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## Three Aspects of Interpersonal Trust

*Abstract:* Trust is generally held to have three different dimensions or aspects: a behavioral aspect, a cognitive aspect, and an affective aspect. While there is hardly any disagreement about trusting behavior, there is some disagreement as to which of the two other aspects is more fundamental. After presenting some of the main ideas concerning the concept of trust as used in the analysis of social cooperation. I will argue that affective aspects of trust must be included in any adequate account of the role of trust in social dilemma situations involving multiple equilibria. Cooperation in such situations requires coordination even though information on what another player might do is not available. A trusting person can handle such problems of cooperation by framing the situation in a way that goes beyond cognitive trust and solves what I shall call *the problem of normative consent*. I will conclude with some remarks about the design of institutions that foster trustful cooperation, especially in the context of the Internet.

### 1. Introduction

The aim of this paper is to present some of the main approaches to the concept of trust as used in the social sciences, in psychology and philosophy. This should provide the theoretical background for the analysis of the problem of trust in Internet communication.

I will illustrate my considerations with some simple examples suited to the context of Internet communication, but my argument is concerned with the social problem of trust in general. I will discuss the problem of trust in the context of the general problem of social cooperation. The problem of cooperation is analyzed as composed of three sub-problems, which I will call:

- the problem of cooperative incentives,
- the problem of information, and
- the problem of normative consent.

Most theorists agree that trust is a complex phenomenon consisting of behavioral elements, as well as cognitive and affective elements. These elements or aspects of trust are closely related to the three sub-problems of cooperation mentioned above.

*Trusting behavior* is characterized by a certain form of risk, namely the risk that another person may act in undesired ways (section 2). Most cooperative endeavors are characterized by such a risk. A rational individual can incur such

a risk only if she has reason to believe that others will respond cooperatively. So, the most basic problem of trusting behavior is a *problem of cooperative incentives* (section 3). For the most part, finding out what others are motivated to do tends to be difficult. Rational trust does not only require that the incentives of others are in fact such as to motivate cooperative behavior, but a trusting person must also be sufficiently informed of these incentives. This *problem of information* (section 4) points to the importance of cognitive elements of trust and, thus, to the concept of *cognitive trust* (section 5). Trust is affective in character in that it induces the trusting person to perceive his partner and the relevant conditions of their interaction in a specific way.<sup>1</sup> Such *affective trust* (section 6) may become important, if a trusting decision cannot be based on information about the incentives of others. The *problem of normative consent* typifies a class of social situations where such is necessarily the case (section 7).

As stated above, there is wide agreement among scholars that trust in general is characterized by behavioral as well as cognitive and affective elements. But when it comes to a definition of trust—surprisingly—one finds predominantly cognitive accounts of trust (I will give a few examples in section 5). To be sure, there are accounts of affective trust as well (I will give a few examples in section 6). Yet, these do not seem to play an essential role in the analysis of social cooperation. However, I will argue that this is due to the misguided concentration on the problem of cooperative incentives and the problem of information. As I will show, there are significant cooperative endeavors, which are characterized by a problem of normative consent. The problem of trusting behavior within these situations cannot be solved without some affective trust. So, if the problem of normative consent is taken into account, it becomes clear that affective elements of trust may very well play an important role in social cooperation.

Although I am mainly concerned with conceptual issues here, it is not my intention to give one single, all-encompassing definition of trust. Of course there are problems in the context of social cooperation, the analysis of which afford a specific definition of trust. But this may depend on the specific properties of the problem at hand. So, a general definition of the concept of trust may not be very helpful in such cases.<sup>2</sup>

One can, however, identify the main aspects of trust that may play major roles in the analysis of social cooperation. Thus, based on a discussion of some of the more prominent approaches to the phenomenon of trust, I will indicate what I take to be the decisive aspects of trust in this regard. In specifying the concepts of behavioral trust, cognitive trust and affective trust, I hope to provide a conceptual framework that may guide us in our study of trusting cooperation, within the internet as well as in other social contexts.

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<sup>1</sup> Cf. Lahno 2001 for a more detailed analysis of affective or emotional attitudes.

<sup>2</sup> One can still try to give a definition of trust that comes as close as possible to the concept of trust that we use in everyday intercourse, especially, when we speak of ‘real’ trust as opposed to pure reliance. Philosophers usually try to give such a definition; I do in Lahno 2002. But here I am concerned with trusting cooperation in the most general sense and not with ‘real’ trust as opposed to pure reliance.

## 2. Trusting Behavior

Risk is generally held to be one of the main characteristics of trust: the risk that another person may act in ways, which are disadvantageous to the trusting person. In fact, nobody can escape such risks completely. Given the world as it is, we have to face the fact that other people do interfere with our personal plans every now and then. But a trusting person is characterized by the fact that he *willingly* incurs such risks. He takes these risks, even though he is in a position to rule out such risks. He acts in ways that actually produce relevant opportunities for the person being trusted to do something harmful to him. This is what I call trusting behavior or behavioral trust:

*A person is showing trusting behavior or behavioral trust, if she (he) is making herself (himself) vulnerable to the actions of another person.*

Trusting behavior is needed in most cooperative projects. This is, of course, the main reason, why social scientists are interested in trust. Figure 1 shows a simple model of a problem of cooperation to illustrate this point.

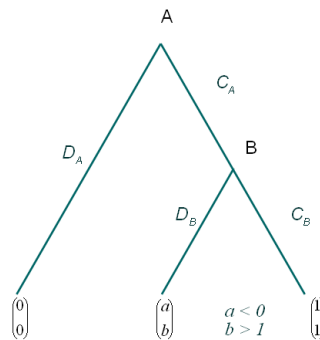


Figure 1: Trust Game

One may think of the situation after bidder Adam won an auction at eBay in which seller Berta offered some product, say, a first edition of Hume's *Treatise*. Adam now has to send Berta the payment (plus the transaction costs) as promised in his bid to Berta before she in turn should send the book. If he does in fact send the money (which is  $C_A$  in the model), she can keep it and still decide on how to react. For the sake of simplicity, let us assume that Berta has only 2 options: she can either keep the book (depicted here as  $D_B$ ) or send it to Adam ( $C_B$ ).

By mutually cooperating, both agents can improve their initial situation. It is assumed that there is some standard of value for each of them such that the

initial situation, which will be retained if Adam does not send the payment ( $D_A$ ), may be rated by each of them as of value 0, while the cooperative solution bears a prospect of 1 for each. Both would gain from the realization of the exchange ( $C_A; C_B$ ). But the cooperative surplus can be achieved only if Adam chooses option  $C_A$ , that is, if he decides to send the money first. Yet, then Berta—being already in the possession of the money—can decide independently on her own move. If she doesn't send Adam the book, she can gain even more (depicted by  $b > 1$ ), while Adam suffers from a loss of his money (depicted by  $a < 0$ ). So, by sending the money, Adam is making himself vulnerable to the actions of Berta.

### 3. The Problem of Cooperative Incentives

In the given game, which is known as the 'trust game' (Kreps 1990), it is assumed that Berta would gain from keeping the book, that is, from 'defecting.' If this is in fact the case, and if Adam and Berta are solely motivated by the given payoffs, and if they are perfectly informed of this, no cooperation is rationally possible. A rational Berta will defect, and a rational Adam anticipating this will not cooperate in the first place. ( $D_A, D_B$ ) is the unique equilibrium of the trust game. Without a solution to the underlying incentive problem, there can be no rational trusting behavior in a situation like the one described here.

Now, any situation of successive exchange seems to be basically of this sort and, in the same way, bilateral simultaneous exchange is usually a Prisoner's Dilemma situation. Yet, as we all know the exchange of goods and services is indeed possible in the real world. If we do not want to assume widespread irrationality, we are driven to infer that there must be certain aspects of social interaction which solve or at least avoid the *problem of cooperative incentives*. Three examples of mechanisms that can make cooperation possible are:

1. *Internalized morals*: Berta might be motivated to repay a cooperative move for moral or fairness reasons.
2. *Institutional enforcement*: Berta may be deterred from defection by formal sanctions (e.g., she might fear being taken to court).
3. *Reputation*: Berta may cooperate because that might give her additional opportunities to sell goods at eBay, for if she defects, no one will trust her in that forum again.

It is quite plausible that in our eBay example mechanisms of all three sorts are actually at work. It should be noted, however, that these mechanisms work in very different ways. Internalized morals are effective by having a direct impact on the utility functions of actors. Enforcement mechanisms work by effectively changing the consequences of action. And a reputation mechanism operates by placing the situation into a larger social context. But, in the end, all three mechanisms have the same effect: defection becomes less attractive and possibly utterly unattractive for Berta.

If mechanisms like these are effective, the game is changed in fundamental ways. One may think that, given such a mechanism, the actual game looks like the one depicted in figure 2. This game differs from the foregoing game in one single respect, namely that Berta assesses one-sided defection now as less valuable than mutual cooperation. This is represented by a different utility value  $b^* < 1$ .

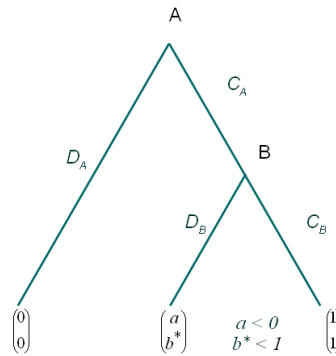


Figure 2: Trust Game modified

Now, if figure 2 were in fact a correct and complete description of the situation, the problem of cooperation would completely dissolve. Berta would follow her preferences and cooperate. Adam, anticipating this, could feel completely safe in sending the money, and, of course, this is what he would do. Yet, it is important to note that with such a solution to the problem of cooperation, the cooperative action of actor Adam largely loses its character as trusting behavior. For, Adam can be completely certain about what seller Berta will do and, thus, for bidder Adam there is no risk left in cooperating.<sup>3</sup>

Of course, things look quite different in reality. Most actual mechanisms for overcoming the problem of cooperative incentives work in uncertain ways, and what they do to one actor is to a large extent hidden from other individuals. This is especially true for morality, but it also applies to other mechanisms such as reputation or even the legal system.

So, the problem of cooperative incentives can be solved and people will as a rule know that it may be solved in general. However, there are hardly any actual situations in which a person can be sure that the solution in fact applies to the case at hand. There is almost always some insecurity involved in a real

<sup>3</sup> There is still a formal risk left in that there is the physical possibility that Berta will not respond cooperatively. So in this wide sense Adam is making himself vulnerable. However, as things are, Adam can and will be completely sure about what Berta will do, and there is, in fact, no actual risk. Therefore, we would hesitate to say that in the ordinary sense of the word Adam is really making himself vulnerable and, thus, showing trusting behavior.

life mechanism for overcoming the problem of cooperative incentives. This is precisely where trust enters the scene.

#### 4. The Problem of Information

An actual situation would look more like the following: Adam knows that he is involved in a trust game situation as described in purely monetary payoffs. But he does not really know how Berta actually values the consequences of a course of actions in which Adam first cooperates and Berta then defects. If her utility value for such a course of action is smaller than her utility for mutual cooperation, Berta will respond cooperatively, but if it is greater, she will not.

As Adam is not informed of Berta's preferences, the game theorist would classify the situation as one of 'incomplete information'. Following J. C. Harsanyi (1967/68), the most extensive form games of incomplete information may be transformed into a game of complete but imperfect information.<sup>4</sup> Figure 3 shows a formal model of the given situation.

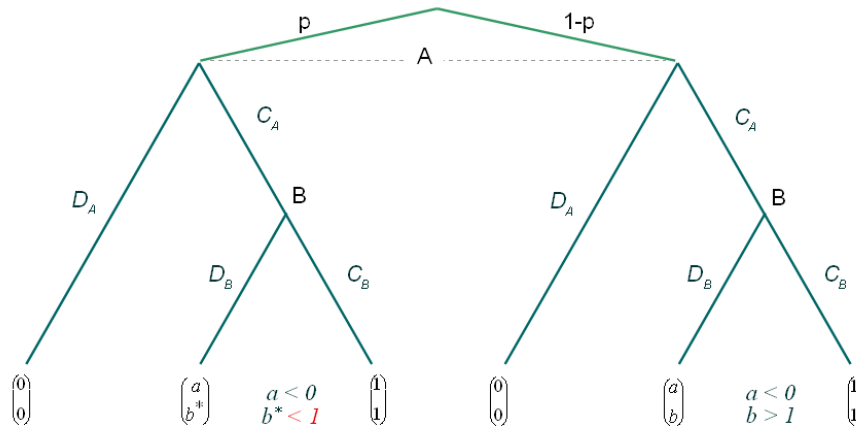


Figure 3: Trust Game extended

It is assumed that Adam and Berta are to play one of the foregoing games (figure 1, figure 2). Before the actual interaction starts, Nature chooses, which game is to be played, i.e., Nature chooses the preferences of actor Berta for the case of a one-sided defection by Berta as being either  $b > 1$  or  $b^* < 1$  (Nature chooses the 'type' of player Berta). With probability  $p$  Nature chooses  $b^* < 1$  (Berta will cooperate) and, accordingly, with probability  $1 - p$  :  $b > 1$

<sup>4</sup> A game is called a game of 'imperfect information', if one player is not informed of all the previous moves of another player.

(Berta will defect). Berta can observe what Nature chooses (that is, Berta knows her preferences), but Adam cannot. This is represented in the model by the horizontal line between Adam's decision nodes. Adam does not know which of the two nodes he is actually occupying when he has to make his choice. However, Adam does know the value of  $p$ .

The parameter  $p$  represents Adam's subjective probability estimation that Berta has cooperative preferences. Obviously, the total game now gives a fairly good representation of Adam's (and Berta's) situation as described at the beginning of this section. A rational Adam will cooperate if he believes it probable enough that Berta will respond in the same way. Using this model, this can be made more precise: Adam will cooperate if his expected utility of this choice is larger than his expected utility of a defection. Therefore, Adam will cooperate if the following inequality holds:

$$p \cdot 1 + (1 - p) \cdot a > 0 \Leftrightarrow p > \frac{a}{a - 1}$$

And he will defect if  $p$  is smaller than  $a/(a-1)$ .

Thus, we have found a condition for trusting behavior. It will occur only if the possible loss is sufficiently small and if the subjective probability of a cooperative response is sufficiently large. This points us to two new aspects of the problem of cooperation. First, there is a different form of the problem of cooperative incentives now concerning the incentives of the person that is to trust: the possible loss is to be sufficiently small. Second, there is a problem concerning information. The bidder will cooperate only if he has sufficient clues for a cooperative response. So, he is in need of sufficiently reliable information on the incentives and the motivation of his partner.

The analysis thus far points us to *three conditions* of rational trusting behavior:

1. 'Trustworthiness' must be possible, that is, there must be some incentive to reciprocate a cooperative move.
2. The possible loss due to an unanswered cooperative move must be sufficiently small.
3. The trusting person must be sufficiently assured that his partner will abstain from abusing his trusting move.

Thus, in view of promoting trustful cooperation, the first two conditions point to a problem of cooperative incentives and the third condition points to a problem of information.

## 5. Cognitive Trust

In a more narrow sense, trust is not just a specific way of acting in certain situations. It is rather something that *makes* us act in such ways. It is a mental

state (or a disposition) that characterizes all or at least most of the individuals that are engaged in trusting behavior. We refer to this mental state to explain these individuals' behavior. But what kind of mental state is this?

The preceding might suggest the following: A person will be ready to perform a cooperative move if and only if he expects with sufficient certainty that his partner will answer in corresponding ways. This suggests that trust be understood as an expectation of a positive response.

In fact, many theorists of trust would support such a conceptualization of trust in some way or other. A prominent example is Diego Gambetta. In the conclusion of his now famous reader on trust, he gives the following definition:<sup>5</sup>

“trust (or, symmetrically, distrust) is a particular level of the subjective probability with which an agent assesses that another agent or group of agents will perform a particular action, both before he can monitor such action (or independently of his capacity ever to be able to monitor it) and in a context in which it affects his own action.” (Gambetta 1988, 217)

A particularly attractive feature of this account is that it explicates the evasive concept of ‘trust’ in terms of a well-known basic concept of Rational Choice theory, namely in terms of belief. However, it seems that one cannot distinguish between genuine trust and pure reliance within this account. Independently of the underlying justification, any belief that another person will act in desirable ways will amount to trust. So, if a burglar relies on the incompetence of the local policeman, he is trusting in the sense of Gambetta. But, in everyday intercourse, we usually make a difference here. The burglar may rely, but he does not trust.

There are mainly two ways to reply to such an objection. First, one can stick to the definition as given and argue that the proposed differentiation is either not based on a real clear-cut difference or—if it is—it is a difference which is largely irrelevant for the analysis of social interaction. Russell Hardin argues in this manner (Hardin 1992; 1996; see also his paper in this volume). The second way to reply would be to admit that there is indeed a relevant difference and to try to provide some explanation for this difference by further specifying the object of the relevant expectations that may count as genuine trust as compared to pure reliance. Two prominent examples, one by a philosopher, the other by a sociologist, may illustrate this second approach.

For Annette Baier, trusting expectations are concerned with the goodwill of another person:

“What is the difference between trusting others and merely relying on them? It seems to be reliance on their goodwill toward one, as distinct from their dependable habits, or only on their dependably exhibited fear, anger, or other motives compatible with ill will toward one, or on motives not directed at one at all.” (Baier 1986, 234)

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<sup>5</sup> Gambetta claims that this definition summarizes the different accounts of trust given in the reader. But it may well be doubted if all authors of the reader would in fact support such a radical cognitive account.



The sociologist Benjamin Barber gives a somewhat broader account. For him, trust is, in general, an expectation that others will act according to some mutually accepted normative order. He is specifically concerned with role performance or fiduciary obligations:

“For my purpose, I have selected three kinds of expectations that involve some of the fundamental meanings of trust. The most general is expectation of the persistence and fulfilment of the natural and social moral orders. Second is expectation of technically competent role performance [...]. And third is expectation that partners in interaction will carry out their fiduciary obligations and responsibilities, that is, their duties in certain situations to place other’s interest before their own.” (Barber 1983, 9)

Note that both accounts basically define trust as a cognitive element in the mental state of an individual, namely as an expectation concerning the actions of another person and their specific background. Any such account may be called an account of cognitive trust. So in the most general sense:

*A person is in the state of cognitive trust, if he or she expects another person not to abuse options given to this other person as a result of trusting behavior.*

I have deliberately left it open here as to whether further specification regarding the characteristic objects of these expectations are useful or adequate. It seems to me that this will most probably depend on the intention associated with a specific research project. Moreover, the principal difference between trust in a more narrow sense and pure reliance is best understood as grounded in the specific affective character of genuine trust in a narrow sense. To this I turn now.

## 6. Affective Trust

In refutation of a purely cognitive account of trust, it may be argued that trust is something more fundamental than a cognitive belief since a trusting person forms her beliefs in characteristic ways that go beyond cognition.

If, for instance, a person is accused of some crime, her friend might come to beliefs about the actual matter, which vary greatly from what all others believe. And this can actually be the case although the friend has no special evidence regarding the matter at hand and must base his beliefs on the same information as all others. It is *because* he trusts her that his beliefs are different. So, trust seems to be part of the psychological mechanism that transforms the information given to individuals into beliefs. If this argument is sound, trust may not be reduced to cognitive beliefs although trust will usually result in trusting beliefs and expectations.

One may either react in a negative or an affirmative manner to this sort of criticism. The negative reaction rejects the assumption that there is something

special about a trusting person forming his beliefs. Whatever the beliefs of a trusting person are, they are based on the relevant information the person has accumulated over time. This information is formed into the respective beliefs by general learning processes and rational reflection. A trusting person is no different in this respect than any other person. If his beliefs are different this must be due to a different source of information. This, I believe, is Russell Hardin's position (Hardin 1992). In the case of a friend, Hardin would argue that the friend in fact does possess some relevant private information, which he gained through his particularly close relationship to the person accused of the crime.

The affirmative reaction, on the other hand, concludes that trust is best understood as an affective or emotional attitude that operates as a filter: it determines how a situation and other people involved in this situation are perceived. If this is true, trust is a psychological phenomenon beyond the scope of pure Rational Choice analysis. Any Rational Choice analysis has to start from some model of a social situation as given to the actors. But this position claims that no adequate model of a situation as perceived by a trusting actor can be given without reference to the psychological mechanism of trust.

Here are, again, a few examples of accounts of trust as an affective attitude:

The philosopher Richard Holton holds that trusting expectations are not just cognitive beliefs, but normative in character. This is due to the fact that a trusting person is disposed to react in an emotional way to any disappointment of his expectations. Thus, trust is characterized by what Peter Strawson (1974) calls a participant attitude:

“In cases where we trust and are let down, we do not just feel disappointed, as we would if a machine let us down ... . We feel betrayed. ... betrayal is one of those attitudes that Strawson calls reactive attitudes. ... I think that the difference between trust and reliance is that trust involves something like a participant stance towards the person you are trusting.” (Holton 1994, 66f.)

The sociologists David Lewis and Andrew Weigert claim that the affective component of trust consists in an emotional bond among those who participate in a relationship:

“The sociological foundation of trust is also constructed on an emotional base that is complementary to its cognitive base. This affective component of trust consists in an emotional bond among all those who participate in the relationship.”

“Trust begins where prediction ends.” (Lewis/Weigert 1985, 971, 976)

In their seminal paper on trust in personal relationships, John Rempel and his colleagues determine one fundamental element of trust, namely faith as a sense of emotional security in the face of an uncertain future:

“ ... faith reflects an emotional security on the part of individuals, which enables them to go beyond the available evidence and feel, with assurance, that their partner will be responsive and caring despite the vicissitudes of an uncertain future.” (Rempel/Holmes/Zanna 1985, 97)

It seems to me that even Niklas Luhman’s well-known definition of trust as a mechanism to reduce social complexity is to be understood in this vein:

“ ... Vertrauen ist keine Folgerung aus der Vergangenheit, sondern es überzieht die Informationen, die es aus der Vergangenheit besitzt und riskiert eine Bestimmung der Zukunft. Im Akt des Vertrauens wird die Komplexität der zukünftigen Welt reduziert.” (Luhmann 1989, 20)

Of course, Luhman avoids psychological talk, but what he is saying, in effect, is that a trusting person perceives the world in a certain way—as less complex as it in fact is.

It would take us beyond the scope of this discussion to cite all major affective accounts of trust or to weigh all the pros and cons of these positions. Let me simply offer what I consider to be a reasonable account of trust as an emotional attitude:

1. Holton is right in claiming that a trusting person is disposed to react to a misuse of his trust in a particular and emotional way. This is due to the fact that the person being trusted is seen as a responsive person consciously engaged in interaction with the trusting person. As the author of his acts, the person being trusted is held responsible, and, thus, the expectations of the trusting person are normative in character. In this sense, trust is characterized by a participant attitude.
2. Identifying the affective aspect of trust as consisting of emotional bonds is not suitable for grasping the possibly broad basis that the normative expectations of trust may have. In particular, it is questionable as to whether such a concept of affective trust can account for cases such as trust in promises, which may occur between persons not connected by any personal relationship whatsoever. Still, they are connected by shared normative convictions about the obligations a promise induces.

Thus, the core aspects of affective trust seem to be a participant attitude and connectedness in interests or normative convictions in the sense of perceiving the trusted person as someone driven by agreeable motives and committed to shared normative standards. This explains the normative character of trusting expectations. He who trusts another makes himself vulnerable because he perceives his partner as being connected to himself by shared aims or values. For the trustor, this means that a situation of trust is one which calls for the realization of such aims or for observing shared norms as part of a cooperative enterprise.

Both of these key elements in affective interpersonal trust, a participant attitude and ‘connectedness’<sup>6</sup> in interests or normative convictions, are emotional in character. They essentially characterize the way in which the partner and the relevant part of the world are perceived in trustful interaction. This way of seeing things will, as a rule, make the trustor have the typical trustful expectations. So, there is a causal relationship between affective trust and belief. Yet, by inducing certain patterns in the way in which the world is represented in thought and in the way certain contents of thought are associated with each other, trust primarily determines how a trusting person thinks. Thus, this sort of trust cannot be understood as a pure result of rational consideration, it is rather a frame for rational considerations.

Thus, I offer the following as a reasonable account of trust as an affective attitude:

*Trust as an emotional attitude toward a person includes a participant attitude and a feeling of connectedness to him or her by shared aims, values or norms. This attitude allows the trusting person to incur risks concerning the actions of the trusted person, as they are perceived as being guided by the normative fundament of trust, which is perceived as shared.*

As I said, I cannot argue for this account of affective trust in any detail here. All I can do is hope that the reader may find the account sufficiently plausible or at least not implausible. Neither can I argue for or against the claim that affective trust is more fundamental than cognitive trust in the analysis of trusting behavior in social cooperation. To be sure, there are cases of social cooperation in which the affective aspect of trust does not play any particularly significant role. But I will argue now that there are also problems of cooperation, which cannot be solved by cognitive trust alone, but may indeed be solved by a shared normative frame and affective trust. It seems to me that these cases may not be neglected as being of minor importance. If this is correct, affective elements of trust do in fact play a major role in social cooperation.

## 7. The Problem of Normative Consent

Consider the following example:

Two scientists work on similar problems, and they might exchange information on their findings via the Internet. Each may profit from the progress of his partner. But at the same time, sharing private information on scientific progress with another person before publishing means investing time and effort in communication and—what is probably more important—it may mean running the risk of being outperformed by the other and losing some or all of the benefits of authorship. So, there is an incentive to minimize on the amount and quality

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<sup>6</sup> I use this somewhat unusual term to emphasize a conceptual difference between what we call in German ‘Verbundenheit’ (i.e., what is referred to here as ‘connectedness’) and mere ‘Verbindung’ (i.e., ‘connection’), which is not necessarily emotional in character.

of information given away. Moreover, if one does in fact decide to hide crucial information, the other will not instantly be in a position to know that this is the case.

If the situation is conceptualized as a strategic interaction in which both individuals have two options, namely either to cooperate, that is, to share all relevant information, or to defect, that is, to give away only minor or defective information, then the situation as described may well be one of a Prisoners' Dilemma. So there is a problem of cooperative incentives.

Suppose that there is a solution to this problem. Imagine, for instance, the situation is such that whatever the two scientists do becomes known to a larger part of the scientific community eventually. Imagine also that this part of the scientific community generally rewards cooperative behavior, that they confer additional scientific respect to cooperators and supply cooperative colleagues with opportunities of further cooperative endeavors. Depending on how the two scientists in question value those additional opportunities and the esteem of their colleagues, they may prefer mutual cooperation to taking advantage of a colleague. Of course, there may be other more respectable reasons for cooperation, but all that is needed for this argument is that there is at least one mechanism which can solve the problem of cooperative incentives.

Now, suppose that this mechanism supplies a perfect solution. Both scientists prefer mutual cooperation to taking advantage of a colleague and each knows that this is the case not only for himself but also for the other scientist. In this case, the situation might adopt the structure of a stag hunt game as shown in table 1 (in strategic form).

		B	
		$C_B$	$D_B$
A	$C_A$	3, 3	-1, 2
	$D_A$	2, -1	0, 0

Table 1: Stag Hunt Game

As was assumed, A is perfectly informed about the options and preferences of his partner B. However, what he should do still depends on what B is going to do. If B cooperates, cooperation is optimal for A, too. But if B defects, A should also defect. Can A, on the basis of the given information, reasonably expect B to cooperate? Maybe, but he can in no way be sure about B's cooperation and he must realize that B is facing exactly the same problem. So, the problem of cooperation still exists and it is in fact a problem of trusting behavior.

How can trusting behavior be established as the reasonable choice in such a situation?

The game has two equilibria, namely  $(C_A, C_B)$  and  $(D_A, D_B)$ , so both actors have to decide which equilibrium strategy to choose. A can go for cooperation only if he expects B to cooperate. But what reason can he have for such an expectation? As B is in the same position, he will cooperate if he expects A to cooperate. So, A should have a reason to expect B to have the expectation that A will cooperate. But, again, since B is in the same position, B can have a reason for such an expectation only if he expects A to have the expectation that B will cooperate. Obviously such reasoning can go on endlessly without ever reaching solid ground. There *is* no independent reason for any expectation of any order available. Any solution to the problem must presuppose *either* that one of the actors acts in some way or other for no decisive reason *or* that at least one of them performs some acts on behalf of expectations that he cannot decisively substantiate (cf. Aumann 1990 and Lahno 2002, chapter 3).

Note that the problem does not arise due to a lack of information. Both actors in fact have all the available information at their disposal. There simply is no information that could solve the problem except for the information that one of the actors solves the problem in some specific way. Thus, there is no information to induce cognitive trust unless trusting behavior exists for other reasons.

One might reply that there is a rational reason to prefer cooperation to defection and, thus, that there is a rational reason for a trusting expectation in that  $C_A C_B$  is the efficient outcome. But, is this really true? Note first that although a cooperative move may lead to the most preferred outcome, it may at the same time lead to the least preferred. Defection is the maximin strategy. So, if there is doubt, defection may be preferable. Well, this is the very seed of doubt. How can A be sufficiently sure that B will cooperate under such conditions? A can only be sure if he has sufficient reason to believe that B can be sure that A will cooperate. But B is in the same position as A. Obviously the bottomless pit of arguments starts over again.

To solve such problems, individuals need some sufficiently clear and binding rule on how to act under such circumstances. They need a normative frame. This is what I call the *problem of normative consent*. Cognitive trust based on pure information cannot solve the problem without such a normative frame. But if there *is* some *normative consent on what sort of action the situation calls for*, affective trust based on such consent will induce trusting expectations and trusting behavior.

Of course, once a normative regime has been established, pure information on the efficiency of the social norm may suffice to justify trusting expectations in the sense of pure cognitive trust. However, for this to be the case, at least some people must, in fact, feel committed to the guiding norms and perceive others as being committed in the same way, i.e., some people have to be taking an internal point of view in the sense of Herbert Hart (1962, 61ff.) toward the norm for this to be the case. Otherwise there would be no normative consent. These people, now, will engage in trusting behavior based on their affective trust. Thus, there

must be some affective trust if a normative consent is to exist at all. And this is what we indeed observe: in such situations, we almost always find normative expectations and affectively laden trust.

## 8. Conclusion

If my argument is correct, there are three different aspects that need to be taken into account in the analysis of trustful cooperation. First, there is the problem of cooperative incentives: there must be sufficiently strong incentives to cooperate such that cooperation can be expected at all. Second, there is the problem of information: people must be in a position to acquire information that might make them sufficiently certain that others will act cooperatively. And finally there is the problem of normative consent: to induce trust in a situation containing some problem of coordination a normative frame is needed. The problem of information points to the need of cognitive trust, the problem of normative consent calls for affective trust.

Obviously, these three problems are not independent of each other. Information that trust is rationally possible presupposes that there is some solution to the problem of cooperative incentives. Relevant information on what others are motivated to do may very well include information about social norms. What we believe about others will partly depend on how we perceive them. Indeed, the reverse is also true: our perception of others heavily draws upon what we know and believe about them.

So, of course, cognitive and affective trust are not independent of each other. The analysis of trusting cooperation presented here cannot provide simple classifications of problems of cooperation nor is it a sufficient basis to identify any specific trusting interaction as ruled by one well-defined sort of trust only. But it does draw our attention to the various important aspects of trust and, thus, it may lead us to ask the right questions. This, I think, is in fact true in regard to the analysis and explanation of successful trusting cooperation as well as in regard to the problem of forming institutions to foster such cooperation.

I am neither an empirical social scientist nor am I a psychologist, so I have to draw on personal experiences as far as real life applications of my theoretical considerations are concerned.

Consider eBay—it is a prime example of a very successful cooperative project. One of the mechanisms that is held to be decisive in producing trusting cooperation in eBay is its reputation-building mechanism. Such a mechanism does two things at once: (1) It provides a solution to the problem of cooperative incentives by tying future rewards to present behavior. (2) It also, simultaneously, offers a solution to the problem of information by making public personal experiences with any given eBay participant.

Still, we also find attempts to form a normative frame for eBay transactions. eBay presents itself not just as a market place but as a community. When Pierre Omidyar, the founder of eBay, was asked what made eBay so successful, he replied: “I think it is truly the community” (Kavanaugh-Brown 1999). The

normative frame that Omidyar saw as a common ground for such a community can still be found on eBay homepages all over the world. Figure 5 shows an example from the United States.

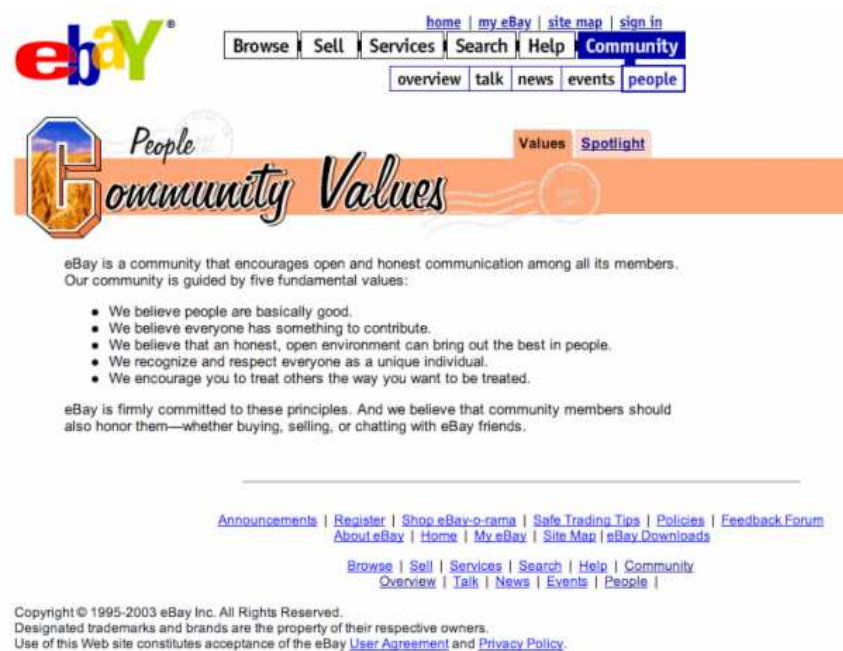


Figure 4: eBay community values (<http://pages.ebay.com/community/people/values.html>)

Every active eBayer knows that eBay has the feel of a community. If I look, for instance, at my evaluations at eBay, this seems obvious to me. Evaluations are, as a rule, not just reports on performance. They express gratitude and connectedness to the partner. And they also emphasize some background normative frame. Thus, a prominent evaluation is ‘good eBayer’, which is obviously regarded as a meaningful, most positive label.

Is this important with regard to the cooperative success of eBay? At first sight, no problem of normative consent seems to exist once the reputation mechanism is effective. But this may well be wrong. Any reputation mechanism draws on ongoing interaction. Now, from the theory of iterated games we know that ongoing interaction with an indefinite horizon is always threatened by multiple equilibria (compare e.g., Fudenberg/Maskin 1986). So, there might very well be a coordination problem like the one introduced above to illustrate the problem of normative consent.



If institutional design is the problem, things get more complex. For, at least in part, institutional regulations made to meet one problem may have an impact on the solution of another problem. And that impact may not operate in the same direction regarding trust. If, for instance, a solution to the problem of cooperative incentives is attempted by installing monetary sanctions, while a solution to the problem of information is brought about by supplying information on the reliability of the sanctioning mechanism, then this will frame the interaction in a specific way. Such an arrangement may signal that there is no normative frame strong enough to induce cooperation. It presents people as basically uncooperative and, thus, it may crowd out affective trust (compare Frey (1997)).

This might well be unimportant with regard to the problem of cooperation, for, of course, there are problems which may be solved by cognitive trust alone. But still, as illustrated by the example in section 7 there are other problems in which affective trust is required. In such cases, we are facing the problem of balancing the measures to all three problems at a time: the problem of cooperative incentives, the problem of information and the problem of normative consent.

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