only limited ability to enforce compliance with their instructions. This paper examines how leaders can use their power of communication, and in particular, performative speech acts in narrative form, to induce compliance through creating a sense of obligation. In the conventional depiction, *Rational Economic Man* is asocial; instead I propose *Rational Social Man* (RSM), who values belonging and esteem as well as consumption. I suggest that RSM is a convenient and minimal workhorse within which to analyse the linguistic construction of social obligation. Leaders are communicators-in-chief, at the node of a network. Being both heard and observed, their narratives and actions each have specific roles in creating new beliefs. I show how leaders can use this asymmetric power strategically to build compliance by means of a 'belief system': an interlocking set of beliefs built by specific types of speech act and actions.

Rational Social Man and the Compliance Problem: an Application of Identity Economics[1]

1. Introduction

Economists increasingly recognize that much of the behaviour we analysis is shaped by social interactions within a group. Our decisions are not based on an unbounded capacity for calculation: facing Knightian uncertainty, we grasp some narrative-communicated theory that converts infinite possibilities into manageable risks. Narratives circulate in social networks, and in most of these networks a few nodal actors are disproportionately influential. Some nodal actors may use this asymmetric power of communication within the group, strategically. Once our ideas have been set by these narratives, we try to hang onto them, filtering out discordant evidence to reduce cognitive dissonance. Yet the ideas accepted in a network sometimes need to be changed. The question 'How can narratives believed within a network be switched?' is regarded by some economists as the key unanswered behavioural question.[2] This is the question that I attempt to answer in this paper.

To achieve their objectives, all leaders of organisations need to induce people to comply with instructions to perform actions which benefit the organization but which they would prefer to shirk. To address this problem, formal organizations such as firms have developed enforceable contracts that specify performance. They have also sometimes linked incentives to monitored performance. Economics has analysed these responses through the lenses of commitment technologies and Principal-Agent Theory. But monitoring and incentives undermines trust in judgment, which has become more damaging as greater complexity has increased the ratio of tacit knowledge to codified knowledge, (Nightingale, 2009). Further, the inherent incompleteness of contracts has become more apparent with the revival of the concept of 'radical uncertainty' (Kay and King, 2019). Not only do contracts and monitored incentives have less applicability in formal organizations that economics had assumed, but many of the most important organisations that shape economic outcomes are informal, such as families and nations, and here contracts and monitored incentives have limited applicability.[3] Instead, in many contexts leaders of organizations depend partly or exclusively upon a different approach: generating a sense on the part of subordinates that they 'ought' to comply (Bowles, 2016). While these strategies are understood to work by means of peer pressure, and have been well-studied empirically, there is as yet no clear economic framework within which the strategic behaviour of a leader to create such an obligation can be analysed in any depth. What psychological underpinnings must be assumed for those whose behaviour is to be changed? What instruments does the leader use? How, precisely, do they work, and what are the conditions under which change is

[2] The remark of Professor Paul de Grauwe, of LSE, in his address at the 'Rebuilding Macroeconomics' Conference, at the British Treasury, October 1st, 2018.
[3] In the context of a nation, the phrase 'social contract' is used as a metaphor to describe mutually understood reciprocal commitments.

feasible? This paper sets out an economic framework within which these questions become addressable.

Both enforceable contracts and Principal-Agent Theory fit comfortably within the standard behaviour assumptions of rational economic behaviour. The motivation of material self-interest accounts for both shirking and the efficacy of contract enforcement and monitored incentives. For many purposes, this is a justifiable simplification of behaviour. But to understand how to create social pressure, it offers little traction because the posited actor is essentially asocial. The challenge is to find the minimum additional complexity necessary to analyse how a sense of obligation can be generated, within an otherwise conventional economic framework.

In this paper I propose the concept of *Rational Social Man* (RSM). RSM is motivated only by self-interest and is 'rational' in the limited sense of taking decisions that he believes will maximize his own utility. However, he is a recognizably *social* animal, identifying with a group, and interacting within it. I show that RSM can explain how leaders of organizations will rationally use their powers of communication strategically to generate moral obligations.

The paper proceeds as follows. Section 2 sets out the concept of Rational Social Man. Section 3 sets out how a leader can use his position as the nodal actor in the social network to communicate with its members. Section 4 applies this to the task of a leader wanting to build a sense of obligation within a network peopled by RSM. Section 5 addresses the passage from a new common sense of obligation to individual decisions to change actions. Section 6 introduces the concept of a 'belief system', a locally stable equilibrium in which individual beliefs reinforce each other and illustrates it with practical examples of leaders who have attempted to build such systems, some succeeding and others failing. Section 7 concludes.

The resulting economic theory of obligation provides a distinct solution to the compliance problem. By laying the theory out in detail it is possible to see why contract enforcement and monitored incentives have the potential both to complement and to undermine the generation of moral obligation.

2. **Rational Social Man**

The evolved brain and the acculturated mind

Rational Social Man (RSM) is a convenient workhorse for some of the problems analysed within the framework of Identity Economics. This is a branch of behavioural economics in which the focus is on groups rather than individuals (Akerlof and Kranton, 2000, 2011; Collier, 2016 and 2019). In setting out Rational Social Man I do not mean to critique either Rational Economic Man (REM), which has proved to be a remarkably convenient workhorse for a range of economic problems, or the bulk of the behavioural economics literature which is in effect exploring the behaviour of Irrational Economic Man. Each is well-suited for a class of problems.

As defined by economic theorists, much of the behaviour of REM is left unspecified. REM has both preferences and beliefs, but the distinction between them is ill-defined. Rationality is defined merely as complying with choice characteristics such as transitivity. This approach, while highly flexible, is unhelpfully wide: the concept of 'preferences' is too coarse; the assumption of exogeneity concedes too much ground as *terra incognita*; and defining rationality in terms of choice skirts motivation. Perhaps in reaction, conventional economic practice, exemplified by what students come to understand by REM, has come to be far more specific. We know, for example, that as students learn economics they become more selfish than other social science students (Etzioni, 2015). Were preferences genuinely left unspecified and exogenous, there should be no more reason for economics students to become more selfish than to model themselves on St Francis of Assisi. Similarly, the rationality of REM has come to mean utility maximization. Evidently, when meaning is taken to be *usage*, REM has very particular preferences, being selfishly focused on maximising the utility of material consumption net of the disutility of effort. He maximises subject to objective constraints, in the process optimally using of all available information to reach decisions based on a calculation of all possible outcomes weighted by their probabilities. While in common usage REM *behaviour* have gradually become more specific, the common *applications* of REM have gradually widened to embrace behaviours for which the workhorse may be inappropriate. Notably, Akerlof and Schiller (2009) argue that the application of REM to financial behaviour has become a dangerous over-extension.

The rationality assumption of REM has been successfully challenged by Behavioural Economics. Empirical social psychology has revealed two distinct types of problem. Decision biases are rife, and common across populations, so apparently hardwired by evolution. More mysteriously, how a choice is 'framed' has been shown to affect the decision; evidently via the associations that people use when they interpret the choice in a way that makes it meaningful to them. The vehicle for framing is narrative language. Such language is *performative, not descriptive*. As argued by Austin (1962), it is usually neither true nor false: it is an action. To emphasise this feature, he analysed language as 'speech *acts.*' 'Framing' and many other speech acts such as naming, are economic activities. But to incorporate language properly into economic analysis we need a categorization of narratives into an economically pertinent typology of speech act. Taking some initial steps in this direction is the primary purpose of this paper: it is an agenda that follows logically from work such as that of Alster (2007), who grounded methodological individualism in the analysis of the use of common language such as proverbs. Since different narratives may circulate in different groups, resulting in the same decision being framed differently, this opens the possibility of systematic behavioural differences between groups. REM is an attempt to accommodate narrative-influenced economic behaviour, without *ad hoc* adjustments that make anything permissible.

I make no claims for the general applicability of RSM. Like REM (and IEM) it is a workhorse designed for a range of behaviour. Being more complex that REM, by the principle of Occam's Razor it is only justified when that complexity adds predictive value. Being a gross simplification of actual human behaviour, it will become misleading if its applications are over-extended. But, as I will show, there is an important class of problem – the compliance problem – for which it is superior to current models, and it helps to account for why both common decision biases and framing matter. Specifically, RSM enables us unbundle

'preferences' to analyse step-by-step the process by which 'oughts' can be created that are in tension with 'wants.' I show that to be effective, an 'ought' must be generated through a specific set of speech acts. I show how the utterance of this package by a nodal actor constructs the scaffolding within which an internally coherent package of ideas can be put in place. Once these ideas are all in place, the resulting reciprocal actions are self-sustaining and the scaffolding can be allowed to wither away.

RSM is endowed from birth with a brain that is more fully specified that the economic theorist's conception of REM, but less restrictive that the student version prevalent in common usage. This brain is predisposed to be susceptible to social influence, and acculturation transforms the infant brain into the adult mind. This two-stage sketch of RSM is highly reductive: its justification is again that it is a minimal simplification with which to analyse a class of behaviour.

Humans are *social* animals: 'the great evolutionary invention of the primate family is sociality.'[4] Individuals are born into a social network and through their lives become members of further networks, either through choice or circumstance. Membership affects behaviour, both in the direct sense of influencing which actions are judged to be optimal, and in the more fundamental sense of influencing capabilities. Gamble *et al.*, reporting on their British Academy Centenary Project, argue that the large increase in the size of the human brain during evolution was driven by the mental demands of sociality – the need to function in ever larger groups.[5] Extending this argument, Mercier and Sperber (2017), argue that the unique human capacity to reason evolved for the social function of *persuasion*, rather than for the individual function of decision-taking.

I characterise the fundamental behaviour of RSM as being determined by three drives with which the brain is endowed by evolution: the infant brain is not a 'blank slate'. But the brain is not synonymous with the mind: in combination, the three drives expose the actor to social influence. As Barrett (2017) argues, the neurological maturation of the adult mind from the infant brain is a socially-contingent process of acculturation: 'it takes more than one human brain to create a mind'.[6]

Through the process of socialisation, both preferences and knowledge become endogenous. As preferences become endogenous to social influence, they bifurcate into 'wants' and 'oughts'. Only once these two motivations are explicit, does an adequate theory of the compliance problem become feasible. As knowledge becomes endogenous to social influence, it ceases to be pinioned to objective reality. But just as the satisfaction of a 'want' will be questioned as 'oughts' deviate from wants, so a decision based on objective reality will be open to question as the knowledge generated by social influence deviates from that reality. RSM remains rational in the limited sense of maximizing utility subject to what he chooses to believe.

As implied by Mercier and Sperber (2017), social influence is purposive, and a crucially important aspect of human behaviour. RSM is the victim of purposive social influence, so

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[4] Gamble, *et al*. (2018), p.40.
[5] Maximum group size gradually expanded from around 40 to the current 150 – the 'Dunbar Constant'.
[6] Barrett (2017), p.111.

that a minimally general theory of RSM behaviour requires a companion theory of the rational deployment of social influence. I draw upon the theory of communication through a social network to specify the mechanism by which influence is transmitted. The extreme asymmetries of communication power common in social networks permit a radical simplification into two classes of actor: nodal actors and others. I assume that only *nodal actors* have sufficient power of communication to use it for strategic purposes. Nodal actors use this power to further their need for compliance. Nodal actors influence the ideas that other actors hold, and those actors maximize subject to these ideas.

The evolved brain: three drives

I assume that the brain has three drives. The first, familiar from REM, is towards material greed. The biological need for sustenance provides a straightforward explanation for the pain we feel from hunger, and the scarcity of food in pre-modern conditions plausibly accounts for natural selection in favour of this drive. This drive needs no further justification for most economists.

The second drive is to belong to a bounded group. Neurologically, the drive to belong is stimulated by oxytocin[7]. Its original function seems to have been to attach mothers to their infant children but it came to induce bonding in larger groups. In Social Psychology, an innate desire to join a bounded group is a proposition of Optimal Distinction Theory (Brewer, 1991). Recently, this theory has been tested and finds empirical support: membership gives a sense of shared belonging, while preserving a degree of difference from the whole.[8] To belong to a group involves both being and doing. Its existential form is expressed by identity; its performative form is expressed by imitation.[9]

The third drive is for esteem. This begins with the esteem of the members of the group but may be internalised as self-respect. Neurologically, the drive for esteem is stimulated by testosterone.[10] Just as the neurological mechanism for belonging has been adapted from narrow beginnings, so the drive for esteem probably originated in zero-sum tournaments for status. But it came to cement positive sum games of reciprocity. Fehr and Falk, (2002) provide a valuable discussion of the empirical evidence for esteem-motivated behaviour and its role in maintaining reciprocity, though as they noted, at that time it had yet to be widely adopted in economic models.

The three drives each form an argument in the utility function of RSM. Utility depends upon material consumption, belonging, and esteem. Since meeting the two social arguments can potentially conflict with meeting consumption, on occasion it will be rational to trade off consumption to gain belonging and esteem. This willingness to sacrifice material self-interest for belonging and esteem is what gave RSM an evolutionary advantage over REM.

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[7] MacDonald and MacDonald, (2010).
[8] For empirical support for the theory see Leszczensky *et al*. (2017).
[9] There is evidence that the power of imitation works up to three degrees of separation: an action is imitated by those who observe it, that behaviour is itself imitated, and that in turn is imitated (Christakis and Fowler, 2009).
[10] Sapolsky,(2017), pp.106-7.

Having stronger pro-social incentives, RSM was more trustworthy and so less likely to be expelled from the group.[11]

Note that in this characterization, RSM remains entirely self-interested: the utility of other members of the group to which he belongs is not an argument in his own utility function. His pro-social behaviour is driven by his drive for belonging and esteem, not his care for others. A conventional criticism of the concept of esteem-motivated behaviour is that it would be self-defeating: why should we esteem pro-social actions which are selfishly motivated? But as both Adam Smith (1759) and Fehr and Falk (2002) note, this is mere casuistry: a pro-social action is commonly presumed to be motived by the desire both to be *admired* (peer-esteem), and to be *admirable* (self-esteem). Only in exceptional contexts, such as a celebrity strutting round a refugee camp with a camera crew, might we entertain the distinction. Pure within-group altruism, enforced only by self-esteem, is evident at the level of the family and can extend well beyond it, but its intensity varies considerably between groups. It is attributable to group-specific cultures rather than to the drives with which the human brain is endowed. This characterisation is supported by the weight of evidence from socio-biology. The proposition that pro-social behaviour is anchored in an evolutionary advantage conferred on groups composed of individuals with a predisposition to care about others, is now entertained only by a minority of specialists.[12]

From the evolved brain to the socialized mind

To incorporate sociality, self-interested rationality must be set within a context of human interaction that is more fundamental than the transactional relations of material exchange derivable from REM. I socialize Rational Man in two respects: motivation and knowledge.

Are people willing to trade off their consumption to enhance belonging and esteem? In addition to experimental evidence, the proposition finds powerful support in a simple but ingenious new approach. In a social survey, people were asked to recall and record the three decisions in their lives that they most regret (Towers, *et al*. 2016). There is no clear risk of conformity bias in such an open-ended question and people appeared to treat it seriously and answer it frankly. The researchers clustered the responses according to type. Some regrets can be directly linked to the motivation of consumption, such as 'I regret not buying that house'. Others can be directly linked to esteem and belonging, such as 'I regret letting my family down'. Evidently, people make many mistakes of both kinds, but when aggregated into these categories, the consumption-driven regrets were negligible: major regrets are dominated by the drives for esteem and belonging. It is the mistakes that cost esteem and belonging that fester. Rational actors will learn to minimize such losses, being willing to sacrifice consumption to avoid them.

The second distinction between REM and RSM is in the sources and content of knowledge. As to the source, in the economics of old textbooks Rational Economic Man directly observes the state of the world. More recently, economics has developed theories of how

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[11] See Heinrich, (2016). Martin (2018), Chapter 6, provides a current review of the pertinent literature.
[12] In a letter to *Nature*, 137 evolutionary biologists refuted pro-social group selection, see Abbot *et al*. (2011). Pro-social behaviour is common, but is the result of norms generated through specific cultures, through mechanisms akin to those analysed in this paper.

REM also learns from communication through language (cheap talk), and actions (signalling). Rational Social Man also directly observes some aspects of the state of the world, but much of his information comes from what he learns from other actors, again both through what they tell him, and through those of their actions that he can observe. But both cheap talk and signalling essentially depict communication only between two REM actors who have asymmetric information. In contrast, I adopt a canonical characterization of RSM as embedded in a star-shaped social network in which the nodal actor has asymmetric power of communication, as distinct from asymmetric knowledge.[13] This opens up a new domain of strategic behaviour on the part of the nodal actor.

As to the content of knowledge, 'the state of the world' directly observed by REM refers only to objective realities that affect the ability to consume. But as explained by Barrett, (2017), objective reality is never directly perceived. We perceive the world only through comparing our predictions based upon socially-acquired concepts, to what we observe. The very building blocks of perception are social and differ significantly between cultures. Narrative explanations of causality proffered by a nodal actor are purposive speech acts intended to *persuade*. Further, to satisfy the drive for belonging and esteem, RSM needs a different type of knowledge. In order to gain membership of a group, which of his objective characteristics should the actor make salient? The nodal actor purposively provides this knowledge through speech acts of *identification*. In order to attract esteem, which of his actions would be well-regarded? These social facts are learnt predominantly through speech acts of *obligation*.

In summary, according to the assumptions of Rational Social Man:

> People make choices on their desire **to maximize their utility, trading off consumption, esteem, and belonging,** subject to **subjectively perceived constraints** which they **learn predominantly from the narratives and observed actions of the nodal actor in their social network.**

Rational Social Man is a canvas on which cultures can be written. Writing a culture that reshapes the behavior of RSM to comply with the interests of the group is the task for which leaders are distinctively equipped. The REM of the economics student is asocial and so provides no clear purchase for culture: it has to be inserted *ad hoc*. The REM of the economic theorist is so under-specified that leaders get no guidance from it: too much of importance is exogenous. The specification of RSM lends itself to exploring mechanisms of social influence: while still highly reductionist, it readily reveals specific tools that can induce behavioral change.

3. Leaders as nodal actors wielding strategic influence

Leaders as nodal actors

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[13] Technically, this synthesizes the 'ego network' and the 'clustered network'. See Centola, (2018) for an insightful discussion of how network structure and the status of communicators affects the diffusion of norms.

Regardless of their function, organisations necessarily have some social structure. I consider only those organisations that have a recognized leader who is the nodal actor within a network of communication. Ahuja (2011) argues that from the earliest times of large-group collective action, successful organizations have usually been run by 'charismatic' leaders rather than by more anonymous committees. The leader has a dual role: taking decisions and communicating with the membership of the organization. While committees may well be superior structures for reaching decisions, a charismatic leader has a clear advantage over a committee in the ability to communicate. Ahuja suggests that charismatic leadership may have become so common because the coordination gains it generates may outweigh any losses from inferior decision-taking.

The star-formation of the network, with a communicator-in-chief at the node, is a stylized simplification of such charismatic leadership. The structure determines both communication and membership. Communication is highly asymmetric: the leader is at the node of the star. As the nodal actor he is heard and observed by all other members of the network, but they can only hear and observe the two members of the star formation who adjoin them. The nodal actor has both this structural informational advantage, and an advantage of status: his communications may be given more weight than those of neighbours. Underpinning this structure is some objective characteristic that determines the composition of the star. For example, if the organization is a firm, it will have built mechanisms by which the CEO can communicate with employees; if the organization is a city, the mayor may be able to communicate with residents through spatially bounded local media. Evidently, each member is aware that he hears and observes the nodal actor: this is shared knowledge. Shared knowledge is not necessarily common knowledge: members need not automatically know that all other members are receiving the same messages. But as I will discuss, a leader who needs common knowledge can use his asymmetric power to generate it.

Within this highly asymmetric structure, a leader has the scope to use communication strategically to influence the beliefs held by the other members of the network. In turn, these beliefs affect their choice of action: actions are only rational conditional upon beliefs. In this Section I set out the typology of communication mechanisms, and the typology of beliefs, that characterize RSM. In combination, these determine both the variables that a rational leader will need to influence, and the instruments at his disposal for doing so.

Credible communication

The leader communicates with members of the network through narrative speech acts which are heard, and through actions which are observed.[14] A leader can use these means strategically to change the beliefs of the members of his network. However, this process of changing beliefs is subject to constraints: not all communications will be credible. It is useful to think of a communication as having a *zone of credibility*. The zone is specific both to the leader and to the communication: four distinct factors will matter.

The first factor is the past record on the leader. Trustworthiness is an asset accumulated by past reliability. A second factor is the inherent plausibility of the communication tested

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[14] Leaders also communicate through visual images and music, but I abstract from them.

again what the receiver of the communication believes already. In Barrett's account of recent developments in neuroscience (Barrett, 2017), decisions are seen as the result of a constant process of prediction based on current beliefs. A third is the degree of compatibility with self-interest: the more advantageous is the proposition, the less effort will be put into disavowing it.

The final influence is whether actions and narratives are reinforcing: each has a distinctive function. One function of actions is well established by the Theory of Signalling. An appropriately chosen action reveals characteristics that are directly unobservable by ruling out those characteristics that would be incompatible with rationality. While this reduces the set of beliefs that members of the network can hold consistent with being rational, the action may remain consistent with several interpretations. The function of narrative communication is to add precision: language enables far greater precision than the coarse messages conveyed by actions. If the actions and narratives of the nodal actor are incompatible, then each destroys the other.[15] The use of narrative combined with a signalling action has analogies and differences with cheap talk. Cheap talk messages are used strategically to blur true information through biased imprecision. As with cheap talk, the nodal actor in an RSM network is constrained to choose a message within the set of those that are credible given the signalling action. As with cheap talk, the purpose need not be to mislead. But contrary to cheap talk, if the purpose is to mislead, the content of the message can be precise yet false, as long as it is not incompatible with the signal.

We can think of each of these influences as having its zone of credibility, with their intersection defining the constraint on the ability of communication to shift beliefs.

Typology of beliefs

The typology of beliefs classifies them into three groups each pertinent for RSM, only one of which is pertinent to REM. The belief pertinent to both REM and RSM concerns the *causal structure of the objective world*: notably, the material consequences of actions. Without such beliefs, neither REM nor RSM would know how to satisfy the drive for consumption. But to satisfy his drive for belonging, RSM needs *social knowledge of potential identities*, and to satisfy the drive for esteem he needs *social knowledge of the norms* which determine how his peers in the group will regard his actions. Since each of these three types of belief has the potential to change behaviour, the nodal actor needs to address all three through his strategic communication.

As an example of a false but successful reinterpretation of *the causal structure of the objective world*, I take the signalling action and narratives of President Erdogan in the run-up to the Turkish election of 2018, an election that he won with an absolute majority. The

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[15] Even the signal value of the action is undermined if the nodal actor explains the action in a way incompatible with its prior interpretation. Consider, for example, the classic Spence signal of educational attainment. Suppose that at interview, a job applicant with excellent educational credentials proffers the following narrative. 'I should be given this job because I have been chosen by God for exceptional success. An indication of His favour is that he ensured that the examination paper was revealed to me.' The signal might be reassessed.

signalling action was a fiscal expansion, designed temporarily to raise living standards and employment. The intended signal was 'I care about you and by re-electing me you will be better off.' Among economically sophisticated actors this action was interpreted very differently: it was recognized as irresponsible and rapidly resulted in depreciation of the exchange rate. However, President Erdogan complemented his action with a narrative that proffered an alternative causal explanation for this depreciation. Namely, while his action signalled his commitment to the interests of his citizens, the depreciation was due to a conspiracy among Western financial interests which were hostile to a strong Turkey. By attacking the currency, they intended to weaken his political position, and thereby to weaken Turkey. The balance of exposure to these alternative causal explanations of the action was heavily in favour of the President: financial economists were not nodal actors in mass networks. The result was observed by a reporter for the *Financial Times*. Even among actors directly affected, the President's narrative had succeeded in reinterpreting causality. The owner of a shop selling imports explains: 'We help defenceless countries and they don't like it, so they don't want our country to be strong'. The owner of a local currency exchange explains to him: 'It's all part of a plan. They are trying to topple the chief'.[16] The narrative successfully reinforced the signal: despite being false, it was compatible with the action given the limited prior knowledge of those who heard it. As further reported, 'It is easy for outsiders to laugh at such talk, but it has deep roots in Turkish history. Asli Aydintasbas, a columnist with the opposition newspaper Cumhuriyet, said that suspicion of outside powers was *ingrained in the Turkish national narrative.*'[17]

I now consider *the strategic communication of identity*. RSM is susceptible to invitations to join an identity group because of his innate drive to belong to groups. Again, the nodal actor can deploy both actions and narratives in combination. In respect of identity, the purpose of communication may be simply to change the salience of an objective identity. The concept of salience arises from scarcity: the neurological limitations on cognitive load. By drawing attention to some particular objective characteristic, the communicator repositions it within the brain.[18] It can also be useful for a leader to create a new objective identity, as I show in Section 5 with the concept of the 'vanguard'.

There are several identities that if they became salient among the members of the network would further the objectives of the nodal actor. For example, in a network of the employees of a firm, it might be useful to associate skill or attention to customers as defining the differentiating identity of the firm's employees relative to those in competing firms. These subjective identities, once adopted, drag with them normative associations that can helpfully modify behaviour, a proposition in Identity Economics exemplified by the concept of 'the good plumber' (Akerlof and Kranton, 2011).

The nodal actor can also directly *promote norms*. RSM is hardwired to crave esteem and so needs to know the behaviour that will attract it. The next section is primarily focused upon the conditions for norm creation.

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[16] *Financial Times*, 19th May, 2018.
[17] Financial Times, August 29th. Italics added.
[18] The rational deployment of salience in the choice of identity is modelled in Collier (2019).

The structure of a communication strategy is summarised in the matrix of ideas and mechanisms in Table 1. Thus, in communicating a causal proposition, the leader will use speech acts designed to persuade, possibly supplemented by visible actions whose consequences appear to illustrate the postulated causality. In communicating an identity, a typical speech act might be the naming of the group, and a typical visible act might the participation of the leader in a ritual. Rituals are particularly suited to demonstrating shared identity because, having no material purpose, their zone of credibility is highly restricted. In communicating a norm, the speech act sets out the obligation, typically in a narrative in which a hero is celebrated for fulfilling an obligation at great cost to himself, or someone is shamed for breaching an obligation. The visible act may apply the Theory of Signalling, being a costly action that is only rationally explicable if the actor values fulfilling the obligation.

Table 1: A Typology of Strategic Communication in an RSM Network

Type of Belief	Communication mechanisms	
	Speech Acts	Visible Acts
Causal relationships	Narratives of persuasion	Demonstration
Identities	Narratives of identification	Rituals
Norms	Narratives of obligation	Signals of intentionality

I now deploy this structure for the specific problem of how a nodal actor can generate a sense of obligation among the members of a network.

4. The strategic construction of obligations within an RSM network

The task of the leader, (the principal), is to address the compliance problem through creating a sense of obligation among his agents (workforce, family, citizens). The solution is to create obligations that are sustainably performed by all agents because they are recognized as *reciprocal*. A fundamental neurological reason for the efficacy of reciprocity is that Oxytocin release, the trigger for trust, is reciprocal.[19] But we also know that reciprocity is reinforced by anger if an action by *i* that benefits *j*, *and is intended to be reciprocated*, is not in fact reciprocated. Across human societies, this is an instinct that develops in childhood (Gelfand, 2018, chapter 6), but the crux is not the actions themselves, but how the intention behind the actions is understood. As with all complex understanding, this depends upon language. In virtually all human societies a generic package of ideas circulates, installed by narrative speech acts, reinforced as necessary by visible actions:

    A. Action x, which benefits others in Group G, is intended as reciprocal.
    B. If *i* performs action x and *j* benefits, both being in group G, *j* should reciprocate.
    C. If *j* fails to reciprocate, she will be disesteemed by *i.*

This package of beliefs is a benign generic aspect of culture.

But, starting from a situation in which no actors perform x, generating reciprocity among a large group faces a severe coordination problem. If action x is costly, nobody has an

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[19] Zak, et al., 2005, pp.522-7.

incentive to perform it. Overcoming the coordination problem involves two distinct stages. In the first stage a 'scaffold' is erected using a specific and often complex set of speech acts that initiate the process of behavioural change. In the second stage, once change has spread across the population, it can be maintained by the generic package A+B+C, without the scaffold. But consequently, analysis of such a self-sustaining equilibrium gives no insight into how it has been built.

A new sense of obligation to perform a reciprocal action, x, begins with the leader generating three interlocking beliefs among his agents, each by specific speech acts:

D   'I am the communicator-in-chief of group G'
E   'If each of us does x it will benefit all of us'
F   'People who belong to group G esteem members who do x'

Belief D starts with a minimal but strategically important assertion of a fact. Necessarily, since each member of the network is aware that they are hearing the nodal actor, each member has the same private knowledge that his membership of the network has become more salient. But for strategic purposes the leader needs to ensure that his communications are understood as generating common knowledge: 'I, the CEO, am communicating with all our employees.' It then adds salience to the objective characteristic of membership of the star-structured network. The most straightforward and minimalist mechanism for conferring identification on membership is to give the group a name: 'we are Group G'. Attaching a name to an entity makes it easier for the brain to recognize it as a concept: this applies not just to groupings of people but quite generally to comprehension of the world. But for complex concepts, such as the collective intentionality that creates the mental concept of a human group, language is essential: naming gives a group identity.[20]

Belief E is a crucial causal proposition: it persuades by explaining the rationale for the individually costly action. The first necessary condition for compliance is that in aggregate, the sum of the individual costs of action x should be perceived to be less than the common benefit: x is collectively rational. Articulated purely as a narrative, the proposition must be compatible both with prior beliefs about causality and any recalled consequences of past common action by some group with which members of the network are familiar.

Belief F sets an additional criterion for membership of group G: the action e, of conferring esteem on other members of the group who perform action x. I assume that action e is costless to perform and confers value on those who receive it. However, if an actor bestows e on the underserving, they receive less e themselves.[21] Given these conditions, through the common knowledge generated by F, the receipt of e from other members of the group depends upon participating in esteem-conferring behaviour. In conjunction, the criteria unite yet distinguish the group, thereby satisfying the two conditions of Optimal Distinction Theory.

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[20] Barrett, 2017, p.97 and p.135.
[21] Potentially, a further layer can be added at this stage in which people confer recognition of membership on others whose conduct is consistent with membership. If recognition is costless, and its receipt is valuable, people face a cost of misconduct.

With these beliefs in place, members of group G now face a trade-off between consumption and esteem. Performing action x is privately costly and so will reduce that actor's consumption, and therefore utility, but it will rationally be rewarded by other members of the group with the utility-increasing action e. A final necessary condition for compliance is that the cost of action x is less than the benefit from the e-actions that confer esteem on those who perform x.
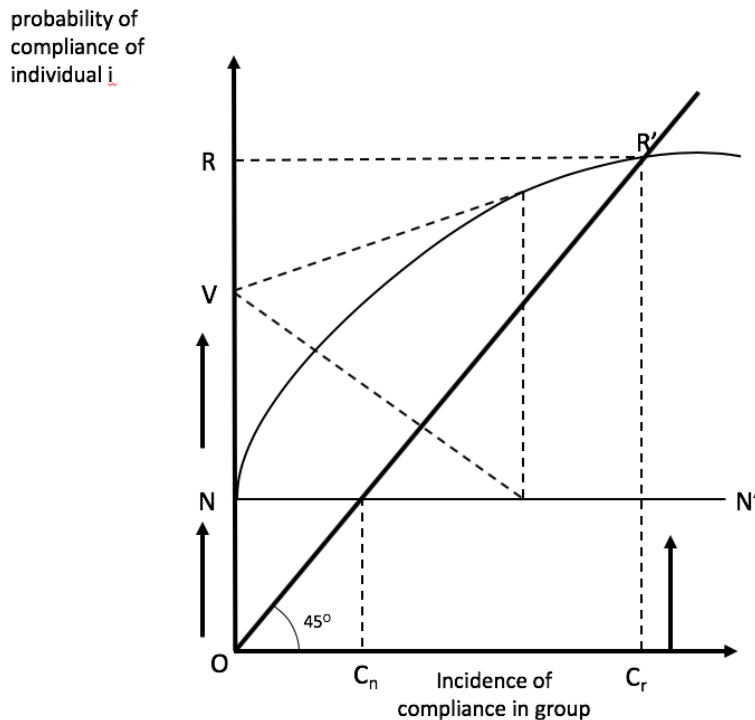

Figure 1: Generating social pressure for compliance

Figure 1 is a modified version of Fehr and Falk, (2002), Figure 6, which illustrates the concept of scaffolding. The vertical axis shows the probability that actor *i,* the representative member of the group, will comply with action x. The horizontal axis shows the incidence of compliance in the group. Prior to any speech acts, compliance would confer a utility loss for *i*, and there is no sense of obligation to others. Hence, regardless of the incidence of compliance, *i* does not put any effort into x: *i*'s compliance schedule is coincident with the horizontal axis. The speech acts D+E+F, subject to the above conditions, shift *i*'s compliance schedule upwards to N-N'. As drawn, the power of esteem generated by this narrative package is modest, yielding only a modest increase in the equilibrium incidence of compliance to C_n.

But now that some people are performing action x, the more powerful forces of reciprocity generated by the generic belief system A+B+C kick in. This twists *i*'s compliance schedule upwards, from N-N' to N-R', raising the equilibrium incidence of compliance to C_r. At the eventual equilibrium, R', social pressure consists of two distinct components, N, the initial pressure from the speech acts D+E+F, and R-N, the pressure from reciprocated actions. As depicted, the latter is by far the stronger component: the equilibrium is self-sustaining. But

getting to the new equilibrium from the initial equilibrium at the origin, depended upon the specific speech acts uttered by the leader: they are the scaffold.

Reciprocal obligations rest upon a prior well-defined domain of reciprocity. That is, there has to be a bounded group within which each actor knows the criteria for membership, and its implied esteem-conferring actions. For common action, shared knowledge is insufficient: shared knowledge must become common knowledge.[22]

5. Reinforcing strategies

In the previous section I have decomposed the creation of new reciprocal obligations among a group into the new beliefs that its members can be induced to accept by means of communication from the leader. In this section I consider further steps which speed the passage from new beliefs to changed actions.

One way of increasing the pressure from esteem is for the leader to expand the structure of communication within the network. In the star-shaped structure of communication, other than with the nodal actor, each member communicates directly only with his two adjoining neighbours. Fehr (2018), finds that by institutionalising peer-to-peer mutual assessment, an organization can change prevailing norms quite rapidly. The change in the structure of interaction increases the opportunities to exchange esteem and disapproval, and so increases the benefits of compliance, while leaving unaltered its cost.[23] Peer-to-peer discourse is also the most effective setting for *dialogue*, the back-and-forth process by which ambiguities are clarified, enabling precision of meaning and understanding-in-context.[24]

A complementary way is to introduce a sequence of compliance. If everyone is expected to change at once, it is all too possible that nobody actually changes their esteem-conferring behaviour: we wryly accept that we are all 'sinners' and so nobody loses esteem from non-compliance. This is reinforced by the force of imitation. I have so far kept the performative aspect of belonging, off-stage: in equilibrium, once everyone else is complying with an action, the sense of belonging conferred by imitation simply reinforces the utility conferred by esteem. But starting from a situation in which nobody else in the group is performing action x, although to do so would confer esteem, it would also differentiate, thereby weakening the sense of belonging: esteem and belonging oppose. To avoid this, the leader has to provide credible answers to the questions 'Why me? Why now?' I take them in turn.

The 'why me?' problem

Most decisions are not simultaneous: members of the group take them sequentially. For those decisions that are simultaneous and high frequency, such as the daily work routine, coordinate change is intrinsically difficult. Expectations of how others will behave today are likely to be more strongly influenced by the weight of past behaviour than by any new communications from the leader, and the pressure of imitation coincides with that of

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[22] See Thomas *et al.*, (2014).
[23] This is an application of the 'strong ties' thesis of Centona (2018).
[24] I am indebted to the social psychologist David Good for this point.

material self-interest. But the leader always has the option of transforming such decisions from being simultaneous by combining the new obligations with a proposed sequence in which they should be adopted within the group.

Where decisions are sequential, whether intrinsically so or by transformation of a simultaneous process, expectations of subsequent decisions will be set predominantly by those early in the sequence. This can make the passage from new obligations to new actions harder or easier depending upon whether the sequence is private, shared, or common knowledge.

Consider the case in which the sequence of decision is randomly assigned as private knowledge. Further assume that the process of decision itself is unobservable: all that can be observed is the action x, should it be performed. In this structure, the first person in the decision sequence faces no social pressure to perform x and weakens belonging by doing so. The decision *not* to do x is not observed as a decision: what is observed is merely that nobody has done x. People do not know how many people have reached this as a decision. Hence, the first person in the sequence rationally chooses not to perform the costly action x. The second person in the sequence faces precisely the same decision problem as the first, with precisely the same information. Evidently, the outcome of this sequential decision situation is that nobody performs x. Further, it gradually becomes manifest that this is the outcome of decisions. Once this becomes common knowledge, the group has inadvertently coordinated on the decision not to do x.

To address this problem, the nodal actor needs to generate three further beliefs.

> H   'The sequence in which agents should take their decision about x is $S_1...S_n$'
> I   'Agents 1, 2, 3.. are the *Vanguard* whose decision will determine the outcome and so they are especially worthy of esteem'
> J   'The rationale for choosing and announcing this sequence is z.

Belief H reveals, and perhaps changes, the order of decision. If the nodal actor is to propose a purposive sequence, one evident way of signalling that the sequence is fair is for the nodal actor to put himself first in the sequence. Belief I confers a new identity – 'the Vanguard' – upon those first in the sequence. As with membership of group G, membership of the Vanguard comes with its own package of recognition linked to esteem-conferring behaviour. Belief J provides a rationale, both for the sequence itself and for making it public. Since the action is privately costly, the most obvious rationale for the chosen sequence might be that those best able to bear the cost should be the first to perform it: by placing herself first in the Vanguard, the nodal actor reinforces her legitimacy as the leader. The rationale for making it public follows from how it transforms the decision calculus.

Consider the decision problem of the person assigned to be first in the sequence. In contrast to the previous situation, now all eyes are on her: other members rationally know that her decision will be decisive in determining whether the group reaches a collectively good outcome. They also know that if they observe non-adoption, it reflects a decision. The potential esteem from adoption has been heightened by the new prestigious identity, but reaping it is contingent upon performing the action. Further, performing the action no

longer weakens belonging. On the contrary, by performing it the actor not only retains membership of G, but retains belonging to the Vanguard.[25] The force of imitation has now been severed from G and reattached to the new identity. Who should the leader choose as the first member of the group in the sequence? Unless overruled by manifest constraints, the answer to this is evident: to reinforce the narrative of purposive sequence with credible action, the leader must put herself as the first in the sequence. For other members of the selected sub-group, the new and unavoidably salient identity of 'Vanguard' created by I thereby gears up the potential loss of esteem.[26] The effect of the package H+I+J is shown in Figure 1 as the upward shift in *I*'s compliance schedule, *i* having now been identified as a member of the vanguard, from N to V. As the vanguard gradually expands as the sequence of adoption progresses, the esteem from being a member of it diminishes, although the power of imitation increases: as drawn the additional esteem fades to zero, so that the compliance schedule is shifted up and twisted, changing from N-R' to V-R'. There is no change in the eventual equilibrium but a more rapid move towards it.

Moving along the V-R' schedule, which is the sequence of decisions in favour of performing x, the source of social pressure changes. For the last member in the decision chain, there is no pressure generated by a disadvantageous outcome for the group: the advantageous outcome has already been secured by previous decisions: hence, even a very large gain from the collective performance of x is of no consequence. Further, there is no prestige from being in the Vanguard, because the Vanguard has expanded to include everybody. However, now that all other members have performed x, the pressures of social disapproval due to the breach of reciprocal obligation, and of belonging by means of imitation, are at their maximum. *A priori*, the net pressure on those early in the decision sequence could be greater or less than those late in the sequence. The pressure on the former comes from having been given the identity of 'the Vanguard', and from responsibility for whether the group reaps the gain from common performance of x. The pressure on the latter comes from the shame and guilt triggered by breach of a reciprocal obligation that has manifestly been recognized by others, and from the weakening of belonging due to the lack of its performative expression.

The 'Why now?' problem

Whereas the 'why me?' problem is how to publicly identify the sequence of decision and to provide a credible rationale for it, the 'why now?' problem is how to provide a credible rationale for why *the very next time* the decision is taken, it should be different from all previous decisions. Whoever is first to take the decision, why is now the right time to change, given that it inflicts individual costs on each decision taker?

Belief E is not in itself sufficient to provide a convincing answer to this question. Belief E is merely a necessary condition: if action x is not believed ultimately to advantage the group it

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[25] The creation of a Vanguard identity among early adopters creates 'strong ties' between them while neutralizing the potential of the many non-adopters to influence the decision. These are the conditions shown by Centona (2018) for the successful spread of norms.

[26] The strategy has been proposed by Collier and Venables, (2015), as a means of increasing the pressure on the gradual closure of the global coal industry.

will clearly not be adopted. But there may be many obvious actions which if we all did them would advantage the group at individual cost. Just because today a leader picks on one of them, why should we interpret this as more than a momentary fad? Nor, if we initially interpret it in this way, will subsequent repetition by the leader necessarily change expectations. Once we have observed that other members have not changed their behaviour, repetition by the leader may merely underline that his narratives are being ignored and so can safely continue to be ignored.

Hence, Belief E needs to be reinforced by a new sense of timeliness: for some reason, the group has reached a *pivotal moment*. Logically, this can be either because the past has suddenly become unsustainable, or because the future has suddenly presented the group with new options. Thus, crisis and opportunity are the options for a credible narrative that addresses the 'why now?' problem. Of these, crisis has the advantage in that the urgency of change can more readily be made apparent. Implicitly or explicitly, delay will inflict high costs. A new opportunity may in itself be insufficient: while it succeeds in answering the question 'why not yesterday?', it does not provide a satisfactory answer to 'why now, rather than later?'

In effect, the crisis option is for the leader to communicate the pair of beliefs {K, L}:

K: our past behaviour has become unsustainable so we will have to change sometime soon.
L: the longer we delay change, the higher will be the costs.

The opportunity option would be cast in an equivalent pair of beliefs.

As previously, narratives can be reinforced or undermined by actions. Leaders explaining the need for change in terms of crisis may gain credibility by signalling through costly actions. A government claiming that austerity is needed because of over-indebtedness can reinforce the credibility of the narrative by starting with cuts on government perks. A company claiming that its employees must make sacrifices might gain credibility by invoking Chapter 11. Leaders explaining the need for change in terms of new opportunities may similarly gain credibility by taking complementary actions that reposition the organization better to take advantage of them.

6. Belief systems and incentive systems

The previous sections have set out how the need for compliance, which economics has usually analysed as the principal-agent problem, can also be resolved if the leader is able to persuade the members of the network of various beliefs. Each of these beliefs can be built by the leader using his asymmetric power of communication. He communicates by narratives and actions that reinforce each other subject to being compatible.

As discussed above, the norm of reciprocity depends both upon shared identity to define the domain over which reciprocity applies, and the causal proposition that provides the costly action with purpose. But dependence also runs in the other direction. The scope for common purposive action by the group provides a rationale for shared identity, and the

boundary of reciprocity provides a rationale for demarcating members from non-members. Such a set of interdependent beliefs constitutes a locally stable equilibrium. I will refer to the package of a network, a nodal actor, the interdependent beliefs, and the reinforcing narratives and actions that underpin them, as a *belief system.* In this section I discuss how the belief system needed to build obligations interacts with monitored incentives, which I will suggest comes with its own belief system.

The interdependence of the various components is what defines compliance achieved by means of obligation as a *system*. In a competitive market economy, the 'invisible hand' drives actors towards efficient outcomes. To what extent might competition between nodal actors ensure that belief systems are similarly subject to a process that converges on social efficiency? Once beliefs have been adopted by an individual, various forces tend to maintain them (Collier, 2016), hence recent research has investigated more gradual processes of change, notably inter-generational transmission (Besley, 2016). But even on this timescale, there is no equivalent to the invisible hand: a group can come to reinforce beliefs that are dysfunctional. Even among business organizations subject to the discipline of market competition, Gibbons and Henderson (2012) find evidence that dysfunctional beliefs are highly persistent. In the many organisations not subject to such discipline, there is less reason to expect that long-term outcomes will tend towards social efficiency (Collier, 2017).

The conventional solution to compliance by means of monitored incentives can itself usefully be viewed as a system in which a nodal actor communicates a set of beliefs within a network. It is widely recognized that monitored incentives can inadvertently undermine a sense of obligation (Bowles, 2016). Fehr and Falk (2002), who were among the first to provide a systematic analysis, note: 'If the desire to gain approval and to avoid disapproval affects people's behaviour, it is natural to ask how this desire interacts with economic incentives. We would like to stress that we consider our arguments in this context as quite preliminary and speculative. Apart from a few theoretical and empirical studies little is known in this area. Yet, scientific considerations have to start somewhere and the relevance of the approval motive suggests that this is a potentially fruitful field for further enquiry.' (p706).

Seeing both incentive systems and the normative system set out above as structures of beliefs reducible to speech acts, reveals not only why conflicts can happen, but how they can be avoided. I will show that *monitored incentives do not intrinsically undermine obligations: the damage is caused by the specific beliefs that sometimes accompany them*.

The critical beliefs concern identity and purpose. In the absence of a communications strategy to counter them, monitoring inadvertently signals distrust, thereby undermining shared identity, while incentives inadvertently or explicitly convey that their purpose is a *payment that compensates for the burden of performing action x.* In combination, these weaken obligation, leaving the agent free to decide that action x is too burdensome to be worth the reward, as analysed by Sandel (2012). However, as with the challenge posed by sequential decision-taking, if the nodal actor communicates appropriate additional beliefs, these interpretations can be neutralised.

Monitoring could be reconciled with the shared identity of the nodal actor by explaining its purpose as being to detect the few non-compliers so as to deliver the justice that costly compliance by the majority demands. The incentive system would need to be consistent with this rationale. The most striking example of high-powered incentives linked to monitoring, crafted to be fully compatible with a sense of obligation, is found in traditional Christian theology. That an all-seeing God punishes transgressions with eternal damnation and rewards compliance with eternal life is evidently the ultimate structure of monitored high-powered incentives. Yet this came with beliefs that avoided misinterpretation of purpose. Monitoring was explained as a corollary of the benign characteristic that God cared for his people; the incentives were explained as embodying and illustrating the just consequences of moral choices. The Faustian bargain was not presented as a socially acceptable behaviour that was mistaken because it ended up decreasing Faust's utility. It was presented as morally abhorrent.

While reciprocal obligations within a group begin as transactional, through repeated practice they may build habits of care that enable the emergence of *mutual regard*. Many people within the group come to care about others within the group: the 'we' becomes an extension of the self. As noted above, such attitudes are not dispositions generated by natural selection, but can become part of the culture of a particular group. An example is the depiction of a red fish swimming in front of a shoal of blue fish, which is interpreted differently by Asian and Western cultures, the former identifying with the shoal and the latter with the individual. Hence, pro-social behaviour may come to be reinforced by culturally determined attitudes to others in the group.

Building belief systems: some examples

The context of a firm is particularly suited to building compliance through obligations. The CEO necessarily has substantial asymmetric power of communication, both through actions and narratives. Further, this network of communication corresponds to the employees whose behaviour constitutes the compliance problem: the set of all agents and the set of all network members are coincident. Gibbons and Henderson (2012) attribute the large and persistent productivity gap between companies in the same sector to differences in corporate 'cultures.' By 'cultures' they mean the beliefs among managers and workers that determine the extent of reciprocal obligations: essentially differences in the ability to overcome the compliance problem traceable to differences in belief systems.

Their iconic illustration is the contrast between the demanding reciprocal obligations sustained by Toyota, and the failure of General Motors to construct an equivalently effective system. Toyota communicated with its employees through both narratives and actions. Its narrative, 'faults are treasures,' was a causal proposition used to persuade employees to spot and announce a fault emerging on the assembly line. The provision of cords hanging along the assembly line that once pulled would instantly stop the line, was a visible act that reinforced the speech act. Both narratives of identification and visible rituals built a sense of shared identity. In conjunction with the causal proposition, this made it feasible to build the reciprocal obligations exemplified in the 'quality circle' teams of employees who mutually accepted the responsibility to maintain quality on their stretch of the line. Once General Motors recognized the advantage of quality circles, the CEO ordered

cords to be installed along the assembly line as a signalling action of the desired new belief system. But a long history of confrontation between unions and management had set the identity of employees as oppositional in contrast to the shared identity in Toyota. The visible act was outside the zone of credibility: recognizing this, line managers realised that workers would use the opportunity afforded by the cords to intensify confrontation. They tied them up. Even when the CEO understood the new beliefs that were needed, he failed either to increase the pressure of esteem by institutionalizing peer-to-peer assessment, or to address the 'why me? why now?' problem.

Nations are evidently a more challenging context in which to build a sense of obligation, but the head of government is usually the nodal actor, observed and heard by most citizens. Independence provides a pivotal moment for new leaders to reset beliefs: in Singapore and Tanzania leaders seized it, consciously building a belief system using the steps described in Sections 4 and 5.

In Tanzania, President Nyerere took the process of building shared identity so seriously that he devoted his first year in office exclusively to the narrative 'You are now first and foremost a Tanzanian, not a member of a tribe'. This was reinforced by visible acts such as the introduction of a common language. Peer-to-peer assessment was institutionalized through the mass mobilisation of the population into a national political party, while the 'why now?' problem was addressed by the opportunity presented by Independence, and the urgency of catching up with the rest of the world: Nyerere introduced the narrative 'We must run where others walk.' Nyerere also successfully addressed the 'why me?' problem. He built a new vanguard of civil servants, introducing a rule that they could not work in their home region. His state-led development strategy gave this new civil service the social status, for which higher standards were demanded. A test of this natural experiment conducted 40 years later established that shared national identity had become a reality, in contrast to the persistence of the same tribal identities across the border in Kenya (Miguel, 2004). In Singapore, Lee Kwan Yew faced a society bitterly divided by ideology and ethnicity: whereas Nyerere used the language of opportunity, he invoked the language of crisis: the country only existed because it had been thrown out of the federation with Malaysia. He introduced corresponding narratives and actions that gradually forged shared identity (Tepperman, 2016). Both leaders then communicated the causal proposition that by making the sacrifice of postponing consumption, this would enable the state to invest the proceeds so that everyone would become better off. They used these narratives to implement strategies of forced savings: with wages and farm incomes held down by public policy. Finally, on the basis of shared identity and the proposition of mutual benefit from common action, both leaders asserted the common moral duty to meet reciprocal obligations, and both visibly complied with it in their own lifestyles.

The remarkable success of Singapore reflects that of Lee Kwan Yew in building an increasingly dense web of reciprocal obligations embedded in this belief system. Yet Nyerere, despite succeeding in building shared identity, creating a vanguard, and with such an apparently similar strategy, failed, as evidenced by the emergence of widespread corruption. The explanation for this failure is that the narrative that shared sacrifice would lead to economic development rapidly lost credibility due to technical differences in their development strategies. Whereas Lee Kwan Yew used the collective sacrifice for

investments that positioned Singapore to enter global markets, at the time a highly unconventional development strategy, Nyerere followed the then-prevailing model and invested in industrial import substitution. This strategy rapidly proved ruinous: as foreign exchange was pre-empted by investment the economy was starved of intermediate inputs. With the narrative of shared sacrifice for future prosperity manifestly contradicted by observed experience, the mutual obligation to sacrifice consumption lost its purposive rationale and hence its moral force. Recognizing his failure, Nyerere resigned.

The failure of General Motors illustrates that shared identity is a necessary prior belief for the construction of a sense of obligation; the failure of Nyerere illustrates the necessity of credible purposive collective action; the successes of Toyota and Lee Kwan Yew illustrate that with a package of beliefs, new and transformative obligations can indeed by constructed.

Belief systems can also be built informally. In small traditional societies the work of Eleanor Ostrom (1990) established that communities could successfully regulate the commons conditional upon the three beliefs of shared identity, reciprocity and purposive action. But the most remarkable recent example of the informal construction of a belief system is ISIS (McCants, 2015). The spectacular rise of ISIS exemplifies the power of a nodal actor to use communication through a social network to change beliefs. Narrative speech acts of identification changed the identities of young people from 'Swedish', 'Belgian', 'German' or 'Tunisian' to 'The Faithful'. A new causal narrative persuaded them that extreme violence would lead to the restoration of a caliphate; the narrative of a new opportunity was made credible by the observed crisis events in Iraq and Syria. The use of open access social media built common knowledge among adherents. Once these beliefs were accepted and some people started to act on them, the normal forces of reciprocal obligation set in, vastly increasing the incidence of response: the Faithful had a reciprocal obligation to perpetrate extreme violence.

The concept of a belief system provides an economical framework within which to analyse the extraordinarily different contexts in which Toyota, Lee Kwan Yew, community regulation of the commons, and ISIS, used narrative speech acts uttered by the nodal actor to build the beliefs that successfully addressed their compliance problem.

7. **Conclusion**

The leaders of organizations commonly face the problem of how to induce their members to comply with their instructions. In practice, leaders usually address it by some combination of incentives linked to monitored performance, and moral suasion. Economics has a well-formulated theory of the former. But while the latter is recognized as being due to peer pressure, and widely studied empirically through experiments, the process by which peer pressure is constructed strategically by leaders using specific packages of speech acts has been left off-stage. Reciprocal obligation is self-enforcing once in place, but putting it into place requires 'scaffolding': the step-by-step communication of distinct ideas which once accepted by a group, lock its members into a new pattern of behaviour.

This paper has analysed this scaffolding by means of a workhorse model of behaviour, Rational Social Man, that minimizes modifications to the conventional framework while introducing clear channels of social influence. RSM has three innate drives (or 'preference categories'), generated by the pressures of natural selection: material consumption, belonging to a group, and the esteem of members of the group. RSM is rational in that his actions reflect attempts to maximize his utility from meeting these preference categories, subject to how he perceives constraints. His beliefs about these constraints, - the causal processes within which he acts, his identity, and his norms, - come partly from observed events, but primarily from the communications he receives as a member of his social network, reinforced by imitation of group behaviour. This enables leaders, in their capacity as nodal actors, to use communication strategically to address the compliance problem by resetting these beliefs so as to create a tension between what the actor wants to do and what he now believes he ought to do. The key form of communication is narrative language, which I have attempted to decompose into specific packages of distinct types of speech act.

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