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Forms of Trust and Conditions for Their Stability

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Of the three principal approaches to trust, we decided to investigate in greater detail the one in which trust is regarded as a belief that the individuals involved hold about a relationship. Trust was defined as a delegatory relationship based on anticipation of the delegatee's behaviour. We reached four main conclusions. First, the solution to the problem posed by the indeterminacy of trust lies in the differentiation and hierarchisation of the various forms of trust—contractual, organisational and tacit—on the basis of their degree of irreversibility and stability. Second, contractual trust is unstable because it comes up against the problem of guarantees of individual intentions. This leads to the third conclusion: rational evaluation by individuals cannot by itself establish trust, which is based on collective beliefs, practices and rules. Fourth, we identified two conditions for the stability of trust: the creation of irreversibilities through adherence to a rule and the creation of a 'confidence interval' within which different interpretations of contradictory individual strategies are tolerated. Thus the viability of the various forms of trust depends on the ability of institutions and organisations to create rules that are likely, when applied, to produce an interval in which tolerance of mutual intentions is the norm. These analyses of trust hence highlight the role of time and period of time in the notion of trust.

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> How does someone judge which is his right and which his left hand? How do I know that my judgment will agree with someone else's? How do I know that this colour is blue? If I don't trust *myself* here, why should I trust anyone else's judgment? Is there a why? Must I not begin to trust somewhere? That is to say: somewhere I must begin with not-doubting; and that is not, so to speak, hasty but excusable: it is part of judging.
>
> Wittgenstein, *On Certainty* (1969, §150)

For philosophers, the question of trust reaches beyond the personal interactions addressed by ethics, law and economics to other fields: political philosophy, at least since John Locke; theology, since the believer's *fides* is not just assent, but trust; and

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epistemology, whether in terms of trust in the world's objects (Plato's *pistis*), credence given to testimony or, more generally, resistance to scepticism.

Although there is an analogy, as Wittgenstein suggests in the epigraph, between scepticism and lack of trust, it is worth considering where issues of trust, in their practical forms at least, differ from issues of evidence. When I ask myself if I can trust the bank to which I have entrusted my money, I might ask how I know that this bank really is a bank in the same way that a sceptic might ask how he knows that this colour is blue. Yet, generally, my question is quite different. It addresses whether the bank will meet my expectations. An important difference between an epistemological issue of evidence and a practical issue of trust is that the former relates to a synchronic context of observation (or a diachronic context of customary expectations of events) while the latter concerns a diachronic context of action. The question 'What will happen to me?' is rooted in a sense of uncertainty that differs from scepticism with regards to apparent evidence. Indeed, the uncertainty is introduced by the very temporality of the action that will happen to me. The future is intrinsically uncertain. In general, in issues of trust, this uncertainty is exacerbated by uncertainty about another agent's initiative with regard to not just a future event—as in the customary expectation of the regularities of nature and society—but a future action.

Unlike the other social sciences, economics was slow to discover the importance of trust in economic relations, arriving at this conclusion only in the early 1970s. Kenneth Arrow undoubtedly had a decisive influence on this discovery: 'One of the characteristics of a successful economic system is that the relations of trust and confidence between principal and agent are sufficiently strong so that the agent will not cheat even though it may be "rational economic behavior" to do so. The lack of such confidence has certainly been adduced by many writers as one cause of economic backwardness' (Arrow, 1968, p. 538). Arrow also highlights the importance of trust in commercial transactions: 'Virtually every commercial transaction has within itself an element of trust, certainly any transaction conducted over a period of time. It can be plausibly argued that much of the economic backwardness in the world can be explained by the lack of mutual confidence' (Arrow, 1972, p. 357).

As the first cracks appeared in the standard paradigm—when Sonnenschein (1973), Mantel (1974) and Debreu (1974) demonstrated that equilibrium was not stable—a space opened up for notions like equity, fairness and trust, which were alien and previously unthinkable to the discipline. This prompted something of a pendulum swing and thinking on trust took off.[1]

A central divide can now be found between the analyses that essentially see trust as a manifestation of calculation and self-interest and those that see it as a set of relations dependent on the underlying social reality and, as such, irreducible to a rational, so to speak, calculation. The literature appears to proffer three approaches to trust: 1) trust as accumulated capital: trust here is seen in terms of individual interests to uphold one's reputation (Kreps, 1990); 2) trust as risk: all transactions boil down to a calculation of the costs/benefits to be derived from a relationship (Williamson, 1993); 3) trust as a relationship of delegation, which depends to a greater extent on broader social networks than the relationship itself (Granovetter, 1985; Gambetta, 1988; Lane and Bachmann, 1998; Marsden, 1998) and which some authors describe using the 'social capital' notion (see Bruni and Sugden, 2000, for an application of this notion to the

[1] As discussed, for example, by *Trust in Society* (Cook, 2001) and, for France, by Éloi Laurent (2012).

history of economic thought). Our study adopts this third approach and sets out to support it based on a conception of the role of conventions and institutions modelled in the tradition of Hume (via D. Lewis) and Wittgenstein.

Arrow defines trust as a 'lubricant of a social system'. The advantage of this concept is that it highlights the need to understand the phenomenon from the point of view of both individual and social relationships. Granovetter (1985) shows that improving our understanding of human behaviour calls for this behaviour to be perceived as embedded in networks of interpersonal and social relationships. Hence trust is no longer seen as a prerequisite to foster transactions. The process of trust is embedded in social relationships.

Trust is generally expressed in the literature as an individual's optimistic expectation of the outcome of an event or another individual's behaviour.

The main organisational trust typology used regularly by the literature was originally established by Shapiro *et al.* (1992). It was then taken up by Lewicki and Bunker (1996), Sheppard and Tuchinsky (1996) and later by Rousseau *et al.* (1998). This typology defines three types of trust: deterrence-based trust, calculus-based trust and relational trust. Deterrence-based trust as coined by Shapiro *et al.* (1992), or calculus-based trust, to use the term chosen by Lewicki and Bunker (1996), is when the costly sanctions in place for breach of trust exceed any potential benefits from opportunistic behaviour (Shapiro *et al.*, 1992). People do what they say they will do out of fear of punishment.

Trust can also be calculus based, as posited by Rousseau *et al.* (1998), or knowledge-based trust, as termed by Shapiro *et al.* (1992) and Lewicki and Bunker (1996). This form of trust is based on credible information regarding the intentions or competence of another (Barber, 1983), with this information itself being based on reputation. Some authors (Rousseau *et al.*, 1998) see this type of trust as being limited to specific (financial) exchanges where evidence of failure to perform can be easily obtained in the short term. This type of trust is based on regular information and communication—the better one party knows the other, the more accurately s/he can predict how s/he will behave.

Third, trust is said to be relational when reliability evidenced in previous interactions gives rise to positive expectations about the other party's intentions (Rousseau *et al.*, 1998). McAllister (1995) and Coleman (1990) equate this type of trust with "affective" or identity-based trust (Lewicki and Bunker, 1996). Social psychology has shown that individuals within a given group tend to be more trustworthy to the other group members than to individuals outside the group.

In the literature on trust, research on the institutional bases of trust tends to be separate from research on interpersonal trust relationships (Bachmann, 2011). On side are the approaches focusing on individual characteristics, cognition and preferences. Although these do not neglect the relevance of institutions, they consider them as parameters of individual actors' decisions (Bachmann, 1998, p. 298). On the other side are found the approaches centred on the institutional bases of trust (Bachmann and Inkpen, 2007, 2011; Bachmann, 2011; Kroeger, 2012; Zucker, 1986; Bachmann and Zaheer, 2006, 2008). Bachmann and Inkpen (2011) explore four mechanisms through which institutions can reduce risk and produce trust: legal provision, corporate reputation, certification, and community norms, structures and procedures. The angle of institutional-based trust appears to be especially relevant to highly institutionalised environments in periods of time when the institutional structures are familiar and unambiguous to the agents. Yet, when the institutional environment is uncertain, other means are required to replace institutional trust. Bachmann (2001) analyses how agents operating in environments with a low level of institutional structure choose power as their means of coordination, whereas agents operating in highly institutionalised environments choose trust. Our approach takes the angle of the institutional analysis of trust. However, none of these approaches positions time as a decisive factor in the production of trust.

Our contribution to the abundant literature on trust considers three original points. First, trust has to be confirmed within intertemporal choices. In an initial period, trust does not need signs of evidence of commitment to a relationship of trust provided this commitment is confirmed by explicit signals in the subsequent period. These conventions and signals occur, but with a time lag that could be equated with the hysteresis effect. If X emits positive signals, then Y does not consider them to be *necessary*, but sees them as *sufficient*, and Y consequently trusts X. However, if X no longer emits signals for a certain lapse of time, then they become *necessary* to Y, who otherwise loses trust. Second, trust operates in a space within which the other's behaviour is devoid of ambiguity. The period of time is a way of representing this space. Third, Wittgenstein's notion of 'forms of life' constitutes the ultimate basis of trust.

Despite their differences, the neoclassical approaches all refuse to accept that trust might be able to form a category in its own right in economics. Where the socioeconomic approach possibly breaks down is in its insistence on making sweeping statements about the collective basis of trust—statements that always end up leaving trust in the amorphous state of an 'invisible institution' (to use the famous expression coined by Kenneth Arrow (1974) in *The Limits of Organization*).

Yet, once you have accepted that a good economic philosophy needs to include the issue of trust, you have a conceptual problem on your hands. Under the umbrella term of 'trust' fall a group of phenomena that appear to be highly diverse. This diversity concerns the objects or recipients of trust: determinate agents with whom you may or may not be familiar, indeterminate agents, yourself, the so-called natural environment, institutions and organisations, and so on. There is also great variation in the notional relations between trust and distrust: in a clear distinction made in the French language, 'to trust' is not to distrust anything, whereas people may 'place their trust' in something even though they do not trust it. This distinction ties in with the difference between involuntary trust and voluntary trust. All in all, the diversity of what we call 'trust' means that we see the concept as elastic or vague; but this we have to accept if we want our analytic nets to capture the range of forms of trust that can be used, as we shall see, for its dynamic adjustments.

Another problem concerns the status of trust. Is it more of a belief? A feeling? Or is it more truly an action? To be able to propose a conception of trust as a belief—to take the cognitive interpretation spearheaded by Russell Hardin (2002)—or as a feeling, you must be able to identify what is believed or felt in trust. A good candidate for this is the 'trustworthiness' of the recipient of this trust. Seen from this angle, trust is a cognitive response to a property of the recipient. However, there is one situation that this conception does not really explain: trust is sometimes extended even though the individual neither believes nor feels that the recipient is 'trustworthy'. It is not necessarily a contradiction in terms to decide to place your trust in someone you do not see as reliable. Paul Faulkner has a very good point here in his epistemology of testimony when he holds that trust is a 'basic attitude' that cannot be reduced to a belief in credibility (Faulkner, 2007). Another illustrative situation is one in which we are spared assessing trustworthiness for ourselves because the social context bears trustworthiness indicators that are themselves objects of trust: for example, when we expect a certain service from a company that is well established, the trust we place in that company is embedded in a network.

This suggests that trust is a practical relationship, which cannot be established solely by individuals' rational assessments. It is comparable to an action (Dumouchel, 2005). As we will show, this action is based on practices, uses and rules that comprise its underlying matrix and can be summed up by Wittgenstein's notion of 'forms of life'.

Analytic approaches to trust overlook a vital characteristic right from the outset: its radical indeterminacy. As we will go on to show, it is impossible to really know whether someone is acting to guarantee an intention to honour trust or merely to express an intention of guarantee. Market transactions (goods, labour services and currency) draw not on one single form of trust, but on a number of forms. Contractual trust, organisational trust and tacit trust emerge as different ways of dealing with the same radical indeterminacy of the decision *to trust*. The search for guarantees for trust is therefore key. We will show that, when considered at the individual level alone, the promise and the contract are not enough to lift this indeterminacy: contractual trust is therefore unstable. However, rules and their uses establish trust, in that their implementation creates a certain irreversibility. We hence differentiate between tacit trust and organisational trust. The former gives the impression of being based on thin air. In fact, it is based on implicit norms and especially social conventions that are accepted as such: individuals do not seek expressions of intentions of guarantees. The latter—organisational trust—depends on explicit rules and implicit commitments, which are necessary conditions for the establishment of this type of trust, but not enough to ensure its stability. How can we know whether the fact of following a rule is a guarantee of the intention to follow the rule and not just an intention of guarantee? We show that the answer to the indeterminacy of trust is found in a differentiation and ranking of the forms of trust by their levels of irreversibility and stability.

Another distinction should be mentioned, as it is evident in trust phenomena. There are arguably at least two types of trust differentiated by voluntary and involuntary criteria: 'underlying trust', in the shape of a sort of familiarity or immediacy constituting all the expectations relating to the continuity of the natural, social and political order, and 'decided trust', which is associated with the realisation of there being a risk.

The difference introduced by Knight between risk (in the sense of measurable probability) and uncertainty (which cannot be measured) is extremely useful here as a way of understanding the bridge between 'underlying trust' and 'decided trust': 'It will appear that a measurable uncertainty, or "risk" proper, as well we use the term, is so far different from an unmeasurable one that it is not in effect an uncertainty at all. We shall accordingly restrict the term "uncertainty" to cases of non-quantitative type', (1921, p. 20). The distinction between decided trust and underlying trust corresponds to two ways in which uncertainty can be put aside in practice: the paralysing effect of uncertainty is attenuated, if not lifted altogether, either by force of habit or institution or by a gamble on decided trust. It corresponds to risk such as it is defined by Knight, whereas assured confidence is based on an uncertainty of which we are aware, but which is overcome by the assurance provided by a practical, 'natural' or institutional context.

Where is the bridge, then, between underlying trust or 'familiarity' (in the terminology used by Luhmann, 1979) and 'decided trust'? The underlying context could be as much an institutional framework as what is known as a natural world. We propose a hypothesis: the emergence of awareness of a risk, or even uncertainty, is the key to the transition from 'underlying trust' to 'decided trust'. Experiences of disappointment, disasters and 'confidence crises' are all motives for such a transition.

Examples of this can be found in situations where the precautionary principle is used. Such was the case with the Mad Cow Disease crisis, which prompted the slaughter of nearly 200,000 cattle in the United Kingdom. Thus the Mad Cow Disease crisis marked the start of product traceability.

We are seeing a similar story today with the global fear of terrorism and air transport security plans. New rules appear in both cases. In the case of food, product traceability was introduced. For human security, stricter individual screening has been brought in. The purpose in both cases is not just to reduce the risks to individuals, but also to re-establish their trust.

In Section 1 below, we test the idea that trust is a belief about a relationship. In this case, it would be related to intentions. We review this hypothesis by showing that trust operates on a different basis than the interpretation of intentions, which makes it an obstacle. In Section 2, we show that social norms and conventions are necessary to establish trust. The third and final section focuses on the conditions that influence the stability of forms of trust.

1. The difficulty of establishing trust: the problem of intentions

1.1. A general definition of trust

Following the example of Dasgupta (1988, p. 53), trust is often seen as 'one's expectations regarding to others' choice of actions that have a bearing on one's own choice of action'. In a sense, there is nothing to add to this statement, since all expectation relies on representations and beliefs. In another sense, however, the statement says nothing at all, since this definition of trust does not help us to distinguish trust from all anticipatory behaviours. Some light can be shed, as Karpik suggests (1989, 1996, p. 528), by introducing the notion that trust is a form of delegation[2]: 'In placing trust in someone or something, I am recognizing an authority that is going to take the form of a principle guiding my own actions'. However illuminating this notion might be, however, it does not help us establish a clear distinction between trust and authority.

Therefore, we consider it necessary to articulate these different dimensions. We adopt the following definition: trust is a delegatory relationship based on anticipation of the delegatee's behaviour. The asymmetry and reciprocity of the commitment are the two essential and indissociable characteristics of a trust relationship. The first arises out of the very act of delegation. The second—the reciprocity of the commitment to the relationship—stems from the fact that the act of delegation is not one that is committed blindly, since if this were the case it would more properly be called an act of submission. At least at first glance, these two characteristics move trust away from being a solution towards being a problem of cooperation. Asymmetry and reciprocity are shown in characterizing the cooperation as proposed by Bernard Williams: 'Two agents cooperate when they engage in a joint venture for the outcome of which the

[2] Karpik (1989). See also Baier (1986) on trust as mandate or as predicate with three places: someone entrusts the care of someone or something to rely on someone to do some action.

actions of each are necessary, and where a necessary action by at least one of them is not under the immediate control of the other' (1988, p. 7). The delegation may be tacit, usual or decided.

In formal terms, an individual X places trust in Y (the delegatee) with respect to an action A if and only if:

1) X expects Y to do A in the circumstances that permit and trigger action A.
2) X and Y presuppose that there is some uncertainty as to whether Y will do A. This uncertainty is presupposed but not made explicit.
3) X leaves this uncertainty aside without attempting to measure it by assigning a probability to it or to limit it by imposing additional constraints (actions, for example).
4) X himself acts as if Y was going to do A in the circumstances in question.

Each of these conditions may seem trivial; in reality, the complexity of trust lies in the way they are ordered. Condition 1 places the emphasis on anticipation. The concept remains here vague and covers situations where X knows Y's range of possible actions as well as routine situations. The situation is uncertain not only due to the future quality of the expected action, but also because it depends on the initiative of another agent. Faulkner (2007) draws a distinction: the wait can be simply 'predictive' when there is a presumption of regularity of events or 'emotional' when expectation is placed in one or more persons and addresses their practical answers. Condition 2 stipulates that trust cannot exist outside of a context of (informational or strategic) uncertainty as to each party's intentions, competences, and so forth. The asymmetry of the relationship arises out of this uncertainty. Condition 3 refers to the act of delegation in its two forms of tacit delegation (decided trusted) and voluntary delegation (trust bet). Condition 4 arises out of the fact that, when X performs an act of delegation, Y gains credence in return.

The notions of trust, legitimacy and credibility are so close in meaning as to make it very difficult to distinguish one from the other. Nevertheless, the differences between them have to be clarified, even though this may be something of an academic exercise, since to leave them unexplained would inevitably give rise to confusion. Credibility is an attribute of someone who has accumulated a stock or fund of trust. Trust is a relationship, either between two individuals or between an individual and an institution or authority. Since there is no element of reciprocity in credibility, this term is reserved for (political, technical, and the like) authority or power or for its representatives. When the term is used of an individual, it is intended to denote that individual as the embodiment or representative of power or authority. Finally, legitimacy denotes the processes through which a community accepts an authority. Trust describes the link between the individual (or individuals) and this legitimate power or authority.

1.2. Contractual trust as situated indeterminacy

Recall the original problem. In the event that trust is a belief based on intentions to decide to trust someone, there are several possible arguments, but each time, they lead to an impasse: the decision to trust either appears as begging the question, or it leads to a permanent situation. Consider these configurations: do not worry about the person's intention and trust him, which is absurd in this case; or, out of necessity, rely on the trust that we can know or anticipate the person's intentions, and trust in one interpretation of his intentions, precisely that which can be trusted. But how can we determine the 'correct' interpretation? Trust is a *statement of principle or an irrational bet*. This problem, which is dramatized in the case of a trust belief about a relationship, is overcome in practice in two ways: (1) underlying trust, intentions are not subject to 'no doubt; (2) in trust or confidence—bet decided, practical conclusion of a suspicious interpretation of intentions is simply rejected. We now focus on how the first difficulty is overcome.

The first hypothesis we test attaches great importance to this issue: act 'as if' I had identified the intention of others, and 'trust' that that intention would only bet interpretation and the problem would justify it. It would then try to eliminate competing interpretations. Doing so would lead us to the same problem: how to determine the 'correct' interpretation. This problem should prompt us to change our perspective and consider that trust is possible; therefore it is not based on the prior determination that the correct interpretation is impossible.

'Contractual trust', which is based on promises and contracts, cannot eliminate the indeterminacy surrounding intentions. Indeed, even if one of the two contracting parties seeks to obtain from the other indications as to his or her intentions, such as behaviour or promises that might justify the establishment of trust, the situation remains indeterminate, in the following sense. Let A and B be two divergent propositions. Proposition A is indeterminate if, in one and the same situation, two contradictory interpretations are possible. Indeed, at least one of the premises in the argument deployed in support of interpretation A can also be deployed as at least one of the premises in another argument leading to conclusion B, which is incompatible with interpretation A.

Let us take the example of signalling theory, as developed by Michael Spence (1973, 1974). When labour is being recruited, the number of years' education is not a sufficient signal to firms seeking to choose among the various candidates, since certain characteristics, such as competence, cannot be observed *a priori*, or at least only at prohibitive cost. In the case of unemployed candidates, it is not in their interest to offer to work for lower rates of pay than those currently on offer, since this would imply that they are less productive and would obviously not enhance their chances of being recruited. There is another strategy, which is to use their educational qualifications as a signal of quality. This is what Spence explored. He demonstrates that, contrary to expectations, this strategy places employers in an indeterminate situation. Why is this? A simplified form of the argument runs as follows. A signal is a cost that varies as an inverse function of productivity. By signalling his or her level of education, a candidate is revealing his or her potential productivity to an employer. The decision by a higher-quality worker to signal imposes a cost on lower-quality candidates. If the best candidates signal their quality, the average productivity of the others declines, together with their earnings. Thus, in order to avoid this drop in average earnings, the least-skilled workers are also going to signal. This incentive to signal spreads to all workers, which produces an adverse selection effect. Thus the signal loses its function as a source of information about worker quality. Under these circumstances, it is impossible for an employer to ascertain whether the employee is signalling in order to: 1) convey the intention of guaranteeing his or her quality (and to bluff) or 2) give a guarantee of intending to be equal to the declared competences.

Let us now take the example of the ratifying of an employment contract. Both employees and employers may sign the contract for two conflicting reasons: 1) in order to give a guarantee of intending to keep to their respective commitments, as laid down in the contract (in the employee's case, the commitment is to perform named tasks; in the employer's case, to pay the agreed salary) or 2) to give an intent to guarantee, just to allay the other's uncertainty, while intending to abuse his trust subsequently. It is impossible to know whether the other party is giving a guarantee of intent or is simply demonstrating an intent to guarantee.

At the level of the individual, therefore, the search for an explanation of the other party's intention does not provide a basis for the establishment of trust. This strategy, in which both parties seek guarantees of the other's intention, leads to an indeterminate situation. Contractual trust is, therefore, unstable. How, then, can trust be established?

2. Codes and the establishment of trust

2.1. Social conventions and tacit trust

Tacit trust is based on social conventions, as stated by David Lewis: 'A regularity R, in action or in action and belief, is a convention in a population P if and only if, within P, the following six conditions hold.

1) Everyone conforms to R.
2) Everyone believes that the others conform to R.
3) This belief that the others conform to R gives everyone a good and decisive reason to conform to R himself.
4) There is a general preference for general conformity to R rather than a sightless-than-general conformity—in particular, rather than conformity by all but any one.
5) R is not the only possible regularity meeting the last two conditions. There is at least one alternative R′. This condition provides for the characteristic arbitrariness of conventions.
6) Finally, the various facts listed in conditions (1) to (5) are matters of common (or mutual) knowledge.' (Lewis, 1983, pp. 165–66 and Lewis, 2002)

Condition 4 ensures that we are in balance coordination. It is local and therefore does not imply that a general non-compliance would not have been preferable. Thus social conventions are socialized modes of action that remain implicit, impersonal and anonymous. Moreover—and this is an essential element in our argument—the norms are accepted by the majority of individuals, at least for a certain period, which gives them legitimacy. Thus corporate practices and the codes relating to ties of kinship and of friendship are examples of social norms. Let us take the example of a sum of money loaned by one friend to another: conventions relating to friendship require that no contract should be drawn up and that, if one of the friends suggests or even insists that there should be one, the other will not enforce it.

In tacit trust, the influence of common practices or customs is such that any uncertainty as to future behaviour is reduced. Thus compared with the general definition given in Section 1 above, condition 3 is weakened. As a result, a space is opened up, an interval in which each party foregoes the search for any expression of intent to guarantee. Thus tacit trust seems to dispense with social conventions and with the signs through which they find expression. In reality, they do have an effect, but with a lag that might be compared to a hysteresis effect. From this point of view, if X gives positive signs, Y regards them not as necessary but as sufficient, and he is able to put his trust in the other party. Similarly, if X finds himself wanting in coordination, Y considers the deficiency to be normal and does not see it as grounds for breaking off relations. On the other hand, if X ceases to give any signs for a certain period of time, they become necessary to X, who loses trust if they fail to materialize. This dialectical evolution of the signs obviously has to take place in a context in which no contrary indications are required, such as contractual requirements or declared intentions to break off cooperation.

2.1.1 An example of tacit trust: the routines at work in Japan Cooperation among workers in Japanese firms is most revealing in this regard. It is customary in the Japanese workplace to cooperate and to help one's co-workers if necessary. Individuals make good their own errors or shortcomings by calling on others to help out, which is considered normal and natural. The founder of Toyotism, Taiichi Ohno (1978, p. 36), stressed the importance of learning and cooperation: 'supervisors must take workers by the hand and teach them what they have to do. In this way, their workers will come to trust them. At the same time, operatives working on the same line have to learn that they depend on each other and that they must therefore help each other' As Magaud and Sugita (1991, pp. 17–18) have written: 'Dysfunctions are not denied or concealed but foreseen and planned for. … Dysfunctions are part of productive activity and the solution must be a collective one, just as production is a collective activity'. This is why no attempt is made to punish individual mistakes or shortcomings but to put them right as quickly as possible.

2.1.2 Tacit trust in economic theory: Akerlof's model The nature of tacit trust—its basis in emotion rather than reason, and the difficulties it presents in modelling—makes it more of a background force than an explicit subject of economics. However, George Akerlof's 1982 article on the effort norm can be seen as an attempt to model tacit trust, even though this was not the author's explicit concern. Workers in the firm studied by Akerlof coordinate their effort in order to determine collectively an average level of effort to provide, which is far above the minimum required. In period t, workers significantly exceed the minimum required (by +17%) but without demanding a pay increase or promotion. Thus they are signalling their willingness to cooperate, but the effects of those signals are deferred. If during period t + 1, the minimum level is not attained, the employer will consider first the results of period t (+17%) rather than those of the current period (t + 1). The employer interprets the failure to achieve the minimum level of effort merely as an unfortunate circumstance and not as a change of strategy. This unfortunate circumstance does not call into question the foundations of the mutual trust that has been established. Thus the signals given during period t are sufficient. This is what makes it possible to explain. This is what leads Akerlof to argue that exceeding the norm enables a group to protect itself against the collective failure that would take place if one of the workers did not produce the minimum level of effort.

On the other hand, if the minimum level is still not achieved in period $t + 2$, the employer will no longer interpret this divergence from the norm as an unfortunate, one-off accident but rather as a change of strategy and a breakdown of tacit trust. The signals given during period t are no longer sufficient. Akerlof's model can be regarded as a model of tacit trust based on *a time lag in the use of signals*.

2.2. Rules and organisational trust

Organisational trust is based on rules, implicit commitments and 'forms of life'. Specify these notions. Rules to consider are practiced in context, given a final, 'forms of life':

'What has to be accepted, the given, is—do one could say—forms of life' (Wittgenstein, 1953, vol. 2, p. 226). Note that the 'forms of life' are not only social contexts, opinions or beliefs based on consensus.

> 'To what extent can the function of a rule be described? Someone who is master of none, I can only train. But how can I explain the nature of a rule to myself?
> 'The difficult thing here is not, to dig down to the ground; no, it is to recognize the ground that lies before us as the ground.
> 'For the ground keeps on giving us the illusory image of a greater depth, and when we seek to reach this, we keep on finding ourselves on the old level.
> 'Our disease is one of wanting to explain.
> '"Once you have got hold of the rule, you have the route traced for you".' (Wittgenstein, 1978b, p. 333).

The 'form of life' is the ultimate given that explains why it serves no purpose to seek to know why trust holds. We do not start from scratch to establish trust; it is inherent in a 'form of life'.

Following a rule is a practice that requires no interpretation (see Laugier, 2001). This is what Wittgenstein invites us to consider in *Philosophical Grammar* (1978a, §9). Of two things: either, the act of interpretation is fully consistent with the rule to follow, and in this case, the agent has not added anything to the rule. He has understood the given order. Is there much difference between a rule and its application? But this then means that the agent has run another command: he did not follow the original rule. If we consider only that the second case can happen, for example there is a mismatch between the rule and its application, it must be inferred that a rule can never be followed (Descombes, 2004, p. 441; see also Kripke, 1982, and discussion in Laugier, 2008).

Specifically, a rule can be presented as a statement of actions to be triggered or arrangements, based on defined conditions. The rules are explicit contingent liabilities. In contrast, implicit commitments are commitments that we make manifest, not by declaring, but by participating in a coordinated action under the constraints they impose. These commitments gradually develop in coordination and effective cooperation between the actors of the organization.

In organisational trust, uncertainty about the other's intentions polarizes around the nature of the collective goal, which is seen as a sort of scapegoat. Let there be a rule that imposes a collective action C. This rule may, for example, govern employees' participation in the company's collective results. Let A and A′ be two actions that are necessary to bring about C. Actions A and A′ must be coordinated, which places constraints on A and A′. The uncertainty arises out of the fact that X is not certain either that Y has exactly the same idea as him of C and of A′ (and vice versa) or that Y still wishes to be involved in C. However, as soon as X observes that Y has restricted his own opportunities for action in such a way as to do A′ rather than anything else, and as long as X can think it reasonable for Y to impose this restriction on himself, then X assumes that there is an implicit commitment on Y's part (and vice versa).

Thus, organisational trust defines a configuration in which the rules for their application trigger implicit liabilities. Such liabilities, caught in a process of 'path dependency' (David, 1985), create their own irreversibility which allows trust to build.

2.2.1 Organisational trust in practice: the profit-sharing case Profit-sharing plans, through which employees participate in their firms' collective results, constitute an example of a pay rule that brings into play something akin to organisational trust. Let us take the case in which profit sharing is conceived solely as a microeconomic incentive mechanism. According to this mechanism, when a rule governing employees' participation is introduced, it is in the interests of both employer and employees to maximize the company's profits, which makes cooperation necessary. This places additional constraints on them. Employees have to organize their work more efficiently, while the employer has to give increased attention to the flow of information, and so forth. Profit sharing leads each party to take actions that will limit their room to manoeuvre in the future. As soon as employees commit themselves to cooperating with management, it becomes more difficult for them to adopt a radical change of strategy, at least if it is assumed that they are agents whose behaviour is consequentialist. From this point of view, the pay rule encourages implicit commitments that make it possible to establish organisational trust.

Let us turn now to an analysis of the role of collective commitments in organisational trust based on an example drawn from the study of the RATP workshop (the metro de Paris, an example borrowed from Reynaud, 1996, 2006). The team productivity bonus varies in a linear direction within an interval: operatives receive nothing if their team remains below the first threshold that is the production 'floor'. On the other hand, they receive the maximum bonus if their team reaches or exceeds the second threshold that is the production 'ceiling'. Each operative must determine for himself a level of cooperation that will produce the bonus he desires. Since operatives all follow the same argument, and since they all form an idea of the others' decisions, each one has his own notion of the team action C, which may as a result be different from those of his co-workers. The uncertainty among the operatives as to their co-workers' decisions arises out of, first, the possible differences in individual ideas of what constitutes C and, second, the possibility that each worker might change his degree of commitment and therefore his own idea of C. However, through mutual observation of actions A and A′, workers are able to assure themselves of the soundness of the cooperative effort.

Let us assume that actions A and A′ equate respectively to corrective and preventive maintenance operations on the Paris metro's electronics. Furthermore, depending on its needs, the logistics department lays down rules for prioritizing work between A and A′—rules to which operatives are not indifferent, since corrective maintenance is always preferred to preventive maintenance, which is regarded as dirty, repetitive work. The strength of the implicit commitment and the degree of organisational trust can be assessed by observation of operatives' compliance (or otherwise) with these rules and of their working practices. If operative X notes that Y is adhering to the rule of the moment, which obliges him to do A′, that is, preventive maintenance, which X knows he detests, then X can assume that 1) Y is committing himself implicitly and 2) he is doing so in a 'reasonable' or 'normal' way, since at the moment of observation A′ is an objective constraint.

Now these modes of behaviour necessarily place constraints on the individual involved which, by their very nature, serve as guarantees for the other party. Locked into a *path dependency* dynamic (David, 1985), such commitments create their own irreversibility, which maintains trust when it is not possible to create it.

2.2.2 Organisational trust in economic theory: efficiency wage models We interpret efficiency wage models (Akerlof and Yellen, 1986) as strategies for suspending the radical indeterminacy surrounding the decision to trust. Each of these models is based on the same rule: a wage higher than the market wage, which gives rise to different implicit commitments and whose actual outcomes are a reduction in labour turnover (Stiglitz, 1974), the flushing out of 'shirkers' (Shapiro and Stiglitz, 1984), and the like.

Thus Stiglitz (1974) shows that even during a period of unemployment, it is optimal for firms to pay above the market rate for some jobs. Such a pay differential reduces labour turnover, thereby minimizing firms' total costs, including hiring, dismissal and training costs.

The same type of argument applies to the 'shirking' model developed by Shapiro and Stiglitz (1984). How can workers be encouraged to work given that monitoring and measuring effort is difficult in some cases and impossible in others? Even if a firm pays wages above the market rate, it cannot eliminate 'cheating'. Moreover, all other firms are likely to adopt the same strategy, which would remove the pay differentials and thus the incentive not to shirk, since any employee who was dismissed would be able to find another job at the same rate of pay. The credibility of the threat of dismissal is restored by the following mechanism. In accordance with the traditional labour demand function, a wage increase has the effect of depressing the demand for labour and increasing the unemployment rate. This latter becomes a real incentive to work. The increase in labour productivity that is one of the expected consequences of this strategy is the visible, quantified manifestation of the implicit commitments obtained.

These models illustrate the dynamic of organisational trust. By introducing incentive rules, firms are seeking to obtain from their employees guarantees of intent to act honestly and be loyal. If the degree of incentive is sufficiently high, workers will be willing to remain with their employer in order to put their competences at his service and provide a certain level of work intensity. This amounts to guarantees of intent to honour the trust that has been established.

Our conception of organisational trust therefore ties in to some extent with that developed by scholars such as Lane and Bachmann (1996, 1998) and Marsden (1998) in that it is based on rules. However, our scientific contribution to the literature on trust is found in the emphasis placed on individuals' intertemporal choices. In other words, trust is considered from a dynamic angle: organisational trust creates strong objective irreversibility, as we will see in Section 3.1. Rules generate implicit commitments and introduce a certain amount of irreversibility into trust.

3. The conditions for stabilizing trust

Let us retrace our path. In these forms of trust—tacit and organisational—indeterminacy trust rose, without necessarily ensuring its stability. Clearly, therefore, the stability of the trust that is established cannot be taken for granted. What conditions have to be met if the various forms of trust are to become stable? The rules that lead to the establishment of trust must 1) create irreversibilities and 2) operate within a given interval.

3.1. Condition 1: the creation of irreversibilities

The various forms of trust do not have the same degree of stability since the underlying mechanisms have different effects on the strength of the mutual commitments and, hence, on the extent to which the relationship is irreversible. In this paper, irreversibility denotes 'any change that cannot be cancelled out by an action symmetrical to the initial action, even though it may be annulled by an adequate combination of other actions (Boyer *et al.*, 1991, p. 22). Cohendet (1997, pp. 79–82) makes a distinction between 'subjective' and 'objective' irreversibility. The former denotes a configuration in which an individual locks himself into a decision, despite the fact that he still enjoys a certain room to manoeuvre; in the latter, an individual is faced with a reduced range of possible choices. This is a theoretical distinction since 'subjective' irreversibility is a property of standard theory and does not exist in practice.

Decided trust is based on a commitment that creates a 'subjective' irreversibility by which the individual sticks to a decision—for example to abide by the contract—although no external authority is required to do and its choice margins remain. This is the case of the trust–Blaise Pascal's wager—accepting to live under the assumption that God exists, even if you do not believe—at least at the beginning of the transformation process and triggers that can lead to further irreversible provisions.

We use the example of the occurrence of an unexpected event, such as in the crisis of 11 September 2001. Individuals who previously had confidence in air transport stop taking this mode of travel if substitutable forms (car, train) exist.

Social norms and rules that reduce the range of possible choices are the basis of objective irreversibility. A return to the previous state is possible, but only at a price (financial penalty, loss of reputation, and so on.). On one hand, there can be little doubt about the constraining nature of social conventions, because of the pressure of conformism. On the other hand, rules are explicit mechanisms that reduce the sphere of the possible. Objective irreversibility is said to be specific to tacit and organisational trust. Table 1 presents a characterization of the various types of trust in terms of their mediums, the degree of irreversibility and the theoretical models that best represent them.

Two points should be emphasized. First, there tends to be a relationship between the various forms of trust and the degree of irreversibility produced. Second, there is not necessarily any difference in the degree of irreversibility produced by tacit trust and that produced by organisational trust. Rules are not in themselves any more irreversible

Table 1. *Types of trust and irreversibilities*

Types of trust	Mediums	Nature and degree of irreversibility	Models
Type 1: Decided trust	Commitment	Subjective irreversibility. Unstable form susceptible of a transformation into Type 2 or Type 3	Blaise Pascal, argument wager; Elster (2000), Schelling (1984), on cases of wilful initiation of 'pre-commitment'
Type 2: Tacit trust	Codes, social norms, usages	Objective irreversibility Strong irreversibility	Norm of effort: Akerlof (1982)
Type 3: Organisational trust	Rules ($w^C > w^\star$, where w^C: current wage; $w^\star$: market wage) that trigger a commitment.	Objective irreversibility Strong irreversibility	Efficiency wages: Stiglitz (1974), Shapiro & Stiglitz (1984)

than social codes. What matters is the way in which both are applied: the institutional context, the customs and practices on which they are superimposed and the dispositions of groups and individuals.

3.2. Condition 2: the creation of a 'confidence interval'

To illustrate the use of confidence intervals, we employ the example presented in the Section 2.2.1, collective bonus introduced in repair and maintenance of the metro. This wage rule posed in new terms the issue of organisational trust between the operators of the team. Before the introduction of this system of remuneration, they worked to 'serve the lines', which means to perform preventive and curative operations in a timely manner, so that the metro lines suffered no shortage of spare parts. We have seen, through the analysis of choice of work priorities, how organisational trust could operate in the system. With the new pay rule, the cooperation between operators acquired another possible meaning: to work only for the bonus. The two objectives of the cooperation entered into competition, which has destabilized organisational trust.

When a firm introduces a collective profit-sharing bonus, each worker has to decide privately whether to cooperate in the new scheme. However, once the decision has been taken, the individual employee has no guarantee that his deeper intention has been understood, since the rule gives rise to indeterminacy in respect of the intention to cooperate.

This can be demonstrated first by the case in which an employee X decides to do everything he can to ensure that his team receives the maximum bonus. He signals his cooperation to his co-workers. However, nobody can regard an apparently favourable signal as definitive proof of cooperation. The propositions offered—to work or not to work for the maximum bonus—are contradictory propositions. Thus the proposition 'he is cooperating in order to secure the maximum bonus' is indeterminate. Indeed, of the possible explanations for employee X's habit of arriving very early in the morning and leaving very late in the evening (making up for lost time, working long hours in order to make up for incompetence, escaping boredom at home and raising his profile in the office), at least one of them (in this case, staving off boredom) could justify employee Y's belief that employee X couldn't give a damn about the bonus.

This argument applies in the same way to the case in which employee X decides not to exert himself in order to ensure that the team is paid a profit-sharing bonus. He arrives late in the morning and leaves early in the afternoon. However, employee Y can interpret this situation in several ways: certainty that the bonus will be paid, fear that the profit-sharing targets will be revised, tiredness, slacking, and so on. If employee Y accepts the first explanation (anticipation of the group result), he will conclude from it that employee X is in fact working to ensure that the group bonus is paid.

If we use the term 'anticipation', this does not mean complex calculation, which would not make for a plausible hypothesis: it is impossible to calibrate the level of effort to get the maximum bonus. This would involve the even more unrealistic assumption that the work is individual cognitive abilities. However, we can anticipate a phenomenon based on intuition.

In both cases, therefore, each of the employees finds it impossible to determine whether his interpretation of the other's behaviour corresponds to what he was actually wanting to indicate. For a single situation, there are two natural language interpretations, A and B, that are indeterminate. How can trust, which is undermined by this indeterminacy, be stabilized?

On one hand, certain factors reduce indeterminacy: each party's knowledge of the other's behaviour, acquired in the workplace, the history of past relations between the actors, and custom and practice. These various elements come together in the notion of 'social network' developed by Granovetter (1985), who argues that individual strategies are embedded within a more extensive system. In the example studied, if one of the operators decreases his effort, the other still has sufficient knowledge of his personality, the current workload, and so forth, to appreciate his attitude. On the other hand, the routines that we define as behaviour models for solving problems help to remove the indeterminacy of cooperation and stabilize trust. Due to their automatic and mechanical nature, routines prevent the actors in the organization from questioning each other's intentions. The routine functions as an oversight on the other.

Finally, it should be emphasized that employees are able to dispel this indeterminacy only within certain bounds—limits denoted in this case by the term 'confidence interval', within which nobody enquires into the intentions of others. Within this interval, employees and employers agree on a certain degree of tolerance when faced with a failure of coordination, the emergence of 'free riders', and so forth. Thus organisational trust acquires stability within this tolerance zone.

4. Conclusion

Under what conditions can trust be established and stabilized? The various theories of the wage relationship provided a fertile foundation for an investigation of this question. We also drew on certain empirical observations in order to prevent losing our way in an analysis blinded by pure theory. Many other difficulties remain, of course, beginning with the extent of the problem, which had to be reduced to a reasonable size. We have shown that trust would be impossible if the conditions were structured so as to be necessary to guarantee intentions. But there are phenomena related to trust that we can identify as sufficient conditions which relate to the institutional contexts, practices, customary, and so on.

Thus, of the three principal approaches to trust, we decided to investigate in greater detail the one in which trust is regarded as a belief that the individuals involved hold about a relationship. Trust was defined as a delegatory relationship based on anticipation of the delegatee's behaviour. On the other hand, since trust is linked to intentions, we explored the conditions under which it is established, taking as a starting point an essential characteristic of trust, namely its radical indeterminacy. Indeed, how can we know whether others are acting in such a way as to guarantee their intention to validate our trust or simply in order to give an intent to guarantee? Thus the initial question took shape: the search for the conditions under which trust can be established involves explaining how this indeterminacy can be dispelled.

We reached four main conclusions. First, the solution to the problem posed by the indeterminacy of trust lies in the differentiation and hierarchisation of the various forms of trust—contractual, organisational and tacit—on the basis of their degree of irreversibility and stability. In other words, the interpretation of another's intentions forms an obstacle to the establishment of trust. Second, contractual trust is unstable because it comes up against the problem of guarantees of individual intentions. This leads to the third conclusion: rational evaluation by individuals cannot by itself establish trust, which is based on collective beliefs, practices and rules. Fourth, we identified two conditions for the stability of trust: the creation of irreversibilities through adherence to a rule and the creation of a 'confidence interval' within which different interpretations of contradictory individual strategies are tolerated. Thus the viability of the various forms of trust depends on the ability of institutions and organizations to create rules that are likely, when applied, to produce an interval in which tolerance of mutual intentions is the norm. These analyses of trust hence highlight the role of time and period of time in the notion of trust. Time and period of time play an active role in tacit trust, which operates on the basis of a time lag in signals. Where these signals are not necessary, but merely sufficient in the first period, they become necessary to sustain trust in the subsequent period. Time and period of time are also part of the definition of a 'confidence interval', which is central to an understanding of organisational trust. There are two ways of defining this interval. First, it can be defined as a topological space within which the other's behaviour is devoid of ambiguity. The rules of the game define this space and the order of play. Second, it can be defined as a space-time within which agents generally defer their questions about the intentions of the others.

This consideration of trust from the angle of time and period of time improves our understanding of the formation of internal labour markets. They always combine organisational and tacit trust in that the rules governing organisational trust can work only if they tie in with uses specific to tacit trust. The reference to uses dispenses with endless questions about the ultimate basis of trust. It is inherent in a 'form of life'.

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